SUBMISSIONS RESPONSE REPORT MAY 2009

AGL Leafs Gully Power Project Environmental Assessment

MP 08_0077

URS

AGL

Switched on Business.

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Introduction Section 1

1.1 Background

AGL is seeking Project Approval to construct and operate a two unit gas turbine power plant at Gilead near Appin, NSW for the purposes of a peak load power plant referred to as 'Leafs Gully Power Project'. Two gas turbines would be installed on site and would operate for up to 15 % of the year. Exceedances of this capacity would be approved by the appropriate authorities. The gas turbines would burn natural gas sourced from existing pipelines located on the Development Site.

The Environmental Assessment was prepared under Part 3A of the *Environmental Planning and Assessment Act, 1979* (the EP&A Act) and the *Environmental Planning and Assessment Regulation 2000* (the EP&A Regulation).

1.2 Purpose and Structure of this Report

This Submissions Response Report (Report) supports the Environmental Assessment of the proposed Leafs Gully Power Project application MP08_0077 by providing a response to matters raised during the public exhibition period.

AGL is not proposing changes to the project as described in the Project Application, Preliminary Assessment and Environmental Assessment, and therefore a Preferred Project Report is not required.

This Submissions Response Report is divided into the following five sections:

1) **Introduction (Section 1):** Overview of Report and Approvals Process.
2) **Project Overview and Consultation (Section 2):** Overview of the project description of the Leafs Gully Power Project, consultation undertaken for the Project and the public exhibition phase.
3) **Response to Submissions (Section 3):** Proponent responses to each of:
   - government agencies; and
   - the community.
4) **Statement of Commitments (Section 5):** revised Statement of Commitments.
5) **Conclusion (Section 6).**

1.3 Approvals Process

1.4 Decisions and Assessments

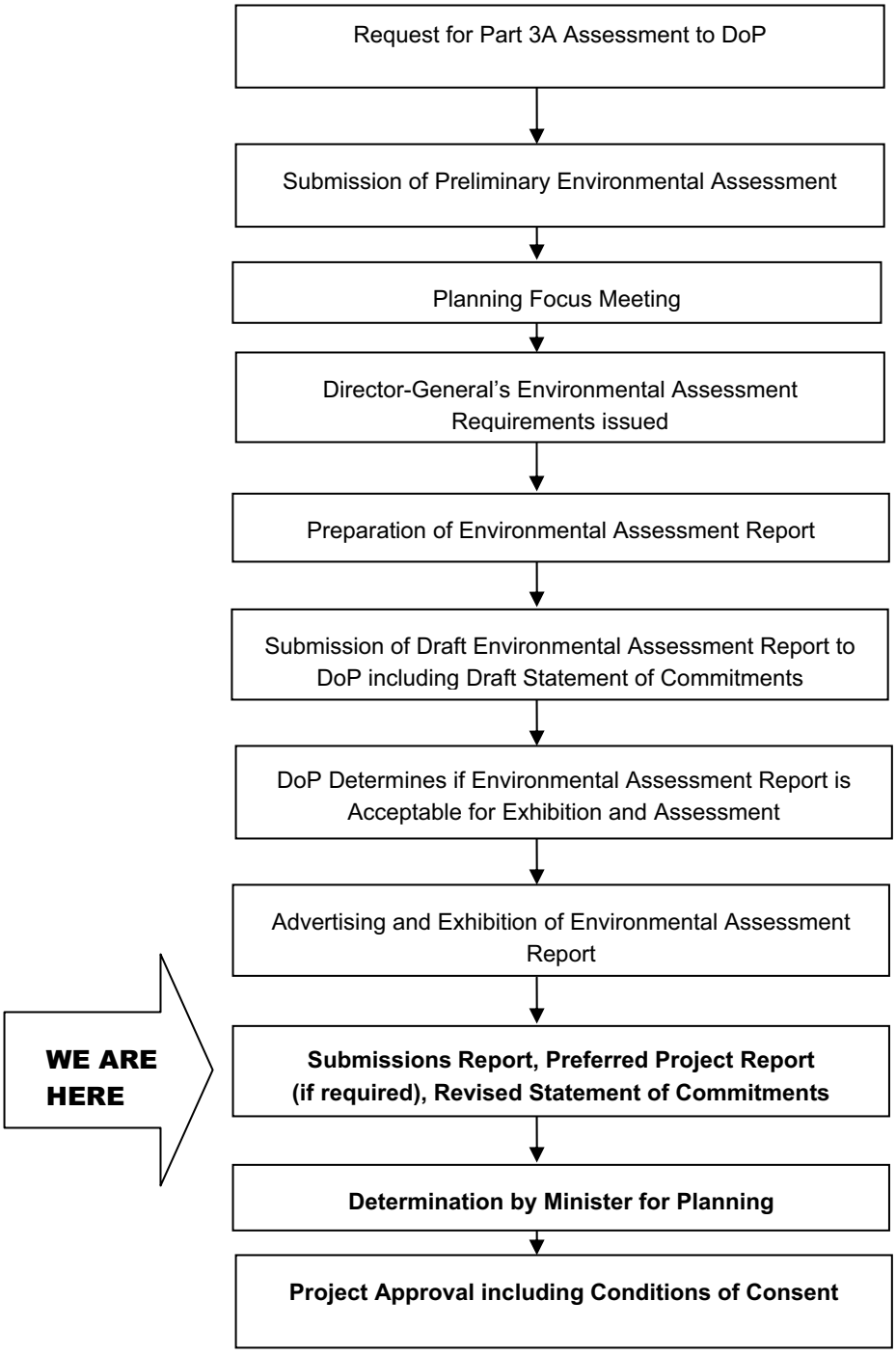
Following exhibition of the Environmental Assessment, copies of all submissions to the NSW Department of Planning (DoP) were provided to AGL. AGL has reviewed the submissions and responded to issues raised in the context of this Report.

The Director-General of the DoP will prepare an assessment report on the Leafs Gully Power Project, which will take into account comments from relevant Government authorities, other stakeholders and the community. The assessment report will be provided to the Minister for Planning who will determine whether to grant approval for the Project and the conditions under which the Project would operate in accordance with the EP&A Act.

A flow diagram of the assessment process under Part 3A of the EP&A Act is shown in **Figure 1-1**.

Section 1 Introduction

Figure 1-1 Approval Process under Part 3A of EP&A Act



1.4.1 Definitions

As for the Environmental Assessment, the following definitions apply to this Report:

- **Leafs Gully Power Project or Project:** construction and operation of a two unit gas turbine power station by AGL on the site of Leafs Gully Farm, near Appin, NSW
- **Power plant / facility:** gas turbine power station comprising two turbines.
- **Development Site / Site:** Refers to Leafs Gully Farm being Lots 101-105 in DP716209.
- **Access Road:** road between the Development Site and Appin Road for accessing the Development Site which is also part of this Project Application. The Access Road would utilise an existing right of carriageway on Lot 1 DP 70208.
- **Appin Road works:** portion of Appin Road affected by intersection works for this Project which is also part of this Project Application.
- **Conservation Area:** Subject to consent conditions determined by the Minister for Planning, AGL would agree to permanently conserve vegetation as described in this Assessment.
- **Proponent:** AGL and its successors or assigns.

Project Overview and Consultation | Section 2

2.1 Overview of Project

AGL proposes to build a gas-fired peaking power plant comprising two gas turbines operating in open cycle mode. Electricity would be fed into the high voltage transmission network and the gas turbines would be fuelled by natural gas from two major existing pipelines running through the Development Site.

The Development Site is located at Gilead, north west of Appin in south western Sydney (refer to **Figure 2-1**). The Leafs Gully Power Project would be constructed and operated on an area less than 20 hectares of the 280 hectare Leafs Gully property.

The power station would use two open cycle gas turbines. The electricity generated by the power station would be fed into the 330 kilovolt (kV) transmission network via a new switchyard on the Development Site. The power station would use natural gas supplied by existing pipelines; either the AGL Gas Networks Main Trunk Pipeline (AGLGN, also known as Moomba to Sydney Pipeline) or the Eastern Gas Pipeline (EGP), both of which run through the Development Site (refer to **Figure 2-2**). A metering and control facility would be required at the connection with each of the gas pipelines whilst a gas conditioning facility would be required at the power station end. The new pipelines connecting the power station to the existing pipelines would be located underground.

The Leafs Gully Power Project comprises the installation of two gas turbine generators run in open cycle mode. The power station would operate only during times of peak electricity demand and it is expected that the plant would be required to operate for up to 15 % per annum with any exceedances of this capacity to be approved by the relevant government authority.

Less than 20 ha of the 280 ha of the Development Site is required for the Leafs Gully Power Project. The Leafs Gully Power Project comprises the following key components:

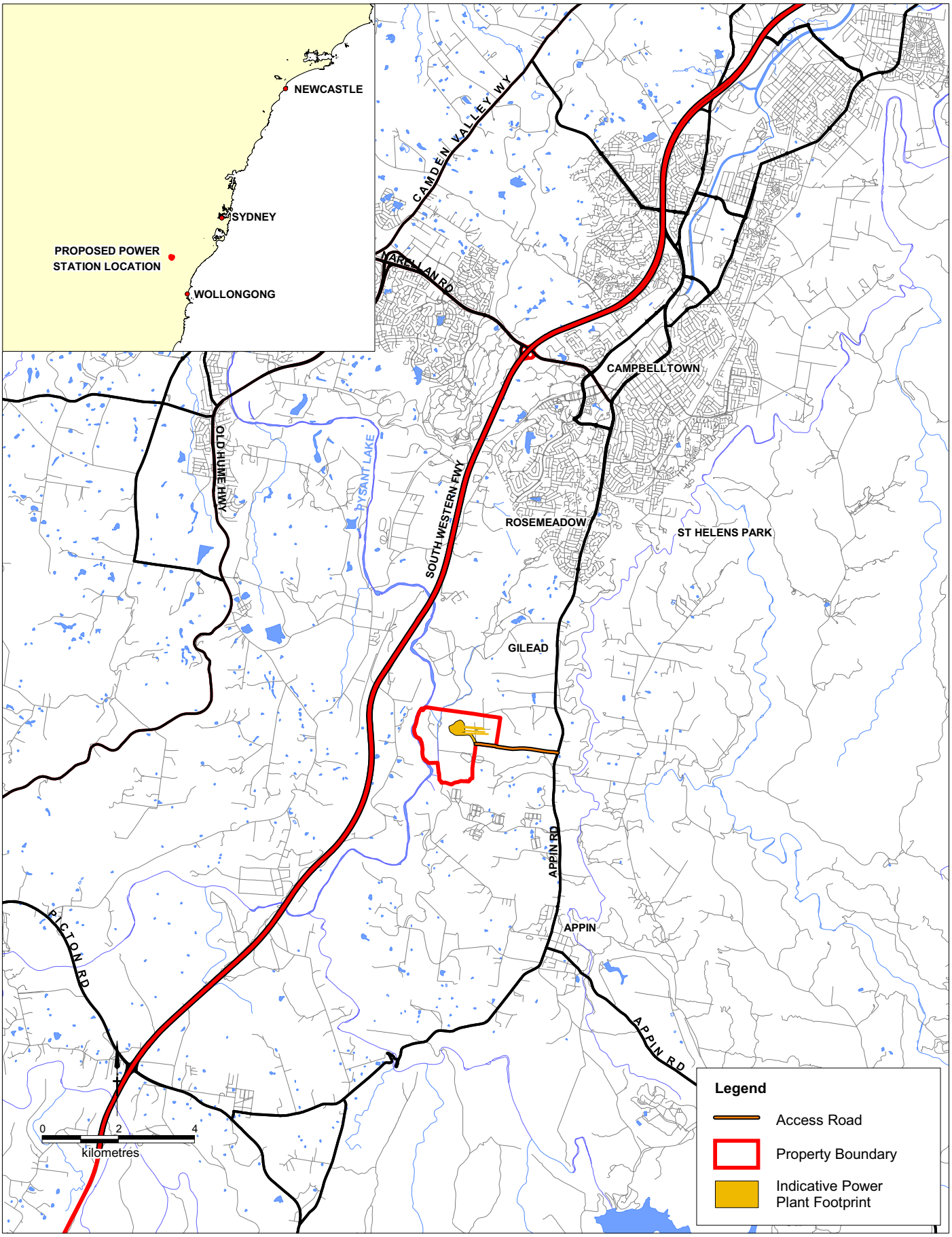
- power plant comprising two gas turbines, generators and ancillary plant;
- high voltage switchyard comprising high voltage transformers and switchgear;
- transmission line connection to the 330 kilovolt network;
- control room, administration, amenities, car parking and workshop facility;
- connecting gas pipelines, gas receiving station and gas conditioning station;
- fire protection tank;
- process water tank;
- domestic/rainwater tank(s);
- domestic wastewater treatment and disposal system;
- sedimentation pond and associated earth bund and diversion drain;
- evaporation pond to accommodate waste water discharges from the evaporative air inlet cooler;
- air compressor plant;

Section 2 Project Overview and Consultation

- switchroom;
- emergency generator and transformers;
- landscaping and tree planting to provide visual screening of the facility;
- internal roads;
- access road for the plant from Appin Road;
- security and general fencing and gatehouse; and
- upgrade works on Appin Road at the intersection with the access road.

The preliminary indicative layouts of the key components of the Leafs Gully Power Project are presented in **Figure 2-3**

Subject to consent conditions determined by the Minister for Planning, AGL would agree to permanently conserve vegetation communities in the area between the Nepean River and the Upper Canal as well existing vegetation and fauna habitat around the facility footprint comprising approximately 170 ha of vegetation within the Development Site (refer to **Figure 2-4**). The Voluntary Conservation Agreement or biobanking agreement or some other enduring protection mechanism becomes permanent upon implementation of the agreement and transfers with title to the land so that any future landowners have to abide by the agreement.



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Client: **AGL POWER GENERATION (NSW)**	Project: **AGL LEAFS GULLY POWER PROJECT SUBMISSIONS RESPONSE REPORTS**	Title: **LOCATION OF PROPOSED POWER PLANT**
URS	Drawn: AJW; Approved: FINAL; Date: 15-05-06; Job No: **43177401**; File No: 43177401-004.wor	Figure: **2-1**

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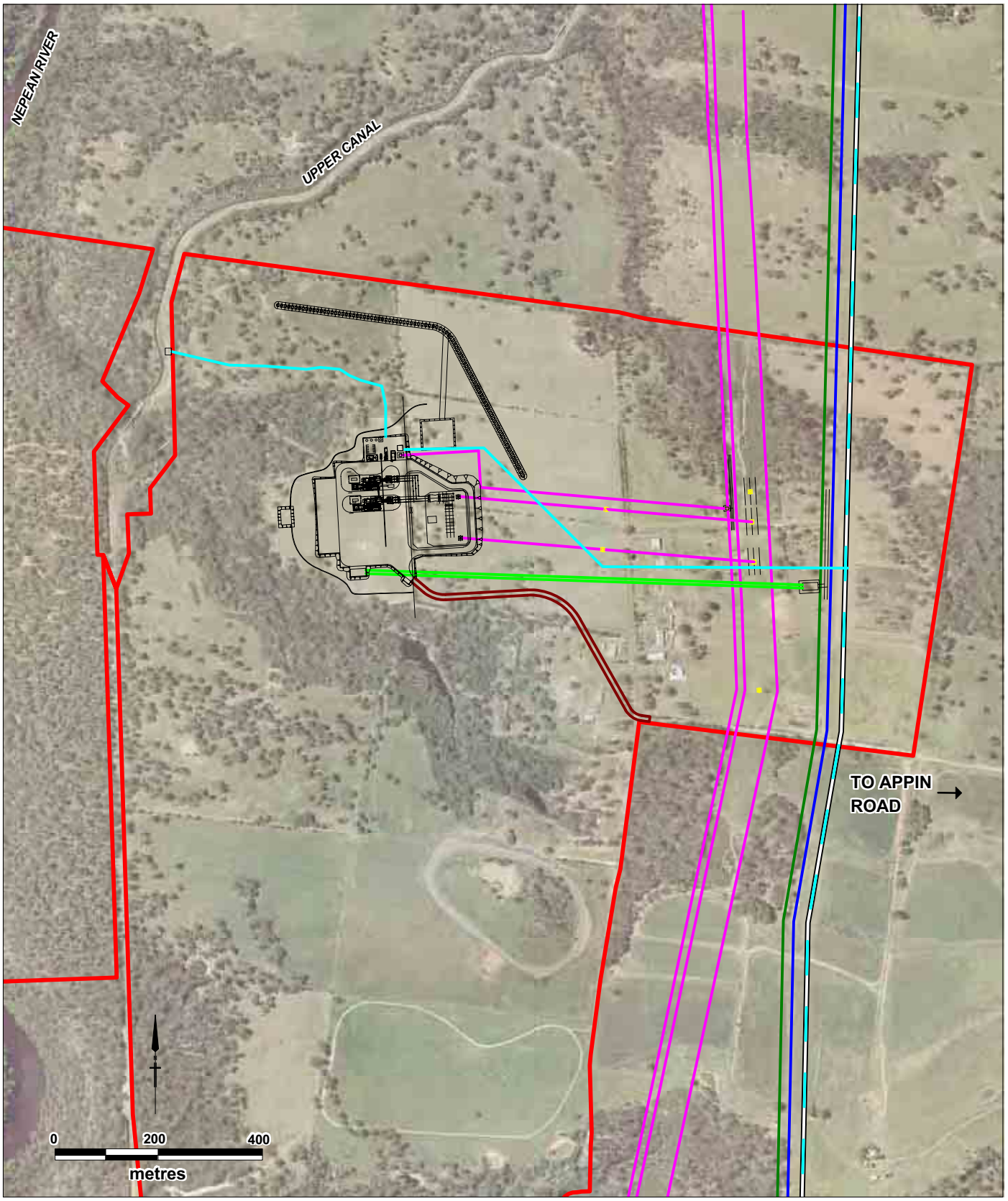

Electricity Transmission Lines
AlintaGN Pipeline (Gas)
EGP Pipeline (Gas)
Plant Layout
Property Boundary
Proposed Access Road
Potential Water Supply Pipeline and Pumping Station
Existing Water Pipeline
Plant Gas Supply Pipeline
Vegetated Screening Mound

Source:

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Client: **AGL POWER GENERATION (NSW)**	Project: **AGL LEAFS GULLY POWER PROJECT SUBMISSIONS RESPONSE REPORTS**	Title: **PROPOSED POWER PLANT SITE**
URS	Drawn: AJW | Approved: FINAL | Date: 15-05-06	Figure: **2-2**
	Job No: **43177401** | File No: 43177401-058.wor	

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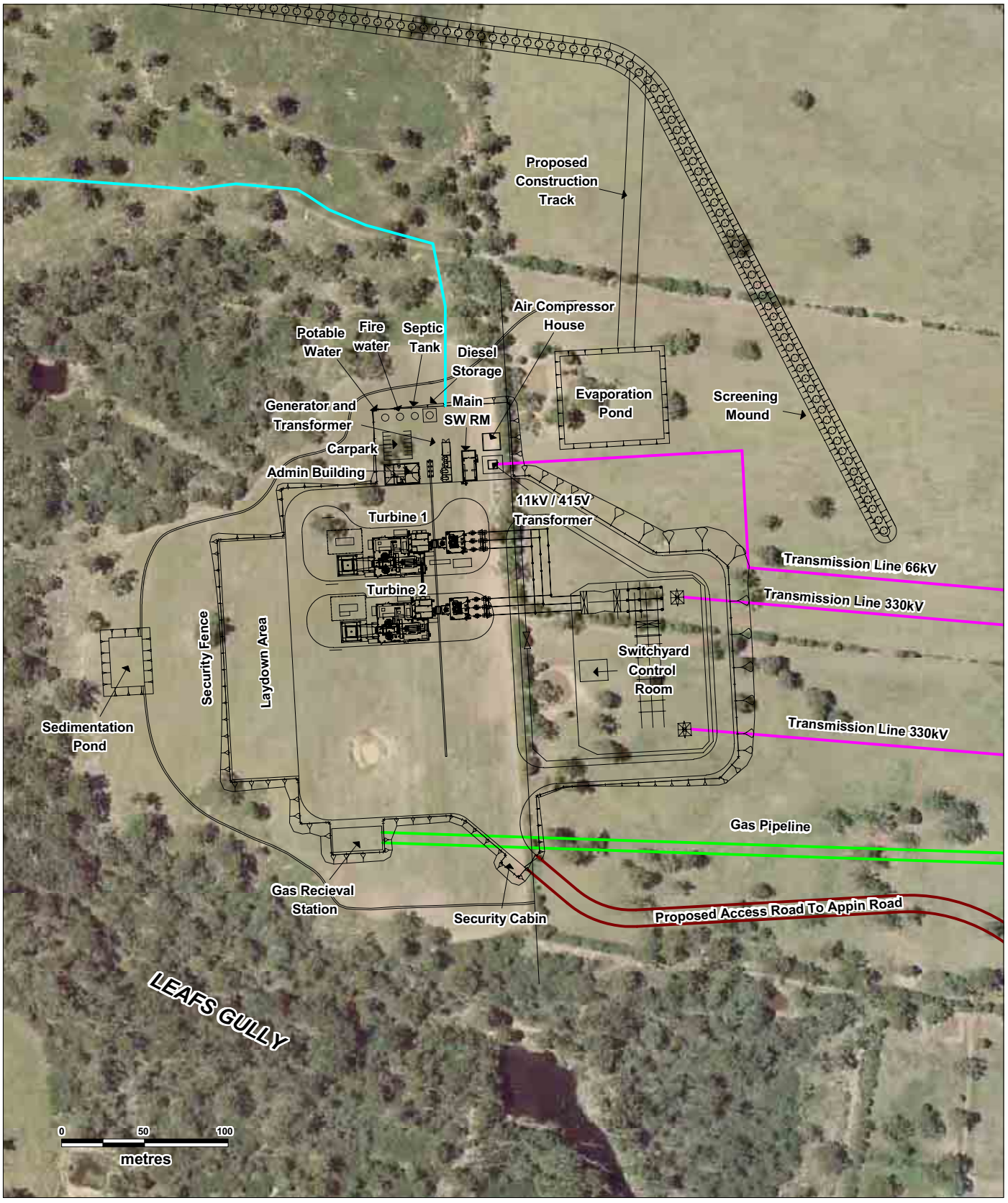

Electricity Transmission Lines

Plant Layout

Gas Pipeline

Proposed Water Pipeline

Proposed Access Road

Source: KBR

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Client	Project	Title
AGL POWER GENERATION (NSW)	**AGL LEAFS GULLY POWER PROJECT SUBMISSIONS RESPONSE REPORTS**	**SITE CONCEPT PLAN**

URS

Drawn: AJW	Approved: FINAL	Date: 15-05-06	Figure: **2-3**
Job No: **43177401**	File No: 43177401.090		

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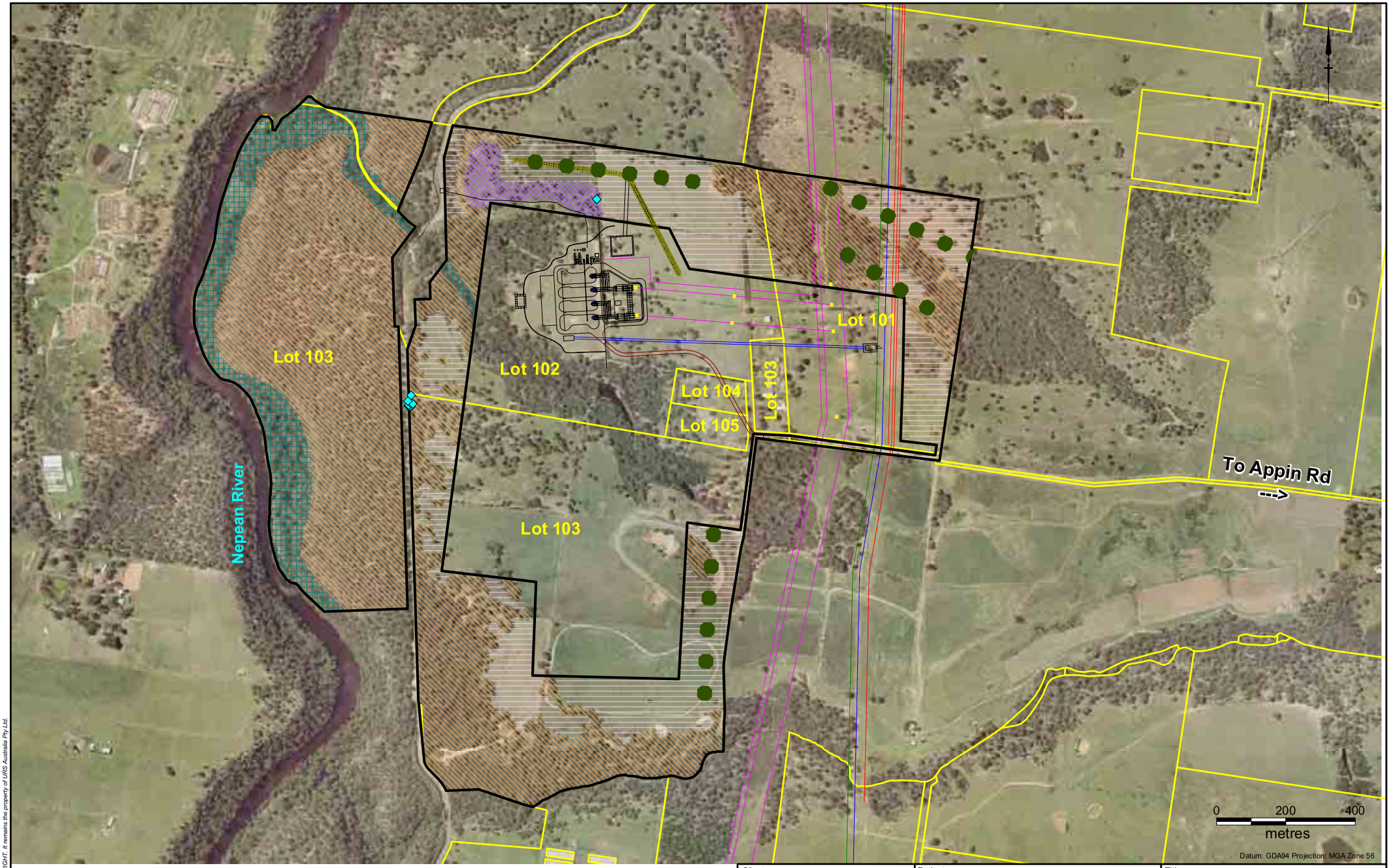

Legend

- Potential Conservation Area
- Shale-Sandstone Transition Forest (SSTF)*
- Pultanaea Recovery Area
- Previous URS records of P. Pedunculata
- River Flat Eucalypt Forest (RFEF)*
- Habitat Corridor Plantings
- Grassland
- Embankment

* = EEC under TSC Act

Client: AGL POWER GENERATION (NSW)

URS

Project: AGL LEAFS GULLY POWER PROJECT SUBMISSIONS RESPONSE REPORTS

Title: **PROPOSED CONSERVATION AREA AND MANAGEMENT ACTIONS**

Drawn: AJW	Approved: JP	Date: 11/05/2009
Job No: **43177607**	File No: 43177607.010.wor	

Figure: **2-4**

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2.2 Consultation Program

A consultation program has been undertaken over five phases to initiate and maintain open communication with key stakeholders.

Formal consultation was conducted with stakeholders over five phases. The program was aimed at ensuring that all stakeholders were informed of the project parameters, the outcomes of the environmental and social assessment process, and given the opportunity to have input into the project throughout the assessment process.

May – November 2006

- One-on-one or group presentations to introduce the Project.
- At the conclusion of the first round of consultation, feedback on community issues, concerns and questions was provided to AGL who then incorporated this feedback into the various Environmental Assessment studies.
- One-on-one or group presentations and community information day to present findings of the Environmental Assessment.

November 2006 – December 2006

- Exhibition of the Environmental Assessment report and receipt of stakeholder submissions
- Submissions lodged with the DoP objecting to the Project.

October 2008

- Providing additional opportunity to stakeholders to provide feedback, in particular in response to the revised project scope.
- Letters sent to landholders / occupiers within a 2 km radius of the Development Site.
- Letters sent to Wollondilly and Campbelltown Councils, Department of Environmental and Climate Change (DECC), Mine Subsidence Board and the Sydney Catchment Authority.

Ongoing

- In addition to direct consultations, three Community Information Sheets (CIS) were produced and widely circulated throughout the community. These were distributed in May 2006, July 2006 and October 2006. In total 5,500 of each of the three CIS's were distributed to the same number of neighbouring communities of Appin, St Helen's Park, and Rosemeadow.
- A website was developed outlining the proposal, provided links to relevant environmental studies, and provided an opportunity for stakeholders to provide feedback. A summary of the feedback received and responses provided is presented in **Appendix A**.
- A media campaign was implemented, to raise awareness of the proposal to the wider community. In total, the proposal received over 100 mentions in the media over the 2006-2008 period, mainly in the local print media. Copies of the AGL press releases are provided in **Appendix A**.

Section 2 Project Overview and Consultation

- AGL placed advertisements in all of the Advertiser and Chronicle papers in the Macarthur area (covering Camden, Campbelltown and Wollondilly shires) on 24 and 25 February 2009.
- An advertisement was also placed inviting groups and individuals to register their interest in the Aboriginal cultural heritage assessment and management program placed in the Campbelltown Advertiser on 13 October 2008.
- Availability of a freecall 1800 number for community queries available from mid October 2008 and throughout exhibition. A summary of the feedback received is provided in **Appendix A**.

2.3 Public Exhibition

The exhibition period for public comment on the Environmental Assessment was determined by the DoP and undertaken for a total of 60 days from Wednesday 25 February 2009 until Friday 24 April 2009.

Advertisements addressing the release and availability of the Environmental Assessment were placed by the DoP in the following locations:

- 25 February 2009 and 25 March 2009 in:
  - Sydney Morning Herald;
  - Daily Telegraph; and
  - Campbelltown Macarthur Advertiser.
- 24 February 2009 and 24 March 2009 in:
  - Macarthur Chronicle.

Copies of the Environmental Assessment were made available for public viewing at the following locations:

- DoP, Information Centre, 23-33 Bridge Street, Sydney;
- Nature Conservation Council of NSW, Level 2, 301 Kent Street, Sydney; and
- Campbelltown City Council, Civic Centre, Corner Queen and Broughton Streets, Campbelltown.

The Environmental Assessment was also available on the websites of DoP and AGL.

Copies of the Environmental Assessment were provided to the following agencies by the Department of Planning:

- Department of Environment and Climate Change (DECC),
- Department Water and Energy (DWE);
- Mine Subsidence Board (MSB);
- Sydney Catchment Authority (SCA);
- Campbelltown City Council,
- Wollondilly Shire Council
- Camden Council;

- the local State member for Wollondilly, Phillip Costa: and
- Nature Conservation Council.

A total of 480 submissions were received by DoP during the exhibition period. They comprised:

- nine responses from agencies [Mine Subsidence Board, Sydney Catchment Authority, Department of Water and Energy, Campbelltown City Council, Wollondilly Shire Council, Sydney Water (2 submissions), Department of Environment and Climate Change, and Roads and Traffic Authority];
- one response from a non-government body (Sydney Chamber of Commerce); and
- 448 community submissions comprising:
  - 425 in form letter (type 1);
  - eight in form letter (type 2);
  - 32 as individual submissions;
  - five objections with no further comment.

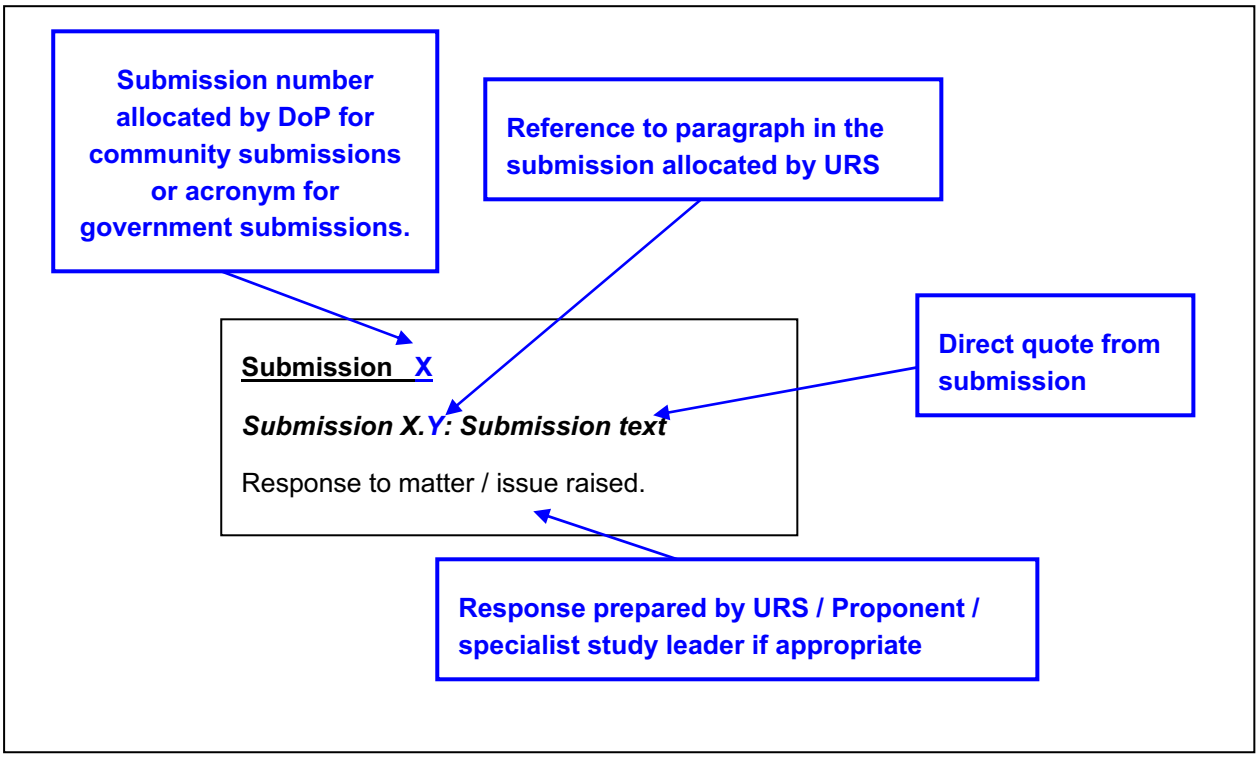
All issues raised in relation to the Environmental Assessment have been addressed in **Section 3** of this Report.

3.1 Introduction

This Section provides a response to each of the government and community submissions received by DoP regarding the Project.

In order to provide a detailed response to submissions, each submission is reproduced below in *italics* referenced with the submission number it was given by the DoP for community submissions and the acronym of the agency for the government agency responses. In the interests of privacy, personal contact details of the submitters have not been presented. For ease of reference, each paragraph is then consecutively numbered. A response prepared by URS and the Proponent is then presented below each paragraph or suite of paragraphs if they relate to one matter. **Figure 3-1** below illustrates the referencing system.

Figure 3-1 Illustration of referencing used in this Report



Every effort has been made to transcribe submissions, however it is noted that clarity of copies received and handwriting may influence the accuracy of the text quoted in this report.

Where section and figure references occur in this Report the following nomenclature has been adopted:

- cross referencing to sections / figures within this Report appear in **bold**; and
- cross referencing to sections / figures in the Environmental Assessment does not appear in bold.

Section 3 Response to Submissions

3.2 Government Agencies and Local Government Submissions

A total of nine submissions were received from government agencies and local governments. Copies of these submissions are provided in **Appendix B**.

Submissions were received from the following government agencies and local governments:

- Mine Subsidence Board (Submission 1);
- Sydney Catchment Authority (Submission 5);
- Department of Water and Energy (Submission 28);
- Campbelltown City Council (Submission 414);
- Sydney Water (Submission 444 and 448);
- Wollondilly Shire Council (Submission 445);
- Department of Environment and Climate Change (Submission 450); and
- Roads and Traffic Authority (Submission 479).

One response from a non-government body, Sydney Chamber of Commerce (Submission 16) was also received.

Each submission is addressed below.

3.2.1 Mine Subsidence Board (MSB)

Submission MSB.1: Parameters found in the report are appropriate for predicted subsidence impact based on current mining plans.

The MSB's concurrence is noted.

Submission MSB.2: The proposed Leafs Gully Power project lies above West Cliff Collieries proposed LW34 and LW35. The Mine Subsidence Board suggests that the project be staged around proposed mining, and so as to limit any risk to the Mine Subsidence Board's compensation fund.

The timing of mining of longwall panels is never exact. Uncertainty of subsurface conditions, potential for equipment breakdown, emerging mining technologies and changes in global coal prices may all affect the way the mine is operated. Future longwall panels are planned but have not been approved and may change.

AGL has presented in the Environmental Assessment comprehensive mitigation measures to ensure that underground mining does not affect the power station proposal. Leafs Gully would be designed in accordance with Mine Subsidence parameters and will need approval from the Mine Subsidence Board for the detailed design.

AGL would seek approval from the Mine Subsidence Board once detailed design of foundations has been completed following Project Approval, if granted.

3.2.2 Sydney Catchment Authority (SCA)

Submission SCA.01: The SCA has previously made a submission to the Department (our reference D2006/09854) and there have been multiple correspondences between AGL and SCA that are included in EA Appendix C -Statutory Authority Correspondence (SCA letter reference 02006/04372 and AGL letters to the SCA dated 16 October 2008 and 28 July 2006).

Submission SCA.02: The SCA has reviewed the updated EA documents and notes the following:

1. ***The new application is for a gas turbine power station half the size (now 300 MW) that was originally proposed. The plant is proposed to be operated as a peaking power plant and generation levels would not exceed 15% of the time in any year.***
2. ***AGL are proposing to permanently protect from development approximately 172 ha of the 280 ha site, including all areas within approximately 200 m of the Upper Canal within the Leafs Gully site.***
3. ***Issues relating to impact on the structural integrity and heritage significance of the Upper Canal and protection of water quality in the Upper Canal have been satisfactorily assessed and, the proposed mitigation measures in the EA are considered adequate.***
4. ***AGL in their correspondence to the SCA have indicated their commitment to preparation and implementation of Management Plans to ensure ongoing protection of the Upper Canal during Construction and Operation of the power station.***
5. ***The operation of the proposed power plant is expected to require about 8 ML water annually. AGL is seeking permission to source this water from the Upper Canal by construction of a water connection pipe and pumping station only if water from the main primary preferred source (water supply main from Macarthur Water Treatment Plant) is unavailable. This approach for sourcing the plant's process water needs is acceptable to the SCA. AGL have indicated in the EA that they consider the Upper Canal, when in operation, to be a reliable source of water meeting their needs. AGL also acknowledge the limitations of the Upper Canal water supply system (frequent and irregular outages for operation and maintenance and therefore continuity of supply and quality of water not being guaranteed) and the consequent risk posed to the gas plant operation. The draft Statement of Commitments in the EA includes a commitment to further consult with the SCA for necessary approvals to be sought should the Upper Canal water supply source option be the preferred water source.***

Points 1 to 4 are noted. AGL acknowledge the limitations of the Upper Canal water supply system and confirm the commitment to further consultation with Sydney Catchment Authority for necessary approvals to be undertaken should the Upper Canal water supply source option be the preferred water source.

Submission SCA.03: The SCA acknowledges that AGL has consulted with the SCA during various phases on an ongoing basis regarding the Leafs Gully gas turbine power station proposal. The SCA considers that AGL has addressed issues of interest to the SAC adequately in the updated environmental assessment.

Noted.

Submission SCA.04: The SCA would appreciate being involved in any further assessment of the application and requests that the SCA be provided with copies of Construction and Operational Environmental Management Plans.

Noted. AGL can provide copies of Construction and Operational Environmental Management Plans to SCA as requested

Section 3 Response to Submissions

3.2.3 Department of Water and Energy (DWE)

Submission DWE.01: I refer to your letter dated the 23 February 2009 seeking the Department of Water and Energy's (DWE) comments and requirements on the Environmental Assessment (EA) for the proposed Leafs Gully Gas Turbine Power Station in the Campbelltown Local Government Area. Departmental officers have reviewed the Environmental Assessment and offer the following comments.

Submission DWE.02: Water Issues. As mentioned in previous correspondence by the Department, the critical issue with the development is a reliable water supply. The EA states a number of options for a water supply for the development however they are not definite or confirmed by the provider. The proponent has not been issued any water licences for the development by DWE. The option for obtaining water from any surface water source such as the Nepean River is unlikely to be available without the purchasing of existing available water licences, due to current surface water embargoes. There may be the opportunity to obtain a groundwater licence but this would need to be discussed further with licencing officers.

As noted in Chapter 14 of the Environmental Assessment, process water is proposed to be sourced via a water main located on the Development Site and/or from the Sydney Catchment Authority's (SCA) Upper Canal and / or recycled water from a proposed Sewage Treatment Plant at Appin if the water quality is suitable and sufficient water quantities are available. AGL is not proposing to source water from the Nepean River.

Submission DWE.03: The EA discusses the possible connection to the mains supply and also the upper canal. It appears from correspondence in the EA the connection to the mains supply is unlikely. The upper canal is considered a valuable potable water supply for the Sydney area. It seems to be a conflict to use drinking water for industrial developments when a desalination plant is being constructed to manage Sydney's water shortage. The water supply is a critical component for the development and should be confirmed prior to considering issuing consent.

As noted above, process water is proposed to be sourced via a water main located on the Development Site and/or from the Sydney Catchment Authority's (SCA) Upper Canal and / or recycled water from a proposed Sewage Treatment Plant at Appin if the water quality is suitable and sufficient water quantities are available.

The water main that passes through the Development Site is owned and operated by United Utilities, the owner and operator of the Macarthur Water Treatment Plant. The water main operates under a 'build-own-operate' (BOO) arrangement with Sydney Water (refer to Sydney Water submission, Submission 444/448). The main carries potable water which meets the quality requirements for the plant and therefore would be suitable for use as process water. United Utilities has indicated they are willing to discuss a connection to the pipeline to serve the proposed development.

SCA has also indicated a willingness to discuss a licence for a connection to the Upper Canal. Water in the Upper Canal is untreated, however generally meets the quality requirements for the plant and is therefore suitable to supply process water. While the Upper Canal is in operation it would be a reliable source of water. However, periodic maintenance of the Upper Canal would occur occasionally. Historically such maintenance periods have lasted for up to six weeks. If such maintenance periods were to occur when the plant is required to operate it could cause some disruption to plant operation. To manage this issue, a storage tank may be required to ensure that a reliable supply is available. This would be considered in the detailed design phase.

The third potential source of water is recycled water from a proposed Sewage Treatment Plant at Appin. If the Appin Sewage Treatment Plant proposal proceeds, AGL would endeavour to use recycled water produced by Sydney Water as a primary water resource, if the water quality is suitable and sufficient water quantities are

available. At this stage the quality of reuse water is not known, however it may not meet the standards required, particularly in relation to the levels of Total Dissolved Solids (salts).

Submission DWE.04: Groundwater Issues. Section 9:2.2 of the Environmental Assessment report indicates that professional hydrogeological judgment indicates that groundwater impacts are likely to be negligible however this is not supported by field data. It also alludes to the confirmation of this supposition during the detailed design phase of the project.

As noted in Chapter 19 of the Environmental Assessment, AGL has committed (Commitment D5) to assessing the need for groundwater control and collection system during the design and construction phase.

Submission DWE.05: If there are any groundwater works proposed as part of additional field studies, including bores for the purpose of investigation, extraction, dewatering, testing or monitoring, these must be identified and approval obtained from DWE prior to their installation. Also, if groundwater is likely to be intersected as part of the excavations required for this proposal an approval may be required from DWE under Part 5 of the Water Act 1912.

Noted.

Submission DWE.06: The Department would appreciate receiving a copy of any of the field study reports to assist in determining if specific authorisations are required from DWE.

Submission DWE.07: Harvestable Rights. The proponent has not addressed the NSW Farm Dams Policy in the environmental assessment. The EA outlines there are currently 10 existing dams on the property. Any new dams proposed as part of the development will need to be consistent with this policy. A licence may be required under the policy in relation to the proposed dams to be constructed.

AGL is not proposing to construct any new farm dams within the Site.

Submission DWE.08: Any dams to be constructed on site must be built to minimum construction standards (permeability of $1x10^{-9}$) to prevent pollution by leakage into the subsoil, groundwater and surface water bodies. The dams would also need to withstand the level of subsidence which may occur as a result of the approved Area 5 West Cliff Colliery.

AGL is not proposing to any new farm dams within the Site. As noted in Chapter 19 of the Environmental Assessment, AGL has committed (Commitment D12) to provision of a synthetic liner (probably high density polyethylene) for the evaporation pond. As noted in Chapter 14 of the Environmental Assessment, although it is expected that the in-situ materials or site-won fill would be structurally adequate for construction of evaporation ponds, the integrity of these materials as a low-permeability lining cannot be relied upon when the Development Site is subjected to mine subsidence, and consequently a synthetic liner (such as high density polyethylene) would be used to minimise the risk of the saline blow down water escaping into the natural groundwater system.

Submission DWE.09: Stormwater Management. All stormwater management works should be conducted in accordance with the NSW Department of Housing 'Managing Urban Stormwater -Soils and Construction Volume 1 (NSW Department of Housing, 2004). Appropriate stormwater management will need to be implemented to minimise impacts on downstream environments, surface water, groundwater and adjoining land.

As noted in Chapter 19 of the Environmental Assessment, AGL has committed (Commitment D7) to development and implementation of a Construction Soil and Water Management Plan as part of the CEMP for the construction works to ensure effective management of potential soil erosion issues.

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Submission DWE.10: Erosion and Sediment Control. All erosion and sediment control measures must be maintained during the works and until all disturbed areas are appropriately reinstated and revegetated.

As noted in Chapter 19 of the Environmental Assessment, AGL has committed (Commitment D7) development and implementation of a Construction Soil and Water Management Plan as part of the CEMP for the construction works to ensure effective management of potential soil erosion issues.

Submission DWE.11: Riparian Issues. The proposed development is located within close proximity to Leafs Gully, the Nepean River and the Upper Canal. The EA does not discuss the management of riparian areas. It appears the development is located outside of the riparian zone. However, should the development have the potential to impact on riparian areas, the Department would like to have the opportunity to provide comment and recommendations.

Submission DWE.12: For your information, the Departments 'Guidelines for Controlled Activities: Riparian Corridors (2008)' outlines recommended Core Riparian Zone (CRZ) widths and Vegetated Buffers (VB) for riparian areas. An asset protection zone (APZ) is a requirement of the NSW Rural Fire Service. Any requirements for APZs are not to compromise in any way the extent, form or function of the riparian zones. The Department requires that all APZs must be located outside the riparian zones. The APZ is to be measured horizontally landward from the outer edge of the riparian zone setback.

DWE's request is noted.

Submission DWE.13: Mine Approval. The proposed power plant is located within Area 5 of the approved West Cliff Colliery. The site is currently un-mined however is approved for longwall mining. The power project will need to be constructed to withstand any subsidence once mining occurs. Also, any consent issued for the power project would need to be consistent with the already approved Area 5 West Cliff Colliery.

As noted in Chapter 19 of the Environmental Assessment, AGL has committed (Commitment D11) that all structures would be designed to accommodate the strains and tilts arising from the predicted subsidence and approval of the structural design would be sought from the Mine Subsidence Board.

3.2.4 Campbelltown City Council (CCC)

Submission CCC.01: Council has reviewed the Environmental Assessment accompanying the Project Application for the abovementioned power station proposal and would like to make a submission on the matter for the Department's consideration.

Submission CCC.02: In considering the matter at its Ordinary Meeting on 7 April 2009, Council resolved to express its strongest objection to the Project Application for the Leafs Gully AGL Gas Turbine Power Station for the following reasons.

a) The potential impacts of the power station on:

i. Local, regional and inter-regional air quality and in particular the extent and implications of ozone formation as they relate to the existing and future air shed and community health;

An assessment of the air quality impacts was presented in Chapter 7 of the Environmental Assessment. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. The regional air quality assessment concluded that the

Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The local air quality assessment conservatively modelled the plant for operation 365 days and 24 hour operation to model the potential impact of the plant considering the meteorology conditions over an entire year. This is conservative as the plant would only operate for 15 % per annum. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was presented in Chapter 8 of the Environmental Assessment and was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute.

The assessment concluded that at the levels predicted, any health impact would be difficult to detect. Further it stated that "at the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development."

Submission CCC.03:

ii. The take up of medium and longer term housing supply potential for metropolitan Sydney that occurs in the Macarthur South Release Area including residential land supply at Gilead as included in the Metropolitan Development Program;

Potential future urban development was discussed in Chapter 16 of the Environmental Assessment. Mitigation measures detailed in the Environmental Assessment relate to the control of the development's impact on noise levels, air and water quality, traffic and transportation, visual amenity and other environmental matters. These mitigation measures would be implemented to ensure that the proposed project is managed in an effective and efficient manner, with minimal impact on existing or possible future surrounding land uses.

However, despite the above AGL has recognised that adjacent landowners are concerned about the proposal and as such has proposed a number of mitigation measures to ensure that future land use on neighbouring properties is not constrained by the power station.

These mitigation measures include:

- visual screening by way of 6 m high mound over 600 m long; and
- approximately 30 hectares of tree planting.

However, urban development in the future will need to be mindful of endangered ecological communities that exist in the region, something AGL has addressed by dedicating approximately 170 ha of land for permanent conservation.

The potential for interaction of the proposal with new urban development in the region was considered in the context of the NSW Government's plan for the development, the Sydney Metropolitan Strategy and the Metropolitan Development Plan (MDP). It is noted that the Metropolitan Strategy focuses on the South West

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Growth Centre and the Development Site is not within the boundaries of this growth centre. However, Mount Gilead has been identified in the MDP as potentially providing 1,340 dwellings in the long term. The MDP defines Mount Gilead as an area of approximately 2 km^2 located approximately 2 km from the Development Site. No other areas closer to the Development Site have been identified in the MDP. It is noted that the Metropolitan Strategy states that lands outside growth centres which are not on the MDP are not targeted for development over the next 25 years. A strategic review undertaken in 2007 which addressed housing demand and land supply in the Macarthur South area determined that Macarthur South was not required to address regional and metropolitan housing needs.

Submission CCC.04:

iii. Future urban residential amenity; and

Potential future urban development was discussed in Chapter 16 of the Environmental Assessment. As noted above, mitigation measures detailed in this Environmental Assessment relate to the control of the development's impact on noise levels, air and water quality, traffic and transportation, visual amenity and other environmental matters. These mitigation measures would be implemented to ensure that the proposed project is managed in an effective and efficient manner, with minimal impact on existing or possible future surrounding land uses.

Submission CCC.05:

iv. The visual landscape.

The visual assessment presented in Chapter 10 of the Environmental Assessment concluded that the proposed Leafs Gully Power Project would have a low visual impact on people in areas surrounding the Development Site. This is due to a combination of existing trees and natural landforms, views to the stacks being generally restricted to upper portions of the stack structures, views to the lower sections of the power plant and associated infrastructure blocked by existing trees and local undulating landform, minimising the visual contrast between the power plant structures and tree canopy background, construction of an earth mound to the north and north east of the site, tree planting on the mound and other supplementary planting and lighting design.

b) That approval of the application would set an undesirable precedent and give rise to an unacceptable risk for other power generation plants to establish in the locality given the strategic co-location of natural gas and electricity transmission line infrastructure that currently exists across the Macarthur South area.

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15 % in the year for this proposal. Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

AGL cannot comment on potential applications by other Proponents, although it is noted that such applications would be subject to the approvals process under relevant legislation with requirements for assessment of environmental impacts including cumulative impacts.

c) The application has failed to adequately address and demonstrate:

i. The true extent of the impact of air emissions and in particular ozone;

A detailed assessment of the air quality impacts was presented in the Environmental Assessment addressing local and regional air quality impacts. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. The regional air quality assessment concluded that the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

ii. Any discernible greenhouse gas offsets relating to the development;

As noted in Chapter 7 of the Environmental Assessment, AGL is committed to complying with all mandatory government programs, and is a voluntary participant in Federal and State government greenhouse gas reduction programs.

AGL's greenhouse gas reduction projects have covered:

- purchase and generation of electricity from renewable energy sources;
- installing cogeneration technology to recover waste heat from electricity generation;
- extraction of landfill gas and use for electricity generation;
- use of compressed natural gas for transport;
- leak reduction for gas distribution systems; and
- recovery of useful hydrocarbons from refinery off-gases.

These projects contribute to AGL's overall strategy to reduce the greenhouse gas intensity and impact of its operations.

AGL is a participant in the NSW Greenhouse Gas Abatement Scheme (GGAS) as an energy retailer. AGL also has significant investment in renewable energy generation capacity, including investment in hydro, landfill gas-fired power stations, wastewater treatment gas-fired power stations and interests in wind farms. Although AGL is not proposing to implement any additional greenhouse gas offsets for this project, AGL is committed to reducing greenhouse gas emissions and it is further noted that much of the operations within AGL's portfolio do not produce greenhouse gas emissions.

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iii. The visual impact of the development noting the absence of any photographic montages that accurately depict the visualisation of the development in existing landscape settings from selected viewpoints;

As noted in Chapter 10 of the Environmental Assessment, a total of 28 view locations were identified and assessed as part of the visual assessment process. The visual assessment concluded that overall the Leafs Gully Power Project would have a low visual impact on people in areas surrounding the site.

The nature and extent of any required planning and management of bush fire risk, including vegetation removal; and

A preliminary bush fire hazard assessment was completed as part of the Environmental Assessment process as presented in Chapter 19. Whilst the bush fire planning provisions of the NSW *Rural Fires Act 1997* and the *EP&A Act* do not apply to Part 3A developments, the guidelines set out in *Planning for Bush Fire Protection* (RFS 2006) have been addressed and applied to the proposal as a guide for site planning and risk mitigation.

The key elements to bush fire protection on the site would be set out in a Bush Fire Management Plan for the proposed plant. With the installation and maintenance of the mitigation measures, the risk of bush fire attack on the proposed power plant would be managed to an acceptable level.

AGL has made a commitment to prepare Bush Fire Management Plan, which would include management and maintenance of APZs, threatened species management (i.e. *Pultenaea pendunculata* and SSTF), water supply, access and other bush fire protection measures for the site.

The extent and impact of the development on flora and fauna due to an unsatisfactory survey effort and solutions including those associated with the assessment of potential and core Koala habitat pursuant to SEPP 44.

The assessment of the flora and fauna impacts is presented in Chapter 13 of the Environmental Assessment. The assessment was conducted generally in accordance with the *Guidelines for Threatened Species Assessment* (DEC/DPI July 2005) as specified in the Environmental Assessment Requirements.

The methodology for the flora and fauna assessment included the following elements:

- review of previous studies;
- literature review;
- botanical survey; and
- fauna survey.

The following surveys were conducted on the Site:

- Flora surveys were conducted on the 10 and 13 February 2006 and 24 and 25 August 2006.
- Additional targeted surveys for *Pultenaea pedunculata* were conducted in August 2006.
- Targeted fauna surveys were carried out between the 8 and 14 February 2006.
- An additional review of the Development Site with respect to the current and potential value of the site for Koalas was undertaken by Dr Stephen Ward of Eco Logical Australia.

It is considered that sufficient survey effort was achieved for the proposed development. Notwithstanding this, it is noted that where surveys were undertaken outside the optimal survey period for some species it is possible that some species that utilise the Site were not detected during the survey period. The habitat assessment conducted for the Site allows for identification of habitat resources for such species. As such, the survey was not designed to detect all species, rather to provide an overall assessment of the ecological values on the Site in order to predict potential impacts of the proposal.

d) The likely upgrading of this power station to a base load power station to meet demand, as outlined in the Government Green Paper and the considerably high level of emissions from such a plant should that upgrade occur.

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15% in the year for this proposal.

Should AGL decide to develop a base load gas fired power station in addition to a peaking plant, it would have to go through a similar process to that conducted for Leafs Gully to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation. There is no requirement for combined cycle gas turbines in the AGL portfolio at this time and as such, they are not being considered.

Furthermore Council questions the validity of the three year old environmental study and standards therein and request that it be upgraded to current standards.

The local air quality and noise assessments were updated for the current Environmental Assessment. Additionally, it is noted that a detailed site alternative assessment, health impact assessment and koala outcomes assessment, and inclusion of the access road have been incorporated into the Environmental Assessment that were not in the original Environmental Assessment.

The specialist studies for the Environmental Assessment were prepared in accordance with the guidance documents referenced in the Environmental Assessment Requirements issued by the Director-General of the DoP.

Specifically Council objects to the proposal in light of the following matters:

1. Environment Protection and Biodiversity Conservation Act 1999

A Significant Impact Assessment under the Commonwealth Environmental Protection Biodiversity Conservation Act 1999 is not included as part of the Terrestrial Biodiversity Assessment Report.

Council's assessment of the project documentation concludes that the Applicant has not satisfactorily addressed the EPBC Act (refer to Threatened Species Conservation Section later in this submission).

An iterative design process has allowed for the development footprint, access roads and visual screen bund to be positioned so avoid direct impacts on SSTF and other intact stands of native vegetation. Disturbance will be contained within areas previously used for agriculture and devoid of significant ecological value. The proposed facility and associated infrastructure will avoid clearing of any EEC.

The Terrestrial Biodiversity Assessment (Appendix K of the Environmental Assessment) concluded that there would be no adverse effects on any matters of national environmental significance listed under the EPBC Act. A referral to the Commonwealth Department of the Environment, Water, Heritage and the Arts for determination under the EPBC Act was not considered necessary.

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2. Threatened Species Conservation Act 1995

The Flora and Fauna Assessment concludes that there is no likelihood of the proposal imposing a significant effect on any threatened species, populations or ecological communities listed under the NSW Threatened Species Conservation Act 1995. Similarly, it concludes that there will be no adverse effects on any matters of national environmental significance listed under the Commonwealth Environmental Protection Conservation Act 1999.

The conclusions are based on the avoidance, mitigation and offset measures that have been employed as part of the proposal.

However, it is considered that a range of flora and fauna issues still need to be addressed as outlined in the environmental section included later in this submission.

The Terrestrial Biodiversity Assessment (Appendix K of the Environmental Assessment) concluded that there is no likelihood of the proposal imposing a significant effect on any threatened species, populations or ecological communities listed under the TSC Act. Similarly, there will be no adverse effects on any matters of national environmental significance listed under the EPBC Act. Accordingly, a referral to the Commonwealth Department of the Environment, Water, Heritage and the Arts for determination under the EPBC Act was not considered necessary. The flora and fauna assessment is considered to have addressed the potential issues for the development.

3. State Environmental Planning Policy No. 44 -Koala Habitat Protection (SEPP 44)

SEPP 44 applies to the Leafs Gully Power Project as the site is located within the Campbelltown Local Government Area (listed in Schedule 1 of SEPP 44 as land to which SEPP 44 applies).

The Flora and Fauna Assessment prepared identifies potential koala habitat within the site. Where potential habitat is identified, the area must be investigated for core koala habitat, defined as an area of land with a resident breeding population of koalas, evidenced by attributes such as breeding females and recent sightings and historical records of a population. Where core koala habitat is found to occur, SEPP 44 requires that a site-specific Koala Plan of Management be prepared.

The Applicant has indicated that core koala habitat was not identified on the site and hence a Koala Management Plan is not required under SEPP 44

Council has reviewed The Terrestrial Biodiversity Assessment prepared by URS and the Project Review: Koala Outcomes prepared by Eco Logical Australia (Dr Steven Ward) for the Leafs Gully Power Project. Both reports indicate that the land subject to the Part 3A application (Lots 101 to 105 DP 716209 "Leafs Gully Farm" Appin Road, Mt Gilead) constitutes "Potential Koala Habitat" in accordance with State Environmental Planning Policy (SEPP) No 44 -Koala Habitat Protection.

As outlined in the Koala Outcomes Report, this is evidenced by the mapping of the site as preferred koala habitat on the Campbelltown Koala Habitat Planning Map (CCC 2005), the presence and abundance of suitable food trees, and the proximity of the site to known koala areas.

Within the Koala Outcomes Report, factors suggest that the site could also be used by a resident population of koalas. Supporting this view is the fact that remnant vegetation on the study site, Shale Sandstone Transition Forest (SSTF), includes areas occurring on soils derived from shale-based substrates. As evidenced in Ward S (2002) Koalas and the Community: a study of low density populations is southern Sydney. Ph.D. Thesis, University of Western Sydney, this is of particular

importance as female koalas with access to vegetation on such soils have been found to have higher fertility rates than female koalas with access to vegetation occurring on soils derived from sandstone-based substrates.

In Urban Wildlife: more than meets the eye, Royal Zoological Society of NSW Mosman, it was found that SSTF, exhibits the highest level of relative exploitation by koalas compared to any other vegetation type within the Campbelltown region.

Clarification is therefore required as to whether the site constitutes "Core Koala Habitat" in accordance with SEPP 44. It is considered that neither the Terrestrial Biodiversity Assessment nor the Koala Outcomes Report have undertaken a sufficient assessment to rule out the presence of core koala habitat within the site. In this regard, it is recommended that additional koala surveys be undertaken prior to a decision being reached as to whether a site specific Koala Plan of Management needs to be prepared for the site in accordance with the requirements of SEPP 44.

It is also important to note that SEPP 44 applies to the site irrespective of whether the development applies to the whole or only part of the site.

Therefore it is considered that the Application has not satisfactorily addressed SEPP 44.

The Koala Outcomes Report (Appendix L of the Environmental Assessment) concluded that Koala habitat on the site exists primarily within vegetation along Mallaty Creek, Leafs Creek, Nepean River Gorge, and the 'Northeast' Creek. The mapping of the study site as preferred Koala habitat (Campbelltown City Council 2005), the presence of suitable food trees, and the proximity to a known local population suggests that the site could be utilised by Koalas. In addition, there is the potential for the site to facilitate the movement of Koalas throughout the locality.

Further response on this issue was sought from Dr Steven Ward of EcoLogical and is presented in **Appendix C**. As summary of EcoLogical's response is provided below.

Council's submission notes that the ecological community, Shale Sandstone Transition Forest (SSTF), occurs on the Leafs Gully site. Council identifies the importance of this vegetation community, as female koalas with access to vegetation on soils derived from shale substrates (including SSTF), have been found to have higher fertility rates than female koalas who only have access to vegetation derived from sandstone-based substrates. Council further notes that the SSTF has been found to have the highest relative koala exploitation rate of any vegetation community in the Campbelltown region. I concur that SSTF is present at the Leafs Gully site, and that this vegetation has value to Campbelltown region koalas.

The Koala Outcomes Report does consider outcomes for koala management as a result of the proposal. Overall, the proposal was considered to be beneficial to koalas due to the proposed retention and conservation of SSTF, and based on the understanding that 170 ha will be the subject of a conservation covenant, and the rehabilitation or planting of cleared or degraded areas will occur.

It is noted that for lands committed to conservation, the usual practice is to prepare a Plan of Management identifying proposed management actions and the funding commitment required. AGL has committed (Commitment H2) in Chapter 19 of the Environmental Assessment to preparing "A Management Plan would be developed for Conservation Area including management of the conservation area …"

A 'Koala Plan of Management' is required for development applications under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), if a site is identified as being 'core koala habitat' under SEPP44. It is noted that this Project is being assessed under Part 3A of the *Environmental Planning and*

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Assessment Act 1979 and in the case of critical infrastructure projects, Section 75R of the *Environmental Planning and Assessment Act 1979* excludes with respect to the project all environmental planning instruments (other than SEPPs that specifically relate to the project).

Guidelines identify the following matters to be addressed in individual Koala Plans of Management:

- an estimate of population size;
- identification of preferred feed tree species for the locality and the extent of resource available;
- an assessment of the regional distribution of koalas and the extent of alternative habitat available to compensate for that to be affected by the actions;
- identifications of linkages of Core Koala Habitat to other adjacent areas of habitat and provision of strategies to enhance and manage these corridors;
- identification of major threatening processes such as disease, clearance of habitat, road kill and dog attack which impact the population;
- provision of detailed proposals for amelioration of impacts on koala populations from any anticipated development within zones of Core Koala Habitat;
- identification of any opportunities to increase size or improve condition of existing Core Koala Habitat.

The matters identified for individual Koala Plans of Management would be addressed as part of a Plan of Management for the 170 ha of conservation lands identified. Such a document would draw on the Draft Campbelltown Comprehensive Koala Plan of Management, and published research for the Campbelltown population.

It is noted that the recommendation to undertake additional plantings along Mallatys Creek to the south of the site as outlined within the Koala Outcomes Report has not been incorporated into the development proposal.

Mallaty Creek forms the southernmost boundary of the Site. Figure 13-2 of the Environmental Assessment shows that the portion of vegetation along Mallaty Creek located within the Site is contained within the Conservation Area. As noted in Chapter 19 of the Environmental Assessment, AGL has committed (H2) to developing a Management Plan for the Conservation Area.

Campbelltown 2025 Looking Forward

'Campbelltown 2025 Looking Forward' is a statement of broad town planning intent for the longer term future of the City of Campbelltown that:

- ***Responds to what Council understands people want the City of Campbelltown to look, feel and function like;***
- ***Recognises likely future government policies and social and economic trends; and***
- ***Sets down the foundations for a new town plan that will help achieve that future.***

The document establishes a set of strategic directions to guide decision-making and development outcomes. These directions are broad in nature and form a prelude to a new statutory town plan for the City.

The strategic directions relevant to the Project Application are:

- ***Protecting and enhancing the City's key environmental assets***
- ***Growing the Regional City,***
- ***Creating employment and entrepreneurial opportunities.***

Some of the relevant desired outcomes of the strategic directions included in Campbelltown 2025 include:

- ***Development and land use matches environmental capacity and capability***
- ***Match the type, scale and intensity of new land use and development within the capability of the local environment to sustain that land use/development***

The Applicant has not addressed Campbelltown 2025 Looking Forward in the Environmental Assessment. It is considered appropriate that the Applicant has regard to Campbelltown 2025 Looking Forward in the Environmental Assessment and that the Department be satisfied that the project is consistent with the strategic directions and desired outcomes within the document prior to the application being forwarded to the Minister for Planning for determination.

The Development Site is subject to the provisions of Interim Development Order No. 15 – City of Campbelltown (IDO 15). The Site is zoned, Zone No.1 – Non-Urban under IDO 15. Development for the purposes of 'generating works' is permissible with development consent in the Non-Urban Zone under IDO 15 and therefore the Leafs Gully Power Project is permissible in the Non-Urban Zone under IDO 15.

As noted in Chapter 5 of the Environmental Assessment, in deciding whether or not to approve the carrying out of a project under Part 3A, the *Environmental Planning and Assessment Act 1979* states in Section 75J(3)(b) that the Minister may (but is not required to) take into account the provisions of any environmental planning instrument that would not (because of section 75R) apply to the project if approved.

Campbelltown 2025 – Looking Forward is a statement of broad town planning intent for the longer term future of the City of Campbelltown. It is not an environmental planning instrument.

Notwithstanding this, the following is noted:

- AGL is proposing to establish a Conservation Area spanning Lots 101, 102 and 103 and extending approximately 170 ha. The land would be re-titled for conservation and maintenance purposes in consultation with DECC, either through a Voluntary Conservation Agreement (VCA), a Biobanking Agreement, or some other enduring protection mechanism. On this basis it is considered that the Project is consistent with the strategic direction in the Campbelltown 2025 Looking Forward document for "protecting and enhancing the City's key environmental assets".
- It is estimated that about 250 workers will be needed during construction. The project complements the State Government's Employment Lands Strategy for South West Sydney, which will reserve land for new industries and provide thousands of jobs for local residents. A reliable source of electricity is essential to attract business and industry to the region and create new jobs. On this basis it is considered that the Project is consistent with the strategic directions in the Campbelltown 2025 Looking Forward document for "growing the Regional City", and "creating employment and entrepreneurial opportunities".

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4. Community Consultation

The Environmental Assessment details the community and stakeholder consultation carried out by the Applicant. Under the Act, the Applicant is required to undertake a 'Planning Focus Meeting', notify and consult with relevant government agencies and to respond to submissions received during the public exhibition period. This was undertaken on 9th March 2006 held at Council Offices and included a site inspection of the development site.

In addition to satisfying the legislative requirements, the Applicant has produced and distributed a number of 'Community Information Sheets' and has conducted five phases of formal consultation with stakeholders.

- ***Phase 1: May-June 2006 -Stakeholder and issue identification and provision of information to stakeholders.***
- ***Phase 2: July 2006 -Stakeholders provided feedback on the environmental and socio-economic assessment studies and proposed mitigation strategies.***
- ***Phase 3: November 2006 -Provision of information to stakeholders on key findings of the assessment.***
- ***Phase 4: November 2006 -December 2006. Exhibition of the Environmental Assessment report and receipt of stakeholder submissions.***
- ***Phase 5: October 2008 -Consultation carried out as part of the current application. This phase provided additional opportunity to stakeholders to provide feedback, in particular in response to the revised project scope.***

The Applicant reports that 80 participants took part in phase 1, 28 in Phase 2 and 26 in Phase 3. Phase 5 included letters sent to landowners within 2km radius of the project site, and Wollondilly and Campbelltown Council, the Department of Environment and Climate Change, the Sydney Catchment Authority and the Mine Subsidence Board. Three community information sheets were produced and circulated throughout the community (May 2006, July 2006 and October 2006). A total of 5,500 of each of the three community information sheets were distributed to neighbouring communities including Appin, St Helens Park and Rosemeadow.

Whilst the Applicant has carried out a satisfactory level of community consultation it was undertaken almost three years ago. Concern is raised that community expectations may have changed considerably since notification in 2006. In addition, community and indeed government perception and understanding of global warming and green house gas issues (including the concept of appropriate "offsets") has recently emerged as a major challenge for the whole community.

In addition there would have been new landowners who may have moved into the area that may not be aware of the proposal given this three year gap.

Council wishes to express its disappointment to the Department not requiring that the Applicant re-engage the community consultation i.e. community information sheets and wide distribution, prior to the new exhibition of the revised project for the site. This would provide a current opinion from the community and informed community consideration of the new and revised proposal.

As noted in Council's submission, additonal consultation was undertaken in October 2008 relating to the current Environmental Assessment.

As noted in Chapter 6 of the Environmental Assessment, Phase 5 consultations took place during October 2008. In total 81 stakeholders were consulted and 16 submissions were received regarding the proposal. For this phase of the consultation, the program was widened to include all landholders and occupiers within a 2 km radius of the Development Site, as well as the broader Campbelltown and Wollondilly community. Methodology for this included a letter being posted to all landholders within the 2 km radius, for which a postal address could be obtained. For those landholders that a postal address could not be sourced, a letter was placed in the property's post box. In addition, a letter was placed in the post box of properties that displayed evidence of a residential house, when the landholder's postal address was outside the 2 km radius. This ensured that tenants (occupiers) also received notification of the proposal.

The following activities were also undertaken:

- A website was developed outlining the proposal, provided links to relevant environmental studies, and provided an opportunity for stakeholders to provide feedback. A summary of the feedback received and responses provided is presented in **Appendix A**.
- A media campaign was implemented, to raise awareness of the proposal to the wider community. Copies of the AGL press releases are provided in **Appendix A**.
- AGL placed advertisements in all of the Advertiser and Chronicle papers in the Macarthur area (covering Camden, Campbelltown and Wollondilly shires) on 24 and 25 February 2009.
- An advertisement was also placed inviting groups and individuals to register their interest in the Aboriginal cultural heritage assessment and management program placed in the Campbelltown Advertiser on 13 October 2008.
- Availability of a freecall 1800 number for community queries available from mid October 2008 and throughout exhibition. A summary of the feedback received in provided in **Appendix A**.

It is considered that sufficient consultation was undertaken for the Project both historically and in relation to the current Environmental Assessment.

5. Environmental Considerations

The Environmental Assessment (EA) details a comprehensive assessment of the potential environmental impacts of the development under the following key headings:

- ***Air quality;***
- ***Soils, geology and groundwater;***
- ***Visual assessment;***
- ***Traffic and transport;***
- ***Noise and vibration assessment;***
- ***Flora and fauna assessment;***
- ***Water;***

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- ***Heritage;***
- ***Land use and property impacts;***
- ***Socio-economic assessment; and***
- ***Preliminary hazard analysis.***

Council has reviewed the Applicant's investigation and assessed each issue. Having regard to this assessment it is considered that the following matters require further attention.

a) Air Quality

The air quality within the Macarthur region is strongly influenced by topographical features such as the Blue Mountains, which have the effect of entrapment and recirculation of pollutants originating from sources such as vehicle emissions from other parts of the Sydney Basin. An Inquiry into the Health Impacts of Air Pollution in the Sydney Basin by the New South Wales Legislative Council undertaken in 2006 identified the south west of the Sydney Basin as an area with high pollution levels. In this regard, the ambient level of Ozone (a key contributing factor to the formation of photochemical smog) within the region is known to have exceeded the applicable Department of Environment and Climate Change (DECC) criteria on occasions for a number of years.

Consequently, it is noted that the Department of Planning required the Environmental Assessment (in the form of Director General's Requirement items) to include a comprehensive assessment of air quality impacts and greenhouse gas emissions associated with the proposed power generating facility. The EA contains a Local Air Quality Assessment, (which assesses the local air quality impacts of the proposal) and a Regional Air Quality Assessment (which addresses the potential for increased photochemical smog formations). The modelling of air quality impacts as part of the Air Quality Assessments was conducted by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) while specialist consultant URS, conducted the Local Assessment (which incorporates the Greenhouse Gas Assessment) and prepared the summary report in the main body of the EA.

Council notes that the following provides a summary of the key findings of each of these Assessments.

- ***Regional Air Quality Assessment***

  The CSIRO was engaged to assess the regional formation of ozone and Nitrogen dioxide when the plant is operational under different conditions. The EA states modelling was assessed comparing the relative changes in peak ozone concentration predictions from a worst-case scenario operating continuously year round. The modelling was based on meteorological data supplied by the DECC for five days that contained the most favourable conditions for the formation of ozone and dispersal of emitted pollutants within the plume.

  Whilst noting that the south west of Sydney can be subject to high ozone episodes, URS concluded in its summary report that the modelling found there is no adverse impact on photochemical smog formation occurring as a result of the power plant operation. It also concluded the plume from the proposed plant would have only a minor localised impact

on ozone that would largely result in no change in ozone levels, with some areas experiencing a minor reduction in ozone levels. The EA seeks to partly justify this impact due to the "strong technical and economic reasons for the location of peaking power generation in the Sydney airshed".

- ***Local Air Quality Assessment***

  This assessment of local air quality impacts of the proposal (within the boundaries of the emitted plume), focused on air quality issues associated with Nitrous oxides (NOX) emissions. The assessment provides background information with regard to meteorological data, methodology of modelling undertaken by CSIRO and an assessment of potential impacts.

  The assessment concluded that cumulative ambient levels as a result of the operation of the plant would be well within DECC criteria and the impacts on local air quality from the development would be minor to unlikely. The EA notes that the proposed operation of the plant (up to 15% of the year) would further reduce the local air quality impacts within regulatory limits.

- ***Impact of Greenhouse Gases***

  The EA notes that greenhouse emissions from open cycle gas-fired plants is two thirds that of coal-fired based load plants. The greenhouse gas emissions of the Leafs Gully Power Project are estimated to be 0.29 million tonnes of C02-e per year, which would represent an increase of greenhouse gas emissions from power generation in NSW by 0.37%.

- ***Impact of Stack Emissions on Aviation from Plume Emissions***

  The Air Quality Assessment was also required to assess potential impacts of the emitted plume on aircraft operations. In this regard, a plume rise assessment was undertaken on the basis that the plant was operating at full load for the entire year. The results concluded that consideration should be given for the plant to be designated a hazard to aircraft operations in the area with ongoing consultation with CASA required.

Noted. No response required.

Peer Review of Air Quality Assessment by Council

Specialist consultant firm 'Atmospheric Solutions' was engaged by Council to undertake a peer review of the documentation submitted with the Part 3A application relating to air quality, referred to above. The consultant was requested to address the following key tasks:

i. Summarise air quality issues;

ii. Comment on the approach, validity of data and interpretation of the modelling undertaken associated with the application;

iii. Assess the cumulative impacts on local air quality and within the Macarthur region;

iv. Undertake an assessment of greenhouse gas emission issues;

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v. Undertake a review of the application's compliance with the Director General's Environmental Assessment Requirements; and

vi. Review the validity of the interpretation of the air quality assessments in the Environmental Assessment.

The specialist consultant's report addressed each of these matters, which are summarised below. A copy of the consultant's report is attached to this submission.

(i) Summary of Air Quality Issues Associated with the Proposed Facility

The specialist peer review report prepared by Council's consultant noted that topographical features and the transportation of pollutants such as nitrous oxides within vehicle emissions from other parts of the Sydney Basin influenced the ambient air quality in the Macarthur region. It noted that whilst a slight downward trend in ozone levels within the Macarthur region was observed, exceedances of the DECC ambient levels are forecast to occur for some time, without significant changes to the region and/or the contributing sources to the local pollution levels.

The report advises that in a complex chemical reaction, Nitrogen oxide (upon emission) reacts with the background ozone to form Nitrogen dioxide (thereby reducing the ozone levels). Conversely, on the perimeters of the plume, Nitrogen dioxide can break down in favourable meteorological conditions to form Ozone.

Noted. No response required.

The report states the two gas-fired turbines associated with the facility will emit significant levels of atmospheric pollutants, comprising oxides of nitrogen (NOX), carbon monoxide and volatile organic compounds. The report also states that NOX emissions are the primary emission of concern in regard to this proposed development for both their:

- ***Direct environmental and health impacts, primarily of Nitrogen dioxide; and***
- ***Indirect ozone generation and subsequent potential for photochemical smog production.***

The specialist peer review report supports the view of the Air Quality Assessment submitted with the Project Application that the cumulative impacts on ambient levels of NOX (both Nitrogen oxide and Nitrogen dioxide) as a consequence of the construction of the facility are well within the DECC criteria leaving sufficient capacity for future urban growth. However, it also advises that the expected increase in NOX emissions from vehicles, based on growth figures supplied for the Macarthur Region, will result in an increase in the ambient level of Nitrogen dioxide, although the DECC criteria would not be likely to be exceeded (based on these figures) for at least 10 years. The report further states that the high background levels of ozone will increase the potential for Nitrogen dioxide formation which could result in higher impacts within the Macarthur Region as compared against if the plant was located in alternate locations where background levels of ozone are not in excess of DECC criteria.

It is noted that the specialist peer review commissioned by Council supports the view of the Air Quality Assessment.

Based on the information provided in the peer review report, it can therefore be concluded that ozone is the primary immediate concern regarding air quality impacts associated the proposed facility due to the current ambient levels exceeding DECC criteria. However, depending on the

determined scale, nature and extent of proposed urban expansions such as Macarthur South, the levels of Nitrogen dioxide will also become an issue due to its associated health impacts and increased potential for formation of ozone (under suitable meteorological conditions) as outlined above.

Noted. No response required.

Validity of the Data and Interpretation of the Modelling

Council's Brief required the specialist peer review to verify the current validity of the ambient air quality data of the Macarthur region used in the Local Air Quality Assessment (2006) and the Regional Assessment (2002). The report concluded, based on analysis of the most recent metrological data (2007), that the data used in the modelling was representative of the current ambient air quality of the region and is satisfactory'.

It is noted that the specialist peer review commissioned by Council supports the view of the Air Quality Assessment.

The specialist peer review report supports the modelling of the facility operating on a year-round basis. Data showed 'worst case' meteorological conditions as a valid methodology of achieving the stated purpose of predicting the worst-case cumulative impacts on ambient air quality levels. However, the report also notes that the 5 worst case meteorological conditions supplied by DECC all comprise wind directions in an arc from a south east to north east direction and that other wind directions have not been modelled. Whilst the specialist report considers this is adequate (within the objective of the Air Quality Assessment), Council officers consider the conducting of other wind direction modelling would enable a greater understanding to be obtained regarding 'distribution and extent' under different meteorological conditions to those currently contained in the Assessment.

It is noted that the specialist peer review commissioned by Council supports the view of the Air Quality Assessment and considers that modelling the five worst case meteorological conditions supplied by DECC is adequate within the objective of the Air Quality Assessment.

The Regional Air Quality Assessment (Appendix E of the Environmental Assessment) was prepared by Dr Merched Azzi of the CSIRO Energy Technology Division (CSIRO). The study and methodology was prepared in liaison with the Atmospheric Science Section of the DEC (now DECC). As noted in the Regional Air Quality Assessment, DEC provided the list of the five days to be used in the modelling. The Regional Air Quality Assessment notes that these days have been studied in detail by DEC and reported in the State of Knowledge Report (2005).

The current version of the Environmental Assessment also presented another assessment, Regional Air Quality Assessment, completed by CSIRO for the plant (Appendix F of the Environmental Assessment) predicting the impacts of a two unit power plant. The methodology for that assessment differed in that it was undertaken using a full year of data (2002) rather than specific event days and assumed that the plant operated at full capacity continuously for the 12 month period. The Regional Air Quality Assessment (two unit) concluded that "in general, predicted values of NO_x, NO_2 and O_3 [ozone] ground levels due to the additional NOx emissions from the proposed Appin gas fired plant are not significantly increased from the existing concentration levels.

Further it is noted that the adequacy of the assessment was addressed by the Department of Planning and Department of Environment and Climate Change as part of the approvals process for both the version submitted

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in 2006 and the current version submitted in 2008. In both instances, the Environmental Assessment (including the air studies) was deemed to be adequate for exhibition.

The presence of ozone reductions to the west of the proposal is a result of the meteorology present in the DEC nominated cases. These cases are considered typical of conditions that are conducive to photochemical pollution and elevated ozone backgrounds.

These cases do not contain a single wind direction, rather the full range of wind directions that occurred throughout each case. The presence of impacts to the south west is considered significant of the meteorology that promotes ozone formation. This meteorology includes elevated temperatures, and sea breezes, which tend to occur from the north-east in Sydney.

The consideration of ozone impacts under other conditions (including south-westerly winds) was presented in Appendix F of the Environmental Assessment.

Conclusions of the Specialist Peer Review Report

- ***The methodology used by CSIRO is satisfactory and that appropriate data and emission factors have been used.***

It is noted that the specialist peer review commissioned by Council supports the view of the Regional Air Quality Assessment.

- ***The conclusion of the modelling shows that the cumulative air quality levels as a consequence of the operation of the Gas Fired Plant comply with relevant NSW criteria for air quality with the exception of Ozone, is supported.***

It is noted that the specialist peer review commissioned by Council supports the view of the Regional Air Quality Assessment.

- ***The modelling results indicated that slight increases are predicted to occur to the number of ozone exceedences experienced, the peak concentrations, and the areas of land over which the exceedences are forecast to occur. This differs to the interpretation of the modelling contained in the Environmental Assessment.***

Chapter 7 of the Environmental Assessment summarises the assessments and presents the conclusions made by both the preliminary photochemical smog assessment (specifically in Section 7.5.3) and detailed smog assessment (specifically in Section 7.5.5). Chapter 7 notes the following in the Summary of Outcomes:

- While the proposed plant will only operate for up to 15 % of the year, a worst-case scenario was modelled with a two unit plant operating at full capacity continuously for a 12 month period. Under that scenario there was a maximum increase of NO_x of 0.4 parts per billion (ppb) and a maximum increase of NO_2 concentration of 3.7 ppb over a small area north west of the plant. The plume from the plant largely results in minimal change in ozone levels with some areas experiencing a minor reduction in ozone levels.
- While the proposed plant will only operate for up to 15 % of the year, a worst-case scenario was modelled where a four unit plant operated for 24 hours continuously on an ozone event day. Under that scenario there is a maximum increase of 6.8 ppb of ozone and 2.5 ppb of NO_2 occurring over small areas to the south west of the plant. Within the Sydney region, increases in ozone and NO_2 are minor and cover relatively small areas. The plume from the proposed power plant largely results in no change in ozone

levels with some areas experiencing a minor reduction in ozone levels. This reduction is caused by the consumption of ozone by nitric oxide (NO) emitted by the plant. In addition, it is noted that the impacts from a two unit station (i.e. the subject of the Project Application) on the modelled ozone "event" days would be lower than those of the modelled four unit station.

- ***The identified short-comings of the modelling by the specialist report included:***
  - ***There has been no assessment of partial load scenarios of the operation of the facility. Whilst it is unlikely a peaking plant (like Leafs Gully) would operate under partial loading, the report notes the possibility of this occurring;***

Section 5.2.1 of the Local Air Quality Assessment (Appendix D of the Environmental Assessment) describes the dispersion modelling scenarios undertaken in the assessment. The assessment states that

> *"Other operating scenarios which were considered but not modelled included **Part Load** and **Shut Down** conditions. The worst emissions occur when the turbines are not running in full operation mode and would generally occur during Start Up, which requires approximately 30 minutes for the Alstom. **Appendix E** presents emissions during **Start Up** (49 kg NO_x per event) next to emission during **Shut Down** (44 kg NO_x per event). The emission rates show **Shut Down** emissions to be lower, consequently **Part Load** and **Shut Down** scenarios were not modelled, as the **Start Up** Scenario was considered to represent worst case plant conditions".*

The operation of the dry low NOx controls to regulate emissions below the proposed licence limit (25 ppm NO_x as NO_2), require the plant to operate at greater than approximately 50 % load. These factors alone render operation at less than around 50 % load unfeasible. At intermediate loads (e.g. 60-70 %), exhaust temperatures would be slightly lower, however NO_x emissions would be reduced, such that additional assessment is not warranted.

The NOX emissions have been modelled under the assumption of all NOX being emitted as Nitrogen dioxide but in reality, the emissions are likely to be largely comprised of Nitrogen oxide with a smaller quantity of Nitrogen dioxide. The report noted that whilst this approach is satisfactory, this anomaly should be considered in future air quality assessments.

It is noted that the specialist peer review commissioned by Council supports the approach in the Local Air Quality Assessment.

The Local Air Quality Assessment (Appendix D of the Environmental Assessment) stated (Section 7.2) that

> *"The ground level guidelines for oxides of nitrogen are limited to NO_2, the principal species of concern in terms of health effects. For this assessment, it has been assumed that all emitted NO_x exists in the form of NO_2. Given that emissions of oxides of nitrogen exist in the atmosphere as both NO_2 and NO this assumption is considered conservative."*

Further the assessment states that

> *"the modelling results shown in Table 7-1 represent the worst case short-term (1 hour) predictions based on the plant operating for every hour of the year with all emitted NO_x is present as NO_2, consequently the impacts are likely to be significantly less than modelled. In addition, the annual average NO_2 concentrations, when modelled under the Operating conditions were shown to be below criteria of 62 µg/m3. Given the background concentration of 23.1 µg/m³, and the predicted cumulative*

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impact from operation of the site showed concentrations at or less than 0.3 µg/m³, long term impacts are negligible".

Given that the purpose of the assessment is to demonstrate compliance with regulatory criteria, additional refinement of NO_2 fractions (of total NO_x) would be inconsequential to the conclusions of the assessment, as the results would be even lower. In addition, in NSW this assumption is commonplace, as the regulatory guidance *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* recommends 100% Conversion of NO to NO_2,with additional refinement as necessary. Hence this is not considered an anomaly, rather it is conservative, appropriate for its purpose, and endorsed by regulatory bodies.

Council notes the conclusion of the specialist report regarding the validity of the methodology of the modelling undertaken by the CSIRO. However, Council would request the EA include modelling of additional wind directions to enable an understanding of air quality impacts under a range of conditions other than 'worst scenario' conditions as has occurred in the Assessment.

It is noted that the specialist peer review commissioned by Council supports the validity of the Regional Air Quality Assessment.

The Regional Air Quality Assessment (Appendix E of the Environmental Assessment) was prepared by Dr Merched Azzi of CSIRO. The study and methodology was prepared in liaison with the Atmospheric Science Section of the DEC (now DECC). As noted in the Regional Air Quality Assessment, the Atmospheric Science Section of the DEC provided the list of the five days to be used in the modelling. The Regional Air Quality Assessment notes that these days have been studied in detail by DEC and reported in the State of Knowledge Report (2005).

The current version of the Environmental Assessment also presented another assessment, Regional Air Quality Assessment, completed by CSIRO for the plant (Appendix F of the Environmental Assessment) predicting the impacts of a two unit power plant. The methodology for that assessment differed in that it was undertaken using a full year of data (2002) rather than specific event days and assumed that the plant operated at full capacity continuously for the 12 month period. The Regional Air Quality Assessment (two unit) concluded that "in general, predicted values of NO_x, NO_2 and O_3 [ozone] ground levels due to the additional NOx emissions from the proposed Appin gas fired plant are not significantly increased from the existing concentration levels.

Further it is noted that the adequacy of the assessment was addressed by the Department of Planning and Department of Environment and Climate Change as part of the approvals process for both the version submitted in 2006 and the current version submitted in 2008. In both instances, the Environmental Assessment (including the air studies) was deemed to be adequate for exhibition.

The presence of ozone reductions to the west of the proposal is a result of the meteorology present in the DEC nominated cases. These cases are considered typical of conditions that are conducive to photochemical pollution and elevated ozone backgrounds.

These cases do not contain a single wind direction, rather the full range of wind directions that occurred throughout each case. The presence of impacts to the south west is considered significant of the meteorology that promotes ozone formation. This meteorology includes elevated temperatures, and sea breezes, which tend to occur from the north-east in Sydney.

The consideration of ozone impacts under other conditions (including south-westerly winds) was presented in Appendix F of the Environmental Assessment.

(ii) Assessment of Cumulative Impacts on Local Air Quality and within the Macarthur Region

The specialist peer review report was required to examine the adequacy of the assessment of the identified cumulative impacts of the proposed development on the air quality of the Macarthur Region as well as its conclusions and recommendations. The assessment of 'cumulative impacts' is considered critical as this combines the existing ambient air quality levels of the region and the modelled increased pollutants associated with the proposed facility.

The conclusions of the specialist peer review report are:

- ***That the predicted increase in ambient levels of NOX within the region as a consequence of the operation of the plant were well within relevant DECC criteria.***

It is noted that the specialist peer review commissioned by Council supports the approach in the Local Air Quality Assessment.

- ***Exceedances of the DECC ambient criteria for ozone within the region currently occur and will remain an issue for future development.***
- ***The high background levels of ozone will increase the potential for Nitrogen dioxide formation (which has a high health risk) from the NOX exhaust stream within the plume, which could lead to higher impacts on surrounding areas as compared against locating the facility in an area where ozone levels are not a concern.***

Chapter 7 of the Environmental Assessment addressed regional air quality. It was concluded that while the proposed plant would only operate for up to 15 % of the year, a worst-case scenario was modelled where a four unit plant operated for 24 hours continuously on an ozone event day. Under that scenario there is a maximum increase of 6.8 ppb of ozone and 2.5 ppb of NO_2 occurring over small areas to the south west of the plant. Within the Sydney region, increases in ozone and NO_2 are minor and cover relatively small areas. The plume from the proposed power plant largely results in no change in ozone levels with some areas experiencing a minor reduction in ozone levels. This reduction is caused by the consumption of ozone by nitric oxide (NO) emitted by the plant. In addition, it is noted that the impacts from a two unit station (i.e. the subject of the Project Application) on the modelled ozone "event" days would be lower than those of the modelled four unit station.

- ***The specialist peer review report supports the view of the Air Quality Assessment that the cumulative impacts on ambient levels of NOX (both Nitrogen Oxide and Nitrogen dioxide) as a consequence of the construction of the facility are well within DECC criteria leaving sufficient capacity for future urban growth within Macarthur South. However, it also advises the expected increase in NOX emissions from vehicle emissions based on growth figures supplied for the Macarthur Region, will result in an increase in the ambient level of Nitrogen dioxide with associate implications for ozone formation due to the interrelationship between the two pollutants.***

It is noted that the specialist peer review commissioned by Council supports the view in the Local Air Quality Assessment.

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As noted in Chapter 2 of the Environmental Assessment, given the intermittent operation of the plant, the changing nature of atmospheric pollution in the region, the future environmental context is difficult to forecast. There also exists a large uncertainty in transport emissions, given the uncertainties in the success of proposed emission reduction programs and growth / decline in vehicle use. The most difficult component of this analysis is the estimation of the future planning mechanisms and regulatory policy through which air quality issues could preclude the development of another industry.

Ideally, the analysis would assess future trends in emissions to the airshed, and then derive an associated air quality impact (from the airshed capacity) which would incorporate future trends in meteorology. From this point the analysis would need to predict some threshold in air quality which is at an appropriate level such that future public interests and policy instruments would influence planning processes in such a manner as to restrict a proposed development. A quantitative analysis of such an issue, would involve significant uncertainties which restrict the ability to incorporate a meaningful assessment of the issue.

Comparing a single industry and its benefits against another industry cannot be based entirely on their air quality impact. Such a comparison is best left to planning authorities (i.e. NSW Department of Planning), social scientists and economists in order to provide a broad picture of planning concepts including likely emission sources within the local area and within NSW.

- ***In regard to health impacts, the specialist report notes the level and scope of assessment conducted is considered low for a development that would likely result in an increase in ozone levels within a region that already exceeds criteria. The review also notes that health impacts associated with Nitrous dioxide are significantly greater than for Nitrous oxide.***

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was presented in Chapter 8 of the Environmental Assessment and was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute.

The assessment addressed the health impacts of nitrogen dioxide as opposed to nitrous oxide. Of the potential emissions from the proposed plant the highest impact on ambient air quality is likely to be from NO_2 because natural gas is relatively clean burning with low particulate and SO_2 emissions. In the worst case situation for the proposed two unit natural gas power station (during simultaneous startup of both turbines), maximal emissions of NO_2 added to the highest ambient pollution levels (during an unusual weather event) are predicted to result in levels below the NSW criteria. The assessment stated that:

> *"At these levels any health impact would be difficult to detect. At the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development."*

> ***Council recognises that the primary immediate pollutant of concern associated with the facility is ozone due to the cumulative ambient levels of NOX. However, Council recommends that the EA assess the cumulative impacts of the facility on regional air quality within the context of the additional emissions of NOX within the region associated with likely future urban growth within Macarthur South. Council recommends the Department to require the EA to assess potential impacts of ozone formation associated with the proposed facility on surrounding land uses and community health.***

As noted above given the intermittent operation of the plant, the changing nature of atmospheric pollution in the region, the future environmental context is difficult to forecast. There also exists a large uncertainty in transport emissions, given the uncertainties in the success of proposed emission reduction programs and growth / decline in vehicle use. Comparing a single industry and its benefits against another industry cannot be based entirely on their air quality impact. Such a comparison is best left to planning authorities (i.e. NSW Department of Planning), social scientists and economists in order to provide a broad picture of planning concepts including likely emission sources within the local area and within NSW.

(iii) Assessment of Greenhouse Gas Emissions

Council's Brief required the specialist peer review to examine the adequacy of the Air Quality Assessment in terms of the modelling of all direct emissions (emitted from the turbines) and downstream emissions (outside of the operational boundary of the facility) as well as the adequacy of mitigation measures such as offsets.

The conclusions of the specialist report are:

- ***The greenhouse assessment was found to be satisfactory in the approach taken. It also concludes the greenhouse estimations are in accordance with the National Greenhouse Accounts Factors Guidelines (2008) and the assumptions regarding fuel consumption and resultant emissions are considered appropriate.***

It is noted that the specialist peer review commissioned by Council supports the view in the Greenhouse Gas Assessment.

- ***The assessment has not identified any greenhouse gas abatement measures or offsets (other than a statement that the proponent (AGL) handles a large renewable portfolio).***

As noted in Chapter 7 of the Environmental Assessment, AGL's greenhouse gas reduction projects have covered:

- purchase and generation of electricity from renewable energy sources;
- installing cogeneration technology to recover waste heat from electricity generation;
- extraction of landfill gas and use for electricity generation;
- use of compressed natural gas for transport;
- leak reduction for gas distribution systems; and
- recovery of useful hydrocarbons from refinery off-gases.

These projects contribute to AGL's overall strategy to reduce the greenhouse gas intensity and impact of its operations.

AGL is a participant in the NSW Greenhouse Gas Abatement Scheme (GGAS) as an energy retailer. AGL also has significant investment in renewable energy generation capacity, including investment in hydro, landfill gas-fired power stations, wastewater treatment gas-fired power stations and interests in wind farms. Although AGL is not proposing to implement any additional greenhouse gas offsets for this project, AGL is committed to reducing greenhouse gas emissions and it is further noted that much of the operations within AGL's portfolio do not produce greenhouse gas emissions.

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Section 3.3 of the Environmental Assessment discussed the opportunities for NO_x reduction and NO_x offsetting. Potential NO_x control options other than source control could include the following:

- NO_x Cap and Trade Scheme;
- offsetting VOC emissions through vapour recovery units;
- third party Selective Catalytic Reduction (SCR); and
- retrofitting or replacing vehicles.

Based on the options for NO_x reduction (other than source control) presented, it is considered that the most effective NO_x offset and reduction scheme, would be regulatory policy, namely a NO_x cap and trade scheme. Given the introduction of the Emission Trading Scheme to reduce greenhouse gas emissions, a similar framework for NO_x emissions or an expansion of Load Based Licensing would allow industry a consistency in approach in addressing emission reduction and also provide a 'level playing field' for all industry.

> ***The specialist peer review report also concludes that the proposed use of low NOX burners (a means of controlling NOX emissions), complies with the Director General's requirement requiring Australian best practice with respect to the control of NOX emissions. However, it notes that the Environmental Assessment refers to the use of Selective Cathodic*** **[sic]*Reduction' (world's best practice that has not yet been used in Australia), which involves the post treatment of emissions. However, there are operational constraints associated with the use of this technology on peaking plants (like Leafs Gully) as well as potential generation of ammonia emissions (a pollutant with health implications).***
>
> ***While Council notes constraints with the technology associated with potential ammonia emissions, Council recommends that the Department require the Applicant to further investigate the viability of installing the Selective Cathodic*** **[sic]** ***Reduction as a world's best practice as a means of reducing NOX emissions from the facility and associated impacts on the air quality of the Macarthur region.***

Section 3.3.1 of the Environmental Assessment provided a detailed discussion of selective catalytic reduction (SCR).

The Environmental Assessment concluded that in some limited international jurisdictions requirements to consider what is BACT for a particular installation have been regulated and the regulators have published guidelines on how this requirement is to be considered. In New South Wales, regulations, guidelines or definitions, are not available for BACT. In those jurisdictions that do define BACT it is generally considered to be the best performing cost effective control technique that has been achieved in practice for the category or class of source.

While SCR technology may result in slightly lower NO_x emissions, the implementation of catalyst technology to reduce NO_x will correspond to a rise in airborne emissions of ammonia. This is considered to be a pollutant in its own right by forming additional particulate pollution. In essence, with SCR technology, one pollutant is reduced while another is increased.

The Environmental Assessment concluded that it was not considered that SCR technology would be determined BACT at Leafs Gully on the basis that:

- SCR technology has not practically been achieved on large simple cycle gas turbine units such as those proposed for Leafs Gully;
- DLN has been accepted on open cycle gas turbine units (with standard emission of 25 ppm @ 15 % O_2) in areas where BACT is legislated; and
- there are no additional exceedances of air quality criteria additional to that already experienced will occur as a result of this proposal;
- the high cost of implementation is disproportionate to the benefit;
- infrequent operation of a peaking power plant results in a low annual emission level of NO_x which is below that legislated in most parts of the world where such regulations exist; and
- the potential for increased particulate emissions when using SCR technology.

(iv) Level of compliance with the Director General's Requirements

Council requested the specialist report to rank the level of compliance of the Assessments (relating to air quality matters) with the Director General's requirements, outlining the reasons for any items identified as non-compliant or partially-compliant. The outcomes of this review (noted items of non-compliance or partial compliance) is summarised in the table below.

Director General Requirements	*Non-compliant/ Partially Compliant*	*Comment in Specialist/Peer Review Report*
Evaluation of the feasibility of additional measures to reduce greenhouse gas emissions, including offsets	***Non-Compliant***	***The Assessment only states AGL handles a large renewables portfolio***
Assessment of air emissions and existing background air quality at an interregional level (i.e. within the Sydney Basin)	***Partially Compliant***	***While the Assessment has assessed cumulative impacts on existing ambient air quality levels within the region, it has not identified potential impacts associated with air flow within the Sydney Basin despite listing factors affecting air quality such as the Blue Mountains***
Air quality impacts of the operation under partial load conditions	***Partially Compliant***	***The review notes while unlikely, the potential exists for a Peaking Plant to operate under this mode of operation.***
Analysis of the potential for the development to preclude or limit transport related or employment generating emissive industries	***Non-Compliant***	***The main body of the EA states this analysis is difficult and is best undertaken by the Department of Planning.***
The EA must include a strategic analysis of the project, an analysis of the suitability of the proposed site with respect to potential land use conflicts with existing and future surrounding land uses.	***Compliant: as this was not a requirement specifically relating to air quality assessment***	***Whilst the EA is considered to comply with this requirement, the assessment of air quality related impacts on existing and future land uses is restricted to interpretation of the air quality modelling and a detailed analysis has not been conducted.***

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Council recommends the Department require the amendment of the EA to ensure full compliance with the Director General's applicable items with regard to air quality as well as greenhouse gas emissions in accordance with the comments contained in the above table.

With respect to the evaluation of the feasibility of additional measures to reduce greenhouse gas emissions, including offsets, Section 3.3 of the Environmental Assessment discussed the opportunities for NO_x reduction and NO_x offsetting.

The discussion of emission control options in this section focussed on NO_x control technology, NO_x being a potential precursor to photochemical smog pollution. Emission control technologies discussed included the following:

- Water / steam injection;
- Dry Low NO_x (DLN) Combustors;
- Catalytic Combustion; and
- Selective Catalytic Reduction.

Dry Low NO_x (DLN) emission technology presents the most viable NO_x emission technology and is widely used on turbines of the size proposed for Leafs Gully Power Project and is considered BACT for such turbines. DLN technology is proposed for the Leafs Gully Power Project.

Potential NO_x control options other than source control could include the following:

- NO_x Cap and Trade Scheme;
- offsetting VOC emissions through vapour recovery units;
- third party Selective Catalytic Reduction (SCR); and
- retrofitting or replacing vehicles.

Based on the options for NO_x reduction (other than source control) presented, it is considered that the most effective NO_x offset and reduction scheme, would be regulatory policy, namely a NO_x cap and trade scheme or an expansion of Load Based Licensing. Given the introduction of the Emission Trading Scheme to reduce greenhouse gas emissions, a similar framework for NO_x emissions would allow industry a consistency in approach in addressing emission reduction and also provide a 'level playing field' for all industry.

With respect to the comment regarding cumulative impacts on existing ambient air quality levels within the region, and air flow within the Sydney Basin, it is noted that the Regional Air Quality Assessment (Appendix E and F of the Environmental Assessment) addressed ozone formation within the while Sydney region as stated in Chapter 7 of the Environmental Assessment.

With respect to the comment regarding the part load scenario, it is noted that Section 5.2.1 of the Local Air Quality Assessment (Appendix D of the Environmental Assessment) describes the dispersion modelling scenarios undertaken in the assessment. The assessment states that

> *"Other operating scenarios which were considered but not modelled included **Part Load** and **Shut Down** conditions. The worst emissions occur when the turbines are not running in full operation mode and would generally occur during Start Up, which requires approximately 30 minutes for the Alstom. **Appendix E** presents emissions during **Start Up** (49 kg NO_x per event) next to emission during **Shut***

__Down__ (44 kg NO_x per event). The emission rates show __Shut Down__ emissions to be lower, consequently __Part Load__ and __Shut Down__ scenarios were not modelled, as the __Start Up__ Scenario was considered to represent worst case plant conditions".

The assessment did not conclude that the scenario was unlikely as stated in the submission, rather it concluded that part load was not a worst case scenario and the impacts would therefore be less than those modelled noting that those scenarios modelled showed compliance with the DECC criteria.

With respect to the analysis of the potential for the development to preclude or limit transport related or employment generating emissive industries, Chapter 3 of the Environmental Assessment stated that comparing a single industry and its benefits against another industry cannot be based entirely on their air quality impact. Such a comparison is best left to planning authorities (i.e. NSW Department of Planning), social scientists and economists in order to provide a broad picture of planning concepts including likely emission sources within the local area and within NSW.

With respect to the submission that the assessment of air quality related impacts on existing and future land uses is restricted to interpretation of the air quality modelling and a detailed analysis has not been conducted, it is noted that a detailed analysis of the impact of the plant has been undertaken in accordance with the Environmental Assessment Requirements.

The Regional Air Quality Assessment found that the ozone formation within the whole Sydney region was assessed comparing the relative changes in peak ozone concentration predictions from the current situation in Sydney to various scenarios involving operation of the Leafs Gully Power Project. While the plant would not operate more than 15 % of the year, a worst-case scenario was modelled where a four unit plant operated for 24 hours continuously on an ozone event day. Under that scenario there is a maximum increase of 6.8 ppb of ozone and 2.5 ppb of NO_2 occurring over small areas to the south west of the plant.

The Local Air Quality Assessment found that that ground level concentrations of NO_2, PM_{10}, CO, SO_2 and HAP are all below the DECC criteria. The impacts on local air quality from this development would be minor and adverse impacts are unlikely.

(v) Validity of the Interpretation of the Air Quality Assessments in the Environmental Assessment

Council's Brief also required the specialist peer review report to determine if there are any identified discrepancies in the interpretation of the conclusions of the Air Quality Assessments within the main body of the EA. The outcome of this review is summarised in the table below.

Identified Inconsistency in EA	*Recommendations/Comments on Peer Review*
The EA states ozone is an air pollution item of concern and that the south west regions of the Sydney Basin can be subject to high ozone episodes.	***The EA does not include reference to exceedences in DECC criteria as referred to in the air quality assessments.***

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Identified Inconsistency in EA	*Recommendations/Comments on Peer Review*
The EA states the modelling found that there is no adverse impact on photochemical smog formation occurring as a result of the power plant.	***The modelling results indicate that slight increases are predicted to occur to the number of ozone exceedences experienced, the peak concentrations resulting in exceedences, and the areas of land over which the exceedences are forecast to occur. While slight, these increases in ozone concentrations should be noted for the peak ozone events. Also, the use of "no adverse impact" should be reconsidered given the existing background levels currently exceed the criteria above which adverse impacts may be realised.***
The EA highlights the results of a single day of modelling for the 2006 regional air quality assessment, when five separate days were modelled.	***The EA should display results for all days modelled, or provide a summary of all five days, rather than focusing on the specific results of one out of the five days***

Council would draw the Department's attention the discrepancies and inconsistencies identified by the specialist peer review report and recommends the Department to require the Applicant to address these matters, prior to the final consideration of the EA.

The Environmental Assessment main report summarised the specialist studies presented in the appendices. It is not practical to present all of the information in the specialist studies in the main report and readers are directed to the full assessment presented in the appendices.

Chapter 7 of the Environmental Assessment noted that the Regional Air Quality Assessment (Appendix E of the Environmental Assessment) compared the relative changes in peak ozone concentration predictions from the current situation in Sydney to various scenarios involving the Leafs Gully Power Project. It is noted in Chapter 7 of the Environmental Assessment that while the proposed plant will only operate for up to 15 % of the year, a worst-case scenario was modelled where a four unit plant operated for 24 hours continuously on an ozone event day. Under that scenario there is a maximum increase of 6.8 ppb of ozone and 2.5 ppb of NO_2 occurring over small areas to the south west of the plant. Within the Sydney region, increases in ozone and NO_2 are minor and cover relatively small areas. The plume from the proposed power plant largely results in no change in ozone levels with some areas experiencing a minor reduction in ozone levels. This reduction is caused by the consumption of ozone by nitric oxide (NO) emitted by the plant. In addition, it is noted that the impacts from a two unit station (i.e. the subject of the Project Application) on the modelled ozone "event" days would be lower than those of the modelled four unit station.

(vi) Particulate Matter Emissions

The peer review obtained by Council advises that methodology and concluding results contained within the Local Air Quality Assessment in terms of particulate matter emissions associated with the proposed development, is appropriate. It notes that the emissions of P2.5 (which have significantly higher health implications than P10) have not been assessed but acknowledges that this is standard practice for the assessment of potential air quality impacts associated with gas fired power stations.

However, the peer review notes that the air quality criteria for P10 within the local region were exceeded four times in 2006 during periods of bush fire activity within the vicinity of the Sydney Basin. In this regard, a report of the Intergovernmental panel on Climate Change in a report titled 'Climate Change 2007: Impacts, Adaption and Vulnerability' advises 'that an increase in intensity

and frequency of bushfires (as a consequence of forecasted variations in climate) is virtually certain' should be considered.

Any increase in background concentrations of particulate matter within the Sydney Basin as a consequence of increase in future bushfire activity will likely result in adverse impacts on the air quality within the Macarthur region due to the influence of previously described factors such as localised terrain features.

Accordingly Council recommends the Department ensure that the EA fully assess the potential health and environmental cumulative impacts associated with particulate matter emissions (for both P10 and P2.5) the proposed development in light of periods of high background levels. Further, Council would also recommend that the Department requires that this assessment be conducted within the context of a likely increase in background levels of particulate matter as a consequence of forecasted climatic changes associated with global warming.

The air quality assessment was prepared in accordance with the DEC (2005) *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW* (the *Approved Methods*) as specified in the Environmental Assessment Requirements.

The air quality impact assessment concluded that the worst case 24 hour PM_{10} impact was approximately one microgram per cubic metre, which occurred over a confined area of the modelling domain. Whilst this is adequate to demonstrate compliance with regulatory criteria, this figure is considered conservative. The peak impact was calculated on the basis that the plant operated continuously throughout all of the daily 24 hour averaging periods within the modelled year. Given the small scale of the peak incremental impact, and the conservative modelling assumptions, it is considered that the incremental impact of the plant would be minor to negligible, regardless of the background concentrations present.

(vii) Summary of Air Quality Issues

The potential cumulative impact on the ambient air quality of the Macarthur region is considered a key issue due to the significant volumes of gasses (particularly NOX) from the facility and the identification of the region as a 'pollution hotspot' due to the influence of topographical features and pressures associated with current and potential future urban expansion. In this regard, the ambient ozone level (a primary component) in the formation of photochemical smog) has exceeded DECC criteria on occasions for a number of years. The ambient level of ozone has significant implications for air quality impacts associated with the facility, due to its complex chemical reaction with oxides of nitrogen within the plume and on the perimeters of the plume of emissions as it disperses.

Given the highly specialist field of modelling and the interpretation of potential air quality impacts associated with the facility, the services of a specialised consultant were obtained. This peer review identified the local and regional air quality assessments to be satisfactory in their approach, using appropriate and consistent methodology and also concluded the assessment of greenhouse gas emissions from the facility was in accordance with applicable guidelines.

The peer review report supported the conclusion of the Air Quality Assessments that the predicted cumulative regional ambient Nitrogen dioxide levels as a consequence of the facility are well within the applicable DECC criteria.

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It is noted that the specialist peer review commissioned by Council supports the approach in the Local Air Quality Assessment.

> ***However, the report also stated that the high background levels of ozone will increase the potential for Nitrogen dioxide formation. This could result in higher environmental and health impacts within the Macarthur region as compared to a situation where the plant was located in alternate locations where background levels of ozone are not already in excess of the DECC criteria. It also concluded that future urban expansion within Macarthur South would result in increased formation of Nitrogen dioxide due to the relatively high ozone levels.***
>
> ***With regard to the assessment of potential impacts on ozone levels, the peer review identified that the main body of the EA had not accurately interpreted the modelling contained in the Air Quality Assessments. Therefore, it can be concluded ozone is the primary immediate concern regarding air quality impacts. Levels of Nitrogen dioxide would also become an issue as would the increased potential for formation of ozone (under suitable meteorological conditions) depending on the level of emissions associated with future urban expansion.***
>
> ***Accordingly, Council recommends the Department to ensure that the EA fully assess the implications of emissions taking into account future likely urban expansion in Macarthur South (in particular oxides of nitrogen) in the modelling of air quality impacts associated with the proposed facility. Further, Council would also recommend that the Department to require the Applicant to address identified discrepancies of the interpretation of the assessment in the EA in terms of the nature and extent of impacts on ozone levels. In addition, Council would seek to ensure that the issue of greenhouse gas offsets is properly addressed by the EA.***

Chapter 7 of the Environmental Assessment noted that the Regional Air Quality Assessment compared the relative changes in peak ozone concentration predictions from the current situation in Sydney to various scenarios involving the Leafs Gully Power Project. It is noted in Chapter 7 of the Environmental Assessment that while the proposed plant will only operate for up to 15 % of the year, a worst-case scenario was modelled where a four unit plant operated for 24 hours continuously on an ozone event day. Under that scenario there is a maximum increase of 6.8 ppb of ozone and 2.5 ppb of NO_2 occurring over small areas to the south west of the plant. Within the Sydney region, increases in ozone and NO_2 are minor and cover relatively small areas. The plume from the proposed power plant largely results in no change in ozone levels with some areas experiencing a minor reduction in ozone levels. This reduction is caused by the consumption of ozone by nitric oxide (NO) emitted by the plant. In addition, it is noted that the impacts from a two unit station (i.e. the subject of the Project Application) on the modelled ozone "event" days would be lower than those of the modelled four unit station.

It is considered that the Environmental Assessment adequately addressed the potential impacts on photochemical smog.

Section 3.3 of the Environmental Assessment discussed the opportunities for NO_x reduction and NO_x offsetting. The assessment concluded that

- Dry Low NO_x (DLN) emission technology presents the most viable NO_x emission technology and is widely used on turbines of the size proposed for Leafs Gully Power Project and is considered BACT for such turbines. DLN technology is proposed for the Leafs Gully Power Project.
- Based on the options for NO_x reduction (other than source control) presented, it is considered that the most effective NO_x offset and reduction scheme, would be regulatory policy, namely a NO_x cap and trade scheme. Given the introduction of the Emission Trading Scheme to reduce greenhouse gas emissions, a

similar framework for NO_x emissions would allow industry a consistency in approach in addressing emission reduction and also provide a 'level playing field' for all industry.

b) Visual Impact

The Environmental Assessment details a visual impact assessment undertaken by the Applicant. The proposed 30 to 35 metre high gas turbine stacks are the most visually prominent components of the power generation facility. The gas turbines and evaporative inlet air cooler would be housed in a 20 metre high structure and new 330kV electricity poles would be 22 metres high.

The Applicant proposes to minimise the visual impact by implementing the following:

- ***The use of dark colours and non-reflective materials on the power station;***
- ***The construction of an earth mound to the north and north east; and***
- ***Additional tree planting.***

The EA concludes that the visual impact of the power station would be low in light of the proposed measures above, and due to the following circumstances:

- ***Existing trees and natural landforms generally screen the majority of views from 'view locations';***
- ***The power station stacks would only be visible from a limited number of existing residences;***
- ***No visible emissions would be discharged from the turbine stacks.***

The visual analysis indicates several categories of view catchment. The primary view catchment is described as comprising "areas of land from which the power station site and associated infrastructure would be visible and generally prominent within the immediate field of view. A secondary view catchment is described as comprising "areas of land from which only a portion of the power station site and associated infrastructure may be visible. Views would generally be restricted to the upper portion of structures". The report concludes that the stacks will be visible from sections of the Hume Highway, Southern Railway, and Menangle Road, particularly where they cross ridges. The Applicant considered the views will be of "secondary view catchment" significance.

It is likely that the power station will visually dominate the semi-rural landscape as viewed by commuters south of Campbelltown and could be significant in terms of creating a perception identifying this area of Campbelltown as an "industrial suburb".

Chapter 10 of the Environmental Assessment addressed the potential visual impact of the power plant, and identified 28 key view locations as part of the desk top and field work components of the visual assessment. The following comments were made in Table 10-4 in the Environmental Assessment for the view locations including Menangle Road, Hume Highway and Main Southern Railway:

- View Location 12 Menangle Road
  - Level of Visibility: Indirect and distant views (in excess of 4.5km) to upper section of stacks.
  - Visibility Rating: Low

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- View Location 25 South western freeway / Hume Highway:
  - Level of Visibility: Landform and trees block views from road corridor toward power plant site.
  - Visibility Rating: Nil
- View Location 26 Main Southern Railway:
  - Level of Visibility: Indirect and distant views from train on southbound track.
  - Visibility Rating: Low

Only views from a small portion of both the Menangle Road and Main Southern Railway were determined to occur within the 'secondary view catchment' and views toward the power plant from these 'commuter' locations, including the Hume Highway, are generally distant and restricted to upper sections of the two stacks, with the majority of the development screened by existing tree cover.

> ***No photographic images were provided in the visual impact report from the Hume Highway, Southern Railway and Menangle Road. This is considered to be a significant omission and needs to be drawn to the attention of the Department.***

The visual assessment contained photographs and a visual simulation from a portion of Menangle Road, included as Figure 10.9 of the Environmental Assessment for View Location 12. The Menangle Road visual simulation is also proximate to, and in the same general direction as views obtained from the Main Southern Railway.

No visual simulation was prepared for Hume Highway (View Location 25) as this view location was determined to have a nil visibility rating.

It is considered that the visual assessment adequately addressed the potential key view locations surrounding the power plant. The visual assessment concluded that overall the Leafs Gully Power Project would have a low visual impact on people in areas surrounding the site.

> ***No details of the visual impact assessment clarified the impact of lighting from the power plant nor from security lighting. This could accentuate the visual prominence of the development at night time, further compounding its visual dominance in this rural/bushland setting.***

The Environmental Assessment stated the lighting design would avoid direct line of sight from residences that are located to the east and west of the site.

Further it is noted that this conclusion is supported by proposed mitigation and therefore a commitment by AGL in the Statement of Commitments (Chapter 19 of the Environmental Assessment) for the following:

- Lighting would avoid direct line of sight from homesteads to the east of the site (Commitment E5).
- Large floodlights not to be used for normal operations. (Commitment E7).

It is noted that views toward the proposed development from Appin Road are constrained by a combination of undulating landform and trees along the road corridor. Clarification should also be sought as to whether this will still be the case when trees are removed to facilitate the Appin Road/Access Road intersection upgrade.

Views toward the proposed power plant are primarily blocked by landform rising to the west of the proposed Appin Road / Access Road intersection, and the removal of any trees to facilitate this intersection upgrade will not result in any views toward the proposed power plant from this, or any surrounding view locations.

The landscape and Visual Assessment has not considered visual impacts associated with the upgrade of the Appin Road/Access Road intersection. Up to 44 trees could potentially be removed from the existing roadside. It is considered that this could potentially change the visual amenity of Appin Road.

The Flora and Fauna Assessment states that:

"It is understood that the road widening designs may utilise the existing road formation and therefore only require a widening in the order of 1.5 m for the road shoulders.

If the design of the road can utilise the existing road formation, it is understood that the number of trees that may be removed would be reduced. As detailed designs are not yet available, it is recommended that when the area is surveyed for road design, individual trees within the road corridor are also plotted to better define the extent of necessary tree removal. This impact assessment has therefore adopted a worse case scenario.

The proposed carriageway widening and local road widening (refer to Figure 11-3) will require the removal of 44 trees under a worst case scenario."

AGL has committed to, *"During detailed design for Appin Road widening, a survey of the area shall include plotting individual trees within the road corridor to better quantify the extent of tree removal necessary"* in Commitment H9 in Chapter 19 of the Environmental Assessment.

Notwithstanding the potential extent of tree removal outlined in the Environmental Assessment, it is unlikely that the removal of trees associated with the upgrade of the Appin Road / Access Road intersection, would have any adverse or unacceptable impact on the visual amenity of Appin Road.

Additionally, the extent of potential visual impact may be greater in the event that the general locality is redeveloped for urban purposes in the future. (A review of future urban growth in the locality is described in greater detail below.)

As noted in Chapter 10 of the Environmental Assessment, an underlying rationale for the visual assessment is that if people are not recorded as being present at a particular view location then there is likely to be a nil visual impact at that location.

The visual assessment could not determine the potential visual impact of the power plant solely on the basis of future urban growth that may or may not be developed in the locality, without additional details of where, and which categories of viewers may occur in relation to the power plant. We understand that this level of information is not available for any areas of future urban growth surrounding the proposed power plant.

The project documentation fails to satisfactorily address or confirm the visual impact of the development.

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As noted in Chapter 10 of the Environmental Assessment, a total of 28 view locations were identified and assessed as part of the visual assessment process. The methodology for the visual assessment comprised:

- desktop study addressing visual character of the region;
- fieldwork;
- assessment of visual impact of the power plant using:
  - visibility catchment of the power plant site;
  - identification and mapping of potential view locations;
  - analysis of cross sections;
  - analysis of visibility;
- visual simulations from key view locations; and
- identification of mitigation measures.

An assessment of the visibility rating for each of the 28 view locations indicated that:

- 15 of the 28 view locations were determined to have a **NIL** visibility rating;
- 12 of the 28 view locations were determined to have a **LOW** visibility rating;
- 1 of the 28 view locations were determined to have a **MODERATE** visibility rating; and
- None of the 28 view locations were determined to have a **HIGH** visibility rating.

The visual assessment concluded that overall the Leafs Gully Power Project would have a low visual impact on people in areas surrounding the site.

It is considered that the visual assessment has adequately addressed the potential visual impact of the Leafs Gully Power Project. The visual assessment was prepared by a Registered Landscape Architect with over 15 years experience and employed a general methodology that has been utilised on a number of visual assessments for similar sized infrastructure projects.

It is further noted that an assessment of visual impact was not required by the Environmental Assessment Requirements issued by the Director-General of the Department of Planning.

c) Future Urban Growth

The NSW Government introduced the Metropolitan Development Program (MDP) to coordinate the planning and supply of new housing for Sydney, located on the urban fringe, and identifies a number of new urban release areas such as for example, the Menangle Park release area.

Significantly the MDP also nominates a site at Mt Gilead (in proximity to the Leafs Gully site) for future urban release to accommodate approximately 1,340 dwellings.

More recently, it is understood that the Department has been undertaking a strategic review of future land release potential in the whole of the area historically known as "Macarthur South". This area was previously deferred for consideration for future urban land release given air quality issues.

The current strategic review addresses housing demand and supply in the Macarthur South area, and it is understood that the initial findings indicated that land release may not be warranted in the immediate future. Notwithstanding, the South West Sub Regional Planning Strategy (Draft) also prepared by the Department of Planning and published for public comment in 2008, notes specifically that:

> ***"Interim development at Macarthur South should not limit options for urban development and infrastructure in the future and have regard to the principles in the State Plan of providing jobs close to residential areas..."***

It is not unreasonable for Council to conclude, that the Macarthur South 'Urban Release Area' will be likely to develop at some time in the future, as Metropolitan Sydney continues to grow and demand additional land supply for housing.

Council considers that the take up of any future land release, either at Mt Gilead (as currently listed on the MDP) or elsewhere in Macarthur South, will be compromised by the gas-fired power generating facility, should it be constructed.

Given the strategic co-location of electricity transmission line networks and natural gas pipelines in the vicinity of Mt Gilead and elsewhere in the Macarthur South area approval of the current proposal for the Leafs Gully power generating facility would no doubt set a precedent for the construction of other additional power generating facilities in the Macarthur South area. The proximity of one or multiple such facilities within the Macarthur South area would lead to a sterilisation of its future potential urban land release capacity, and to Sydney's future housing disadvantage.

As stated above, the Environmental Assessment fails to address the Department of Planning's 'Metropolitan Urban Development Program', which in 2007 identified 1,340 future residential allotments in the Gilead area. Whilst that land does not immediately adjoin the proposed power station site, the creation of residential allotments under the Metropolitan Urban Development Program would result in additional residential allotments closer to the power generating facility than what has been identified in the EA.

The Metropolitan Development Program (MDP) was described in detail in Chapter 16 of the Environmental Assessment. In particular Section 16.6.3 provided a summary of development planning in the region. MDP forecasts were prepared in 2003, 2004 and updated in 2007. Each forecast was discussed with respect to the Leafs Gully Project. In the discussion of all three forecasts in the Environmental Assessment, the 1,340 future residential allotments at Mount Gilead (Area 4.20) were referenced.

The Environmental Assessment states:

> *"Mount Gilead has been identified in the MDP as potentially providing 1,340 dwellings in the long term. This area is a defined area of approximately 2 km^2 and is approximately 2 km from the Development Site. No other areas closer to the Development Site have been identified in the MDP. Further the Metropolitan Strategy states that lands outside growth centres which are not on the MDP are not needed for development over the next 25 years. A recent strategic review concluded that "Macarthur South [which includes Mount Gilead] was not required to address regional and metropolitan housing needs… [and that] consultation with Government agencies also confirmed that Macarthur South was not on the planning horizon of any agencies".*

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Notwithstanding that there is no existing plan for urban development in the area, should the land surrounding the Development Site be re-zoned to permit substantial residential development, the Leafs Gully Power Project has been planned such that the environmental impacts of the power station would not affect this.

AGL has adopted a conservative approach for this Environmental Assessment and has proposed mitigating measures greater than strictly necessary. In particular, the visual assessment has incorporated a visual screening into the proposed project which would provide screening from the Leafs Gully Power Station should the neighbouring land be developed. On this basis, it is considered that the Leafs Gully Power Project would not have a significant impact on the potential for future residential development in the area."

The air quality assessment did not consider individual (existing) dwellings, rather a gridded approach was adopted, whereby pollutant concentrations were predicted every 500 m, across a 25 x 25 km grid. The results of the assessment indicated compliance with air quality criteria at all points on this grid, which implies that the proposal would not preclude the establishment of any new dwellings on the basis of air quality issues.

The noise assessment found that no noise exceedances at surrounding residences were predicted for the plant with mitigation measures. As these residences are closer to the Site than the Mount Gilead release area, there would not be exceedances for residences located in the Mount Gilead release area over 2 km away.

However, despite the above AGL has recognised that adjacent landowners are concerned about the proposal and as such has proposed a number of mitigation measures to ensure that future land use on neighbouring properties is not constrained by the power station.

These mitigation measures include:

- visual screening by way of 6 m high mound over 600 m long; and
- approximately 30 hectares of tree planting.

However, urban development in the future will need to be mindful of endangered ecological communities that exist in the region, something AGL has addressed by dedicating approximately 170 ha of land for permanent conservation.

Notwithstanding the above, the EA reports that the power station has been designed to "not prevent" future urban growth on adjoining land. The EA considers that the proposed noise, visual and waste management measures to be adopted would allow residential development to occur along the boundary of the subject site.

It is difficult to quantify the extent to which the power station would impact upon future urban development or moreover the take up of any future planning opportunity for urban development given that there have not to date been any detailed studies undertaken of the land to confirm its suitability for urban uses given local constraints.

The implications on future land value is discussed in Chapter 16 of the Environmental Assessment which states that current land value is based on zoning controls applied which is non-urban. However in this area a speculative premium has been applied by the market on the basis that rezoning may occur in the future. Speculative investments made by other entities on land not identified for urban development in the next 20 to 30 years should not unduly influence developments that comply with all current regulatory and zoning requirements. Leafs Gully complies with all requirements and is permissible with consent in the current zoning.

However, despite the above AGL has recognised that adjacent landowners are concerned about the proposal and as such has proposed a number of mitigation measures to ensure that future land use on neighbouring properties is not constrained by the power station.

These mitigation measures include:

- visual screening by way of 6 m high mound over 600 m long; and
- approximately 30 hectares of tree planting.

However, urban development in the future will need to be mindful of endangered ecological communities that exist in the region, something AGL has addressed by dedicating approximately 170 ha of land for permanent conservation.

Similar gas turbine installations in Australia demonstrate that the analysis by AGL in the Environmental Assessment is correct and that there will be no future land use conflict.

In addition, it should be noted that large parts of the area surrounding the Leafs Gully site are within the South Campbelltown Mine Subsidence District. The current mine plan shows longwall extraction in the Bulli seam continuing over the next five to ten years in the Gilead area. It is unlikely the underlying Balgownie seam will be mined until the Bulli seam is exhausted which is a long term proposition, say 20 years. However, the timing of mining of longwall panels is never exact. Uncertainty of subsurface conditions, potential for equipment breakdown, emerging mining technologies and changes in global coal prices may all affect the way the mine is operated. Future longwall panels are planned but have not been approved and their exact location may change. This should be considered as being an issue that could influence the timing of urban development in the area.

> ***It is considered that any future urban development within the immediate locality would only be sustainable as low-density development, with a likely 'buffer' between the power station and residences. In addition, it is likely that the value of that urban land would be less than would otherwise be the case if a power station were not constructed on the adjoining land.***
>
> ***A high level of concern from Council and the broader community over the development's impact on the future take up of lands in Macarthur South warrants further detailed consideration.***

As noted above, AGL has recognised that adjacent landowners are concerned about the proposal and as such has proposed a number of mitigation measures to ensure that future land use on neighbouring properties is not constrained by the power station.

> ***Importantly, Council would draw the Department's attention to the likely precedent that any decision to approve the application, would set for additional power generation facilities, that would significantly impact upon the take up of the significant potential for future metropolitan housing and urban growth that exists within the Macarthur South area.***

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15% in the year for this proposal. Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

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AGL cannot comment on potential applications by other Proponents, although it is noted that such applications would be subject to the approvals process under relevant legislation with requirements for assessment of environmental impacts including cumulative impacts.

> ***Council recommends that prior to determination of the application, the Department of Planning undertake a preliminary urban capability study of the land surrounding the subject site to determine whether additional mitigation measures are necessary to allow a power station and future residential development to co-exist and if indeed such an outcome can be achieved and is appropriate.***

Chapter 16 of the Environmental Assessment provided a detailed review of land use and property impacts. Mitigation measures detailed in the Environmental Assessment relate to the control of the development's impact on noise levels, air and water quality, traffic and transportation, visual amenity and other environmental matters. These mitigation measures would be implemented to ensure that the proposed project is managed in an effective and efficient manner, with minimal impact on existing or possible future surrounding land uses.

The potential for interaction of the proposal with new urban development in the region was considered in the context of the NSW Government's plan for the development, the Sydney Metropolitan Strategy and the Metropolitan Development Plan (MDP). It is noted that the Metropolitan Strategy focuses on the South West Growth Centre and the Development Site is not within the boundaries of this growth centre. However, Mount Gilead has been identified in the MDP as potentially providing 1,340 dwellings in the long term. The MDP defines Mount Gilead as an area of approximately 2 km^2 located approximately 2 km from the Development Site. No other areas closer to the Development Site have been identified in the MDP. It is noted that the Metropolitan Strategy states that lands outside growth centres which are not on the MDP are not targeted for development over the next 25 years. A strategic review undertaken in 2007 which addressed housing demand and land supply in the Macarthur South area determined that Macarthur South was not required to address regional and metropolitan housing needs.

It should be noted that the boundaries of the Metropolitan Strategy are not fixed and may be subject to on-going review by the Department of Planning in consultation with councils and stakeholders, in response to issues such as population and broader demographic needs. The work undertaken in this report has relied on existing planning forecasts for its analysis.

d) Noise and Vibration

> ***The Environmental Assessment details that the operation of the power generating facility would not result in unacceptable noise or vibration impacts on existing or future residents in the locality. The applicant claims that a more stringent approach, above that normally required by the NSW Industrial Noise Policy has been used to ensure that the operation of the facility would have minimal impact on existing residents. The outcome would potentially allow neighbouring landholders to build residential homes right to their boundary should the zoning of land be changed from rural to urban.***
>
> ***It is recommended that the Department of Planning undertake a detailed assessment of noise and vibration against relevant environmental legislation.***

A detailed noise assessment was undertaken by a specialist noise consultant Wilkinson Murray and presented in Chapter 12 and Appendix J of the Environmental Assessment. The construction, operational and traffic noise and vibration impacts due to the proposed Leafs Gully Power Project were assessed in accordance with the

relevant policy guidelines published by DECC. A typical worst case scenario has been modelled considering neutral and meteorological conditions that enhance noise propagation.

The assessment found that no noise exceedances at surrounding residences have been predicted for operation of the plant with mitigation measures.

e). Flora and Fauna

AGL is proposing to establish a conservation area as part of the proposed development, which includes some of the vegetation located on Lots 101, 102 and 103. This proposed conservation area comprises:

- ***Two Endangered Ecological Communities being Shale Sandstone Transition Forest (which is listed under the NSW TSC Act 1995) and the Commonwealth EPBC Act 1999) and River Flat Eucalypt Forest (which is listed under the NSW TSC Act 1995);***
- ***The area in which the only threatened species "Pulenaea pedunculata" was recorded on site (referred to as the Pultenaea Recovery Area); and***
- ***Exotic grassland.***

Overall, a total land area of approximately 170ha would be taken up by the proposed conservation area. It is understood that AGL intends to re-title this land for conservation purposes in consultation with the DECC, either through a Voluntary Conservation Agreement (VCA), a BioBanking Agreement, or some other enduring protection mechanism.

It is important to note that the majority of the native vegetation located on Lots 102, and 103 has been identified as being of high biodiversity value as part of the Campbelltown Biodiversity Study. The importance of this vegetation has also been identified within the Hawkesbury-Nepean Catchment Action Plan and it is further understood by Council that the DECC considers the conservation of native vegetation in this area to be of a high regional priority. In this regard, it is considered that the proposed conservation area associated with this proposal should be expanded to include all vegetation on these allotments of high to moderate biodiversity value and if possible other areas of biodiversity value located off-site.

Vegetation clearing for the proposed development, and associated loss of biodiversity values, would be minimal. The measures to avoid and minimise impacts on biodiversity values within the development footprint adequately compensate for the loss of biodiversity associated with the removal of pasture grass and paddock trees. As such, a dedicated biodiversity offset to compensate for biodiversity loss associated with the development is not required for the Project. Regardless, AGL proposes to set aside and maintain a large portion of land for conservation purposes in perpetuity, referred to as a Conservation Area. The proposed Conservation Area, which spans Lots 101, 102 and 103, is approximately 170 ha and is shown in Figure 13-2 of the Environmental Assessment.

Further it is considered that any management plan that is prepared for the proposed area should be prepared in close consultation with the DECC to ensure that the area is managed in accordance with DECC Best Practice Standards for the Management of Cumberland Plain Vegetation.

It is also suggested that the dedication of the conservation area and the preparation of a suitable Plan of Management, to guide the area's effective management should be included, in any future

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conditions of approval should a decision be reached by the Minister to approve the proposed power generating plant.

As stated in the Statement of Commitments, AGL has already committed that *"A Management Plan would be developed for Conservation Area including management of the conservation area would include measures as discussed in the Section 8.3 of the Biodiversity Assessment (Appendix K). Full details of the proposed management regime would be included in a management plan that would be prepared in consultation with DECC."*

A total area of 50.8ha of exotic grassland forms part of the proposed priority conservation area. It is proposed that habitat corridor/compensatory plantings are to occur on up to 30ha of this grassland. However clarification is required as to how the remaining 20ha of this exotic grassland will be managed as part of the conservation area. The Terrestrial Biodiversity Assessment Report accompanying the Environmental Assessment indicates that such areas show a long history of cropping and grazing and have a minimal likelihood of natural or assisted regeneration.

The management of the proposed conservation area could potentially be funded through the establishment of a biobanking site within the conservation area. However, clarification is required as to how the proposed conservation area would be appropriately managed if it is not feasible to establish a biobanking site.

As stated in the Statement of Commitments (Chapter 19 of the Environmental Assessment), AGL has already committed (Commitment H1) that *"Land identified for the Conservation Area would be re-titled for conservation purposes either through a Voluntary Conservation Agreement (VCA) or AGL would enter the land into the NSW Biobanking Scheme or some other enduring protection mechanism. A decision on which conservation mechanism is to be adopted would be made following the determination of the Project and would depend on whether the Biobanking Scheme is operational and details of that scheme."*

As shown on Figure 13-2 of the Environmental Assessment, habitat corridor plantings are already proposed in large portions of the grassland within the Conservation Area.

Additionally AGL has already committed (Commitment H2) that *"A Management Plan would be developed for Conservation Area including management of the conservation area would include measures as discussed in the Section 8.3 of the Biodiversity Assessment (Appendix K). Full details of the proposed management regime would be included in a management plan that would be prepared in consultation with DECC."*

Council recommends that consultation be undertaken with the DECC in relation to the proposed management measures for the Pultenaea Recovery Area. It is suggested that the DECC requirements in relation to this area should be included as part of any future conditions of approval should a decision be reached by the Minister to approve the proposed power generating plant.

It is further recommended that the Department of Planning liaise closely with the DECC on the planning, implementation and management of the proposed conservation area.

As noted above AGL has already committed (Commitment H2) that *"A Management Plan would be developed for Conservation … that would be prepared in consultation with DECC."*

Flora and Fauna Survey Effort and Assessment

The extent of the study area that is the focus of the Terrestrial Biodiversity Assessment is not clearly defined within the Terrestrial Biodiversity Assessment Report. No justification is provided as to how the extent of the Study Area was determined. In the "Guidelines for Threatened Species Assessment" (DECC and DPI 2005) for development applications assessed under Part 3A of the EP&A Act 1979, the study area means the development footprint and any additional areas that are likely to be affected by the proposal, either directly or indirectly during both the construction and operational phase of the proposed development.

Therefore the study area should extend as far as is necessary to take all potential direct and indirect impacts of the development into account, and should include all areas directly and indirectly affected by the power generating plant development's footprint, the upgrading of the access road, the upgrading of the intersection between Appin Road and the Access Road as well as the alignment or proposed alignment of the water pipeline from the upper canal and the transmission and gas pipeline routes.

Council recommends that the Department of Planning seek clarification as to the extent of the Study Area that was the focus of the Terrestrial Biodiversity Assessment.

The flora and fauna survey effort to date has predominantly been restricted to the proposed power generating plant development's footprint and directly adjacent vegetation. The entire site (comprising Lots 101, 102 and 103, the area the consultant was engaged to survey) has not been systematically surveyed.

The level of survey effort that has been employed as part of the Terrestrial Biodiversity Assessment has not been appropriately justified within the Terrestrial Biodiversity Assessment Report. Insufficient details are included in relation to the level of survey effort that has been employed in the area subject to the Appin Road/Access Road intersection upgrade.

The study area for the power plant focussed on the proposed footprint of the power plant as shown in Figure 2 of the Terrestrial Biodiversity Assessment (Appendix K of the Environmental Assessment).

A separate assessment of the access road is presented in the Access Road Impact Assessment (Appendix Q of the Environmental Assessment). Additionally, although not presented on a figure, it is noted in Section 5.1.4, that with respect to the intersection of access road and Appin Road, the "mature trees in this area were surveyed for hollows and Koala scratching and scats; however none were recorded in this area. Common and wide spread bird species were also recorded at the intersection. Carrion birds (predominantly *Corvus coronoides* (Australian Raven)) were also observed along Appin Road to Campbelltown feeding on domestic animals and possums hit by vehicles". Section 6.5.2 describes the impact assessment for the upgrade of intersection of access road / Appin Road.

The water pipeline to the Upper Canal is one option for supply of water to the power plant. As described in Section 13.4.5, the "*installation would be designed so as to not require removal of any trees. Depending upon the re-generation within the under-scrubbed area to be managed for Pultenaea pedunculata regeneration (See Figure 13-2) the position of the pipeline may need to be relocated to align with the Visual Screening Mound further to the east and north of the Pultenaea pedunculata habitat."*

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Although other areas within the broader Site have not been surveyed in detail as no impact is proposed, the Terrestrial Biodiversity Assessment characterises the vegetation communities within the broader site as shown on Figure 13-1 of the Environmental Assessment.

> ***In accordance with the Guidelines for Threatened Species Assessment (DECC and DPI 2005) for development applications assessed under Part 3A of the EP&A Act 1979, surveys are required to be undertaken during optimal climatic and seasonal conditions and consider issues such as migratory species movements, availability of shelter, breeding and food resources, and the statistical issues associated with minimising sampling error. The survey effort that has been employed as part of the Terrestrial Biodiversity Assessment has been undertaken outside the optimal survey period for some species. These species are likely to include cryptic species and threatened orchids not in flower during late summer. Therefore further survey work is required.***

Chapter 13 and Appendix J of the Environmental Assessment note that surveys were undertaken outside the optimal survey period for some species and therefore it is possible that some species utilise the site but were not detected during the survey period. These species are likely to include cryptic species and threatened flora species such as orchids not in flower during late summer. Some fauna species are also mobile and transient in their use of resources and it is likely that not all species (resident or transitory) were recorded during the survey period. Notwithstanding this, the assessment states that "*The habitat assessment conducted for the site allows for identification of habitat resources for such species. As such, the survey was not designed to detect all species, rather to provide an overall assessment of the ecological values on site in order to predict potential impacts of the proposal."*

> ***The Pultenaea pedunculata is most easily detected when in flower during August-December. Only two days were spent surveying for this species during its optimal detection time and this was in August when the plant is only likely to have recently commenced flowering. The occurrence of this species can be easily overlooked.***
>
> ***Council recommends that additional surveys for these species be undertaken during optimal detection conditions for this species as part of the Terrestrial Biodiversity Assessment.***

A total of four 100 m survey transects were undertaken within Lots 101 and 102 on 10 and 13 in February 2006 to provide an inventory and map plant taxa and target vegetation communities within the study area. The locations of the four transects were based on the proposed footprint of the Leafs Gully Power Project such that the extent of vegetation which may be disturbed as a result of the proposal was appropriately assessed. The local area surrounding the Site consists of agricultural lands that have been previously cleared and used for agricultural purposes since the times of European settlement in the area. Consequently, clearing has resulted in the removal of most of the naturally occurring vegetation, which was generally representative of the EEC SSTF.

Additional targeted surveys specifically for *Pultenaea pedunculata* were conducted in August 2006 following receipt of more detailed records from DECC.

While surveys were undertaken outside the optimal survey period for some species and therefore it is possible that some species utilise the site but were not detected during the survey period. The habitat assessment conducted for the site allows for identification of habitat resources for such species. As such, the survey was not designed to detect all species, rather to provide an overall assessment of the ecological values on site in order to predict potential impacts of the proposal.

It is considered that adequate surveys have been conducted for the Project.

The Terrestrial Biodiversity Assessment Report does not specify whether any of the hollow bearing trees identified for removal within the power generating plant's development footprint or identified for potential removal along Appin Road are actually utilised by threatened bat species as roosting sites. In this regard, the Microchiropteran Bat Report that was prepared by Fly By Night Bat Surveys Pty Ltd as part of the Terrestrial Biodiversity Assessment recommended a resurvey of the site during the months of November and December. The purpose of the resurvey is to indicate which species are breeding in the vicinity of the proposed power plant and are potentially reliant on these areas for foraging during the development and raising of young. Disappointingly, such a resurvey has not been undertaken as part of the Terrestrial Biodiversity Assessment.

As stated in the Environmental Assessment, the proposed footprint would remove isolated paddock trees and the vegetation associated with fence lines, but importantly would not require clearing of SSTF. As such no direct impact to the SSTF is predicted. A bat survey was conducted on the Site. The assessment stated that

> *"Five of the twelve microchiropteran bat species (Eastern Freetail Bat, Large-eared Pied Bat, Large Bent-Wing Bat, Fishing Bat and the Greater Broad-nosed Bat) recorded during the February 2006 surveys are listed as Threatened under the TSC Act and/or the EPBC Act.*
>
> *Although the Fishing Bat was recorded in the vicinity of the site, it feeds predominantly over still water including creeks, rivers, lakes and lagoons. The small dams on site would offer limited foraging opportunities in comparison to the standing and flowing water available in the Nepean River, its tributaries and the SCA Canal adjacent to site. As such, the Fishing Bat is not expected to be impacted by the proposal.*
>
> *The Eastern Bent-wing Bat predominantly roosts in caves. However, it also utilises man-made structures such as drains, bridges, tunnels and mines. The study area is likely to provide foraging habitat for the Eastern Bent-wing Bat and the Large-eared Pied Bat. Diurnal roosts could also be located in natural caves or artificial structures in the surrounding area. Foraging habitat for these species may be temporarily disrupted due to the construction process. However, with the proposed habitat corridors, the long term value of the site to foraging for these species is expected to improve. As such, a Seven Part test has not been prepared for the Eastern Bent-wing Bat or Large-eared Pied Bat species.*
>
> *A Seven Part assessment for the Eastern Freetail Bat and the Greater Broad-nosed Bat has been prepared and concluded that no significant impact on these species is expected as a result of the development."*

Section 13.2 of the Environmental Assessment describes impact mitigation, and particularly tree fauna management. As stated in the Statement of Commitments (Chapter 19 of the Environmental Assessment), AGL has already committed (Commitment H6) to *"Qualified ecologists shall conduct a detailed pre-clearance survey prior to development of the Site in accordance with the recommendations in the Biodiversity Assessment in (Appendix K). If nests or nestlings of Threatened species are observed within, or close to, the development footprint then construction should be postponed until the nestlings have hatched and fully-fledged. If construction constraints mean that this delay is not practicable then DECC should be consulted to determine if relocating the species is acceptable."*

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The full extent of vegetation that is to be removed and or modified as a result of the proposed power generating facility remains unknown and cannot be determined until such time as:

1) The extent of tree removal required for the proposed Appin Road/Access Road intersection upgrade is known

2) The route of the water pipeline from the Upper Canal is finalised; and

3) The transmission and gas pipeline routes are finalised.

Impacts associated with the route of the water pipeline from the upper canal and transmission and gas pipeline routes have not been fully considered. Whilst AGL consider that such impacts will be minimal it is suggested that all impacts on native vegetation should be considered as a whole before a decision is reached as to whether the proposed development will or will not have a significant impact on threatened species or ecological communities.

A separate assessment of the access road is presented in the Access Road Impact Assessment (Appendix Q of the Environmental Assessment). Additionally, although not presented on a figure, it is noted in Section 5.1.4, that with respect to the intersection of access road and Appin Road, the "mature trees in this area were surveyed for hollows and Koala scratching and scats; however none were recorded in this area. Common and wide spread bird species were also recorded at the intersection. Carrion birds (predominantly *Corvus coronoides* (Australian Raven)) were also observed along Appin Road to Campbelltown feeding on domestic animals and possums hit by vehicles". Section 6.5.2 of the Terrestrial Biodiversity Assessment describes the impact assessment for the upgrade of intersection of access road / Appin Road.

The water pipeline to the Upper Canal is one option for supply of water to the power plant. As shown on Figure 4-2 of the Environmental Assessment, and described in Section 13.4.5, the "*installation would be designed so as to not require removal of any trees. Depending upon the re-generation within the under-scrubbed area to be managed for Pultenaea pedunculata regeneration (See Figure 13-2) the position of the pipeline may need to be relocated to align with the Visual Screening Mound further to the east and north of the Pultenaea pedunculata habitat."* As stated in the Statement of Commitments (Chapter 19 of the Environmental Assessment), AGL has already committed (Commitment H8) that "*Prior to the installation of the water pipeline to the Upper Canal, further targeted surveys for Pultenaea pedunculata should be conducted and, if necessary placement of the pipeline adjacent to the visual screening mound is recommended to avoid potential habitat disturbance."*

The assessment addressed the impact of the transmission line and gas pipeline. As stated in Section 13.4.5 of the Environmental Assessment, the *"transmission lines and gas pipelines are in cleared areas of the site. In Lot 101 where the easement passes through a patch of remnant vegetation, a clear line of sight under the transmission lines is possible and it is expected that minimal or no clearing of native vegetation is considered to be necessary."*

As stated in the Environmental Assessment, vegetation clearing for the proposed development, and associated loss of biodiversity values, would be minimal. The measures to avoid and minimise impacts on biodiversity values within the development footprint adequately compensate for the loss of biodiversity associated with the removal of pasture grass and paddock trees. As such, a dedicated biodiversity offset to compensate for biodiversity loss associated with the development is not required for the Project. Regardless, AGL proposes to set aside and maintain the proposed Conservation Area in perpetuity, referred to as a Conservation Area.

Whilst it is understood that there is no requirement for a consent authority to consider Section 5A of the EP&A Act when determining a project application under Part 3A of the Act, the Terrestrial

Biodiversity Assessment does include Assessments of Significance for those threatened species and ecological communities with suitable habitat on-site. It is considered that the upgrading of the Appin Road/Access Road intersection and any other incidental clearing associated with water pipeline, transmission and gas pipeline routes have not been adequately considered as part of this process.

Section 6.5.2 of the Terrestrial Biodiversity Assessment describes the impact assessment for the upgrade of intersection of access road / Appin Road. Table 6-1 delineates the species of trees, height class and whether they contained truck hollows / branch hollows at the time of survey. The assessment states that

> *"it is unlikely that these trees would significantly impact on the habitat resources available to bats in the area. The trees ecological significance as suitable habitat is also degraded given their proximity to Appin Road and alternative and more productive remnant habitats in the same vegetation/habitat type available south of the intersection on adjacent land. Further the impact of the removal of these trees will to a lesser extent be mitigated by the mass plantings proposed on site"*

As stated in the Statement of Commitments (Chapter 19 of the Environmental Assessment), AGL has already committed (Commitment H9) that *"During detailed design for Appin Road widening, a survey of the area shall include plotting individual trees within the road corridor to better quantify the extent of tree removal necessary."*

Further, a Significant Impact Assessment under the Commonwealth Environmental Protection Biodiversity Conservation (EPBC) Act 1999 is not included as part of the Terrestrial Biodiversity Assessment Report. The assessment criteria used to determine whether an action is likely to have a significant impact on a protected matter differs between the EPBC Act 1999 and the NSW Threatened Species Conservation Act 1995. In this regard, it is considered that an assessment under the EPBC Act should be included as part of the Terrestrial Biodiversity Assessment Report to clearly demonstrate that the proposed development will not have a significant impact on any matters of national significance particularly the EPBC listed Endangered Ecological Community (Shale Sandstone Transition Forest) that occurs on site.

As stated in the Environmental Assessment, vegetation clearing for the proposed development, and associated loss of biodiversity values, would be minimal. The measures to avoid and minimise impacts on biodiversity values within the development footprint adequately compensate for the loss of biodiversity associated with the removal of pasture grass and paddock trees.

The assessment notes that the area is dominated by Shale Sandstone Transitional Forest (SSTF), an Endangered Ecological Community (EEC) listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the NSW *Threatened Species Conservation Act 1995 (*TSC Act). The key impact on biodiversity values would be removal of exotic pasture grass, along with several paddock trees. The key avoidance measure has been to locate the development footprint in a largely cleared paddock. The key mitigation measures would be salvage of trees, groundcover vegetation and other habitat features, weed control and visual screen plantings. The assessment concludes that there would be no adverse effects on any matters of national environmental significance listed under the EPBC Act.

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Council recommends that the Department of Planning ensure that potential impacts on native vegetation associated with changes to surface water overflow and potential runoff from the development site including overflow from the sedimentation pond, be examined as part of the flora and fauna assessment.

As noted in Chapter 14 of the Environmental Assessment, the water from the sedimentation pond and associated earth bund and diversion drain would be clean rainwater collected from the power plant catchment area. The outlet of the stormwater system would be designed to maximize the dispersion of these high flows and thereby minimize their potential to cause soil erosion downstream.

Surface water from the plant footprint (during operation) such as washwater from turbine washing and cleaning of other components; rainfall runoff from bunded plant areas of the plant footprint; and accumulated water within bunds would be directed through oil and grit traps designed to remove oil and minimise suspended solids to an acceptable level prior to discharge to the sedimentation pond. This system would also be fitted with a gross pollutant trap to collect large material mobilised by stormwater.

All construction works would be undertaken in a manner to minimise the potential for soil erosion and sedimentation. Wastewater volumes have been estimated and management strategies developed to maintain zero discharge from the site except for natural surface flows.

It is noted that an embankment will be placed in close proximity to the Pultenaea Recovery Area. Clarification is required as to whether this embankment has the potential to alter water flow to the Recovery Area and if so, potential implications for Pultenaea pedunculata should be considered.

Overall, Council recommends the Department to ensure that the EA properly assess the impact of the proposed power generating facility on flora and fauna and ensure that appropriate survey effort and assessment is undertaken as part of that process.

Section 13.4.5 of the Environmental Assessment addressed the visual screening / earth mound and stated that the "construction area and proposed visual screening / earth mound on the northern boundary of the site are proposed in areas cleared of native vegetation, however similar mitigation measures for erosion, sedimentation and weed control would need to be implemented for these associated works." These measures would minimise the impact on the adjacent Pultenaea Recovery Area.

It is considered that the Terrestrial Biodiversity Assessment adequately addresses the impacts of the proposed power plant.

f) Water Quality and Nepean River

As the Leafs Gully Power Project site adjoins the Nepean River, an assessment of the method of water quality control is critical. The EA details an assessment of the water quantity and quality impacts of the proposal with reference to the water needs of the project, the proposed source of water, the implementation of water saving measures, the identification and method of the disposal of wastewater and how stormwater is to be managed at the site.

A review of the EA indicates that the operation of the power plant could be undertaken in a manner that would not result in any off-site water quality impacts.

Council recommends that the Department of Planning undertake a detailed assessment of water quality against relevant environmental legislation.

Chapter 14 of the Environmental Assessment provides a detailed assessment of the potential water quality impacts of the power plant and proposed mitigation measures. As stated in the Statement of Commitments (Chapter 19 of the Environmental Assessment), AGL has already committed (Commitment K3) that *"Water management strategies will be developed and implemented to maintain zero water discharge from the power plant site except for natural surface flows."*

g) Heritage

The EA reports that no Aboriginal objects or sites were located on the subject site. However, an area of potential archaeological deposit was identified in the study area. The footprint includes areas of moderate and low-moderate archaeological potential, which would be subject to a 'development impact' under relevant legislation.

A small section of the Sydney Water Supply Upper Canal System (item of State Heritage Significance) is impacted by the power station. This would result from the construction of a water pipeline connection with the Upper Canal. The EA concludes that the impact of the connection would be minor in nature.

The EA indicates that the power station would not have any significant impact on the heritage significance of the locality.

Council recommends that the Department of Planning undertake a detailed assessment of heritage impacts of the development against relevant heritage conservation legislation and in consideration with relevant indigenous groups.

A detailed cultural heritage assessment has been undertaken and was presented in Chapter 15, and Appendices M and N of the Environmental Assessment in accordance with relevant legislation. A representative of each of the Tharawal Local Aboriginal Land Council and Cubbitch Barta Native Title Claimant Group participated in the field survey.

h) Bushfire Risk

The subject site is identified on the Rural Fire Service 'Campbelltown LGA Bushfire Prone Land Map'. The proposal, as a Major Project to determined under Part 3A of the EP&A Act, does not require approvals for bushfire under either the Rural Fires Act 1997 or the EP&A Act.

Additionally the proposal does not require referral to the NSW Rural Fire Service under Section 79BA of the EP&A Act as neither residential nor rural-residential development are proposed.

Notwithstanding, as part of the Part 3A process, the Department of Planning may choose to refer the application to the Rural Fire Service for advice considering the following:

1) the proximity of the proposed power plant to surrounding vegetation;

2) the fact that the Bushfire Assessment that has been undertaken indicates that no vegetation will need to be removed to establish suitable Asset Protection Zones (APZs) and that the proposed corridor/compensatory plantings could be undertaken within their proposed locations whilst still achieving required Asset Protection Zones (APZs); and

3) the subsequent flora and fauna assessment is based on this scenario.

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Council recommends that the Department of Planning refer the proposal to the Rural Fire Service to ensure that proposed APZs are adequate and that no further vegetation will need to be removed or the proposed corridor/compensatory plantings be relocated to provide suitable APZs, prior to the application being determined.

A preliminary bush fire hazard assessment was completed as part of the Environmental Assessment process. The key elements to bush fire protection on the site would be set out in a Bush Fire Management Plan for the proposed plant. With the installation and maintenance of the mitigation measures, the risk of bush fire attack on the proposed power plant would be managed to an acceptable level.

As stated in the Statement of Commitments (Chapter 19 of the Environmental Assessment), AGL has already committed (Commitment Q5) to *"Ensure adequate water supply (through installation of water reticulation and hydrants and/or tanks) at appropriate locations around the northern, western and southern perimeters of the facility, in consultation with Rural Fire Service. The proposed water supply tank should have fittings suitable for Rural Fire Service uses. Water should not be reliant upon external power supply. Hydrants should be installed according to AS 2419 Fire Hydrant Installation and delivered via a ring main system."*

i) Transport and Road Access

The site is located off Appin Road and is accessed by a 2.3 kilometre private road via a Right of Carriageway. The Applicant proposes to upgrade the intersection of the access with Appin Road by way constructing a right turn in/out lane to Roads and Traffic Authority (RTA) standards. The EA details that post construction traffic would be minor and would not result in adverse impacts upon adjoining properties.

The EA also refers to upgrading the existing private access road to comply with applicable standards for the purpose of constructing and operating the power station. The EA reports that these works would have minimal environmental impact and that it can be appropriately constructed to conform with Council's standards. Overall Council is not satisfied that vegetation removal associated with such works has been considered appropriately.

However, it is considered that the access road design is satisfactory subject to the following conditions:

1. The access road be constructed (at a minimum) to Council's rural residential Category G (minor rural cul-de-sac) standard i.e. 5.5m wide carriageway with 2 coat seal and shoulders 1.2m wide. Pavement thickness determined using minimum 2x10"4 ESA's; or to a greater standard if considered necessary by the applicant.

The *Statement of Environmental Effects – Access Road Upgrade – Leafs Gully Farm, Appin NSW* report (Appendix Q in the Environmental Assessment) states that the access road would be designed with a 5.5 m carriageway width. The required road reserve width of 16 m (requirement of Category G) cannot be accommodated within the 10 m Right of Carriageway reserve. The pavement would be designed for 2 x 10^4 ESAs as required by the *Campbelltown (Sustainable City) Development Control Plan 2007* (Campbelltown City Council, 21 November 2007).

2. The applicant to liaise with the RTA regarding Appin Road intersection requirements.

AGL would consult RTA during the detail design and approval of the proposed intersection modifications.

3. The access road to be realigned to be contained in the existing 10m and variable reserve.

The *Statement of Environmental Effects – Access Road Upgrade – Leafs Gully Farm, Appin NSW* report (Appendix Q in the Environmental Assessment) states that the alignment of the access road is proposed to be within the 10 m Right of Carriageway reserve.

4. All design of engineering works to be carried out in accordance with the requirements set out in the Campbelltown (Sustainable City) Development Control Plan 2007.

The requirements specified in the *Statement of Environmental Effects – Access Road Upgrade – Leafs Gully Farm, Appin NSW* report have been checked in accordance with *Campbelltown (Sustainable City) Development Control Plan 2007* (Campbelltown City Council, 21 November 2007). These requirements are met, with the exception of the proposed road reserve width, which has been reduced to align within the Right of Carriageway reserve as mentioned for Item 1.

The *Campbelltown (Sustainable City) Development Control Plan 2007* (Campbelltown City Council, 21 November 2007) does not require kerbs for the access road. The Development Control Plan requires all roads to be surfaced with an initial course of 30-millimetre thickness of asphaltic concrete. Rural cul-de-sacs are to have a 25-millimetre thick (minimum) asphaltic concrete wearing course at the head of the cul-de-sac to the tangent points.

The Development Control Plan specifies that "subsoil drainage is to be provided along the cut side of all new roads where no drainage is provided, along the centre line of half road construction works, at the end of road construction, at low spots, where required by the pavement design report, and where directed by Council's Development Engineer."

5. All design and construction work, lots and roads created to be in accordance with Council's requirements as follows:

a Council's specification for Construction of Subdivisional Road and Drainage Works (as amended);

b Campbelltown (Sustainable City) Development Control Plan 2007 Volume 2;

c 'Soils and Construction (2004) (Bluebook); and

d Relevant Australian Standards and State Government publications.

Council recommends that the Department to consider these requirements as part of the determination of the application.

The proposed access road would be constructed and designed as described in the *Statement of Environmental Effects – Access Road Upgrade – Leafs Gully Farm, Appin NSW* report (Appendix Q in the Environmental Assessment)

As stated in the Statement of Commitments (Chapter 19 of the Environmental Assessment), AGL has already committed (Commitment D7) that *"A Construction Soil and Water Management Plan would be developed and implemented as part of the CEMP for the construction works to ensure effective management of potential soil erosion issues."*

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j) Draft Statement of Commitments

The Draft Statements of Commitment are considered broad, general and non-committal in that they often use phrases such as "opportunities to further minimise emissions to air will be investigated and implemented where ever feasible to ensure that off-site impacts are kept to a minimum" and "consider further noise attenuation from both air intake and the enclosure". Some of the statements are post-operative potential commitments which may be implemented if the need arises.

Council wishes to express its concern to the Department of Planning over the lack of certainty associated with a number of the Draft Statement of Commitments.

AGL considers that the Statement of Commitments are adequate for the proposed Project.

k) Competition

Council is not aware of whether there are other similar infrastructure projects under preparation, or for consideration which will provide a service that AGL is proposing in the form of Peak Power Generation, either within the same general locality or elsewhere in New South Wales.

Tallawarra Power Station in Wollongong currently operates a 400MW power plant and it is proposed to construct an additional 450MW power plant along side it. This totals 850MW of power generation. The power generated from this development will not only serve Wollongong, but can also be accessed by Sydney as well. Therefore, it is recommended that the Department of Planning consider whether the development at Leafs Gully is necessary. The Department is encouraged to also consider other forms of power generation such as wind-farm generation to supplement the current supply of electricity to the State in order to commit to energy generation that is more sustainable.

A review of the currently published Department's "Major Projects -Infrastructure Developments" identifies the following electricity generating developments:

	Gas Fired Power Stations	*Location*	*Capacity*	*Purpose*	*Status*	*company*
1	*Hanging Rock*	*Hanging Rock-Sutton Forest*	*300MW*	*Base load combined cycle*	*DGRs issued*	*Loran Energy Products Pty Ltd*
2	*Marulan Gas Fired Power Station*	*Marulan*	*400MW to 450MW*	*Stage 1 -Peak Demand-open cycle Stage 2-Conversion to base load*	*Dept preparing a response*	*Delta Electricity and Energy Australia*
3	*Tallawarra Gas Fired Power Station*	*Wollongong Region*	*800MW*	*Stage 1 operation serves both peak and base load supply Stage 2-additional 450MW Combined Cycle peak and base load*	*DGR's issued*	*Tru Energy*

	Gas Fired Power Stations	Location	Capacity	Purpose	Status	company
4	Parks Gas Fired Power Station	Parks	80MW	Base load combined cycle	DGR's issued	NP Power Pty Ltd ("NP Power") and Babcock & Brown Pty Ltd ("Babcock & Brown" .
5	Narrabri Gas Fired Power Station	Narrabri	175MW	Open cycle peaking plant	DGR's issued	East Coast Power Pty Ltd
6	Bega Gas Fired Power Station	Bega	120MW	Combined cycle base load	DGR's issued	Wambo Power Ventures Pty Ltd
7	Bamarang Gas Fired Power Station	Nowra	400MW	Base load combined cycle	Approved	Delta Electricity
8	Munmorah Gas Fired Power Station	Central Coast	500 MW to 600 MW	Open cycle peaking plant	Approved	Delta Electricity
9	West Parks Gas Fired Power Station	Parks	120MW	Open cycle peaking plant	Approved	International Power (Australia)
10	Wellington Gas Fired Power Station	Wellington	600MW to 660MW	Open Cycle peaking plant	Approved	ERM Power Pty Ltd

In addition to the Gas Fired Power Stations, it is also understood that the State Government has considered or is currently considering a number of wind generation power plants which include Black Springs, Conroy's Gap, Yass Windfarm, Boco Rock, Ben Lamond, Silverton, Gullen Range and Glen Innes Windfarms. These windfarms will provide between 30MW to 1000MW (Silverton). The windfarms are proposed to generate and supply electricity to the existing electricity grid infrastructure.

With respect to solar energy generation as a peak load power supply, the Applicant has expressed a view that the low capacity and high technology cost for electricity generation is such that it is not feasible. Further, storage technology is not sufficiently advanced to store large amounts of energy for later use.

Concern is held by Council as to whether there is a saturation of peaking plant electricity operations. If this were to be the case, the Leaf's Gully site should not be supported.

As described in detail in Chapter 2 of the Environmental Assessment, the proposed Leafs Gully Power Project is needed to ensure the adequate, reliable and consistent supply of electricity during times of peak electricity demand in NSW, specifically for the key demand area of Newcastle-Sydney-Wollongong.

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The Project is consistent with Government policy indicating a preference for private investment in electricity generation. Peaking power generation enables AGL to manage its cost of electricity sold to consumers and minimises market exposure.

The NSW Government's *Energy Directions Green Paper* and the *2006 National Electricity Market Management Company Statement of Opportunities* predict that over the next decade rising electricity demand from the whole of NSW will exceed existing generation capacity. To meet the peak immediate growth in demand for electricity, a number of additional power plants will be required to serve peaking capacity.

The proposed Leafs Gully Power Project would contribute positively to the NSW electricity market by providing a peaking plant to service demand and ensure security of power supplies in addition to managing AGL's market exposure to the wholesale electricity market. Leafs Gully Power Project is intended to be operated as a peaking power plant only and would operate for up to 15 % of the year.

The Leafs Gully site is a strategic location for peaking power generation as it is on the 330 kilovolt (kV) high voltage network south of Sydney within the Newcastle-Sydney-Wollongong demand area. Compared to other sites being developed, Leafs Gully Power Project would realise a benefit of around $200,000 annually for the transmission network operator through minimised losses plus avoided capital expenditure for infrastructure upgrades.

It is possible that not all of the proposed developments referenced in the submission, approved or proposed, will proceed to operation. In some instances multiple plants may be proposed by a single proponent that may be seeking to maintain competitive tension for gas prices by having several options available for a gas fired power station. Government-owned corporations are proposing the majority of power generation developments. The Leafs Gully Power Project is consistent with Government policy indicating a preference for private investment if electricity generation. While the government-owned corporations have several proposals prepared, while private sector proposals are proceeding there is a reduced threat of electricity supply disruptions. Therefore, it is possible that only one or two of these will proceed. Amongst the private sector proposals, AGL is the only retailer and thus the only proponent able to proceed without the requirement for a long term electricity off-take contract from a third party. As such, Leafs Gully is a superior proposal in terms of financial viability in addition to previously stated benefits of having strategic location within the electricity and gas networks and no significant adverse environment impacts.

As noted in Chapter 3 of the Environmental Assessment, generation from solar and wind power is not suitable for peak load power stations due to the intermittent nature of the resource. Often weather conditions that provide a good wind resource correspond to times when electricity demand is low. For solar, the low capacity and high technology cost for electricity generation is such that it is not feasible even though weather conditions conducive to solar generation are often coincident with high electricity demand. In addition, storage technology is not sufficiently advanced to store large amounts of energy for later use. Therefore, these technologies do not provide suitable alternatives that can service peak load demand.

> ***It would not be a significant investment for the Leaf's Gully site to increase the size of the power plant (eg double it's size) and add additional infrastructure for it to become a combined base load plant such as coupling to a steam turbine. Such a plant could operate on a permanent basis and replace an ageing coal fired generation plant, which is subject to increased pressure from the public and the Federal Government's Carbon Pollution Reduction Scheme to phase out inefficient power generation plants.***
>
> ***Subsequently the application for a 2 x 150MW open cycle gas turbine power station cannot unreasonably be considered to be a stage 1 development of the site. The original application for a***

600MW power plant was withdrawn due to public opposition, additional information sought and to seek out alternative sites. If AGL concludes that this site is the most suitable, it sets the stage for further additional infrastructure to be applied for on the site. Clearly it would not be unreasonable to suggest that AGL may aim to increase the capacity of the site if the initial capital outlay is $200M. What is also concerning is that it is understood that an open cycle gas turbine can be retrofitted to become a combined cycle plant and can ultimately operate as a base load plant operating on a 24 hour -365 days per year basis.

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15 % in the year for this proposal. Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

l) Carbon Pollution Reduction Scheme: Australia's Low Pollution Future -White Paper 15 December 2008

The Federal Government is implementing a comprehensive strategy for tackling climate change in Australia. The strategy is built on three pillars: reducing Australia's carbon pollution; adapting to unavoidable climate change; and helping to shape a global solution.

The White Paper sets out the Government's policy in relation to two major elements of its mitigation strategy: a medium term target range for national emissions, and the final design of the Carbon Pollution Reduction Scheme.

The Government remains committed to meeting its long-term target of a 60 per cent reduction in greenhouse gas emissions from 2000 levels by 2050.

It also commits to a medium-term national target to reduce Australia's greenhouse gas emissions by between 5 per cent and 15 per cent below 2000 levels by the end 2020

The Renewable Energy Target requires 20 per cent of Australia's electricity to be sourced from renewable generators by 2020. This will require the rapid, large scale deployment of renewable technology, and will significantly reduce the emissions intensity of Australia's electricity supply.

Council notes that the Environmental Assessment makes no reference to greenhouse gas offsets. This is very disappointing, and should be a major item for the Department's consideration.

As noted in Chapter 7 of the Environmental Assessment, AGL's greenhouse gas reduction projects have covered:

- purchase and generation of electricity from renewable energy sources;
- installing cogeneration technology to recover waste heat from electricity generation;
- extraction of landfill gas and use for electricity generation;
- use of compressed natural gas for transport;
- leak reduction for gas distribution systems; and
- recovery of useful hydrocarbons from refinery off-gases.

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These projects contribute to AGL's overall strategy to reduce the greenhouse gas intensity and impact of its operations.

AGL is a participant in the NSW Greenhouse Gas Abatement Scheme (GGAS) as an energy retailer. AGL also has significant investment in renewable energy generation capacity, including investment in hydro, landfill gas-fired power stations, wastewater treatment gas-fired power stations and interests in wind farms. Although AGL is not proposing to implement any additional greenhouse gas offsets for this project, AGL is committed to reducing greenhouse gas emissions and it is further noted that much of the operations within AGL's portfolio do not produce greenhouse gas emissions.

Section 3.3 of the Environmental Assessment discussed the opportunities for NOx reduction and NOx offsetting. NO_x control options other than source control researched relate to the following:

- NO_x Cap and Trade Scheme;
- offsetting VOC emissions through vapour recovery units;
- third party Selective Catalytic Reduction (SCR); and
- retrofitting or replacing vehicles.

Based on the options for NO_x reduction (other than source control) presented, it is considered that the most effective NO_x offset and reduction scheme, would be regulatory policy, namely a NO_x cap and trade scheme. Given the introduction of the Emission Trading Scheme to reduce greenhouse gas emissions, a similar framework for NO_x emissions would allow industry a consistency in approach in addressing emission reduction and also provide a 'level playing field' for all industry.

> ***The Leafs Gully Power Project is expected to contribute to meeting the rising demand for electricity in Sydney, Newcastle and Wollongong. It is recognised that projects of this nature are necessary to ensure that electricity demand in NSW will not exceed generating capacity. The proposed power station would generate electricity supplies to provide reliable electricity generation at peak times when the transmission system may otherwise be constrained.***

It is noted that Council concurs that projects of this nature are necessary to ensure that electricity demand in NSW will not exceed generating capacity and that the proposed power station would generate electricity supplies to provide reliable electricity generation at peak times when the transmission system may otherwise be constrained.

> ***This review has been undertaken during the public exhibition period. It has not had the benefit of considering expert comments from relevant Government Agencies that undertake an assessment of the impacts of the development against specific environmental legislation. Consequently, the review is neither comprehensive, nor all encompassing. Notwithstanding, a review of the EA and supporting documents identify a number of aspects of the development that require further attention prior to the power station proposal being determined.***
>
> ***Council is not satisfied that the EA has fully examined worlds best practice environmentally sustainable principles in the design of the power station, particularly in respect of the matters of emissions controls noting that there may also be potential adverse impacts associated with such technology. This is not considered to be an acceptable outcome. However, it is acknowledged that there may be some tangible benefits if the most environmentally sensitive part of the land***

were dedicated to the NSW Government for permanent conservation purposes, subject to further clarification by the DECC.

Section 3.3 of the Environmental Assessment discussed the opportunities for NO_x reduction and NO_x offsetting. Section 3.3.1 of the Environmental Assessment provided a detailed discussion of selective catalytic reduction (SCR).

The discussion of emission control options in this section has focussed on NO_x control technology, NO_x being a potential precursor to photochemical smog pollution. Emission control technologies discussed included the following:

- Water / steam Injection
- Dry Low NO_x (DLN) Combustors
- Catalytic Combustion
- Selective Catalytic Reduction

Dry Low NO_x (DLN) emission technology presents the most viable NO_x emission technology and is widely used on turbines of the size proposed for Leafs Gully Power Project and is considered BACT for such turbines. DLN technology is proposed for the Leafs Gully Power Project.

AGL has committed to rehabilitate and permanently protect approximately 170 ha of the site by way of a voluntary conservation or biobanking agreement or some other enduring protection mechanism. This area includes the entire frontage of the site to the Nepean River and would be achieved at no cost to NSW taxpayers. Council's recognition of permanent protection of parts of the site as having tangible benefits is noted.

Should the Macarthur South Precinct be developed for future urban purposes, the take up of development would be compromised by the construction of the power station. The EA does not have adequate regard to that outcome.

The air quality assessment did not consider individual (existing) dwellings, rather a gridded approach was adopted, whereby pollutant concentrations were predicted every 500 m, across a 25 x 25 km grid. The results of the assessment indicated compliance with air quality criteria at all points on this grid, which implies that the proposal would not preclude the establishment of any new dwellings on the basis of air quality issues.

The noise assessment found that no noise exceedances at surrounding residences were predicted for the plant with mitigation measures. As these residences are closer to the Site than the Mount Gilead release area, there would not be exceedances for residences located in the Mount Gilead release area over 2 km away.

However, despite the above AGL has recognised that adjacent landowners are concerned about the proposal and as such has proposed a number of mitigation measures to ensure that future land use on neighbouring properties is not constrained by the power station.

These mitigation measures include:

- visual screening by way of 6 m high mound over 600 m long; and
- approximately 30 hectares of tree planting.

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However, urban development in the future will need to be mindful of endangered ecological communities that exist in the region, something AGL has addressed by dedicating approximately 170 ha of land for permanent conservation.

> ***With regard to the environmental impacts and the economic benefits of the development, the power station is considered to be the "right project on the wrong site". Council maintains it's original position that there are alternative sites with better topography, less environmental constraints and located further from existing and future urban populations, which would result in an improved development and environmental outcome.***

A detailed site alternative assessment was presented in Chapter 3 of the Environmental Assessment. AGL has undertaken a comprehensive review of existing gas turbine developments in Australia and also reviewed more than 10 alternate sites in NSW. At these alternate sites, network connections, land use and environmental impacts were reviewed. The Appin area remains the preferred region as no other region has the proximity to demand, concentration of infrastructure, and suitable distance from neighbouring properties and communities. In addition, output from a power plant in this region would not be constrained during peak periods as may the case with other locations.

Following additional analysis of alternate sites in NSW and existing facilities in Australia, locating a gas turbine peaking power plant in the Macarthur region is acceptable based on predicted environmental impacts. Strategically, the Site provides a location for reliable electricity generation at peak times to the key demand centre of NSW when the transmission system is constrained. In addition the Site has two sources of natural gas to draw upon. This ensures reliable electricity supplies for the electricity network.

Consequently, Council has decided to notify the Department and Minister of our strongest objection to the Leafs Gully Gas Turbine Power Station proposal and respectfully requests that the matters raised in this submission be carefully considered and addressed as part of the Departments review and subsequently the Minister's determination.

Council's objection is noted.

3.2.5 Sydney Water (Submission 444)

Submission SW.01: I refer to the Leafs Gully Gas-fired Power Station, 555-557 Appin Road, Gilead (MP 08_0077). In Sydney Water's letter of 2 February 2007 (attached) we indicated that the proposed connection to the Macarthur Water pipeline requires permission from both Sydney Water and Macarthur Water Pty Ltd. Sydney Water's position on the water requirements for the proposal remains unchanged.

Submission SW.02:In Sydney Water's letter of 2 February 2007 we indicated that all customers discharging trade waste into Sydney Water's wastewater systems must have written permission from Sydney Water and that there were capacity issues relating to fire-fighting. It is made apparent in the environmental assessment that both fire-fighting and trade waste processes will not utilise Sydney Water systems. As such, Sydney Water is no longer concerned with these issues. Sydney Water acknowledges that the development will endeavour to connect to recycled water provided by a proposed Sewage Treatment Plant (STP) at Appin. Sydney Water is currently in the process of reviewing the servicing strategy for the Appin area. The two short listed options for the servicing of this area include transfers to the existing Glenfield STP and construction of two local STPs in the Appin area. Sydney water will only provide recycled water to the area where it is deemed economically viable. Sydney Water will come to a decision on the preferred servicing option by mid 2009.

Submission SW.03:Sydney Water Servicing Sydney Water will assess the impact of the proposed development when the proponent applies for a Section 73 Certificate. This assessment will enable Sydney Water to specify any works required as a result of the development and to assess whether amplification and/or changes are applicable. Sydney Water requests the Department continue to instruct developers to obtain a Section 73 Certificate from Sydney Water.

Submission SW.04: The developer must fund any adjustments needed to Sydney Water infrastructure as a result any development. The developer should engage a Water Servicing Coordinator to get a Section 73 Certificate and manage the servicing aspects of the development. Details are available from any Sydney Water Customer Centre on 13 20 92 or Sydney Water's website at www.sydnevwater.com.au.

Submission SW.05:Sydney Water e-planning Sydney Water has created a new email address for planning authorities to use to submit statutory or strategic planning documents for review. This email address is urbangrowth@sydneywater.com.au. The use of this email will help Sydney Water provide advice on planning projects faster, in-line with current planning reforms. It will also reduce the amount of printed material produced. This email should be used for:

- ***Section 62 consultations under the Environmental Planning and Assessment Act 1979 Consultation where Sydney Water is an adjoining land owner to a proposed development***
- ***Major Project applications under Part 3A of the Environmental Planning and Assessment Act 1979***
- ***Consultations and referrals required under any environmental planning instrument***
- ***Draft LEPs, REPs, SEPPs or other planning controls, such as DCPs***
- ***Any proposed development or rezoning within a 400m radius of a Sydney Water Sewage Treatment Plant***
- ***Planning strategies***
- ***Any proposed planning reforms or other general planning or development enquiries***
- ***Planning Assessment Commission (PAC) consultation***

Sydney Water's submission is noted.

3.2.6 Sydney Water (Submission 448)

I refer to your Major Project exhibited from 20 October 2006 to 18 December 2006, inviting Sydney Water to comment on the proposed Leafs Gully Gas Turbine Power Station, located at 555-557 Appin Road, Gilead (MP 06-01 17). The project includes:

- ***Plant comprising four gas turbines, generators and ancillary plant;***
- ***High voltage switchyard with transformer and circuit breakers;***
- ***Security fencing and gatehouse;***
- ***Control room, administration, amenities, car parking and workshop facility;***
- ***Sedimentation pond and associated earth bund and diversion dam;***

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- ***Air compressor plant;***
- ***Switchroom;***
- ***Emergency generator and transformers;***
- ***Landscaping;***
- ***Evaporation pond to accommodate wastewater discharges; and***
- ***Construction of internal roads.***

Sydney Water has reviewed the information provided for this proposal, and provides the following comments for the Department's consideration.

Connection to the Macarthur Pipeline

The Macarthur Water pipeline is owned and operated by Macarthur Water Pty Ltd (this is referred to as United Utilises in the Environmental Assessment) under a Build Own Operate (BOO) contract with Sydney Water. This critical pipeline provides potable water to in excess of 200,000 people in the greater Campbelltown region. The proposed connection to the pipeline requires permission from Sydney Water and Macarthur Water Pty Ltd.

Sydney Water and AGL have been discussing the requirements and arrangements necessary to ensure that the proposed development may connect to the Macarthur Water.

Sydney Water's submission is noted.

3.2.7 Wollondilly Shire Council

Submission WSC.01: Reference is made to the above described major project application, currently on public exhibition. Wollondilly Shire Council, by resolution at its ordinary meeting of 20 April, 2009, objects to the proposal.

Council's objection is noted.

Submission WSC.01: Council submits that the proposal is unacceptable and should be refused for the following reasons:

(a) The site is unsuitable for the development

(b) The proposal would result in unacceptable impacts on the environment particularly with regard to air quality, public health and land stability.

(c) The proposal would significantly decrease the values of surrounding lands.

The Development Site has a non-urban zoning and the Leafs Gully Power Project is permissible within this land use zone.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, health, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was presented in Chapter 8 of the Environmental Assessment and was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute.

The assessment concluded that at the levels predicted, any health impact would be difficult to detect. Further it stated that *"at the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development."*

With respect to land stability, as noted in the Environmental Assessment, the proposed Leafs Gully Power Project is located within Area 5 of the West Cliff Colliery. While the Development Site is unmined, the Leafs Gully Power Project may commence before extraction of coal and there may be some associated subsidence. The subsidence predictions determined in this assessment would be used to design the foundations for the power plant such that should subsidence occur, the power plant would be able to withstand the expected maximum subsidence impacts. The gas pipeline and electricity transmission line connections would be designed to allow for movement associated with mine subsidence.

The likely impacts to land values in the short term are forecast to be limited on the basis of existing planning and zoning restrictions and due to:

- the unobtrusive nature of the proposed project given the size of the buffer zones afforded by the Leafs Gully property;
- the limited operational impacts (and operational times); and
- the limited supporting infrastructure requirements.

Submission WSC.02: Council also resolved to formally request that this matter, being controversial as it is, be subject to a commission of enquiry.

This is a matter for consideration of the Department of Planning.

Submission WSC.03: Finally, Council further resolved to request that, in the unfortunate event the Department of Planning intends to support the proposal, Council be given opportunity to comment on any conditions of consent prior to the matter being finally determined.

This is a matter for consideration of the Department of Planning.

Submission WSC.04: A written response is requested to the specific issues raised in this and other submissions received during the public exhibition process be provided and then further opportunities for comment be provided prior to the final determination.

This is a matter for consideration of the Department of Planning. It is noted that this report provides the Proponent's response to the issues raised.

3.2.8 Department of Environment and Climate Change (DECC)

Submission DECC.01: I refer to the Project Application, Environmental Assessment and according information provided for the Leafs Gully Gas Turbine Power Station proposal which was received by the Department of Environment and Climate Change (DECC) on 25 February 2009.

Section 3 Response to Submissions

Submission DECC.02: DECC has reviewed the information provided and supports the proposal subject to the recommended conditions of approval included in Attachment 1 and the additional Statements Of Commitments (SoCs) sought in Attachment 2.

Submission DECC.03: I request an opportunity for DECC to review the draft Director-General's Environmental Assessment Report for this proposal. The proponent will also need to make a separate application to DECC to obtain an Environment Protection Licence (EPL) should project approval be granted. If approved, DECC would intend to use the recommended conditions of approval in developing an EPL.

This is a matter for consideration of the Department of Planning.

AGL notes that a separate application to DECC to obtain an Environment Protection Licence (EPL) would need to be made.

Submission DECC.04: DECC does not accept the proposed alternative method to assess low frequency noise. The current method specified in the Industrial Noise Policy has been reviewed by industry and community representatives and approved by Cabinet as a "whole of government' policy. Therefore it is not appropriate for the Department of Environment and Climate Change to accept other methods such as that specified in the Environmental Assessment without stakeholder consultation, and further policy development if necessary. DECC is happy to consider any reference material the proponent may wish to provide in relation to this matter, which will be taken into account when the Industrial Noise Policy is next reviewed. Correction factors for low frequency noise, as specified by the Industrial Noise Policy have been included in the attached recommended approval conditions.

The NSW Industrial Noise Policy recommendations for low frequency noise involve an assessment to be conducted on the difference between C and A weighting levels. However as noted in the Environmental Assessment, recent international research has shown that the use of this difference approach is not suitable when the noise levels are low, since the low frequencies may then be below the threshold of hearing levels (A review of Published Research on Low Frequency Noise and its Effects, Report for Department for Environment, Food and Rural Affairs (UK) by Dr Geoff Leventhall, 2003). Current research suggests that (dBC-dBA) difference should not be used as an annoyance predictor, but as a simple indicator of whether further investigation may be necessary (Low Frequency Noise and Annoyance, Noise & Health 2004, 6:23, 59-72).

Recently the UK Department for Environment, Food and Rural Affairs (DEFRA) has developed a new procedure to assess low frequency noise. Using this approach, the assessment found that it would be unlikely that low frequency noise impacts would result from the operation of the proposed plant.

AGL is committed (Commitment G5) in Chapter 19 of the Environmental Assessment to *"ameliorating any low frequency noise issues if they arise for the proposed plant consistent with the most recent low frequency noise assessment process that have been developed overseas in lieu of the INP."*

Submission DECC.05: Recommended Conditions of Approval

Administrative Conditions

Information supplied to the EPA

A1.1 Except as expressly provided by these recommended conditions of approval, works and activities must be carried out in accordance with the proposal contained in:

1. ***Project application for Leafs Gully Gas Turbine Power Station, Project Application Number 08_0077.***
2. ***DECC correspondence dated 15 January 2008 (DOC08/60571), 28 November 2008 (DOG08/49350), 12 December 2007 (DOC07/51044), and 9 December 2008 (DOC08/5i743).***

Discharges to Air and Water and Applications to Land

P1. Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air or water from the point.

EPA Identification No	Type of Monitoring Point	Type of Discharge Pain!:	Description of Location
1	Air emissions monitoring	Discharge to Air	Stack Serving Turbine 1
2	Air emissions monitoring	Discharge to Air	Stack Serving Turbine 2

Note 1: A Site Map must be provided with the Environment Protection Licence (EPL) application identifying the location of the new discharge and monitoring point.

P2 Air

Stack Sampling Positions

***P2.1 The proponent must ensure that the design and construction of the facility includes sampling positions that comply with TM-1 as set out in the* Approved Methods for the Sampling and Analysis of Air Pollutants in NSW**

It is noted that sampling methodology TM1 is not feasible in some types of baffled stacks. AGL request that the sampling methodology does not limit AGL's ability to control noise or impact plant performance and therefore request the addition of "or other agreed methodology if TM1 is not viable" be added to the condition.

Approved Fuels

P2.2 Natural gas is the only fuel approved for firing of the power station turbines.

P3 Water

P3.1 The design capacity of the sedimentation pond must be designed to handle the 85th percentile storm depth.

AGL notes the above requested conditions.

Limit Conditions

L2 Air

Emission limits

Section 3 Response to Submissions

L2.1 For each monitoring/discharge point specified in the table below the emission of a pollutant discharged at that point must not exceed the emission limits specified for that pollutant in the table.

Emissions Point	Pollutant	Unit of Measure	100 percentile concentration limit	Reference Conditions
1	Nitrogen dioxide($N0_2$) or nitric oxide (NO) or both, as $N0_2$ equivalent	milligrams per cubic metre	51	Dry, 273 K, 101.3 kPa, 15% oxygen (0_2)
2	Nitrogen dioxide ($N0_2$) or nitric oxide (NO) or both, as $N0_2$ equivalent	milligrams per cubic metre	51	Dry,273 K, 101.3 kPa, 15% oxygen (0_2)

L2.2 ***The concentration limits prescribed in Condition L2.1 above do not apply to the emissions from an individual turbine during the following periods:***

a) ***a start-up period -that is, while a turbine is being brought up to normal operation following a period of inactivity; or***
b) ***a shutdown period -that is, while a turbine is being taken out of service from normal operation to inactivity.***

- ***Note 1: While the concentration limits specified in Condition 1 do not apply during start-up or shut down periods, the proponent is subject to the requirements of section 128 (2) of the Protection of the Environment Operations Act in relation to the prevention and minimisation of air pollution.***
- ***Note 2: Condition 2 only applies to an individual turbine during a start-up or shut down period for that turbine. The concentration limits specified in Condition 1continuetoapplytotheotherturbineif it is operational during these periods.***
- ***Note 3: Emissions from start-up and shut-down periods must be included in Load Based Licensing assessable pollutant load calculations.***

AGL notes the above requested conditions.

L3 ***Water***

L3.1 Except as expressly provided by an Environment Protection Licence for the project, the Proponent shall comply with Section 120 of the Protection of the Environment Operations Act 1997 which prohibits the pollution of waters.

L3.2 There must be no discharge to groundwater or surface waters from the evaporation pond.

L3.3 Process wastewater; wastewater generated from equipment washing, cleaning, or maintenance; or contaminated water from bunded areas must be discharged to the evaporation pond unless otherwise agreed in writing by the EPA.

AGL notes the above requested conditions. However, the Environmental Assessment indicated wastewater from specific bunded areas associated with the turbines would be captured. Clarification is sought as to whether the above requirement refers to these bunded areas and not a wider area.

L4 ***Noise Limits***

L4.1 Noise from the premises must not exceed the sound pressure level (noise) limits presented in the Table below. Note the limits represent the sound pressure level (noise) contribution, at the nominated receiver locations in the table.

Noise Limits (dB(A))

Noise Assessment Location	Day	Evening	Night	
	$L_{Aeq\ (15\ minutes)}$	$L_{Aeq\ (15\ minutes)}$	$L_{Aeq\ (15\ minutes)}$	$L_{A1\ (1\ minute)}$
The closest, or potentially most affected noise sensitive receiver location(s)	35	35	35	45

L4.2 ***For the purpose of Condition 6.1:***

- ***Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays,***
- ***Evening is defined as the period from 6pm to 10pm***
- ***Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays***

L4.3 Noise from the premises is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of the dwelling where the dwelling is more than 30 metres from the boundary, to determine compliance with the noise level limits in Condition L4.1 unless otherwise stated.

L4.4 Noise from the premises is to be measured at 1m from the dwelling facade to determine compliance with the LA' (1 minute) noise level in L4.1.

Where it can be demonstrated that direct measurement of noise from the premises is impractical, the DEC may accept alternative means of determining compliance. See Chapter 11 of the NSW Industrial Noise Policy.

The modification factors presented in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.

L4.5 The noise emission limits identifies in condition L4.1 apply under meteorological conditions of:

- ***Wind speed up to 3m/s at 10 metres above ground level; or***
- ***Temperature inversion conditions of up to 3°C/100m and wind speed up to 2m/s at 10 metres above the ground.***

AGL notes the above requested conditions.

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With respect to the modification factors presented in Section 4 of the NSW Industrial Noise Policy referenced in the submission, as noted above, the Environmental Assessment proposed a different approach to low frequency noise.

The INP recommendations for low frequency noise involve an assessment to be conducted on the difference between C and A weighting levels. However as noted in the Environmental Assessment, recent international research has shown, that the use of this difference approach is not suitable when the noise levels are low, since the low frequencies may then be below the threshold of hearing levels (A review of Published Research on Low Frequency Noise and its Effects, Report for Department for Environment, Food and Rural Affairs (UK) by Dr Geoff Leventhall, 2003). Current research suggests that (dBC-dBA) difference should not be used as an annoyance predictor, but as a simple indicator of whether further investigation may be necessary (Low Frequency Noise and Annoyance, Noise & Health 2004, 6:23, 59-72).

Recently the UK Department for Environment, Food and Rural Affairs (DEFRA) has developed a new procedure to assess low frequency noise. Using this approach the assessment found that it would be unlikely that low frequency noise impacts would result from the operation of the proposed plant.

AGL is committed to ameliorating any low frequency noise issues if they arise for the proposed plant consistent with the most recent low frequency noise assessment process that have been developed overseas in lieu of the INP.

Construction

L4.6 All construction work at the premises must be conducted between 7am and 6pm Monday to Friday and between 8am and 1pm Saturdays and at no time on Sundays and public holidays, unless inaudible at any residential premises.

L5 Load Limits

L5.1 The Project will be incorporated into the Load Based Licensing scheme under the fee based classification, Electricity Generation -Coal and Gas.

Note: The EPA Load Based Licensing Load Calculation Protocol lists the following assessable pollutants under this activity: air -oxides of nitrogen; water - total suspended solids and salt.

AGL notes the above requested conditions.

L6 ***Potentially Offensive Odour***

L6.1 The licensee must not cause or permit the emission of offensive odour beyond the boundary of the premises.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

L6.2 No condition of this licence identifies a potentially offensive odour for the purposes of Section 129 of the Protection of the Environment Operations Act 1997.

AGL notes the above requested conditions.

Operating Conditions

Bunding

O1 All liquid chemicals, fuels and oils must be stored in containers inside suitable bund(s). Bund(s) are to be designed, constructed and maintained in accordance with EPA Technical Guidelines "Bunding and Spill Management.

Waste

O2 All wastes generated or stored at the premises must be assessed, classified and managed in accordance with the DECC Waste Classification Guidelines (2008), or any other EPA document superseding this guideline.

AGL notes the above requested conditions.

Monitoring and Recording Conditions

M1 Air

Requirement to monitor concentration of pollutants discharged

Ml.1 For each monitoring/discharge point specified below, the proponent must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The proponent must use the sampling method, units of measure and sample at the frequency, specified opposite in the other columns:

Monitoring Points	Pollutant	Units of measure	Frequency	Sampling Method
Stack serving turbine 1 and Stack serving turbine2	Nitrogen dioxide ($N0_2$) or nitric oxide (NO) or both, as $N0_2$ equivalent	milligrams per cubic metre	Continuous	CEM-2

AGL notes the above requested conditions.

M3 Noise Monitoring

M3.1 Noise from the development must be monitored via attended noise surveys at the closest, or potentially most affected noise sensitive receiver location(s). Noise monitoring must be undertaken annually during the first two years of operation. The requirements for ongoing annual monitoring will be determined by EPA, in consultation with the Proponent, based on the results collected.

AGL notes the above requested conditions.

Special Conditions

E1. Long Term Air Emission Benchmark -Operation

E1.1. The purpose of this condition is to ensure the long term proper and efficient operation of the turbines based on emission performance achieved in practice. '

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E1.2. By at least 12 months from the end of commissioning, but not longer than 24 months, the proponent must submit a report to the EPA proposing an annual average nitrogen oxides emission benchmark for the turbine stack(s) per the table below. The annual average emission benchmark will reflect the average performance of the power station during normal operation and the proper and efficient operation of the turbines. The benchmark will also:

i. be derived using NO_x emission data from the Continuous Emissions Monitoring Systems for the turbine stack(s);

ii. be determined following the collection of a NO_x concentration dataset that is sufficient to represent the likely longer term operating patterns of the power plant;

iii. take into account the variation of NO_x concentrations at different generating loads;

iv recognise that generating load patterns may vary from year to year due to differences in electricity market demands and include an appropriate allowance for this variation; and

v. include provision for the probable increase in NO_x emissions with time due to reasonable wear and tear of the power plant.

Emissions Point(s)	Pollutant	Units of measure	Emission Benchmark	Average period (note 1)	Reference Conditions
Stack serving turbine 1	Nitrogen dioxide (NO_2) or nitric oxide (NO) or both, as NO_2 equivalent	milligrams per cubic metre	TBD (note2)	Annual Average	Dry, 273 K, 101.3 kPa, 15% oxygen (0_2)
Stack serving turbine2	Nitrogen dioxide (NO_2) or nitric oxide (NO) or both, as NO_2 equivalent	milligrams per cubic metre	TBD (note2)	Annual Average	Dry, 273 K, 101.3 kPa, 15% oxygen (0_2)

Note 1: The annual average benchmark applies over each reporting period as defined in the Environment Protection Licence.

Note 2: If the emission benchmark in the table above is exceeded, the proponent must provide an initial report to EPA within 1 month and an action plan within 3 months of the exceedance. The action plan will include:

i. a review of all practicable measures to reduce NOx emissions,

ii. an evaluation of the marginal cost of incremental NOx reductions and;

iii. proposed modifications to plant / operation that produce NOx reductions consistent with i and ii above.

AGL notes the above requested conditions.

E2. ***Evaporation Pond Water Cycle Management Plan***

The proposed development site is situated in a drinking water catchment area adjacent to the Nepean River and in a high groundwater vulnerability area (as classified by NSW Government Natural Resource Atlas). The evaporation pond will be used to store wastewater from the power station containing salts and antifouling chemicals, and other constituents from tile cleaning and maintenance of the equipment.

The objective of this condition is to

- ***detail the design, operation, and ongoing management of the evaporation ponds***
- ***demonstrate there will be no discharge from the evaporation ponds to waters or groundwater.***

E2.1 Prior to the commencement of construction a Water Cycle Management Plan for the evaporation pond must be submitted to the EPA that must include, but may not be limited to:

i. a description of how all water and wastewater streams are managed on the premises.

ii. a description of all of the likely constituents of the wastewater to be discharged to the evaporation pond including biocides and antifoulants

iii. a demonstration that the capacity of the evaporation pond(s) will be sufficient to manage blow down water and any other process or cleaning water to maintain freeboard capacity and to operate without discharge under a range of operational scenarios and climatic conditions as represented by local historical rainfall and evaporation data. This must include daily or monthly time-step modelling of pond behaviour under typical median, dry and wet years.

iv. details on how the evaporation pond(s) will be designed to permit any waste solids/sludge to be periodically collected, classified against the EPA Waste Classification Guidelines 2008, and appropriately disposal of (e.g. through being sized sufficiently to allow periodic drying-out of the pond, pumping water between ponds, etc).

v. details on stormwater management including the sediment pond design capacity and a management regime to ensure there is no discharge causing pollution of waters,

vi. The results of the groundwater field investigations undertaken by the proponent to characterise local groundwater conditions and identify any site constraints.

vii. Recommendations, considering all of the above, for the ongoing management of the evaporation pond to ensure no discharge to waters or groundwater.

Note: In consultation with the Proponent, the EPA may use this Plan to develop water and/or groundwater monitoring conditions for the EPL if required.

AGL notes the above requested conditions.

E3. ***Notification of Commissioning Schedule***

E3.1 Prior the commencement of commissioning the proponent must notify the EPA in writing of the proposed timing of commissioning the Power Station and how all plant and equipment will be brought on line to ensure compliance with all relevant environment protection requirements.

E4 Air Quality Verification

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E4.1 By three months following the end of commissioning the Proponent must submit an Air Quality Verification Report which includes but need not be limited to air emissions monitoring results (including test methods and full results) to confirm that the emissions performance of each turbine is consistent with the emissions used in air quality modelling for Environmental Assessment of the power station. The monitoring required by this condition is set out in the following table:

Monitoring Point(S)	Pollutant	Units Of Measure	Sampling Method
Stack serving turbine 1 and Stack serving Turbine 2	Carbon monoxide (CO)	milligrams per normalised cubic metre	TM-32
	Dry gas density	kilograms per cubic metre	TM-23
	Fine particles (PM_{10})	milligrams per normalised cubic metre	OM-5
	Moisture Content	percent	TM-22
	Nitrogen dioxide (NO_2) or nitric oxide (NO) or both, as NO_2 equivalent	milligrams per normalised cubic metre	TM-11
	Oxygen (O_2)	percent	TM-25
	Speciated organic compounds	milligrams per normalised cubic metre	TM-34
	Sulfur dioxide (SO_2)	milligrams per normalised cubic metre	TM-4
	Temperature	Degrees Celsius	TM-2
	Velocity	Metres per second	TM-2
	Volumetric flowrate	milligrams per normalised cubic metre	TM-2

Note: The sampling methods set out in the *above* table are those specified in the *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW.*

E4.2 ***The monitoring required by Condition E5.1 must be undertaken at such time(s) as is necessary to provide an adequate characterisation of the emissions from each turbine during normal operation.***

AGL notes the above requested conditions. It is assumed that the reference to condition E5.1 is a typographical error and should refer to Condition E4.1.

E5 ***Noise Compliance Verification***

E5.1 By twelve months following the end of commissioning the Proponent must submit a report to the EPA of a noise monitoring program. The report must confirm the findings of the Noise Impact Assessment included in the Environmental Assessment, and demonstrate compliance with Condition L4. The assessment must be prepared by a suitably qualified and experienced acoustical consultant and undertaken in accordance with the EPA Industrial Noise Policy.

E5.2 If the noise monitoring identifies any non-compliance with the Condition L4, the Proponent must detail what additional measures will be implemented to ensure compliance, clearly indicating who would implement these measures, when these measures would be implemented, and how the effectiveness of these measures would be measured and reported to the EPA.

AGL notes the above requested conditions.

Recommended Amendments to the Draft Statement of Commitments

DECC seeks the following revisions to the Draft Statement of Commitments (SOCs)

Aboriginal Heritage

- ***SOC L1 should read: "Undertake a program of archaeological subsurface testing across LGPAD1 with the aim of determining the nature, extent and significance of any Aboriginal objects present. The draft Guidelines ..."***

AGL does not agree with the requested revisions to the commitment. AGL suggest a commitment of the nature "Undertake an appropriate program of archaeological subsurface testing across LGPAD1 (within the development footprint) with the aim of determining the nature, extent (within the development footprint) and significance of any Aboriginal objects present."

- ***SOC L2 should read: "~~If necessary~~, development impacts to identified heritage values will be mitigated through documented appropriate management strategies."***

AGL does not agree with the requested revisions to the commitment. AGL request leave "if necessary" such that appropriate management strategies are developed in the event that heritage items are identified in the subsurface testing.

- ***An additional SOC to undertake the subsurface testing excavation (as referenced in Appendix M of the EA) in accordance with the Draft DECC Aboriginal Cultural Heritage Standards and Guidelines Kit, 1997.***

  Comment

  As referenced in the above Guidelines, hand excavation is the preferred methodology accompanied by adequate depth recording (i.e., hand excavation of uniform pits in spits, with each spit satisfactorily recorded). The methodology should be in line with other commonly used excavation methodologies. The testing programme should also include at least one open area excavation. Post-excavation analysis should incorporate geomorphological information and dating analysis where possible as well as robust lithic analysis in line with other analyses in the Metropolitan Region.

AGL notes the above request. AGL has committed in Chapter 19 of the Environmental Assessment to "*Undertake a program of archaeological subsurface testing across a representative sample of the LGPAD1 deposits with the aim of determining the nature and significance of any Aboriginal objects present as detailed in the indicative program and scope of subsurface testing provided in the Cultural Heritage Assessment (Appendix M). The draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation would be followed. On completion of the program DECC are to be provided with updated site information for inclusion in their AHIMS register."*

Excavation would be undertaken in accordance with the *Draft DECC Aboriginal Cultural Heritage- Standards and Guidelines Kit, 1997* and would use the excavation method appropriate for the Site.

- ***SOC L4 should be modified to read: The CEMP would be developed and implemented addressing heritage issues.***

  The CEMP will:

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- ***be informed by the results of the subsurface testing program***
- ***consider development impacts on ACH sites***
- ***be developed in consultation with the Aboriginal community and the DECC -detail the management strategies to be followed in the event that an aboriginal or non aboriginal relic is uncovered during construction***

AGL request that the requirement for consultation with the Aboriginal community and DECC for the CEMP be limited to the heritage component of the CEMP.

Air Quality

- ***SoC C5 should be strengthened to require construction dust impacts to be minimised rather than to be "controlled".***

AGL notes the above requested condition.

Threatened Species

Comment

The site for the proposed facility contains considerable stands of remnant vegetation which adjoins the Nepean River. The remnant vegetation is dominated mostly by the Endangered Ecological Community (EEC) Shale Sandstone Transition Forest (some River Flat Eucalypt Forest). In addition the EA lists a number of new sightings of Pultenea pedunculata which is listed as endangered under the TSC Act.

The EA states that the proponent agrees to permanently conserve vegetation in a Conservation Area and develop a protection mechanism (such as a Voluntary Conservation Agreement or Biobanking Agreement) and accompanying management plan in consultation with the DECC, subject to consent. This Potential Conservation Area is shown in Figure 4-11 of the EA and incorporates a Pultenea Recovery Area. The existing SOC regarding the conservation area should, however, include a clear timeframe. The Department suggests the existing SOC be amended to include the following:

- ***The land identified for the conservation area will be secured for long term conservation through a means agreed to by the DECC in consultation with the Proponent within 12 months of the commencement of construction.***

AGL notes and supports the inclusion of a timeframe, however suggests that the words "or other timeframe if agreed with DECC" be inserted after "within 12 months"..

DECC also recommends the SOC be amended to reflect the following:

- ***The Plan of Management for the conservation area (incorporating the Pultenea Recovery Area) should be prepared by an appropriately qualified bush regeneration contractor or ecological consultant in consultation with the DECC prior to undertaking any works.***
- ***The SOC proposes low intensity ecological burns to assist in recovery of Pultenea. We advise there is little scientific information on this species ability to recover from fire. DECC recommends SOC H5 be amended to investigate the use of low intensity burns within the area (excluding the location of the Pultenea pedunculata record) to facilitate germination from the seed bank.***

AGL notes these requests.

There are areas of land on the project site, but outside the Conservation Area that also contain significant biodiversity values, including the presence of the State and Nationally listed EEC Shale Sandstone Transition Forest. Any future action, development or activity in these areas will need to be appropriately assessed through the relevant Commonwealth and State approvals process to determine whether it is likely to significantly affect threatened species, populations or ecological communities, or their habitats.

Noted.

Water Management -Soil Erosion

The existing SOC regarding the Water Management -Soil Erosion should include a specific requirement for a soil and water management plan which may be included as part of the CEMP. The Department suggests the following wording be considered in modifying the existing SOC.

- ***Prior to the commencement of construction a Construction Soil and Water Management Plan (SWMP) will be prepared. The SWMP will include but may not be limited to:***

  i. details on how soil erosion and sediment pollution will be managed following the guidelines and recommendations in Volume 1 of Managing Urban Storm water: Soils and Construction (the Blue Book) during the construction phase;

  ii. plan drawings showing the locations for sediment and erosion measures in accordance with (i) for the construction site during all construction stages:

  iii. details on the installation, monitoring and maintenance requirements for each of the recommended measures for erosion and sediment control;

  iv. detailed drawings of any engineering structures such as sediment and evaporation ponds, including design standards and management regimes.

AGL notes these requests.

DEFINITIONS

In these General Terms of Approval except in so far as the context or subject matter otherwise indicates or requires

"Commissioning" means the commencement of the initial firing of the gas turbines and ends when the power station Is handed over to the owner. Commercial operation will follow the end of commissioning.

"dB(A)" means the units used to measure "A weighted" sound pressure levels. A-weighted is an adjustment made to sound level measurement to approximate the response to the human ear

"EPL" means Environment Protection Licence

"EPA" means the NSW Environment Protection Authority

"LAeq(15 minute)" means the equivalent continuous A weighted sound pressure level measured over a 15 minute period

"L_{A1}(1 minute) "means the sound pressure level that is exceeded for one per cent of the time when measured over a 1-minute period

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"m/s" means metres per second

"m^3 " means meters cubed per second

"Proponent" means AGL Power Generation Pty Ltd

"C" means degrees Celsius

"Kg/m^3" means Kilogram per cubic metre

"g/s" means grams per second

mg/m^3 "means milligrams per cubic metre "POEO· means Protection of the Environment Operations Act 1997.

AGL requests that the definition of Proponent be amended to include “AGL Power Generation Pty Ltd and its successors or assigns”.

3.2.9 Roads and Traffic Authority

Submission RTA.01: I refer to your undated letter (your reference: 08-0077) received by the Roads and Traffic Authority (RTA) on 30 March 2009 with regard to the above-mentioned major infrastructure development, which was referred to the Roads and Traffic Authority (RTA) for comment.

Submission RTA.02: The RTA has reviewed the traffic report submitted with the application and notes that the construction and operation of the proposed power station will involve vehicular access directly off Appin Road (classified state road) via a private access road.

Submission RTA.03: Given that Appin Road is a high speed rural road environment, the RTA endorses the recommendation in the submitted traffic report that a Type 'CHR' intersection treatment be constructed for right turn movements into the private access road from Appin Road in order to enable southbound through traffic on Appin Road to safely and efficiently pass a stationary vehicle on Appin Road waiting to turn right into the subject site. In addition, the RTA also endorses the proposal to widen and seal the existing road shoulder on the western side of Appin Road on approach to the private access road.

RTA’s endorsement is noted.

Submission RTA.04: However, road safety concerns are raised with regard to the tightness of a vehicle larger than 12.5 metres turning left from the northbound carriageway of Appin Road into the private access road. This is highly undesirable in a high speed rural road environment as drivers of articulated vehicles (ie semi trailers) are likely to track on to the wrong side of Appin Road when attempting to turn left into the private access road due to the tightness of this turn. The applicant's consultant has recognised this road safety issue and has recommended that a left turn prohibition be placed on this left turn movement by erecting a regulatory 'No Left Turn' sign at the driveway access facing northbound motorists on Appin Road. However, given that the private access road is not a public road, this sign is not legally enforceable.

Submission RTA.05: To have this road safety concern satisfactorily addressed, the RTA requests the applicant submit the following information to the RTA for assessment:

1. A swept path plan of the largest vehicle (accessing the site) turning left into the access road from Appin Road overlayed on a survey plan.

2. A road safety audit shall be undertaken by an independent and certified road safety auditor. which examines this road safety issue and is to be submitted to the RTA for review.

Submission RTA.06: To ensure that there is a solution to this road safety issue, it is preferable that this issue is addressed to RTA satisfaction, prior to the determination of the development application. However. if the Department does not deem this necessary, then at a minimum the above requirements should be provided as consent conditions to be addressed to the satisfaction of the RTA, prior to the issuing of any Construction Certificate.

AGL note RTA's request and would undertake these assessments prior to construction.

Submission RTA.07: Further to the above, the RTA provides the following requirements with regard to the civil works at the intersection of Appin Road and private access road, which are to be included in the development consent

1. Type 'CHR' Treatment

In accordance with Figure 6.41 of Austroads "Guide to Traffic Engineering Practice Part 5 -Intersections at Grade", the warrant is met for the provision of a Type 'CHR' intersection treatment on Appin Road at the private access road intersection.

This Type 'CHR' treatment shall be designed and constructed in accordance with the RTA's Road Design Guide.

In addition, the RTA endorses the proposal in the submitted traffic report that a Type 'CHR' 'treatment also be provided for the farm driveway opposite (eastern side of Appin Road).

2. Road Shoulder

The road shoulder shall be sealed on the western side of Appin Road on approach to the private access road and shall be in accordance with the RTA's Road Design Guide.

3. Street Lighting

Due to the rural road environment of the Appin Road and private access road intersection, street lighting may be required at the intersection, which shall be at full cost to the applicant

4. Works Authorisation Deed

The developer will be required to enter into a Works Authorisation Deed with the RTA. In this regard the developer is required to submit detailed design plans and all relevant additional information, as may be required in the RTA's Works Authorisation Deed documentation, for each specific change to state road network for the RTA's assessment and final decision concerning the work This will include payment of fees and charges, well as the lodgement of a bond.

Comment The developer is advised that the conditions of consent set by the consent authority do not guarantee the RTA's final consent to the specific road work, traffic control facilities and other structures works on the classified road network. The RTA must provide a final consent for each specific change to the state road network prior to the commencement of any work.

5. Construction Certificate'

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The 'Construction Certificate' for the proposed development shall not be released until such time that the all road works on Appin Road are fully constructed and operational to RTA satisfaction.

6. Stormwater Drainage

Detailed design plans and hydraulic calculations of any changes to the stormwater drainage system are to be submitted to the RTA for approval, prior to the commencement of any works.

Details should be forwarded to: The Sydney Asset Management Roads and Traffic Authority PO Box 973 Parramatta CBD 2 124.

A plan checking fee will be payable and a performance bond may be required before the RTA's approval is issued.

7. Utility Relocation

The developer shall be responsible for all public utility adjustment/relocation works, necessitated by the above work and as required by the various public utility authorities and/or their agents.

8. Over Size and Over Mass Vehicles

No over dimensional and/or over mass road transport convey is to take place unless the applicant obtains a special permit from the RTA.

The applicant is advised to email the RTA at special_permits_unit@rta.nsw.gov.auto obtain information with regard to the process in obtaining a special permit from the RTA.

9. Cost of Road Works

All costs associated with the above-mentioned works, shall be at full cost to the developer.

AGL note the RTA's requests.

3.2.10 Sydney Chamber of Commerce (SCC)

Submission SCC.01:

NSW Business Chamber and the Sydney Chamber of Commerce write to express their support for the Leafs Gully Gas-Fired Power Station under Part 3A of the Environmental Planning and Assessment Act.

NSW Business Chamber has over 22,000 members and associates, and is affiliated with 119 local and regional Chambers of Commerce throughout NSW.

Sydney Chamber of Commerce is part of NSW Business Chamber and represents over 130 Sydney based corporations which have a major stake in seeing Sydney grow and prosper as a leading global city.

Submission SCC.02: Energy Security

The NSW Government's Inquiry into Energy Supply in NSW found that energy demand will continue to grow, and that greater investment is required in order to secure energy supply into the future, and to sustain economic prosperity.

The Inquiry's chair, Professor Owen, concluded that energy security should be achieved through comprehensive reform to the NSW energy sector.

NSW Business Chamber and Sydney Chamber of Commerce have been vocal advocates of the need to grow energy capacity in NSW. The 300MW peaking power station proposed for Leafs Gully would contribute to securing the State's energy supply at times of peak demand. We believe that gas power should be actively promoted as one element of the State's

energy supply strategy, as it is a clean burning fuel and supports an industry which has a strong record of environmental consciousness.

Submission SCC.03: Economic Considerations

In March the NSW jobless rate increased to 6.9 per cent -a staggering leap of one per cent and one which underscores the threat of the global financial crises to the NSW economy. It is clear that all tiers of government must look at ways to stimulate economic growth.

State governments have relatively few economic levers at their disposal to stimulate economic growth. Even fewer are the number of economic levers which do not sacrifice state government revenue.

Planning policy is an economic lever which is both stimulatory and cost effective. State government must utilise planning policy to its full potential at this time of unprecedented economic uncertainty.

The $300 million Leafs Gully power plant is estimated to generate 250 jobs in the construction phase and economic activity for the region. NSW Business Chamber and the Sydney Chamber of Commerce support the progression of the Leafs Gully power plant as an economic development priority for the South West Sydney region.

We note that the unemployment rate in the outer South Western Sydney region currently stands at 8.2 per cent' and has consistently ranked above the state average. The manufacturing sector is the largest contributor to employment in the region, followed by retail trade and construction.

The Leafs Gully power plant during its construction phase will provide critical support to the manufacturing and construction sectors in particular, at a time when those industries are under significant pressure due to global economic conditions and the availability of finance.

NSW Business Chamber, formerly the NSW Chamber of Manufactures, has a strong concentration of members in manufacturing.

Through our interaction with our members, we understand that during this period of economic contraction, the manufacturing sector is under even greater pressure than usual.

Leafs Gully power plant would make a significant economic contribution to South Western Sydney, which will generate local employment opportunities and economic growth during a period of economic uncertainty.

Submission SCC.04: Local Amenity

As with any major development, Leafs Gully power plant will impact upon the local community and amenity. Located about 15 kilometres from Campbelltown CBD, Leafs Gully power plant has strong community support from residents who understand the need to support local employment and businesses.

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NSW Business Chamber and Sydney Chamber of Commerce note a recent Newspoll commissioned by AGL. As a peaking power plant, Leafs Gully will only operate to provide extra power at times when demand is greatest, such as very hot days or cold nights.

The research found that when local residents were informed that the power plant will only be in operation for less than 15 per cent of the time, 75 per cent of residents supported the project. When informed of the number of jobs that would be created by the project, support from locals increased to 79 per cent.

The business community has strongly supported the NSW Government's Employment Lands Strategy, aimed at facilitating economic growth through planning mechanisms.

We believe that the Leafs Gully project is in alignment with the objectives of the employment lands strategy and supports the growth of a key industry while passing the public interest test.

Submission SCC.05: Conclusion

The Leafs Gully project will increase state energy capacity; facilitate efficient allocation of energy through peaking technology; create 250 jobs in a region suffering above average unemployment; and contribute about $300 million in economic activity.

NSW Business Chamber and Sydney Chamber of Commerce are pleased to provide their support for the Leafs Gully project on these merits.

AGL notes the support of the NSW Business Chamber and Sydney Chamber of Commerce.

3.3 Community Submissions

A total of 448 community submissions were received comprising:

- 425 in form letter (type 1);
- eight in form letter (type 2);
- 32 as individual submissions;
- five objections with no further comment.

In order to maintain privacy of the submitters, copies of these submissions have not been presented in an appendix and references to names have been omitted.

In general it is noted that the main issues raised related to:

- air quality;
- health;
- noise impact;
- traffic impact;
- location of the plant in Campbelltown;
- property values;
- potential for expansion of the plant;
- consideration of the potential for future development around the Site.

3.3.1 Form letter (type 1)

A total of 425 form letters were received which listed issues and respondents marked those that were applicable to their submission. All of the issues listed on the form letter have been addressed in **Table 3-2**. The form letter also included a space for individual comment under the heading “Other”. These comments are addressed in **Table 3-3.**

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Table 3-1 Responses to Issues raised in Form Letter (type 1)

Issue	Aspect	Proponent Response
Air Quality	Noxious gas emissions	An assessment of the air quality impacts was presented in Chapter 7 of the Environmental Assessment. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. The regional air quality assessment concluded that the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced. The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.
	Increased asthma / breathing problems	An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was presented in Chapter 8 of the Environmental Assessment and was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute. The assessment concluded that at the levels predicted, any health impact would be difficult to detect. It stated that "at the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development."
Visual	Unsightly chimney stacks	A visual assessment was presented in Chapter 10 of the Environmental Assessment. The Visual Assessment concluded that the proposed Leafs Gully Power Project would have a low visual impact on people in areas surrounding the Development Site. This is due to a combination of existing trees and natural landforms, views to the stacks being generally restricted to upper portions of the stack structures, views to the lower sections of the power plant and associated infrastructure blocked by existing trees and local undulating landform, minimising the visual contrast between the power plant structures and tree canopy background, construction of an earth mound to the north and north east of the site, tree planting on the mound and other supplementary planting and lighting design.
	Increased smog haze in local area and Sydney Basin	An assessment of the air quality impacts was presented in Chapter 7 of the Environmental Assessment. The CSIRO was engaged to assess smog formation, being the regional formation of ozone and NO_2 when the plant is operational under different conditions. The regional air quality assessment concluded that the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

Issue	Aspect	Proponent Response
Water	Pollution of water supplies by noxious gas fallout	The proposed plant has been shown in a highly conservative assessment to meet air quality guidelines, which apply to the protection of both humans and sensitive environments. Natural gas combustion in gas turbines is extremely clean burning, which promotes almost complete oxidation of the fuel, minimising the amount of particulates emitted from the stacks. The particles that are emitted are extremely fine, thus are transported in a manner similar to that of gases, and given the buoyancy of the plume, a large amount of dilution is experienced before deposition occurs. For these reasons, the proposed plant's impact on rainwater quality and therefore tankwater is considered negligible. In addition, URS are aware of a single study for a similar plant (four 160MW natural gas fired turbines in Wagga) which concluded that a conservatively calculated total impact (including consumption of tank water) was acceptable. It is also noted that the Uranquinty HHRA dispersion modeling results were greater than at Leafs Gully for both short and long term impacts.
	Use of regions scarce water resources	As discussed in Chapter 14 of the Environmental Assessment, process water is proposed to be sourced via a water main located on the Development Site and / or from the Sydney Catchment Authority's Upper Canal and / or from recycled water from a proposed Sewage Treatment Plant at Appin resource (if the water quality is suitable and sufficient water quantities are available). Maintenance and domestic water is proposed to be sourced from rainwater tanks and supplemented by mains water if required. Fire fighting water is proposed to be sourced from waste process water or mains water. Landscaping water is proposed to be sourced from rainwater and dam water (stormwater) if available.
Noise	Turbine noise in a rural landscape	The construction, operational and traffic noise and vibration impacts due to the proposed Leafs Gully Power Project have been assessed in accordance with the relevant policy guidelines published by DECC as presented in Chapter 12 of the Environmental Assessment. The assessment predicted that there would be no exceedances of the relevant noise guidelines at surrounding residences for the plant with mitigation measures.
	Increased traffic noise especially during construction	The traffic noise impacts due to the proposed Leafs Gully Power Project have been assessed in accordance with the relevant policy guidelines published by DECC as presented in Chapter 11 of the Environmental Assessment. Noise impacts due to extra traffic along Appin Road (both during construction and operation) were found to be negligible.
The Environment	Disturbance of wildlife	The assessment of the flora and fauna impacts is presented in Chapter 13 of the Environmental Assessment. The assessment found that there were low biodiversity values for the proposed plant footprint. The key impact on biodiversity values would be removal of exotic pasture grass, along with several paddock trees. The key avoidance measure has been to locate the development footprint in a largely cleared paddock. The key mitigation measures would be salvage of trees, groundcover vegetation and other habitat features, weed control and visual screen plantings. In addition to the above measures, AGL are proposing to establish a Conservation Area, which spans Lots 101, 102 and 103 and is approximately 170 ha. The land would be re-titled for conservation purposes in consultation with DECC, either through a Voluntary Conservation Agreement (VCA), a Biobanking Agreement, or some other enduring protection mechanism.

Section 3 Response to Submissions

Issue	Aspect	Proponent Response
	Destruction of wildlife habitat	AGL are proposing to establish a Conservation Area, which spans Lots 101, 102 and 103 and is approximately 170 ha. The land would be re-titled for conservation purposes in consultation with DECC, either through a Voluntary Conservation Agreement (VCA), a Biobanking Agreement, or some other enduring protection mechanism.
Planning Laws	Heavy industry located in non industrial area	The Development Site is subject to the provisions of Interim Development Order No. 15 – City of Campbelltown (IDO 15). The Site is zoned, Zone No.1 – Non-Urban under IDO 15. Development for the purposes of 'generating works' is permissible with development consent in the Non-Urban Zone under IDO 15 and therefore the Leafs Gully Power Project is permissible in the Non-Urban Zone under IDO 15.
	Local area planning laws disregarded	The Development Site has a non-urban zoning and the Leafs Gully Power Project is permissible within this land use zone.
Bushfires	Development in bushfire propose risk area.	A preliminary bush fire hazard assessment was completed as part of the Environmental Assessment process as presented in Chapter 19 of the Environmental Assessment. Whilst the bush fire planning provisions of the NSW *Rural Fires Act 1997* and the *EP&A Act* do not apply to Part 3A developments, the guidelines set out in *Planning for Bush Fire Protection* (RFS 2006) have been addressed and applied to the proposal as a guide for site planning and risk mitigation. The key elements to bush fire protection on the site would be set out in a Bush Fire Management Plan for the proposed plant. With the installation and maintenance of the mitigation measures, the risk of bush fire attack on the proposed power plant would be managed to an acceptable level. AGL has committed to preparing an Emergency Response Plan as part of the CEMP and OEMP. The Plan would include emergency response provisions for bush fire The Plan would include evacuation arrangements, routines, and nominated control staff for bush fire events and the local Rural Fire Service branch would be consulted in preparation of Plan.
Traffic Congestion	Construction phase increases congestion on Appin Road	The traffic and transport assessment presented in Chapter 11 of the Environmental Assessment found that the arterial road network can satisfactorily and safely accept the additional traffic generated by the development during the construction, operational and maintenance phases if a separate right turn lane priority intersection is installed of the access road and Appin Road. These intersection works are part of the Project Application.
Employment	No substantial employment increase off setting disadvantages	It is estimated that about 250 workers will be needed during construction. The project complements the State Government's Employment Lands Strategy for South West Sydney, which will reserve land for new industries and provide thousands of jobs for local residents. A reliable source of electricity is essential to attract business and industry to the region and create new jobs.
Amenity	Loss of bushland, rural ambience	As noted in the Environmental Assessment, AGL are proposing to establish a Conservation Area, which spans Lots 101, 102 and 103 and is an areas of approximately 170 ha. The land would be re-titled for conservation purposes in consultation with DECC, either through a Voluntary Conservation Agreement (VCA), a Biobanking Agreement, or some other enduring protection mechanism.

Issue	Aspect	Proponent Response
	Potentially area becomes unattractive, heavy industrial	AGL has adopted a conservative approach for the Environmental Assessment and has proposed mitigating measures greater than strictly necessary. In particular, the visual assessment has incorporated a visual screening into the proposed project which would provide screening from the Leafs Gully Power Station should the neighbouring land be developed. On this basis, it is considered that the Leafs Gully Power Project would not have a significant impact on the potential for future residential development in the area.
Property Values	House values will drop if area becomes heavy industrial	The likely impacts to land values in the short term are forecast to be limited on the basis of existing planning and zoning restrictions and due to: - the unobtrusive nature of the proposed project given the size of the buffer zones afforded by the Leafs Gully property; - the limited operational impacts (and operational times); and - the limited supporting infrastructure requirements.
	What guarantee that it will remain a peaking station of …*[sic]*	The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15% in the year for this proposal. Should AGL decide to develop a base load gas fired power station in addition to a peaking plant, it would have to go through a similar process to that conducted for Leafs Gully to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation. There is no requirement for combined cycle gas turbines in the AGL portfolio at this time and as such, they are not being considered.
Size and capacity	How big could this power station become	The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15% in the year for this proposal. Any changes to the power plant would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.
Target	Can this be a potential terrorist target?	AGL would employ security measures at the Site similar to those for other facilities. These would include security fencing around the Site and provision of a gatehouse. It is also noted that safety features would be installed on the gas pipelines to provide protection in the event of a fault / incident. These mechanisms would be determined in the detailed design phase but would include automatic shutdown and manual shut down (i.e. isolating manually).

Section 3 Response to Submissions

Table 3-2 Responses to Issues raised in Form Letter under "Other" (type 1)

Issue	Times raised	Proponent Response
Clean air	159	An assessment of the air quality impacts was presented in Chapter 7 of the Environmental Assessment. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. The regional air quality assessment concluded that the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced. The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.
Effect on property values	23	The likely impacts to land values in the short term are forecast to be limited on the basis of existing planning and zoning restrictions and due to: - the unobtrusive nature of the proposed project given the size of the buffer zones afforded by the Leafs Gully property; - the limited operational impacts (and operational times); and - the limited supporting infrastructure requirements.
Asthma	11	An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was presented in Chapter 8 of the Environmental Assessment and was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute. The assessment concluded that at the levels predicted, any health impact would be difficult to detect. Further it stated that "at the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development."
Health	51	An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was presented in Chapter 8 of the Environmental Assessment and was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute. The assessment concluded that at the levels predicted, any health impact would be difficult to detect. Further it stated that "at the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development."

Issue	Times raised	Proponent Response
Mine Subsidence	1	As discussed in Chapter 9 of the Environmental Assessment at present the Development Site is unmined, however the proposed Leafs Gully Power Project is located within Area 5 of the West Cliff Colliery. The Leafs Gully Power Project may commence before extraction of coal and there may be some associated subsidence. Mine Subsidence Engineering Consultants Pty Ltd were engaged to conduct an assessment of the predicted subsidence that may be experienced if mining proceeds beneath the Site. The subsidence predictions provided would be used to design the foundations for the Leafs Gully Power Project such that should subsidence occur, the power plant would be able to withstand the predicted maximum subsidence impacts. The gas pipeline and electricity transmission line connections would be designed to allow for movement associated with mine subsidence.
Use of drinking water which is in short supply	1	As discussed in Chapter 14 of the Environmental Assessment, process water is proposed to be sourced via a water main located on the Development Site and / or from the Sydney Catchment Authority's Upper Canal and / or from recycled water from a proposed Sewage Treatment Plant at Appin resource (if the water quality is suitable and sufficient water quantities are available). Maintenance and domestic water is proposed to be sourced from rainwater tanks and supplemented by mains water if required. Fire fighting water is proposed to be sourced from waste process water or mains water. Landscaping water is proposed to be sourced from rainwater and dam water (stormwater) if available.
Location in a water catchment area	3	The Upper Canal is used for the transport of water to the catchment reservoir, and does not accept surface runoff from the area, thus the only potential pathway of pollutants would be atmospheric deposition of particulates onto the water in the canal or rain falling into the Upper Canal. The assessment concluded that any operating impact of the proposed plant on the Upper Canal in from deposition of particulates would to be negligible.
Potential impact on tank water	3	The proposed plant has been shown in a highly conservative assessment to meet air quality guidelines, which apply to the protection of both humans and sensitive environments. Natural gas combustion in gas turbines is extremely clean burning, which promotes almost complete oxidation of the fuel, minimising the amount of particulates emitted from the stacks. The particles that are emitted are extremely fine, thus are transported in a manner similar to that of gases, and given the buoyancy of the plume, a large amount of dilution is experienced before deposition occurs. For these reasons, the proposed plant's impact on rainwater quality and therefore tankwater is considered negligible. In addition, URS are aware of a single study for a similar plant (four 160MW natural gas fired turbines in Wagga) which concluded that a conservatively calculated total impact (including consumption of tank water) was acceptable. It is also noted that the Uranquinty HHRA dispersion modeling results were greater than at Leafs Gully for both short and long term impacts.

Section 3 Response to Submissions

Issue	Times raised	Proponent Response
Destruction and harm to wildlife and habitats	7	The assessment of the flora and fauna impacts is presented in Chapter 13 of the Environmental Assessment. The assessment found that there were low biodiversity values for the proposed plant footprint. The key impact on biodiversity values would be removal of exotic pasture grass, along with several paddock trees. The key avoidance measure has been to locate the development footprint in a largely cleared paddock. The key mitigation measures would be salvage of trees, groundcover vegetation and other habitat features, weed control and visual screen plantings. In addition to the above measures, AGL are proposing to establish a Conservation Area, which spans Lots 101, 102 and 103 and is approximately 170 ha. The land would be re-titled for conservation purposes in consultation with DECC, either through a Voluntary Conservation Agreement (VCA), a Biobanking Agreement, or some other enduring protection mechanism.
Damage to the Environment	9	The Environmental Assessment has presented a detailed assessment of the potential impacts on the environment in relation to air, noise, traffic, ecology, heritage, health, hazard and bushfire. No significant adverse environmental impacts have been identified through the course of studies. Environmental impacts that have been identified are within relevant standards and are capable of being mitigated through the use of appropriate environmental controls.
Location of power plant in Campbelltown/ Appin	25	The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls. AGL undertook comprehensive review of existing gas turbine developments in Australia and also reviewed more than 10 alternate sites in NSW. At these alternate sites, network connections, land use and environmental impacts were reviewed. The Appin area remains the preferred region as no other region has the proximity to demand, concentration of infrastructure, and suitable distance from neighbouring properties and communities. In addition, output from a power plant in this region would not be constrained during peak periods as may the case with other locations. To assure the community of the compatibility of gas turbines on the fringe of the Sydney metropolitan area, existing and proposed gas installations in Australia were reviewed to determine the acceptability of gas turbines in conjunction with industrial, rural and urban development. Gas turbines similar to that proposed for Leafs Gully are often located immediately adjacent to industrial facilities and within 500 m of urban areas. There are three gas turbines within 20 km of the Melbourne CBD and four within 20 km of the Adelaide CBD. Leafs Gully is 55 km from the Sydney CBD and 4.5 km from existing urban areas. Compared to existing sites in Australia, the Leafs Gully site is located compatibly with respect to industrial and urban development.

Issue	Times raised	Proponent Response
		Following additional analysis of alternate sites in NSW and existing facilities in Australia, locating a gas turbine peaking power plant in the Macarthur region is acceptable based on predicted environmental impacts. Strategically, the Site provides a location for reliable electricity generation at peak times to the key demand centre of NSW when the transmission system is constrained. In addition the Site has two sources of natural gas to draw upon. This ensures reliable electricity supplies for the electricity network.
Location in a bushfire prone area	1	A preliminary bush fire hazard assessment was completed as part of the Environmental Assessment process as presented in Chapter 19 of the Environmental Assessment. Whilst the bush fire planning provisions of the NSW *Rural Fires Act 1997* and the *EP&A Act* do not apply to Part 3A developments, the guidelines set out in *Planning for Bush Fire Protection* (RFS 2006) have been addressed and applied to the proposal as a guide for site planning and risk mitigation. The key elements to bush fire protection on the site would be set out in a Bush Fire Management Plan for the proposed plant. With the installation and maintenance of the mitigation measures, the risk of bush fire attack on the proposed power plant would be managed to an acceptable level. AGL has committed to preparing an Emergency Response Plan as part of the CEMP and OEMP. The Plan would include emergency response provisions for bush fire The Plan would include evacuation arrangements, routines, and nominated control staff for bush fire events and the local Rural Fire Service branch would be consulted in preparation of Plan.
Safety	1	AGL would employ security measures at the Site similar to those for other facilities. These would include security fencing around the Site and provision of a gatehouse. It is also noted that safety features would be installed on the gas pipelines to provide protection in the event of a fault / incident. These mechanisms would be determined in the detailed design phase but would include automatic shutdown and manual shut down (i.e. isolating manually). The preliminary hazard analysis in Chapter 17 of the Environmental Assessment demonstrates there is no increase in off site risk as a result of this proposal.
Maintaining local bushland to people to enjoy	3	The proposed site is currently within private property and therefore has limited access to the public. As noted in the Environmental Assessment, AGL are proposing to establish a Conservation Area, which spans Lots 101, 102 and 103 and is approximately 170 ha. The land would be re-titled for conservation purposes via an enduring protection mechanism.

Section 3 Response to Submissions

Issue	Times raised	Proponent Response
No power station	5	The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls. AGL undertook comprehensive review of existing gas turbine developments in Australia and also reviewed more than 10 alternate sites in NSW. At these alternate sites, network connections, land use and environmental impacts were reviewed. The Appin area remains the preferred region as no other region has the proximity to demand, concentration of infrastructure, and suitable distance from neighbouring properties and communities. In addition, output from a power plant in this region would not be constrained during peak periods as may the case with other locations.
Water pollution, clean water	6	The water requirements, wastewater production, stormwater management and flooding potential have been assessed in Chapter 14 of the Environmental Assessment for both construction and operation of the Leafs Gully Power Project. All construction works would be undertaken in a manner to minimise the potential for soil erosion and sedimentation. Wastewater volumes have been estimated and management strategies developed to maintain zero discharge from the site except for natural surface flows.
Save wildlife, disturbance to wildlife	6	The assessment of the flora and fauna impacts is presented in Chapter 13 of the Environmental Assessment. The assessment found that there were low biodiversity values for the proposed plant footprint. The key impact on biodiversity values would be removal of exotic pasture grass, along with several paddock trees. The key avoidance measure has been to locate the development footprint in a largely cleared paddock. The key mitigation measures would be salvage of trees, groundcover vegetation and other habitat features, weed control and visual screen plantings. In addition to the above measures, AGL are proposing to establish a Conservation Area, which spans Lots 101, 102 and 103 and is approximately 170 ha. The land would be re-titled for conservation purposes in consultation with DECC, either through a Voluntary Conservation Agreement (VCA), a Biobanking Agreement, or some other enduring protection mechanism.
Traffic congestion	4	The traffic and transport assessment presented in Chapter 11 of the Environmental Assessment found that the arterial road network can satisfactorily and safely accept the additional traffic generated by the development during the construction, operational and maintenance phases if a separate right turn lane priority intersection is installed of the access road and Appin Road. These intersection works are part of the Project Application.

Issue	Times raised	Proponent Response
Area not zoned for development	1	The Development Site has a non-urban zoning and the Leafs Gully Power Project is permissible within this land use zone. The Development Site is subject to the provisions of Campbelltown City Council's Interim Development Order No. 15 – City of Campbelltown (IDO 15). The Site is zoned, Zone No.1 – Non-Urban under IDO 15. Development for the purposes of 'generating works' is permissible with development consent in the Non-Urban Zone under IDO 15 and therefore the Leafs Gully Power Project is permissible in the Non-Urban Zone under IDO 15.
Green environment	2	The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.
Clean rivers	1	The water requirements, wastewater production, stormwater management and flooding potential have been assessed in Chapter 14 of the Environmental Assessment for both construction and operation of the Leafs Gully Power Project. All construction works would be undertaken in a manner to minimise the potential for soil erosion and sedimentation. Wastewater volumes have been estimated and management strategies developed to maintain zero discharge from the site except for natural surface flows.
Appin Rosemeadow area most important	1	The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.
Noise	3	The construction, operational and traffic noise and vibration impacts due to the proposed Leafs Gully Power Project have been assessed in accordance with the relevant policy guidelines published by DECC as presented in Chapter 12 of the Environmental Assessment. The assessment predicted that there would be no exceedances of the relevant noise guidelines at surrounding residences for the plant with mitigation measures.

Section 3 Response to Submissions

Issue	Times raised	Proponent Response
Rural area will end up ugly and ruined	1	The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls. A visual assessment was presented in Chapter 10 of the Environmental Assessment. The Visual Assessment concluded that the proposed Leafs Gully Power Project would have a low visual impact on people in areas surrounding the Development Site. This is due to a combination of existing trees and natural landforms, views to the stacks being generally restricted to upper portions of the stack structures, views to the lower sections of the power plant and associated infrastructure blocked by existing trees and local undulating landform, minimising the visual contrast between the power plant structures and tree canopy background, construction of an earth mound to the north and north east of the site, tree planting on the mound and other supplementary planting and lighting design.
No more air pollution in the Sydney region	1	An assessment of the air quality impacts was presented in Chapter 7 of the Environmental Assessment. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. The regional air quality assessment concluded that the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced. The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.
Healthy environment for wildlife	1	The assessment of the flora and fauna impacts is presented in Chapter 13 of the Environmental Assessment. The assessment found that there were low biodiversity values for the proposed plant footprint. The key impact on biodiversity values would be removal of exotic pasture grass, along with several paddock trees. The key avoidance measure has been to locate the development footprint in a largely cleared paddock. The key mitigation measures would be salvage of trees, groundcover vegetation and other habitat features, weed control and visual screen plantings. In addition to the above measures, AGL are proposing to establish a Conservation Area, which spans Lots 101, 102 and 103 and is approximately 170 ha. The land would be re-titled for conservation purposes in consultation with DECC, either through a Voluntary Conservation Agreement (VCA), a Biobanking Agreement, or some other enduring protection mechanism.

Issue	Times raised	Proponent Response
Sustainable power supply	4	A range of alternatives for plant were considered. Operation of gas turbines in open cycle mode was found to be preferable to combined cycle gas turbines and coal fired generation for meeting peak electricity demand while renewable technologies are not available to meet peak demand requirements. Natural gas is a clean burning fuel and gas turbine technology has low greenhouse gas emissions. In terms of alternate power generation technologies, open cycle gas turbines present the best outcome in terms of climate change for meeting peak demand while maintaining the price of electricity for consumers.
Pollution	20	The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.
No community benefit	1	It is estimated that about 250 workers will be needed during construction. The project complements the State Government's Employment Lands Strategy for South West Sydney, which will reserve land for new industries and provide thousands of jobs for local residents. A reliable source of electricity is essential to attract business and industry to the region and create new jobs.
Visual pollution/ unsightly	2	A visual assessment was presented in Chapter 10 of the Environmental Assessment. The Visual Assessment concluded that the proposed Leafs Gully Power Project would have a low visual impact on people in areas surrounding the Development Site. This is due to a combination of existing trees and natural landforms, views to the stacks being generally restricted to upper portions of the stack structures, views to the lower sections of the power plant and associated infrastructure blocked by existing trees and local undulating landform, minimising the visual contrast between the power plant structures and tree canopy background, construction of an earth mound to the north and north east of the site, tree planting on the mound and other supplementary planting and lighting design.
Quality of life	4	The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.
Appin is a quiet area that would be negatively affected by the plant.	1	The construction, operational and traffic noise and vibration impacts due to the proposed Leafs Gully Power Project have been assessed in accordance with the relevant policy guidelines published by DECC as presented in Chapter 12 of the Environmental Assessment. The assessment predicted that there would be no exceedances of the relevant noise guidelines at surrounding residences for the plant with mitigation measures.

Section 3 Response to Submissions

Issue	Times raised	Proponent Response
Improve infrastructure	1	The proposed Leafs Gully Power Project is needed to ensure the adequate, reliable and consistent supply of electricity during times of peak electricity demand in NSW, specifically for the key demand area of Newcastle-Sydney-Wollongong. The Project assists in improving electricity infrastructure.
Not necessary	1	The proposed Leafs Gully Power Project is needed to ensure the adequate, reliable and consistent supply of electricity during times of peak electricity demand in NSW, specifically for the key demand area of Newcastle-Sydney-Wollongong. The Project is consistent with Government policy indicating a preference for private investment in electricity generation. Peaking power generation enables AGL to manage its cost of electricity sold to consumers and minimises market exposure.
Terrorist attack	1	AGL would employ security measures at the Site similar to those for other facilities. These would include security fencing around the site and gatehouse. It is also noted that safety features would be installed on the gas pipelines to provide protection in the event of a fault / incident. These mechanisms would be determined in the detailed design phase but would include automatic shutdown and manual shut down (i.e. isolating manually).
Listening to community opposition	1	This Submissions Response Report considers the submissions made by the community as well as government authorities. The Director-General of the DoP will prepare an assessment report on the Leafs Gully Power Project, which will take into account comments from relevant Government authorities, other stakeholders and the community. The assessment report will be provided to the Minister for Planning who will determine whether to grant approval for the Project and the conditions under which the Project would operate in accordance with the EP&A Act.
How big will power station become	1	The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15% in the year for this proposal. Should AGL decide to develop a base load gas fired power station in addition to a peaking plant, it would have to go through a similar process to that conducted for Leafs Gully to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation. There is no requirement for combined cycle gas turbines in the AGL portfolio at this time and as such, they are not being considered.

Issue	Times raised	Proponent Response
Ugly urban sprawl, crime increase	1	A visual assessment was presented in Chapter 10 of the Environmental Assessment. The visual assessment concluded that the proposed Leafs Gully Power Project would have a low visual impact on people in areas surrounding the Development Site. This is due to a combination of existing trees and natural landforms, views to the stacks being generally restricted to upper portions of the stack structures, views to the lower sections of the power plant and associated infrastructure blocked by existing trees and local undulating landform, minimising the visual contrast between the power plant structures and tree canopy background, construction of an earth mound to the north and north east of the site, tree planting on the mound and other supplementary planting and lighting design. AGL would employ security measures at the Site similar to those for other facilities. These would include security fencing around the site and gatehouse.
Don't want industry taking over our village	1	The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls. A visual assessment was presented in Chapter 10 of the Environmental Assessment. The Visual Assessment concluded that the proposed Leafs Gully Power Project would have a low visual impact on people in areas surrounding the Development Site..

Section 3 Response to Submissions

3.3.2 Form letter (type 2)

Submissions 31, 32, 57, 58, 59, 60, 61 and 480 were a form letter signed by eight individual parties.

Form Letter 2.01: I am writing to express my strong opposition to the proposed development of a new 300 megawatt peaking or stand-by power generator near Mount Gilead.

Objection is noted.

Form Letter 2.02: I believe this development is not in the best interests of the wider Campbelltown community.

Form Letter 2.03: Its location will not only compromise our City's air quality and sterilise large areas of vacant land on Appin Road, it will also prevent residential development of the land surrounding the station and ensure the only suitable future for it will be for industry.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

An assessment of the air quality impacts was presented in Chapter 7 of the Environmental Assessment. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. The regional air quality assessment concluded that the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

The likely impacts to land values in the short term are forecast to be limited on the basis of existing planning and zoning restrictions and due to:

- the unobtrusive nature of the proposed project given the size of the buffer zones afforded by the Leafs Gully property;
- the limited operational impacts (and operational times); and
- the limited supporting infrastructure requirements.

Form Letter 2.04: I understand it has been declared a major project under the State Environment Planning Policy and will now be considered and determined by the Minister for Planning, The Hon. Kristina Keneally.

Form Letter 2.05: I wish to register my opposition against this proposed development with the Minister.

Objection is noted.

3.3.3 Individual Submissions

A total of 32 individual submissions were received from community members.

Submission 2

Submission 2.01 My concerns are Air Quality, Health, Property Values

Chapter 7 of the Environmental Assessment presents the detailed assessment of the impact of the proposed power station on air quality. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. Ozone is the major component of photochemical smog. NO_x is comprised of both nitrogen dioxide (NO_2) and nitric oxide (NO), with NO_2 being the primary concern in air quality guidelines. Ozone event days are days with meteorological conditions known to be conducive to photochemical smog events and were selected by the Department of Environment and Conservation (DEC, now know as Department of Environment and Climate Change (DECC)) as a basis for the assessment.

The regional air quality assessment conducted by CSIRO demonstrates a minor impact on ozone levels in the Sydney airshed with the majority of the air shed unaffected and broad areas over the Macarthur region experience a reduction in ozone levels while relatively small areas within the region experience an increase. As a result, the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute, titled *"Natural Gas Power Stations, Air Quality and Respiratory Disease"* and presented in the Environmental Assessment. The assessment stated that:

"At these levels any health impact would be difficult to detect. At the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development."

The potential impact on land value is addressed in Section 16 of the Environmental Assessment and is reiterated below. The implications for the surrounding areas from the proposed Leafs Gully peaking plant are

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important issues to the local community. There are two main issues that need to be considered in this discussion:

- the effect on the current value of the surrounding lands; and
- opportunity cost of land over the next 10 to 30 years.

The existing value of land surrounding the Development Site is based on its current use, which as shown is currently zoned as non-urban. However, it has been suggested that part of the current value of the land surrounding the proposed project is based on a belief that within the future this land will be zoned residential, and can hence be developed for housing purposes. This is referred to as a speculative premium. Given the likely timeframes for potential re-zoning and development to occur, the speculative premium is likely to be limited at present.

The likely impacts to land values in the short term are forecast to be limited on the basis of existing planning and zoning restrictions and due to:

- the unobtrusive nature of the proposed project given the size of the buffer zones afforded by the Leafs Gully property;
- the limited operational impacts (and operational times); and
- the limited supporting infrastructure requirements.

Submission 2.02 I purchased in Glen Alpine because it was free of industrial works but since then I have been lumped with two transmission towers and assorted boxes and now its to be noxious gas. Enough is enough.

It is noted that Glen Alpine is approximately 7 km from the Site.

Chapter 7 of the Environmental Assessment presents the detailed assessment of the impact of the proposed power station on air quality. The regional air quality assessment conducted by CSIRO demonstrates a minor impact on ozone levels in the Sydney airshed with the majority of the air shed unaffected and broad areas over the Macarthur region experience a reduction in ozone levels while relatively small areas within the region experience an increase. As a result, the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

Submission 3

Submission 3.01 My concerns are decreased air quality, health of local residents, decrease in property values.

Chapter 7 of the Environmental Assessment presents the detailed assessment of the impact of the proposed power station on air quality. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. Ozone is the major component of photochemical smog. NO_x is comprised of both nitrogen dioxide (NO_2) and nitric oxide (NO), with NO_2 being the primary concern in air quality guidelines. Ozone event days are days with meteorological

conditions known to be conducive to photochemical smog events and were selected by the Department of Environment and Conservation (DEC, now know as Department of Environment and Climate Change (DECC)) as a basis for the assessment.

The regional air quality assessment conducted by CSIRO demonstrates a minor impact on ozone levels in the Sydney airshed with the majority of the air shed unaffected and broad areas over the Macarthur region experience a reduction in ozone levels while relatively small areas within the region experience an increase. As a result, the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

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The potential impact on land value is addressed in Section 16 of the Environmental Assessment and is reiterated below.

The implications for the surrounding areas from the proposed Leafs Gully peaking plant are important issues to the local community. There are two main issues that need to be considered in this discussion:

- the effect on the current value of the surrounding lands; and
- opportunity cost of land over the next 10 to 30 years.

The existing value of land surrounding the Development Site is based on its current use, which as shown is currently zoned as non-urban. However, it has been suggested that part of the current value of the land surrounding the proposed project is based on a belief that within the future this land will be zoned residential, and can hence be developed for housing purposes. This is referred to as a speculative premium. Given the likely timeframes for potential re-zoning and development to occur, the speculative premium is likely to be limited at present.

The likely impacts to land values in the short term are forecast to be limited on the basis of existing planning and zoning restrictions and due to:

- the unobtrusive nature of the proposed project given the size of the buffer zones afforded by the Leafs Gully property;
- the limited operational impacts (and operational times); and

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- the limited supporting infrastructure requirements.

Submission 4

Submission 4.01 I strongly oppose the proposed power station due strongly to pollution.

Impacts such as air quality, noise, water, were all considered in detail. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

In particular it is noted that the local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

Submission 6

Submission 6.01: We are very opposed to this power station being built in this area due primarily to the health issues involved. We are on tank water (only) and really on this water for drinking etc. [name withheld] has had a heart transplant 6 years ago but even though his health is fine at the present we would like to know what impact the pollution will have on his health. What are the risks involved with the chemicals that will be deposited into the air.

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute, titled *"Natural Gas Power Stations, Air Quality and Respiratory Disease"* and presented in the Environmental Assessment.

Of the potential emissions from the proposed plant the highest impact on ambient air quality is likely to be from nitrogen dioxide (NO_2) because natural gas is relatively clean burning with low particulate and sulphur dioxide emissions. In the worst case situation for the proposed two unit natural gas power station (during simultaneous startup of both turbines), maximal emissions of NO_2 added to the highest ambient pollution levels (during an unusual weather event) are predicted to result in levels below the NSW criteria. The assessment stated that:

"At these levels any health impact would be difficult to detect. At the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development."

Natural gas combustion in gas turbines is extremely clean burning, with a minimal quantity of particulates contained in the exhaust. These particles are also extremely fine, thus are transported in a manner similar to that of gases, such that deposition is minimal. It is considered that based on the following factos, the impact of the operating proposed plant on tank water to be negligible:

- the relatively clean combustion properties of natural gas-fired turbines;
- the low scale of peak particulate impacts relative to background levels;
- the low frequency of proposed operation.

In addition, URS are aware of a single study for a similar plant (four 160MW natural gas fired turbines in Wagga) which concluded that a conservatively calculated total impact (including consumption of tank water) was acceptable. It is also noted that the Uranquinty HHRA dispersion modeling results were greater than at Leafs Gully for both short and long term impacts.

Submission 7

Submission 7.01 Due to the fact of pollution and traffic increases.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

The traffic and transport assessment found that the arterial road network can satisfactorily and safely accept the additional traffic generated by the development during the construction, operational and maintenance phases if a separate right turn lane priority intersection is installed of the access road and Appin Road. This type of intersection limits the impact on Appin Road traffic and provides a safe area for queuing right-turning vehicles. It is proposed that the right turn opportunity be extended to include a separate lane access for a property driveway on the eastern side of Appin Road located opposite the access road for the site. These intersection works are part of the Project Application.

Submission 8

Submission 8.01 I would like to lodge my objection to the power station for the following reasons. It will have a negative impact on the health of the community, Macarthur has a high rte of asthma in children and we do not want it to get worse.

Submission 8.02 Air quality – increase pollution will effect health and other sickness.

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute, titled *"Natural Gas Power Stations, Air Quality and Respiratory Disease"* and presented in the Environmental Assessment.

Of the potential emissions from the proposed plant the highest impact on ambient air quality is likely to be from nitrogen dioxide (NO_2) because natural gas is relatively clean burning with low particulate and sulphur dioxide emissions. In the worst case situation for the proposed two unit natural gas power station (during simultaneous startup of both turbines), maximal emissions of NO_2 added to the highest ambient pollution levels (during an unusual weather event) are predicted to result in levels below the NSW criteria. The assessment stated that:

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Submission 8.03 Reduce house prices in southern Campbelltown and stop the future growth of houses in and around Gilead.

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Submission 8.04 Power station (if approved) would attract other large polluting industries to come to Macarthur and effect air quality.

The likely impacts to land values are forecast to be limited on the basis of existing planning and zoning restrictions and due to:

- the unobtrusive nature of the proposed project given the size of the buffer zones afforded by the Leafs Gully property;
- the limited operational impacts (and operational times); and
- the limited supporting infrastructure requirements.

The Sydney Metropolitan Strategy focuses on the South West Growth Centre and the Development Site is not within the boundaries of this growth area. However, Mount Gilead has been identified in the Metropolitan Development Plan as an area of approximately 2 km^2 potentially providing 1,340 dwellings in the long term. This area is approximately 2 km from the Development Site. No other areas closer to the Development Site have been identified in the Metropolitan Development Plan. It is noted that the Sydney Metropolitan Strategy states that lands outside growth centres which are not on the Metropolitan Development Plan are not needed for development over the next 25 years. A strategic review undertaken in 2007 which addressed housing demand and land supply in the Macarthur South area determined that Macarthur South was not required to address regional and metropolitan housing needs.

AGL cannot comment on potential applications for industrial developments by other Proponents, although it is noted that such applications would be subject to the approvals process under relevant legislation with requirements for assessment of environmental impacts including cumulative impacts.

Submission 9

Submission 9.01 I am unhappy with the proposed power station because the location is too near to adjacent residential areas. The 20 m tonnes of emissions will mean that it will not depend on how clear the plant is the quantity of impurities will guarantee an ongoing health risk which will be even more dangerous for young people.

Submission 9.02 I am not against power stations being built but standards should not be compromised in favour of the necessity of building them.

Submission 9.03 Gas pipelines provide a precedent for the plant being distant from the point of extraction. Lets not put profits before people.

Relative to other similar developments, the proposal compares favourably regarding proximity to residential areas. The nearest urban areas are approximately 5 km away.

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute, titled *"Natural Gas Power Stations, Air Quality and Respiratory Disease"* and presented in the Environmental Assessment.

Of the potential emissions from the proposed plant the highest impact on ambient air quality is likely to be from nitrogen dioxide (NO_2) because natural gas is relatively clean burning with low particulate and sulphur dioxide emissions. In the worst case situation for the proposed two unit natural gas power station (during simultaneous

startup of both turbines), maximal emissions of NO_2 added to the highest ambient pollution levels (during an unusual weather event) are predicted to result in levels below the NSW criteria. The assessment stated that:

"At these levels any health impact would be difficult to detect. At the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development."

It should also be noted that the air pollution modelling conducted for the local area found that, for a worst case scenario, ground level concentrations of NO_2, PM_{10}, CO, SO_2 and HAP would all be below the DECC criteria. The impacts on local air quality from this development would be minor and adverse impacts are unlikely.

Submission 10

Submission 10.01 We oppose the development of the 300 megawatt power station near Mt Gilead. The Macarthur region already has the highest rate of asthma. Due to the already poor air quality this would substantially increase the health in the region. The power plant produces large amounts of greenhouse gasses and toxic gasses which will impact the health of the community.

Submission 10.02 The power plant will have a negative impact to the residential property market in the area and we strongly suggest the Department of Planning reconsider and locate the power plant outside the Sydney basin.

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute, titled *"Natural Gas Power Stations, Air Quality and Respiratory Disease"* and presented in the Environmental Assessment.

Of the potential emissions from the proposed plant the highest impact on ambient air quality is likely to be from nitrogen dioxide (NO_2) because natural gas is relatively clean burning with low particulate and sulphur dioxide emissions. In the worst case situation for the proposed two unit natural gas power station (during simultaneous startup of both turbines), maximal emissions of NO_2 added to the highest ambient pollution levels (during an unusual weather event) are predicted to result in levels below the NSW criteria. The assessment stated that:

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The greenhouse gas emissions of the proposed Leafs Gully Power Project are estimated to be 0.29 million tonnes of carbon dioxide equivalent (CO_2-e) per year based on 1,314 hours of operation (that is, 15 % of the year). This would represent 0.37 % of greenhouse gas emissions from power generation in NSW or 0.10 % of all power generation in Australia. This is two-thirds less than the emissions would be for an equivalent sized coal-fired power plant.

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The impacts on residential land values are expected to be limited due to the distance and screening of the plant from residences and the limited infrastructure requirements. A strategic review undertaken in 2007 which addressed housing demand and land supply in the Macarthur South area determined that Macarthur South was not required to address regional and metropolitan housing needs.

Submission 11

Submission 11.01 We have enough problems with the air quality in this town, without another polluting industrial site. I suffer from asthma and already have problems with the air pollution.

The proposed plant has been shown in a highly conservative assessment to meet air quality guidelines, which apply to the protection of both humans and sensitive environments.

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute, titled *"Natural Gas Power Stations, Air Quality and Respiratory Disease"* and presented in the Environmental Assessment.

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Submission 12

Submission 12.01 I disagree with the proposal to the power plant as too local with pollution and greenhouse gasses.

The air pollution modelling conducted for the local area found that, for a worst case scenario, ground level concentrations of NO_2, PM_{10}, CO, SO_2 and HAP would all be below the DECC criteria. The impacts on local air quality from this development would be minor and adverse impacts are unlikely.

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Submission 12.02 Fine with the idea of a plant, just not in Campbelltown.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

AGL undertook comprehensive review of existing gas turbine developments in Australia and also reviewed more than 10 alternate sites in NSW. At these alternate sites, network connections, land use and environmental impacts were reviewed. The Appin area remains the preferred region as no other region has the proximity to demand, concentration of infrastructure, and suitable distance from neighbouring properties and communities. In addition, output from a power plant in this region would not be constrained during peak periods as may the case with other locations.

Submission 13

Submission 13.01 I oppose the power station. It is totally the wrong position for a power plant. It will add to the already high levels of pollution and asthma problems that we have in the Campbelltown area.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

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Submission 13.02 The impact of health and air quality will be felt for generations to come. Please put the power plant out of the Sydney basin area.

Of the potential emissions from the proposed plant the highest impact on ambient air quality is likely to be from nitrogen dioxide (NO_2) because natural gas is relatively clean burning with low particulate and sulphur dioxide emissions. In the worst case situation for the proposed two unit natural gas power station (during simultaneous startup of both turbines), maximal emissions of NO_2 added to the highest ambient pollution levels (during an unusual weather event) are predicted to result in levels below the NSW criteria. The assessment stated that:

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It should also be noted that the air pollution modelling conducted for the local area found that, for a worst case scenario, ground level concentrations of NO_2, PM_{10}, CO, SO_2 and HAP would all be below the DECC criteria. The impacts on local air quality from this development would be minor and adverse impacts are unlikely.

Submission 14

Submission 14.01 I object to the proposed power station because it will increase pollution and Macarthur already has on of the highest rates of asthma in Sydney

Submission 14.02 It will also produce large amounts of greenhouse gas in nitrous oxide gases.

Submission 14.03 It will impact on the health of community and cost us more due to pollution sickness.

Submission 14.04 The power plant should be located outside the Sydney basin area.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

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The greenhouse gas emissions of the proposed Leafs Gully Power Project are estimated to be 0.29 million tonnes of carbon dioxide equivalent (CO_2-e) per year based on 1,314 hours of operation (that is, 15 % of the year). This would represent 0.37 % of greenhouse gas emissions from power generation in NSW or 0.10 % of all power generation in Australia. This is two-thirds less than the emissions would be for an equivalent sized coal-fired power plant.

Submission 18

Submission 18.01 I do not want the power station to go ahead due to excess pollution and the negative effects this would have on the environment and all organisms living within it.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

The flora and fauna assessment found that there were low biodiversity values for the proposed plant footprint. The key impact on biodiversity values would be removal of exotic pasture grass, along with several paddock trees. It is noted that the development footprint has been located in a largely cleared paddock.

In addition, AGL are proposing to establish a Conservation Area, which spans Lots 101, 102 and 103 and is approximately 170 ha. The land would be re-titled for conservation purposes in consultation with DECC, either through a Voluntary Conservation Agreement (VCA), a Biobanking Agreement, or some other enduring protection mechanism.

Submission 19

Submission 19.01 Erecting a power plant in the area would not only bring an eyesore and hazardous air to the area, but would also create more problems for the council. Campbelltown is already known for some, unsavoury shall we say, people. While this will produce more jobs, it will also drive a lot of people out of the Campbelltown area, or at least get them looking to do so.

Submission 19.02 Instead of wasting your funds on something like this, why not put them somewhere more viable. They don't need more power – even if they do, find an ecologically friendly option.

The visual assessment concluded that the proposed Leafs Gully Power Project would have a low visual impact on people in areas surrounding the Development Site. This is due to a combination of existing trees and natural landforms, views to the stacks being generally restricted to upper portions of the stack structures, views to the lower sections of the power plant and associated infrastructure blocked by existing trees and local undulating landform, minimising the visual contrast between the power plant structures and tree canopy background, construction of an earth mound to the north and north east of the site, tree planting on the mound and other supplementary planting and lighting design.

The NSW Government's *Energy Directions Green Paper* and the *2006 National Electricity Market Management Company Statement of Opportunities* predict that over the next decade rising electricity demand from the whole of NSW will exceed existing generation capacity. To meet the peak immediate growth in demand for electricity, a number of additional power plants will be required to serve peaking capacity. Project need is well established in the Environmental Assessment.

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The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

Submission 20

Submission 20.01 I object to this project because gas is not a renewable energy source and produces greenhouse gas emissions. We should be building wind, solar, low-impact hydro not coal, nuclear and gas power stations.

Submission 20.02 I hope that this application is denied.

A range of alternatives for plant and proposed location were considered. Operation of gas turbines in open cycle mode was found to be preferable to combined cycle gas turbines and coal fired generation for meeting peak electricity demand while renewable technologies are not available to meet peak demand requirements. Natural gas is a clean burning fuel and gas turbine technology has low greenhouse gas emissions. In terms of alternate power generation technologies, open cycle gas turbines present the best outcome in terms of climate change for meeting peak demand while maintaining the price of electricity for consumers.

Generation from solar and wind power is not suitable for peak load power stations due to the intermittent nature of the resource. Often weather conditions that provide a good wind resource correspond to times when electricity demand is low. For solar, the low capacity and high technology cost for electricity generation is such that it is not feasible even though weather conditions conducive to solar generation are often coincident with high electricity demand. In addition, storage technology is not sufficiently advanced to store large amounts of energy for later use. Therefore, these technologies do not provide suitable alternatives that can service peak load demand.

Hydro-electric power stations can provide peak load supply to the National Electricity Market. The Snowy Mountains scheme has traditionally provided peak power generation requirements to NSW and Victoria through its hydro assets. As electricity demand has grown, additional peak generation capacity is required. In NSW, the opportunities have been substantially exhausted to develop hydro-electric power stations for large scale electricity generation to meet the projected peak demand requirements identified by NEMMCO.

It is noted that the Leafs Gully Power Project is for a two unit gas-fired peaking power plant comprising two gas turbines operating in open cycle mode. Electricity would be fed into the high voltage transmission network and the gas turbines would be fuelled by natural gas from two major existing pipelines running through the Development Site.

Submission 22

Submission 22.01 I do not want this power station in Appin, due to its location and the pollution.

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Submission 22.02 I will fight this all the way.

Objection is noted.

Submission 23

It is noted that Submission 23 is duplicated in Submission 442.

Submission 23.01 We strongly object to the abovementioned application for the power station for the following reasons. The power station will emit 100,000's of tonnes of pollution into the Campbelltown atmosphere annually. Numerous studies have confirmed that the Sydney basin is already over polluted. One such report The State of the Environment 2006 report found that while air quality has improved over the past decade in every other Australian capital city, in Sydney it has got worse. Sydney is choking under a dangerous cloud of pollution according to the report which was headed by Associate Professor Bob Beeton. Peaking plants operate during times of the year in which inversion effects are most significant.

An air quality assessment was carried out for the project. Dispersion modelling done as part of this assessment found that for regional air quality, there would be a small increase in the production of NO_x which could result in minor reductions in ozone but would not have substantial adverse impacts on the production of photochemical smog. The modelling was also based on the impacts of a four unit station operating 24 hours a day; therefore, the impacts of the proposed two unit station operating for 15 % of the year would be less.

The modelling conducted for the local area found that, for a worst case scenario (which includes temperature inversions), ground level concentrations of NO_2, PM_{10}, CO, SO_2 and HAP would all be below the DECC criteria. The impacts on local air quality from this development would be minor and adverse impacts are unlikely.

The greenhouse gas emissions of the proposed Leafs Gully Power Project are estimated to be 0.29 million tonnes of carbon dioxide equivalent (CO_2-e) per year based on 1,314 hours of operation (that is, 15 % of the year). This would represent 0.37 % of greenhouse gas emissions from power generation in NSW or 0.10 % of all power generation in Australia. This is two-thirds less than the emissions would be for an equivalent sized coal-fired power plant.

Submission 23.02 This emission of additional pollution will significantly increase asthma and respiratory problems for ourselves, our children and our grandchildren. The Campbelltown area already has an unacceptable asthma level in children of eight percent. It has been reported that the Sydney basin at times already exceeds the maximum allowable air pollution levels resulting in an estimated 1400 deaths per annum. As well the emission will create general health problems.

Section 3 Response to Submissions

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute, titled *"Natural Gas Power Stations, Air Quality and Respiratory Disease"* and presented in the Environmental Assessment.

Of the potential emissions from the proposed plant the highest impact on ambient air quality is likely to be from nitrogen dioxide (NO_2) because natural gas is relatively clean burning with low particulate and sulphur dioxide emissions. In the worst case situation for the proposed two unit natural gas power station (during simultaneous startup of both turbines), maximal emissions of NO_2 added to the highest ambient pollution levels (during an unusual weather event) are predicted to result in levels below the NSW criteria. The assessment stated that:

"At these levels any health impact would be difficult to detect. At the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development."

Submission 23.03 The Sydney Catchment Authority advised in their letter dated 6/6/206 "The project is located in the vicinity of the upper canal, and I note that you will seek to draw water from the Upper Canal for operation of the plant". The upper canal is a critical part of the Sydney drinking water supply system under the ownership, care, control and management of the Sydney Catchment Authority. It is used to transfer untreated water from the Upper Nepean dams to the Prospect Water Filtration Plant. The Upper Canal transfers up to 30 percent of the raw water supplied to this filtration plant for the majority of its length, the Upper Canal is an open channel which will result in additional pollution to Sydney's drinking water from the proposed gas-fired power plant which is unacceptable.

The Upper Canal is used for the transport of water to the catchment reservoir, and does not accept surface runoff from the area, thus the only potential pathway of pollutants would be atmospheric deposition of particulates onto the water in the canal or rain falling into the Upper Canal.

The assessment concluded that any operating impact of the proposed plant on the Upper Canal from deposition of particulates would to be negligible.

Submission 23.04 Most of the neighbouring houses including all of Wedderburn do not have town water, consequently their tank water will be contaminated from the pollution emissions of the plant.

Natural gas combustion in gas turbines is extremely clean burning, with a minimal quantity of particulates contained in the exhaust. These particles are also extremely fine, thus are transported in a manner similar to that of gases, such that deposition is minimal. It is considered that based on the following factors, impact of the operating proposed plant on tank water to be negligible:

- the relatively clean combustion properties of natural gas-fired turbines;
- the low scale of peak particulate impacts relative to background levels;
- the low frequency of proposed operation.

In addition, URS are aware of a single study for a similar plant (four 160MW natural gas fired turbines in Wagga) which concluded that a conservatively calculated total impact (including consumption of tank water) was acceptable. It is also noted that the Uranquinty HHRA dispersion modeling results were greater than at Leafs Gully for both short and long term impacts.

Submission 23.05 Page 25, 3.2.1.3 Gilead History – volume 2 states "The suburb of Gilead was identified as a site for future urban development by the State Government in 1993. The plans involved subdividing the fields of Gilead into residential lots capable of housing 20,000 people, but were controversial and were haltered because they were deemed to pose significant pollution risk to the nearby environmentally sensitive Nepean River (McGill, Fowler & Richardson, 1995)" This confirms that the State Government is already aware that this area must not be subjected to further pollution.

The Sydney Metropolitan Strategy focuses on the South West Growth Centre and the Development Site is not within the boundaries of this growth area. However, Mount Gilead has been identified in the Metropolitan Development Plan as an area of approximately 2 km^2 potentially providing 1,340 dwellings in the long term. This area is approximately 2 km from the Development Site. No other areas closer to the Development Site have been identified in the Metropolitan Development Plan. It is noted that the Sydney Metropolitan Strategy states that lands outside growth centres which are not on the Metropolitan Development Plan are not needed for development over the next 25 years. A strategic review undertaken in 2007 which addressed housing demand and land supply in the Macarthur South area determined that Macarthur South was not required to address regional and metropolitan housing needs.

It should be noted that the boundaries of the Metropolitan Strategy are not fixed and may be subject to on-going review by the Department of Planning in consultation with councils and stakeholders, in response to issues such as population and broader demographic needs. The work undertaken in this report has relied on existing planning forecasts for its analysis.

Submission 23.06 The visual impact is said to be low, however the assessment does not clearly highlight that the maximum plume from the power plant will be approximately nine hundred meters that will have significant adverse visual impact which is unacceptable.

As noted in Chapter 10 if the Environmental Assessment, AGL have confirmed that no visible emissions would be discharged from the two turbine exhaust stacks.

Submission 23.07 It has always been State Government policy that electricity power stations be constructed in industrial areas due to their unacceptable pollution emissions. The proposed power station is located in an area zoned rural where families live, consequently it is an inappropriate development in this area.

AGL undertook comprehensive review of existing gas turbine developments in Australia and also reviewed more than 10 alternate sites in NSW. At these alternate sites, network connections, land use and environmental impacts were reviewed. The Appin area remains the preferred region as no other region has the proximity to demand, concentration of infrastructure, and suitable distance from neighbouring properties and communities. In addition, output from a power plant in this region would not be constrained during peak periods as may the case with other locations.

The Development Site has a non-urban zoning and the Leafs Gully Power Project is permissible within this land use zone. The Development Site is subject to the provisions of Interim Development Order No. 15 – City of Campbelltown (IDO 15). The Site is zoned, Zone No.1 – Non-Urban under IDO 15. Development for the purposes of 'generating works' is permissible with development consent in the Non-Urban Zone under IDO 15 and therefore the Leafs Gully Power Project is permissible in the Non-Urban Zone under IDO 15.

Section 3 Response to Submissions

Submission 23.08 AGL have an option to purchase 280 hectares of land when the power station will cover only approximately 10 hectares. AGL will not guarantee that future development of the site will not take place. Obviously any future extension of the power station would further increase the already unacceptable levels of pollution in the Sydney basin.

The bulk of the site not being used for the plant and associated infrastructure will be declared as a Conservation Area, which spans Lots 101, 102 and 103 and is approximately 170 ha. The land would be re-titled for conservation purposes via an enduring protection mechanism.

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15 % in the year for this proposal. Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

AGL cannot comment on potential applications by other Proponents, although it is noted that such applications would be subject to the approvals process under relevant legislation with requirements for assessment of environmental impacts including cumulative impacts.

Submission 23.09 There is no benefit to the Campbelltown area as the electricity proposed to be produced will be supplied to the overall power grid for use by Newcastle, Wollongong and Sydney. We only get the pollution.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

Submission 23.10 The power station will only employ four workers.

It is estimated that about 250 workers will be needed during construction. The project complements the State Government's Employment Lands Strategy for South West Sydney, which will reserve land for new industries and provide thousands of jobs for local residents. A reliable source of electricity is essential to attract business and industry to the region and create new jobs. On this basis it is considered that the Project is consistent with the strategic directions in the Campbelltown 2025 Looking Forward document for "growing the Regional City", and "creating employment and entrepreneurial opportunities".

It is anticipated that five full time on-site jobs would be created to operate and perform routine maintenance activities.

Submission 23.11 For reasons stated in the submission it is imperative that this application for the power station be rejected so that the residents of Campbelltown/Wedderburn and the Sydney basin will not be subjected to 100,000's of tonnes of pollution annually which would detrimentally effect their health.

Impacts such as air quality, health, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

Submission 24

Submission 24.01 We object to the power station at Leaf's gully. Don't want the power station location close to our residence as we have just moved to a new home in this area.

Objection is noted.

Submission 24.02 The environment will also be affected.

Impacts such as air quality, health, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

Submission 27

Submission 27.01 As I am only 14 years old I feel we have enough pollution in this place now more would make the mainly the elderly become more sic with breathing problems.

Impacts such as air quality, health, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

Submission 29

Submission 29.01 The power station will increase air pollution problems in the Campbelltown and Western Sydney area, this will add to increased health problems such as asthma. Campbelltown and Western Sydney area already have on of the highest levels of asthma in NSW and this power station will increase the levels.

Submission 29.02 The location of the proposed power station should be built out of the Sydney basin. The Sydney Basin is a big trap for smog.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

An air quality assessment was carried out for the project. Dispersion modelling done as part of this assessment found that for regional air quality, there would be a small increase in the production of NO_x which could result in minor reductions in ozone but would not have substantial adverse impacts on the production of photochemical smog. The modelling was also based on the impacts of a four unit station operating 24 hours a day; therefore, the impacts of the proposed two unit station operating for 15 % of the year would be less.

The modelling conducted for the local area found that, for a worst case scenario (which includes temperature inversions), ground level concentrations of NO_2, PM_{10}, CO, SO_2 and HAP would all be below the DECC criteria. The impacts on local air quality from this development would be minor and adverse impacts are unlikely.

Section 3 Response to Submissions

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute, titled *"Natural Gas Power Stations, Air Quality and Respiratory Disease"* and presented in the Environmental Assessment.

Of the potential emissions from the proposed plant the highest impact on ambient air quality is likely to be from nitrogen dioxide (NO_2) because natural gas is relatively clean burning with low particulate and sulphur dioxide emissions. In the worst case situation for the proposed natural gas power station (during simultaneous startup of both turbines), maximal emissions of NO_2 added to the highest ambient pollution levels (during an unusual weather event) are predicted to result in levels below the NSW criteria. The assessment stated that:

"At these levels any health impact would be difficult to detect. At the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development."

Submission 29.03 The power station will produce large amounts of greenhouse gases which will have a significant detrimental effect of the environment.

The greenhouse gas emissions of the proposed Leafs Gully Power Project are estimated to be 0.29 million tonnes of carbon dioxide equivalent (CO_2-e) per year based on 1,314 hours of operation (that is, 15 % of the year). This would represent 0.37 % of greenhouse gas emissions from power generation in NSW or 0.10 % of all power generation in Australia. This is two-thirds less than the emissions would be for an equivalent sized coal-fired power plant.

Submission 29.04 The power station will reduce the value of house prices in the area. No-one would live near or move in the vicinity of a power station. This is an unfair situation for the people of Campbelltown and Western Sydney in these harsh economic times.

The implications on future land value is discussed in Chapter 16 of the Environmental Assessment which states that current land value is based on zoning controls applied which is non-urban. However in this area a speculative premium has been applied by the market on the basis that rezoning may occur in the future. Speculative investments made by other entities on land not identified for urban development in the next 20 to 30 years should not unduly influence developments that comply with all current regulatory and zoning requirements. Leafs Gully complies with all requirements and is permissible with consent in the current zoning.

However, despite the above, AGL has recognised that adjacent landowners are concerned about the proposal and as such has proposed a number of mitigation measures to ensure that future land use on neighbouring properties is not constrained by the power station.

These mitigation measures include:

- visual screening by way of 6 m high mound over 600 m long; and
- approximately 30 hectares of tree planting.

However, urban development in the future will need to be mindful of endangered ecological communities that exist in the region, something AGL has addressed by dedicating approximately 170 ha of land for permanent conservation.

Similar gas turbine installations in Australia demonstrate that the analysis by AGL in the EA is correct and that there will be no future land use conflict.

Submission 29.05 If this proposal is approved, I fear it will attract other heavy industries to the area which will compound the pollution and environmental issues previously mention.

The Development Site is subject to the provisions of Interim Development Order No. 15 – City of Campbelltown (IDO 15). The Site is zoned, Zone No.1 – Non-Urban under IDO 15. Development for the purposes of 'generating works' is permissible with development consent in the Non-Urban Zone under IDO 15 and therefore the Leafs Gully Power Project is permissible in the Non-Urban Zone under IDO 15.

AGL cannot comment on potential applications for industrial developments by other Proponents, although it is noted that such applications would be subject to the approvals process under relevant legislation with requirements for assessment of environmental impacts including cumulative impacts.

Submission 29.06 Please stop this proposed power station, let Campbelltown breathe for future generations. Let AGL build their power station somewhere else.

AGL undertook comprehensive review of existing gas turbine developments in Australia and also reviewed more than 10 alternate sites in NSW. At these alternate sites, network connections, land use and environmental impacts were reviewed. The Appin area remains the preferred region as no other region has the proximity to demand, concentration of infrastructure, and suitable distance from neighbouring properties and communities. In addition, output from a power plant in this region would not be constrained during peak periods as may the case with other locations.

It should also be noted that the air pollution modelling conducted for the local area found that, for a worst case scenario, ground level concentrations of NO_2, PM_{10}, CO, SO_2 and HAP would all be below the DECC criteria. The impacts on local air quality from this development would be minor and adverse impacts are unlikely.

Submission 30

Submission 30.01 Air Quality – The Macarthur Area are already is under strain from air pollution due to winds pushing smog to this area within the Sydney basin. The power station will only add and compound this problem and cause more pollution. The power station will produce greenhouse gases including nitrous oxide which will add to the basin pollution. The size of the power station has been reduced to half of the previous application (which was withdrawn) however this does not half the pollution generated, it will still add more pollution to the region. The power station should be located outside the Sydney Basin.

A detailed assessment of the air quality impacts was presented in the Environmental Assessment addressing local and regional air quality impacts. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. The regional air quality assessment concluded that the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

It should also be noted that the local air pollution modelling conducted for the local area found that, for a worst case scenario, ground level concentrations of NO_2, PM_{10}, CO, SO_2 and HAP would all be below the DECC criteria. The impacts on local air quality from this development would be minor and adverse impacts are unlikely.

Submission 30.02 Health – The Macarthur Area already has one of the highest levels of asthma problems in NSW and the power station will make it worse for the community with increasing health cost issues to the community and the State.

Section 3 Response to Submissions

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute, titled *"Natural Gas Power Stations, Air Quality and Respiratory Disease"* and presented in the Environmental Assessment. The assessment stated that:

"At these levels any health impact would be difficult to detect. At the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development."

Submission 30.03 Visual – The power station stacks will be visible above the tree line and would be very visible from future homes which maybe built on the surrounding areas.

As noted in Chapter 10 of the Environmental Assessment, a total of 28 view locations were identified and assessed as part of the visual assessment process. The methodology for the visual assessment comprised:

- desktop study addressing visual character of the region;
- fieldwork;
- assessment of visual impact of the power plant using:
  - visibility catchment of the power plant site;
  - identification and mapping of potential view locations;
  - analysis of cross sections;
  - analysis of visibility;
- visual simulations from key view locations; and
- identification of mitigation measures.

An assessment of the visibility rating for each of the 28 view locations indicated that:

- 15 of the 28 view locations were determined to have a **NIL** visibility rating;
- 12 of the 28 view locations were determined to have a **LOW** visibility rating;
- 1 of the 28 view locations were determined to have a **MODERATE** visibility rating; and
- None of the 28 view locations were determined to have a **HIGH** visibility rating.

The visual assessment concluded that overall the Leafs Gully Power Project would have a low visual impact on people in areas surrounding the site.

It is considered that the visual assessment has adequately addressed the potential visual impact of the Leafs Gully Power Project. The visual assessment was prepared by a Registered Landscape Architect with over 15 years experience and employed a general methodology that has been utilised on a number of visual assessments for similar sized infrastructure projects.

The visual assessment could not determine the potential visual impact of the power plant solely on the basis of future urban growth that may or may not be developed in the locality, without additional details of where, and

which categories of viewers may occur in relation to the power plant. We understand that this level of information is not available for any areas of future urban growth surrounding the proposed power plant.

Submission 30.04 It has been stated that the power station is a peaking power station which will operate approximately 15% of the time. The major concern here is that if approved and running how is the Community to know if the operation will increase and then cause further pollution or in the future turn into a base generating power station running 24/7.

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15 % in the year for this proposal. Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

AGL cannot comment on potential applications by other Proponents, although it is noted that such applications would be subject to the approvals process under relevant legislation with requirements for assessment of environmental impacts including cumulative impacts.

Submission 30.05 Location – The power station should be located outside the Sydney Basin, if anywhere. In AGL's Assessment it considered various other sites outside the Sydney basin, but provide limited details and they preferred the Leaf's Gully location due to the close available services such as gas, water and electricity grid which may be the most convenient and / or least cost to AGL. The same service at this location are also available at other alternative locations considered by AGL, but possibly at extra costs (to AGL) but the other locations would not burden the Macarthur area with more pollution and associated health issues.

A detailed site alternative assessment was presented in Chapter 3 of the Environmental Assessment. AGL has undertaken a comprehensive review of existing gas turbine developments in Australia and also reviewed more than 10 alternate sites in NSW. At these alternate sites, network connections, land use and environmental impacts were reviewed. The Appin area remains the preferred region as no other region has the proximity to demand, concentration of infrastructure, and suitable distance from neighbouring properties and communities. In addition, output from a power plant in this region would not be constrained during peak periods as may the case with other locations.

Following additional analysis of alternate sites in NSW and existing facilities in Australia, locating a gas turbine peaking power plant in the Macarthur region is acceptable based on predicted environmental impacts. Strategically, the Site provides a location for reliable electricity generation at peak times to the key demand centre of NSW when the transmission system is constrained. In addition the Site has two sources of natural gas to draw upon. This ensures reliable electricity supplies for the electricity network.

Submission 30.06 Land Use – The power station will cause conflict with future land use of the area. Council in earlier reports and documents has indicated this general area would become urban development and very likely residential use which will conflict with industry. If the power station is approved it would attract similar heavy industries to the area which is contrary to Council future vision of this Macarthur South Precinct.

The implications on future land value is discussed in Chapter 16 of the Environmental Assessment which states that current land value is based on zoning controls applied which is non-urban. However in this area a speculative premium has been applied by the market on the basis that rezoning may occur in the future. Speculative investments made by other entities on land not identified for urban development in the next 20 to 30

Section 3 Response to Submissions

years should not unduly influence developments that comply with all current regulatory and zoning requirements. Leafs Gully complies with all requirements and is permissible with consent in the current zoning.

AGL cannot comment on potential applications by other Proponents, although it is noted that such applications would be subject to the approvals process under relevant legislation with requirements for assessment of environmental impacts including cumulative impacts.

Submission 30.07 Land Values – The power station would cause reduced house prices in the general area, due to having the power station in the neighbourhood and the Macarthur Area. Reduced house prices would be a good thing for the community if created by competition and oversupply of land to build on. However having a power plant close by and in your next suburb would reduce prices for the wrong reason and who would like to live or move near a power station.

The likely impacts to land values in the short term are forecast to be limited on the basis of existing planning and zoning restrictions and due to:

- the unobtrusive nature of the proposed project given the size of the buffer zones afforded by the Leafs Gully property;
- the limited operational impacts (and operational times); and
- the limited supporting infrastructure requirements.

Submission 62

Submission 62.01 I strongly object to the power station. My daughter, son-in-law and 3 grandchildren live in Minto Heights and there is more than enough pollution already and we don't need anymore.

It is noted that Minto Heights is over 15 km from the proposal.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, health, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

Submission 63

Submission 63.01 I object to the power station because it will effect the air quality of the area.

An assessment of the air quality impacts was presented in Chapter 7 of the Environmental Assessment. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. The regional air quality assessment concluded that the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The impacts on local air quality from this development would be minor and adverse impacts are

unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

Submission 63.02 Campbelltown already has one of the highest levels of asthma problems in NSW and the power station will make it worse.

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute, titled *"Natural Gas Power Stations, Air Quality and Respiratory Disease"* and presented in the Environmental Assessment. The assessment stated that:

"At these levels any health impact would be difficult to detect. At the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development."

Submission 63.03 It should be located outside the Sydney Basin so that pollution is not as bad for the community.

An assessment of the air quality impacts was presented in Chapter 7 of the Environmental Assessment. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. The regional air quality assessment concluded that the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

AGL undertook comprehensive review of existing gas turbine developments in Australia and also reviewed more than 10 alternate sites in NSW. At these alternate sites, network connections, land use and environmental impacts were reviewed. The Appin area remains the preferred region as no other region has the proximity to demand, concentration of infrastructure, and suitable distance from neighbouring properties and communities. In addition, output from a power plant in this region would not be constrained during peak periods as may the case with other locations.

Submission 415

Submission 415.01 Please see attached document, which is personal objection. May I also have an extension of time to lodge objections from other people that I am able to gather over the next few days. I believe this power station, should it go ahead, will change the character of the Macarthur region for ever in a way that is not beneficial to anyone other than AGL.

Submission 415.02 I *[Submitters name and address withheld]* Object to the Leaf's Gully Gas Fired Power Station Application Reference No. MP08_0077

Submission 415.03 I am aware that this application by AGL replaces an almost identical application (Project Application Number 06_0117) that was lodged by AGL in October 2006 and then withdrawn in

Section 3 Response to Submissions

early 2007. It was reported at that time that AGL had said that they now realised that Leaf's Gully was an unsuitable location for a power plant and that one would not be built there. They were reported as saying that they would be now looking at other sites that had already been under consideration, all outside the Sydney Metropolitan area. Yet 6 months later AGL was lodging this present application with little further consideration of the issues involved. Furthermore, the new proposal is almost identical to that which was withdrawn. The only real changes are:

1) **It is a two turbine plant producing 300 megawatts instead of four turbine plant producing 600 megawatts. (Although I see AGL already say they hope to increase this to 600 megawatts in the future, as originally intended !!)**
2) **That AGL will provide some visual screening.**
3) **That an evaporation pond will be built to take care of waste from the evaporative air inlet cooler.**
4) **That there will be upgrading and realignment of the access road from the Appin Road to the development site.**

In essence this is really a resubmission by AGL of the original application (number 06_0117) and should be viewed and treated as such by those assessing this application.

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15 % in the year for this proposal. Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

A detailed site alternative assessment was presented in Chapter 3 of the Environmental Assessment. AGL has undertaken a comprehensive review of existing gas turbine developments in Australia and also reviewed more than 10 alternate sites in NSW. At these alternate sites, network connections, land use and environmental impacts were reviewed. The Appin area remains the preferred region as no other region has the proximity to demand, concentration of infrastructure, and suitable distance from neighbouring properties and communities. In addition, output from a power plant in this region would not be constrained during peak periods as may the case with other locations.

Following additional analysis of alternate sites in NSW and existing facilities in Australia, locating a gas turbine peaking power plant in the Macarthur region is acceptable based on predicted environmental impacts. Strategically, the Site provides a location for reliable electricity generation at peak times to the key demand centre of NSW when the transmission system is constrained. In addition the Site has two sources of natural gas to draw upon. This ensures reliable electricity supplies for the electricity network.

Accordingly I draw you attention to my objection to that original application lodged in 2006, as that objection is still relevant in its entirety. (You should have a copy on your files) Now, I reiterate that objection. Furthermore and to reinforce my opposition to the building of the power station at Leaf's Gully, I declare that the aspects of this development that I am concerned about relate to:

Submission 415.04 Air Quality – The reason I am concerned is that there will be significant noxious gas emissions from this plant. The Macarthur region has a very high rate of asthma, possibly the worst in the Sydney region, and breathing problems generally and any diminution in air quality will only make

this situation worse. It will cause an increase in long term chronic health problems, for which the medical costs will far outweigh any supposedly cheaper power generation that AGL might claim.

Chapter 7 of the Environmental Assessment presents the detailed assessment of the impact of the proposed power station on air quality. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. Ozone is the major component of photochemical smog. NO_x is comprised of both nitrogen dioxide (NO_2) and nitric oxide (NO), with NO_2 being the primary concern in air quality guidelines. Ozone event days are days with meteorological conditions known to be conducive to photochemical smog events and were selected by the Department of Environment and Conservation (DEC, now know as Department of Environment and Climate Change (DECC)) as a basis for the assessment.

The regional air quality assessment conducted by CSIRO demonstrates a minor impact on ozone levels in the Sydney airshed with the majority of the air shed unaffected and broad areas over the Macarthur region experience a reduction in ozone levels while relatively small areas within the region experience an increase. As a result, the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute, titled *"Natural Gas Power Stations, Air Quality and Respiratory Disease"* and presented in the Environmental Assessment. The assessment stated that:

"At these levels any health impact would be difficult to detect. At the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development."

Submission 415.05 Visual – The reason I am concerned is that there will be unsightly chimney stacks visible from long distances and especially from various aspects on our rural property, Mount Gilead, where I live. There will also be increased smog and haze, especially on those long, hot summer days where there is very often little wind for days at a time so that such smog and haze cannot be dispersed. It should be noted that it is on such occasions, when air conditioners will be much used, that this peaking power station will be operation at full capacity.

The visual assessment (Chapter 10 of the Environmental Assessment) concluded that the proposed Leafs Gully Power Project would have a low visual impact on people in areas surrounding the Development Site. This is due to a combination of existing trees and natural landforms, views to the stacks being generally restricted to upper portions of the stack structures, views to the lower sections of the power plant and associated infrastructure blocked by existing trees and local undulating landform, minimising the visual contrast between the power plant structures and tree canopy background, construction of an earth mound to the north and north east of the site, tree planting on the mound and other supplementary planting and lighting design.

Section 3 Response to Submissions

View Location 11 specifically addressed the homestead at the Mount Gilead property and View Location 7 addressed the vacant land on Mount Gilead property boundary. Both locations were assessed to have nil visibility. At the homestead it was noted that views toward site from residence are blocked by a combination of landform and trees.

As noted in Chapter 10 if the Environmental Assessment, AGL have confirmed that no visible emissions would be discharged from the two turbine exhaust stacks.

Submission 415.06 Water – The reason I am concerned is that the local water supplies, including the open upper canal of the Sydney Catchment Authority and the Nepean River will be exposed to contamination by these noxious gases falling and dissolving in these water supplies.

As noted in Section 14.7.3 of the Environmental Assessment, the Upper Canal is used for the transport of water to the catchment reservoir, and does not accept surface runoff from the area, thus the only potential pathway of pollutants would be atmospheric deposition of particulates onto the water in the canal or rain falling into the canal.

However, natural gas combustion in gas turbines is extremely clean burning, with a minimal quantity of particulates contained in the exhaust. These particles are also extremely fine, thus are transported in a manner similar to that of gases, such that deposition is minimal. These factors, coupled with the small surface area of exposed flowing water in the canal compared with its volumetric flow, and the fact that the buoyant nature of the plume means that typically the stack emissions would not reach ground level close to the source, renders any operating impact of the proposed plant on the canal to be negligible.

In addition, the assessment has assumed the plant to be operating continuously, whilst in reality operation is capped to 15 % of the year, with actual operation likely to be even less. Despite this conservativeness, the maximum long term impacts for pollutants of interest were shown to be a fraction of pre-existing background levels, and below DECC guidelines.

This is also the case with the potential for impact on the Nepean River. In addition, with respect to impact of runoff to the Nepean River, it is noted that all construction works would be undertaken in a manner to minimise the potential for soil erosion and sedimentation. Wastewater volumes have been estimated and management strategies developed to maintain zero discharge from the site except for natural surface flows.

And what about the noxious gases that will dissolve in rainwater tanks and dams of which there are many in the Mount Gilead to Appin region ? According to AGL's first EA for DA MP 06_0117, the fallout of these noxious gases will be at their very maximum on the paddocks at the front of Mount Gilead homestead.

Natural gas combustion in gas turbines is extremely clean burning, with a minimal quantity of particulates contained in the exhaust. These particles are also extremely fine, thus are transported in a manner similar to that of gases, such that deposition is minimal. It is considered that based on the following factors, impact of the operating proposed plant on tank water to be negligible:

- the relatively clean combustion properties of natural gas-fired turbines;
- the low scale of peak particulate impacts relative to background levels;
- the low frequency of proposed operation.

In addition, URS are aware of a single study for a similar plant (four 160MW natural gas fired turbines in Wagga) which concluded that a conservatively calculated total impact (including consumption of tank water) was acceptable. It is also noted that the Uranquinty HHRA dispersion modeling results were greater than at Leafs Gully for both short and long term impacts.

The air quality assessment did not consider individual (existing) dwellings, rather a gridded approach was adopted, whereby pollutant concentrations were predicted every 500 m, across a 25 x 25 km grid. The results of the assessment indicated compliance with air quality criteria at all points on this grid. Therefore the assessment found that the plant would comply with air quality criteria at the Mount Gilead homestead.

Submission 415.07 Noise – The reason I am concerned about this aspect is that there will be an industrial turbine noise in what is now a peaceful rural landscape. We will be able to hear this from some of the most seclude and picturesque parts of mount Gilead.

Also there will be increased traffic noise on the Appin road, especially during construction. We are often able to hear Appin Road noise at the Mount Gilead homestead and this will make things worse.

The construction, operational and traffic noise and vibration impacts due to the proposed Leafs Gully Power Project have been assessed in accordance with the relevant policy guidelines published by DECC as presented in Chapter 12 of the Environmental Assessment. The assessment predicted that there would be no exceedances of the relevant noise guidelines at surrounding residences for the plant with mitigation measures. As these residences are closer to the Site than the Mount Gilead homestead, there would not be exceedances for the homestead at Mount Gilead.

As noted in Chapter 12 of the Environmental Assessment, noise impacts due to extra traffic along Appin Road (both during construction and operation) were found to be negligible.

Submission 415.08 The Environment – The reason I am concerned about this is that there will be disturbance to wildlife with such an industrial development in the midst of their habitat, no matter how much mitigating work is done, such as planting koala friendly trees. There is destruction of habitat with the actual foot print of the plant and wildlife will be in danger of being run over by the increased vehicle numbers accessing the area, especially during construction.

The assessment of the flora and fauna impacts is presented in Chapter 13 of the Environmental Assessment. The assessment found that there were low biodiversity values for the proposed plant footprint. The key impact on biodiversity values would be removal of exotic pasture grass, along with several paddock trees. The impact has been avoided by locating the development footprint in a largely cleared paddock. The key mitigation measures would be salvage of trees, groundcover vegetation and other habitat features, weed control and visual screen plantings.

In addition to the above measures, AGL are proposing to establish a Conservation Area, which spans Lots 101, 102 and 103 and is approximately 170 ha. The land would be re-titled for conservation purposes in consultation with DECC, either through a Voluntary Conservation Agreement (VCA), a Biobanking Agreement, or some other enduring protection mechanism.

As stated in the Statement of Commitments (Chapter 19 of the Environmental Assessment), AGL has already committed (Commitment H4) that "*A Construction Environmental Management Plan (CEMP) would be developed for the Site and would include measures for the minimisation or avoidance of impacts on native flora and fauna… and include …site management procedures.*"

Section 3 Response to Submissions

As noted in Chapter 13, the site management procedures would include measures such as setting maximum speed limits during construction and operation traffic on site to reduce risk of fauna road fatalities.

Submission 415.09 Planning Laws – The reason I am concerned about this aspect is that I do not believe that heavy industry should be located in designated rural areas. What do we have planning laws for? Industrial industries should be built in designated industrial areas. If this application is allowed to proceed it sets the precedent that local planning laws can be disregarded.

The Development Site is subject to the provisions of Campbelltown City Council's Interim Development Order No. 15 – City of Campbelltown (IDO 15). The Site is zoned, Zone No.1 – Non-Urban under IDO 15. Development for the purposes of 'generating works' is permissible with development consent in the Non-Urban Zone under IDO 15 and therefore the Leafs Gully Power Project is permissible in the Non-Urban Zone under IDO 15.

Submission 415.10 Bushfires – The reason I am concerned about this is two fold: First, it is flouting planning laws about developments in bushfire prone areas. Second, it is a high risk fire hazard by virtue of its very nature, producing electricity from gas and by using turbines which generate heart and sparks.

A preliminary bush fire hazard assessment was completed as part of the Environmental Assessment process as presented in Chapter 19 of the Environmental Assessment. Whilst the bush fire planning provisions of the NSW *Rural Fires Act 1997* and the *EP&A Act* do not apply to Part 3A developments, the guidelines set out in *Planning for Bush Fire Protection* (RFS 2006) have been addressed and applied to the proposal as a guide for site planning and risk mitigation.

The key elements to bush fire protection on the site would be set out in a Bush Fire Management Plan for the proposed plant. With the installation and maintenance of the mitigation measures, the risk of bush fire attack on the proposed power plant would be managed to an acceptable level.

Submission 415.11 Traffic Congestion – The reason I am concerned about this is that the Appin Road is already congested enough, especially at peak hours and the road is breaking up in many places. The added traffic, especially heavy construction traffic, will make it worse.

The traffic and transport assessment presented in Chapter 11 of the Environmental Assessment found that the arterial road network can satisfactorily and safely accept the additional traffic generated by the development during the construction, operational and maintenance phases if a separate right turn lane priority intersection is installed of the access road and Appin Road. These intersection works are part of the Project Application.

Submission 415.12 Employment – The reason I am concerned about this is that I understand there will not be any substantial increased employment benefiting the local community which might offset the many disadvantages. I understand that in the construction phase, specialist workers will be brought in to build the plant and when it is operational, it will employ no more that about half a dozen people. As far as I can see the benefits will be all the AGL, not the local community.

It is estimated that about 250 workers will be needed during construction. The project complements the State Government's Employment Lands Strategy for South West Sydney, which will reserve land for new industries and provide thousands of jobs for local residents.

A reliable source of electricity is essential to attract business and industry to the region and create new jobs. On this basis it is considered that the Project is consistent with the strategic directions in the Campbelltown 2025 Looking Forward document for "growing the Regional City", and "creating employment and entrepreneurial opportunities".

Submission 415.13 Amenity – The reason I am concerned is that there will be loss of rural ambiance in the area and, long term, this area could become an unattractive heavy industrial area which is not what is wanted by most residents of Macarthur.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

AGL cannot comment on potential applications for industrial developments by other Proponents, although it is noted that such applications would be subject to the approvals process under relevant legislation with requirements for assessment of environmental impacts including cumulative impacts.

Submission 415.14 Property Values – The reason I am concerned about this is that it will lead to a fall in property values generally and specifically to a fall in our Mount Gilead property.

The existing value of land surrounding the Development Site is based on its current use, which as shown is currently zoned as non-urban. However, it has been suggested that part of the current value of the land surrounding the proposed project is based on a belief that within the future this land will be zoned residential, and can hence be developed for housing purposes. This is referred to as a speculative premium. Given the likely timeframes for potential re-zoning and development to occur, the speculative premium is likely to be limited at present.

The likely impacts to land values in the short term are forecast to be limited on the basis of existing planning and zoning restrictions and due to:

- the unobtrusive nature of the proposed project given the size of the buffer zones afforded by the Leafs Gully property;
- the limited operational impacts (and operational times); and
- the limited supporting infrastructure requirements.

Submission 415.15 Size & Capacity - What guarantee that this will remain a peaking power station of 300MW capacity, especially as AGL have already said they want it to become 600MW? How big could this become, especially as the amount of land being acquired is about 600 acres?

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15 % in the year for this proposal.

Should AGL decide to develop a base load gas fired power station in addition to a peaking plant, it would have to go through a similar process to that conducted for Leafs Gully to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation. There is no requirement for combined cycle gas turbines in the AGL portfolio at this time and as such, they are not being considered.

Section 3 Response to Submissions

The power plant would be constructed and operated on an area less than 20 ha of the 280 ha property known as Leafs Gully Farm. In addition, AGL are proposing to establish a Conservation Area, which spans Lots 101, 102 and 103 and is approximately 170 ha of the 280 ha. The land would be re-titled for conservation purposes in consultation with DECC, either through a Voluntary Conservation Agreement (VCA), a Biobanking Agreement, or some other enduring protection mechanism.

Submission 415.16 Target – Could this become a terrorist target especially if it became a very large power station that was critical to Sydney's power supply.

AGL would employ security measures at the Site similar to those for other facilities. These would include security fencing around the site and gatehouse. It is also noted that safety features would be installed on the gas pipelines to provide protection in the event of a fault / incident. These mechanisms would be determined in the detailed design phase but would include automatic shutdown and manual shut down (i.e. isolating manually).

Submission 439

Submission 439.01 Introduction

"Meadow Vale" is the nearest residence to the site of the proposed power station. Our property lies 1.4km to the North East of the proposed power station and stands to experience the highest levels of visual impact, air and noise pollution.

The homestead has significant local heritage value and the Muir family has been the proud caretakers of the house, gardens and surrounding land for more than 40 years.

Submission 439.02 Background

On May 12 2006 representatives from Coakes Consulting visited our home to discuss the proposal. At that time AGL proposed to build a 600 MW power plant on the same site, under application # 06_0117. Very soon thereafter we joined a group of local landowners and residents in opposition to the proposal and 'The Campbelltown Leaf's Gully Action Group' was formed. At great personal and some financial cost, we worked hard to ensure the residents of the Campbelltown area were well informed of this proposal. Just prior to the last State Government elections in 2007 AGL withdrew their application. At that time, Mr Phil Costa was the candidate for the seat of Wollondilly. Mr Costa came to our property, stood on Meadow Vale soil along with other residents and media, and personally guaranteed that if he were elected no power station would be built on the proposed Leaf's Gully site. We all voted for Mr Costa and the Australian Labour Party. We are hopeful that this Government will make the most responsible decision and refuse this proposal.

AGL now propose to build a 300MW peak flow power station. The Environmental Assessment report states "Leafs Gully Power Project is intended to be operated as a peaking power plant only and would operate for up to 15% of the year" (ES1). Further, "any exceedances of this capacity to be approved by the appropriate authorities" (ES-15). This language does not indicate any guarantee from AGL that the plant will operate for only 15% of the time for the life of the project. In fact, many projections are made in the EA based on a 600MW plant. We believe that if this proposal is approved AGL will soon apply for another 300MW and possibly more into the future. This proposed peak flow power station is already shaping up to become a base load station. We oppose the construction of any power plant on the Leaf's Gully site. A 300 mw power station should never be approved for construction in the Sydney Basin.

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15 % in the year for this proposal. Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

It is noted that peaking plants already in the AGL portfolio typically operate for 2 to 3 % of the time. AGL has analysed the operating times for peaking plants owned by others and has found that while operating times vary for peaking power plants in the NEM, low levels of operation are typical. However, AGL recognises that the community would like greater certainty around future operating times and has conducted analysis indicating that the proposed plant could operate for up to 15 % of the time with any exceedances of this capacity to be approved relevant Authorities under particular circumstances. Consideration of this aspect, combined with the review of other peaking plants in the NEM, provides an indication of an “extreme” operating scenario. It is not possible to predict the actual operating times of the proposal, as it will depend on the supply and demand scenario.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

Submission 439.03 Meadow Vale

The Meadow Vale property was purchased by the Muir family in 1965. The original cottage is believed to have been built in 1815 and stands on the original 40 hectare grant to Andrew Hume in 1812. Andrew Hume was the father of Hamilton Hume, the explorer who opened up to settlement much of southern NSW. The main house was built in the 1830's.

Many trees have been planted, along with the addition of sympathetic buildings, such as the games room, the kitchen wing, and the stables. Throughout the EA, AGL states the proposed power plant will have 'moderate, minimal or no impact' on Meadow Vale. Our view is that this assessment is totally incorrect, if this project is approved it will have devastating affects on our property and our health. We will see it, we will hear it, we will feel it, we will breath it.

As noted in Chapter 15 of the Environmental Assessment, the historic heritage assessment addressed the Meadow Vale homestead. The assessment concluded that with respect to its landscape context, and in particular the distant views from the homestead, it is considered that the site has little aesthetic heritage significance, due to those views being screened by a line of tree plantings on its south and west and compromised by more modern constructions in the landscape, such as electricity towers and transmission lines, the Hume Highway / South Western Freeway, the Main Southern Railway and communication towers. It is also considered that the proposed development will have little or no effect on that aspect of the homestead’s significance.

The construction, operational and traffic noise and vibration impacts due to the proposed Leafs Gully Power Project have been assessed in accordance with the relevant policy guidelines published by DECC as presented in Chapter 12 of the Environmental Assessment. The assessment predicted that there would be no exceedances of the relevant noise guidelines at the Meadow Vale residence (Residence 3 in the assessment) for the plant with mitigation measures.

Section 3 Response to Submissions

A preliminary assessment of noise during the construction phase (two scenarios modelled) showed a 1 dB exceedance at the Meadow Vale residence (Residence 3 in the assessment), , during Scenario 1 (a worst case month where activities, including earthworks, construction of the internal roads and construction of the slab is anticipated to occur simultaneously). This exceedance is considered negligible and would not be detected.

The air quality assessment did not consider individual (existing) dwellings, rather a gridded approach was adopted in accordance with the DECC guidelines, whereby pollutant concentrations were predicted every 500 m, across a 25 x 25 km grid. The results of the assessment indicated compliance with air quality criteria at all points on this grid. Therefore the assessment found that the plant would comply with air quality criteria at the Meadow Vale residence.

Submission 439.04 Issues Of Concern

The following issues are considered in relation to their potential impact on the Meadow Vale property and to the community at large:

- **The preferred site selection**
- **Proposed Conservation Strategy -The Local Koala Population**
- **Visual assessment and Heritage**
- **Noise**
- **Air quality**
- **Property values**
- **Preferred Site Selection**

Placing a 300 megawatt gas turbine power station in the Sydney basin and more specifically, in the area of greater Campbelltown will have a dire impact on air quality for those residents. The air quality in the Campbelltown area is already greatly compromised, with Campbelltown residents suffering the highest rates of asthma in the country, our 3 year old daughter is asthmatic. The contribution of greenhouse gases, NOx and other pollutants into the atmosphere from this power plant will surely have a gross negative effect on the health of thousands of individuals.

There has never been a greater need to reduce air pollutants than there is now. The State of the Environment 2006 report found that while air quality has improved over the past decade in every other Australian capital city, in Sydney it has become worse (Daily Telegraph Thursday December 7 2006). It simply does not follow that the construction of this power plant should take place in the Sydney area. The construction of a power plant of this size in the Sydney Basin is unprecedented. The NSW State Government should ensure this power plant is moved away from people.

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute, titled *"Natural Gas Power Stations, Air Quality and Respiratory Disease"* and presented in the Environmental Assessment.

Of the potential emissions from the proposed plant the highest impact on ambient air quality is likely to be from nitrogen dioxide (NO_2) because natural gas is relatively clean burning with low particulate and sulphur dioxide emissions. In the worst case situation for the proposed natural gas power station (during simultaneous startup of both turbines), maximal emissions of NO_2 added to the highest ambient pollution levels (during an unusual weather event) are predicted to result in levels below the NSW criteria. The assessment stated that:

"At these levels any health impact would be difficult to detect. At the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development."

It should also be noted that the air pollution modelling conducted for the local area found that, for a worst case scenario, ground level concentrations of NO_2, PM_{10}, CO, SO_2 and HAP would all be below the DECC criteria. The impacts on local air quality from this development would be minor and adverse impacts are unlikely.

According to the EA, other potential sites were identified as alternatives to the Sydney metropolitan site. AGL's preference for the Leaf's Gully site is based on providing AGL and their shareholders with strategic and cost saving advantages "the Leaf's Gully Power Project would assist management of risks and costs in AGL's retail portfolio" (EA 1-1). There are two gas pipelines running through this site, Sydney Moomba and EGP "ongoing costs mainly relate to fuel costs and the ability to generate and benefit from competitive pressure on gas supply. As such, a site with access to two gas pipelines is strategically important" (EA 3-51). Other sites, away from the population will also provide AGL and their shareholders with good and profitable business. The State Government should not approve the Leaf's Gully site for this project. The State Government should do everything possible to protect the health of the people of NSW.

AGL undertook comprehensive review of existing gas turbine developments in Australia and also reviewed more than 10 alternate sites in NSW. At these alternate sites, network connections, land use and environmental impacts were reviewed. The Appin area remains the preferred region as no other region has the proximity to demand, concentration of infrastructure, and suitable distance from neighbouring properties and communities. In addition, output from a power plant in this region would not be constrained during peak periods as may the case with other locations.

Submission 439.05 Proposed Conservation Strategy -Local Koala Population

AGL proposes the construction of this power plant will "enhance habitat connectivity and quality for the Campbelltown Koala population". This claim is quite simply ludicrous. Although Koalas have apparently been sighted in the area, the Muir family have owned the Meadow Vale property for over 40 years and no member of the family or visitors to the property have sighted a Koala. None of us have seen Koalas at the Beulah property on our North Eastern border. Beulah is surrounded by thick forest and magnificent trees. Almost all Koala sightings (EA Figure 13-3) have been made on the opposite side of the Appin Road. Is AGL effectively proposing that increased plantings of Forest Red Gum and other trees alongside the construction of a 300MW power plant spanning 10 hectares of land with two smoke stacks 35 meters high will bring Koalas to that land? Furthermore, why would AGL place the importance of a 'possible' increase in connectivity for the local Koala population above the health of our daughter and other local families and people of the wider Campbelltown community?

The State Government should not approve this proposal and should regard the Environmental Assessment report with some caution. Many claims have been made which should be questioned thoroughly.

Section 3 Response to Submissions

A Koala outcomes report was prepared for the Environmental Assessment by Dr Steven Ward of EcoLogical who has undertaken significant research in the area on Koalas. That assessment concluded that the Leafs Gully site includes areas considered to be of high value to the Campbelltown koala population. This is due to the site containing vegetation of high value to koalas in the region, and the potential to facilitate connections to other known koala populations. The project's conservation of and enhancement of connectivity is considered to be highly beneficial to the Campbelltown koala population.

The air pollution modelling conducted for the local area found that, for a worst case scenario, ground level concentrations of NO_2, PM_{10}, CO, SO_2 and HAP would all be below the DECC criteria. The impacts on local air quality from this development would be minor and adverse impacts are unlikely.

Submission 439.06 Visual Assessment and Heritage

Chapter 10 of the EA (Landscape and Visual) states that "28 view locations were identified and assessed as part of the visual assessment process". Meadow Vale was determined to have a moderated visibility rating. We believe this analysis to be totally unsatisfactory.

Photographs of our property were taken (view locations 8 and 8A -Table 10-1 View Location Assessment). View Location 8 was taken from the back corner of our property; behind the house and one of the lowest vantage points to view the crane (erected temporarily to simulate the height of the 35metre gas turbine stacks). The assessment of this view was that the upper portion of the crane was visible and that a line of trees (planted by the late Vida Muir to provide shelter from harsh South Westerly winds) helped to "screen views toward the power station". That certainly seems a convenient observation for AGL. This line of trees, on our property, offers very limited screening only.

View Location 8A was taken from the "access road to Meadow Vale" property. The EA states that the "mid and upper portion of the crane was visible from a short section of the access from the Meadow Vale property whilst travelling west". This assessment could not be more misleading. No photographs were presented of View location 8A in the EA. We specifically requested that a detailed analysis be done of the visual impact from the highest point of our property. The access road to Meadow Vale boasts magnificent and expansive views to the South and West. Arriving at Meadow Vale and driving the access road is a joyous experience; the main house nestled in the undulating hills of the surrounding landscape. The visual impact of the proposed power plant on the Meadow Vale property has been assessed by AGL as "moderate". In our opinion, this is completely false. The visual impact of this development on our property is extreme and disastrous. We invite members of the Department of Planning to Meadow Vale to view the proposed site.

Justin Flood, the previous Project Manager for Leafs Gully Power Project, provided copies, in digital format, of the photographs taken representing view location 8A. According to his letter dated 8 December 2006,

"the photographs were not suitable for reproducing images of the crane that was erected due to overcast conditions. At the subsequent visit only photographs were taken from the site of the house (view location 8) for use in the photomontage. The visual assessment expert did not need to take additional photographs from all sites as they only form part of his assessment He had his own notes on locations from where the crane was visible and computer modelling was also used in the assessment"

As stated, we find this explanation unsatisfactory.

Photographs taken in the course of the fieldwork are used as reference material during the assessment process however each view location visited is recorded and noted in the field, and whilst photographic material is useful, it is not essential in the determination of visibility ratings.

A number of the photographs taken during the fieldwork component of the visual assessment were not suitable for reproduction. Some photographs were taken late in the day under cloud cover and produced an image that was too dark to be able to determine the location of the crane. Photographs taken earlier in the day from a paddock adjoining the Meadow Vale residence were suitable for inclusion in the visual assessment report and were used for visual simulation purposes.

The photographs taken from View Location 8A (access track to Meadow Vale property) were not suitable for reproduction in the report. The photographs were taken late in the day when the combined effects of low light levels and cloud cover resulted in images that were too dark to reproduce.

The visibility rating for View Location 8A was not 'moderate' but determined in the assessment to be 'Low'.

The low visibility rating resulted from:

- a medium distant view (1800m);
- a short term period of view (less than 1 minute); and
- a very low number of viewers.

An additional detailed visual assessment is not considered necessary for the Meadow Vale property as a detailed assessment would be unlikely to alter the visibility rating determined during the original assessment. As discussed in the visual assessment report, views toward the Development Site from the residence are generally screened by a trees planted to the west of the residence.

The proposed mound and planting on the Development Site would provide additional future screening toward the portions of the exhaust stacks that may be visible.

The visual assessment undertaken for the proposed development adopted a standard methodology that has been used in a number of visual assessments for similar projects, and by other professionals undertaking visual studies for similar developments. The visibility rating is generally determined by a combination of factors including:

- the category of type of situation from which people may view the proposed development (eg resident or motorist);
- the potential number of people with a view toward the development from any one view location;
- the distance between the viewer and the proposed development; and
- the duration of time for the viewer may view the development for.

In addition to this assessment methodology, the sensitivity of some receptors, including residences, are taken into account during the assessment process. As an example, the Meadow Vale property was determined to have a low visibility rating following the application of the visual assessment criteria outlined in the Environmental Assessment. However consideration of the sensitivity of the receptor resulted in the visibility rating being upgraded to a moderate level.

Section 3 Response to Submissions

Meadow Vale is a property of heritage significance. Although AGL state "it is considered that the proposed development would have little or no effect on that aspect of the homestead's significance", the visual intrusiveness of this power plant will have a dramatic affect on the house.

The findings of the Chief Judge of the Land & Environment Court in the matter of 10272 of 2004 are considered to be relevant in relation to the proposed development. The appeal was in relation to the proximity of the proposed Camden Gas Treatment Plant to the Mount Gilead Residence (a local property of great historical significance):

"... it became increasingly apparent that because of the need to ensure that the landscape available to be viewed from Mount Gilead should be protected, in the interests of preserving the heritage significance of the property, changes to the project were necessary. (para 11,1st para)

In light of these findings, we consider the lack of proper analysis of the visual impact of this power plant on the Meadow Vale property completely unsatisfactory. It is our opinion that in relation to the impact on Meadow Vale the proposal should be rejected.

As noted in Chapter 15 and Appendix N of the Environmental Assessment, the historic heritage assessment conducted by specialist heritage consultants Navin Officer specifically addressed the Meadow Vale property. The assessment concluded that with respect to its landscape context, and in particular the distant views from the homestead, it is considered that the site has little aesthetic heritage significance, due to those views being screened by a line of tree plantings on its south and west and compromised by more modern constructions in the landscape, such as electricity towers and transmission lines, the Hume Highway / South Western Freeway, the Main Southern Railway and communication towers. It is also considered that the proposed development will have little or no effect on that aspect of the Meadow Vale homestead's significance.

It is considered that the visual assessment has adequately addressed the potential visual impact of the Leafs Gully Power Project. The visual assessment was prepared by a Registered Landscape Architect with over 15 years experience and employed a general methodology that has been utilised on a number of visual assessments for similar sized infrastructure projects.

Submission 439.07 Noise

All noise pollution generated by the construction and ongoing use of the proposed power plant, will be experienced at the highest level at the Meadow Vale residence. Meadow Vale is referred to as Residence 3 in the EA. Meadow Vale is a rural property, its great charm is peace and tranquillity. Noise assessments by AGL have been based on the NSW Industrial Noise Policy. This is further evidence that the surrounding rural landscape will be transformed into industrial landscape. If this project is approved the gates will be opened for further development of heavy industry in the area.

The Industrial Noise Policy is the guideline that is applicable to assessment of this type of development. The Environmental Assessment Requirements issued by the Department of Planning required the assessment to be addressed in accordance with this guideline.

The Industrial Noise Policy details the methodology for setting criteria for developments during their operation. It considers the existing background noise at the proposed location. It is noted that the criteria applicable to this development in this location is 35 dbA which is the most stringent criteria applicable under the Industrial Noise Policy.

The construction, operational and traffic noise and vibration impacts due to the proposed Leafs Gully Power Project have been assessed in accordance with the relevant policy guidelines published by DECC as presented in Chapter 12 of the Environmental Assessment. The assessment predicted that there would be no exceedances of the relevant noise guidelines at the Meadow Vale residence (Residence 3 in the assessment) for the plant with mitigation measures.

A preliminary assessment of noise during the construction phase (two scenarios modelled) showed a 1 dB exceedance at the Meadow Vale residence (Residence 3 in the assessment), during Scenario 1 (a worst case month where activities, including earthworks, construction of the internal roads and construction of the slab is anticipated to occur simultaneously). This exceedance is considered negligible and would not be detected.

AGL cannot comment on potential applications by other Proponents, although it is noted that such applications would be subject to the approvals process under relevant legislation with requirements for assessment of environmental impacts including cumulative impacts.

Page ES-13 of the EA states "Mount Gilead has been identified in the Metropolitan Development Plan as an area of approximately 2 square km potentially providing 1,340 dwellings in the long term. This area is approximately 2km from the development site". If this power plant is approved, which young family would choose to purchase a home and bring up their children two km from a toxic gas producing, noisy, ugly power plant. This area, earmarked for residential growth, will be destroyed by an ugly, polluting, industrial landscape. The prevailing winds will carry noise and pollutants into these homes in exactly the same way it will do so to the homes currently located north east of the proposed site at Rosemeadow and St Helens park

One of the great pleasures experienced by all those who visit the Meadow Vale property is peace and tranquillity. The rural setting of the property will be destroyed. Noise produced by a 300 megawatt gas fired power station will transform Meadow Vale from a peaceful rural environment into a noisy industrial landscape. We oppose this development and the noise pollution it will create.

The Metropolitan Development Program (MDP) was described in detail in Chapter 16 of the Environmental Assessment. In particular Section 16.6.3 provided a summary of development planning in the region. MDP forecasts were prepared in 2003, 2004 and updated in 2007. Each forecast was discussed with respect to the Leafs Gully Project. In the discussion of all three forecasts in the Environmental Assessment, the 1,340 future residential allotments at Mount Gilead (Area 4.20) were referenced.

The air quality assessment did not consider individual (existing) dwellings, rather a gridded approach was adopted, whereby pollutant concentrations were predicted every 500 m, across a 25 x 25 km grid. The results of the assessment indicated compliance with air quality criteria at all points on this grid. Therefore the criteria is met at the Meadow Vale property.

The noise assessment found that no noise exceedances at surrounding residences were predicted for the plant with mitigation measures. As these residences are closer to the Site than the Mount Gilead release area, there would not be exceedances for residences located in the Mount Gilead release area over 2 km away.

The construction, operational and traffic noise and vibration impacts due to the proposed Leafs Gully Power Project have been assessed in accordance with the relevant policy guidelines published by DECC as presented in Chapter 12 of the Environmental Assessment. The assessment predicted that there would be no exceedances of the relevant noise guidelines at the Meadow Vale residence (Residence 3 in the assessment) for the plant with mitigation measures.

Section 3 Response to Submissions

Submission 439.08 Air Quality

Meadow Vale is approximately 1.4km from the proposed power plant. The winds on the site primarily blow from the South West. This will effectively bring the pollutants directly into our home. Apart from broader public health issues, which are numerous, our own health and the health of our 3 year old daughter will be compromised. The cumulative effects of these toxic emissions will further add to a decrease in air quality of the local region and the city of Sydney.

Cancer is now the biggest killer in Australia, having recently won this onerous position from heart disease. Nox gases are made of fine particulate matter known to be carcinogenic. This fine matter enters the bloodstream and the lungs. The State Government should refuse this proposal and put the health of people above all else. We oppose this development and the toxic emissions it will generate.

An assessment of the air quality impacts was presented in Chapter 7 of the Environmental Assessment. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. The regional air quality assessment concluded that the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

The air quality assessment did not consider individual (existing) dwellings, rather a gridded approach was adopted, whereby pollutant concentrations were predicted every 500 m, across a 25 x 25 km grid. The results of the assessment indicated compliance with air quality criteria at all points on this grid. Therefore the criteria is met at the Meadow Vale property.

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute, titled *"Natural Gas Power Stations, Air Quality and Respiratory Disease"* and presented in the Environmental Assessment. The assessment stated that:

"At these levels any health impact would be difficult to detect. At the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development."

Submission 439.09 Property Values

At the meeting with Coakes Consulting on May 12 2006, the question was raised by us as to what affect this power plant would have on property values. Dr Catherine Pattenden, Prinicipal Consultant, said that other landowners in the area had asked the same question. She informed us that URS Consulting would be assessing this issue. In Chapter 16 Section 16.8 less than 2 paragraphs are devoted to this very important issue. Findings are as follows:

"The likely impacts to land values in the short term are forecast to be limited on the basis of restricted planning and zoning restrictions and due to:

The unobtrusive nature of the proposed project given the size of the buffer zones afforded by the Leafs Gully property"

The limited operational impacts (and operational times); and

The limited supporting infrastructure requirements

We argue that this limited "assessment" is completely false. We believe this power plant is extremely obtrusive and will have an immediate and dramatic affect on the value of our property. This statement in the EA only confirms our impression that the assessment of the affect of the power plant on the Meadow Vale property has been completely inadequate.

It is believed, that property values for residents in the surrounding suburbs will also be affected because of a reduction in air quality, increased noise pollution and the down-grading of the area from rural landscape to industrial landscape.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

Submission 439.10 Conclusion

The dismissal of this project is the only outcome for Meadow Vale and the community of Campbelltown and greater Sydney; this is the only outcome we find desirable.

If a power plant is needed to service the growing population of NSW, it should be constructed away from people, outside of the Sydney basin and away from the general population.

This Government should be seeking non-polluting renewable energy sources.

Objection is noted.

As noted above, the Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

A range of alternatives for plant and proposed location were considered. Operation of gas turbines in open cycle mode was found to be preferable to combined cycle gas turbines and coal fired generation for meeting peak electricity demand while renewable technologies are not available to meet peak demand requirements. Natural gas is a clean burning fuel and gas turbine technology has low greenhouse gas emissions. In terms of alternate power generation technologies, open cycle gas turbines present the best outcome in terms of climate change for meeting peak demand while maintaining the price of electricity for consumers.

Section 3 Response to Submissions

Submission 440

Submission 440.01 EXECUTIVE SUMMARY This submission is by way of an objection to the modified application and Environmental Assessment (EA) of February 2009 by AGL Power Generation (NSW) Pty Ltd - Project Application No. MP 08_0077 -to the almost identical application (Project Application No. 06_0117) made by the same company, for the same site and for the same location on that site, a little more than two (2) years ago (October 2006).

Submission 440.02: This submission has been prepared for Mount Gilead Pty Ltd by environmental consultant's Macoun Environmental Consulting (MEC). MEC with the assistance of the Total Planning Group (TPG) lodged the previous submission opposing the first application 06_0117 on 4 December 2006 (see reference 1). That submission was prepared for the group known as the Northern Alliance -the owners of the two properties - Mount Gilead and Meadow Vale, the two properties between the proposed site and the residential suburbs of South Campbelltown.

Submission 440.03: The previous application was withdrawn by the proponent company in the face of extensive community and Government opposition and just prior to the convening of the Minister for Planning's Independent Panel of Experts (reference 2) to examine the following range of matters

- **potential air quality impacts,**
- **the broader land use implications**
- **the community and public concerns with the project, and**
- **the adequacy of responses to submissions.**

Submission 440.04: The Panel never meet because of the proponent's decision to withdraw the application in early 2997. At the time of the withdrawal announcement it was stated that there would be an extensive examination of the alternative sites and there was a widespread expectation that any further application would be at a different site.

Submission 440.05: Notwithstanding the problems with the earlier application, this proponent within six (6) months of that withdrawal had decided, with minimal further consideration of the issues, to lodge the current, identical proposal.

AGL undertook comprehensive review of existing gas turbine developments in Australia and also reviewed more than 10 alternate sites in NSW. At these alternate sites, network connections, land use and environmental impacts were reviewed. The Appin area remains the preferred region as no other region has the proximity to demand, concentration of infrastructure, and suitable distance from neighbouring properties and communities. In addition, output from a power plant in this region would not be constrained during peak periods as may the case with other locations.

To assure the community of the compatibility of gas turbines on the fringe of the Sydney metropolitan area, existing and proposed gas installations in Australia were reviewed to determine the acceptability of gas turbines in conjunction with industrial, rural and urban development. Gas turbines similar to that proposed for Leafs Gully are often located immediately adjacent to industrial facilities and within 500 m of urban areas. There are three gas turbines within 20 km of the Melbourne CBD and four within 20 km of the Adelaide CBD. Leafs Gully is 55 km from the Sydney CBD and 4.5 km from existing urban areas. Compared to existing sites in Australia, the Leafs Gully site is located compatibly with respect to industrial and urban development.

Following additional analysis of alternate sites in NSW and existing facilities in Australia, locating a gas turbine peaking power plant in the Macarthur region is acceptable based on predicted environmental impacts. Strategically, the Site provides a location for reliable electricity generation at peak times to the key demand centre of NSW when the transmission system is constrained. In addition the Site has two sources of natural gas to draw upon. This ensures reliable electricity supplies for the electricity network.

The local air quality and noise assessments were updated for the current Environmental Assessment. Additionally, it is noted that a detailed site alternative assessment, health impact assessment and koala outcomes assessment, and inclusion of the access road have been incorporated into the Environmental Assessment that were not in the original Environmental Assessment.

The specialist studies for the Environmental Assessment were prepared in accordance with the guidance documents referenced in the Environmental Assessment Requirements issued by the Director-General of the DoP.

Submission 440.06: And the concerns held by the Minister at that time have not been specifically identified or addressed in the new EA.

Submission 440.07: This submission again calls on the Minister to reject this application for many of the same reasons he expressed concerns with the previous application. Nothing has changed. The proposed power station would:

- **significantly compromise Sydney's future urban growth potential;**
- **impact adversely on air quality in one of the most heavily polluted parts of the Sydney basin;**
- **provide no social, economic or environmental benefits to the local region in any respect; but**
- **simply be of a significant strategic and economic value to AGL Power Generation**

However the greatest concern is that it would establish an industrial land use in a pristine rural environment which will irrevocably change the character of South Campbelltown forever. It would also effectively sterilise most of the land south of the Campbelltown area for any other use.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, health, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

However, despite the above AGL has recognised that adjacent landowners are concerned about the proposal and as such has proposed a number of mitigation measures to ensure that future land use on neighbouring properties is not constrained by the power station.

These mitigation measures include:

- visual screening by way of 6 m high mound over 600 m long; and
- approximately 30 hectares of tree planting.

Section 3 Response to Submissions

However, urban development in the future will need to be mindful of endangered ecological communities that exist in the region, something AGL has addressed by dedicating approximately 170 ha of land for permanent conservation.

Submission 440.08: To summarise this submission it is based around the following arguments:

The Mount Gilead (MG) property is a large and significant historic property within the greater Sydney region. It extends effectively from the southern outskirts of Campbelltown, from the bank of the Nepean River to the Appin Road and south to share a common boundary with the Leafs Gully property. (Section 1.3 of the earlier submission provided a more provided a more description of the property).

In 2005, AGL first announced that it had an option to buy the Leafs Gully property in order to develop its gas-powered 'peaking' power station. The proposed power station was described as a peaking station, which would operate only during times of low capacity in the electricity grid and as a result of high electricity demand -for example on extremely hot days where there is a greater number of air-conditioning units in operation at the same time. A process of community consultation was launched and of residents recorded. It was considered that the project was not a threat to MG because the site was a large one for the purpose of could be located in the centre of the holding. Buffer distances be almost a kilometre.

However concerns soon developed - commitments were broken with the plant located on the northern boundary of the site. The first application was then mysteriously withdrawn and then a second application appeared with little or no further community consultation.

We and many others are now strongly opposed to the development and the attitude of AGL Energy and their EA consultant. The project must be rejected.

When AGL secured Leafs Gully and prior to having made a decision on the preferred site, consultation was undertaken with a couple of neighbouring landowners. It was agreed by a representative of AGL at these meetings that a central location of the facility within the site might be appropriate. However, once feasibility studies for the site were conducted as detailed in Section 3.5 of the Environmental Assessment and the preferred site was selected. There was no “original” position on the site footprint within Leafs Gully by AGL although preliminary discussions may have suggested a site south of Leafs Gully would be considered that was subsequently found to have a greater impact than the selected location.

The preferred site within Leafs Gully is equidistant between existing sensitive receptors (residences). The assessment of Leafs Gully will be determined to a large extent on existing sensitive receptors and not potential receptors. While a central location that is south of Leafs Gully may seem more equitable, the location of sensitive receptors is such that a site south of Leafs Gully will bring the nearest receptor to about 1 km from the facility whereas for the preferred site the nearest receptors are 1.5 km away. Most importantly, a location to the south of Leafs Gully would mean the proposal is still within a similar distance from the property boundary to another landowner. A site south of Leafs Gully is not more equitable for every landowner and is of benefit to landowners to the north of Leafs Gully. The proposed site within Leafs Gully is equitable for sensitive receptors and is not more equitable than other sites in terms of proximity to the property boundary. With all other factors being equal, the preferred location within Leafs Gully was selected on the basis of merit in terms of infrastructure connection.

The area is zoned non urban and has not been identified for urban development in the next 20 or 30 years. Notwithstanding the zoning and equity of the location within Leafs Gully, the concerns of northern landowners has been recognised and AGL has responded to concerns about potential development of adjacent properties

through a proposal to provide visual screening measures above that required so that the Leafs Gully proposal does not constrain development on adjoining properties.

The visual screening proposed is appropriate, with the visual mound not only 6 m high but also 27 m in width and along existing site topography so that it fits in with the existing landscape. The Environmental Assessment found that the proposed setback distance from the boundary and existing sensitive receptors is adequate. This is demonstrated if Leafs Gully is compared to other gas turbines sites in Australia that are located near urban areas. Additional information on other gas turbines in Australia was presented in the Environmental Assessment. It is not uncommon to find that urban development and peaking gas turbines within a few hundred metres of each other without the extensive screening that AGL has proposed for Leafs Gully.

Submission 440.09: The main points of objection to both applications are:

Lack of justification for choosing the Leafs Gully property over others that were considered, including most if not all of the others (Which are outside of the Sydney Basin).

AGL undertook comprehensive review of existing gas turbine developments in Australia and also reviewed more than 10 alternate sites in NSW. At these alternate sites, network connections, land use and environmental impacts were reviewed. The Appin area remains the preferred region as no other region has the proximity to demand, concentration of infrastructure, and suitable distance from neighbouring properties and communities. In addition, output from a power plant in this region would not be constrained during peak periods as may the case with other locations.

The location of the proposed development, not in the centre of the Leafs Gully farm, but on the northern boundary of the site thereby compromising all land to the north.

When AGL secured Leafs Gully and prior to having made a decision on the preferred site, consultation was undertaken with a couple of neighbouring landowners. It was agreed by a representative of AGL at these meetings that a central location of the facility within the site might be appropriate. However, once feasibility studies for the site were conducted as detailed in Section 3.5 of the Environmental Assessment and the preferred site was selected. As noted above, there was no “original” position on the site footprint within Leafs Gully by AGL although preliminary discussions may have suggested a site south of Leafs Gully would be considered that was subsequently found to be unsatisfactory. The preferred site within Leafs Gully is equidistant between existing sensitive receptors (residences). The assessment of Leafs Gully will be determined to a large extent on existing sensitive receptors and not potential receptors. While a central location that is south of Leafs Gully may seem more equitable, the location of sensitive receptors is such that a site south of Leafs Gully will bring the nearest receptor to about 1 km from the facility whereas for the preferred site the nearest receptors are 1.5 km away.

Lack of assessment of the impact of the longer term inevitability of increases in generating capacity of this Sydney Basin power station given Sydney's chronic shortage of generating capacity (refer frequency of recent blackouts/system failures).

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15 % in the year for this proposal. Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

Section 3 Response to Submissions

Lack of any consideration (or even comment) in terms of the environmental capacity of the region for the potential for allied industries to be established within the immediate vicinity of the station.

AGL cannot comment on potential applications by other Proponents, although it is noted that such applications would be subject to the approvals process under relevant legislation with requirements for assessment of environmental impacts including cumulative impacts.

Insufficient assessment of the impact of the proposed development on the development potential of land to the north and north-east for urban purposes.

The air quality assessment did not consider individual (existing) dwellings, rather a gridded approach was adopted, whereby pollutant concentrations were predicted every 500 m, across a 25 x 25 km grid. The results of the assessment indicated compliance with air quality criteria at all points on this grid, which implies that the proposal would not preclude the establishment of any new dwellings on the basis of air quality issues.

The noise assessment found that no noise exceedances at surrounding residences were predicted for the plant with mitigation measures. As these residences are closer to the Site than the Mount Gilead release area, there would not be exceedances for residences located in the Mount Gilead release area over 2 km away.

However, despite the above AGL has recognised that adjacent landowners are concerned about the proposal and as such has proposed a number of mitigation measures to ensure that future land use on neighbouring properties is not constrained by the power station.

These mitigation measures include:

- visual screening by way of 6 m high mound over 600 m long; and
- approximately 30 hectares of tree planting.

However, urban development in the future will need to be mindful of endangered ecological communities that exist in the region, something AGL has addressed by dedicating approximately 170 ha of land for permanent conservation.

These issues are set out in further detail in this submission (and the previous one).

We call on the Minister to reject the application outright but if necessary to refer it to an independent panel of experts (as before) or the newly formed Planning Assessment Commission. This is major industrial development and deserves a greater examination of the consequences of any approval.

This issue is for the consideration of the Department of Planning. However, it is noted that under Clause 23 of the *Environmental Planning and Assessment Act 1979*, the Minister cannot delegate his authority the Planning Assessment Commission to determine critical infrastructure projects.

Submission 440.10: INTRODUCTION The site of the proposed development is located adjoining the southern boundary of the Mount Gilead Property. The full extent of the MG property is shown in Figure 1.1 (Location Map) of the earlier submission.

Submission 440.11: BACKGROUND TO THE FIRST APPLICATION In 2005, when AGL announced that it had obtained an option to purchase the Leafs Gully property, AGL was enthusiastic about the site and its location in respect to existing infrastructure. It was noted at the time and publicly stated in printed material that the power plant was to be located in the centre of the Leafs gully property for reasons of

maximising buffer zones and hence so mitigating the degree of adverse impacts on adjoining properties.

Such discussions were part of the original consultation process carried out for AGL by Coakes Consulting (July 2006) with that report included in the first EA as Appendix B to that EA.

However, the plans in the first EA (October 2006) showed an alternative location for the power plant -on the northern boundary adjoining the MG land. This was completely contrary to the initial planning by AGL and withdrawal from the published commitments given by AGL.

When AGL secured Leafs Gully and prior to having made a decision on the preferred site, consultation was undertaken with a couple of neighbouring landowners. It was agreed by a representative of AGL at these meetings that a central location of the facility within the site might be appropriate. However, once feasibility studies for the site were conducted as detailed in Section 3.5 of the Environmental Assessment and the preferred site was selected.

There was no “original” position on the site footprint within Leafs Gully by AGL although preliminary discussions may have suggested a site south of Leafs Gully would be considered that was subsequently found to be unsatisfactory. The preferred site within Leafs Gully is equidistant between existing sensitive receptors (residences). The assessment of Leafs Gully will be determined to a large extent on existing sensitive receptors and not potential receptors. While a central location that is south of Leafs Gully may seem more equitable, the location of sensitive receptors is such that a site south of Leafs Gully will bring the nearest receptor to about 1 km from the facility whereas for the preferred site the nearest receptors are 1.5 km away.

Submission 440.12: Post the First Application In response to what was major opposition first application, it was firstly referred by the Minister for Planning to a specially convened Panel of Experts to consider and report to the Minister (see reference 2). That Panel never convened. In early January 2007, AGL advised the Minister that they wished to withdraw the application. Reasons were never publically announced but it was generally understood and stated by officers of the Department (of Planning) and the AGL Project Manager (Justin Flood) at the time that AGL would be re-examining alternatives and intended to resubmit the application.

Submission 440.13: Within four (4) months, AGL had prepared the Preliminary Environmental Assessment (see Documents available on DoP Register of major projects). It is dated May 2007, some 4 months after Application No. 06_0117 had been withdrawn. A welcome addition in this document was a commitment to a full reconsideration of alternatives sites. This had been a major deficiency in the first EA and was the key commitment that AGL had made upon the withdrawal of the first application.

Submission 440.014: It was however of some concern at that time (May 2007) that AGL stated that they wished to be in a position to resubmit the new EA in July 2007 -only 2 months later. Clearly given the necessary processing times for documenting and printing etc for a new EA, they did not intend to change the site, redo any of the technical studies, or carry out any additional community consultation.

Submission 440.15 In fact AGL although they did very little additional work for the EA, did not achieve this timeline. The Major Projects application was not received by the Department until 3 April 2008 - some 11 months later (see Register of Major Projects website). It is interesting to note however that the owner' consents (permission of property owner to lodge application) were signed in May 2007 and the MP application was signed by Justin Flood, the original project manager. Justin Flood with whom we had extensive consultation with prior to the first application was never heard of after the withdrawal of that application in January 2007.

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Submission 440.16: When those initial documents are lodged by the proponent the DoP must then issue what are called Director's requirements -the 'specification' for the EA. The Department responded with impressive speed and issued the Director's requirements the same day -3 April 2008. This was presumably because the project was effectively the same as 2 years prior. It is noted that the requirements are very, very similar to those issued for the first EA.

Submission 440.17: The second EA went on public exhibition in February 2009. The only contact from AGL between the withdrawal of the first application in early 2008 was some token community consultation in October 2008. We responded with what we called the Preliminary Submission on 6 November 2008 (reference 3).

The local air quality and noise assessments were updated for the current Environmental Assessment. Additionally, it is noted that a detailed site alternative assessment, health impact assessment and koala outcomes assessment, and inclusion of the access road have been incorporated into the Environmental Assessment that were not in the original Environmental Assessment.

The specialist studies for the Environmental Assessment were prepared in accordance with the guidance documents referenced in the new Environmental Assessment Requirements issued by the Director-General of the DoP.

As noted in Chapter 6 of the Environmental Assessment Phase 5 consultations took place during October 2008. In total 81 stakeholders were consulted and 16 submissions were received regarding the proposal. For this phase of the consultation, the program was widened to include all landholders and occupiers within a 2 km radius of the Development Site, as well as the broader Campbelltown and Wollondilly community. Methodology for this included a letter being posted to all landholders within the 2 km radius, for which a postal address could be obtained. For those landholders that a postal address could not be sourced, a letter was placed in the property's post box. In addition, a letter was placed in the post box of properties that displayed evidence of a residential house, when the landholder's postal address was outside the 2 km radius. This ensured that tenants (occupiers) also received notification of the proposal.

The following activities were also undertaken:

- A website was developed outlining the proposal, provided links to relevant environmental studies, and provided an opportunity for stakeholders to provide feedback. A summary of the feedback received and responses provided is presented in **Appendix A**.
- A media campaign was implemented, to raise awareness of the proposal to the wider community. Copies of the AGL press releases are provided in **Appendix A**.
- AGL placed advertisements in all of the Advertiser and Chronicle papers in the Macarthur area (covering Camden, Campbelltown and Wollondilly shires) on 24 and 25 February 2009.
- An advertisement was also placed inviting groups and individuals to register their interest in the Aboriginal cultural heritage assessment and management program placed in the Campbelltown Advertiser on 13 October 2008.
- Availability of a freecall 1800 number for community queries available from mid October 2008 and throughout exhibition. A summary of the feedback received in provided in **Appendix A**.

It is considered that sufficient consultation was undertaken for the project both historically and in relation to the current Environmental Assessment.

Response to Submissions Section 3

AGL received the Preliminary Submission made and discussed the submission with Tim Macoun at the time.

Submission 440.18: THE NEW PROPOSED DEVELOPMENT The original proposal (for Application No 06_017) was for a proposed 600 MW Gas Turbine Power Station (at the Leafs Gully farm site). The current or new Application is effectively identical in all respects but for a smaller 300 MW Gas Turbine Power Station installed capacity. It is the same site, at the same location on that site and again under Part 3A of the *Environmental Planning & Assessment Act 1979* and lodged with the Minister of Planning to make the decision. A number of questions come to mind -Why did AGL recall the original development and delay the project from January 2007 for at least a further 2 Years? What has the delay of over 2 years achieved? What is the strategy? Why not just build Stage 1 of the original proposal?

Submission 440.19: The full project as described in the current EA, in the media advertisement and on the Department's web site is set out below. The word changes from the original application (of 2006) are shown in bold type.

Description: *Construction and operation of a 300 (600) megawatt gas-fired power station 4.5 km north-west of the township of Appin in the locality of Gilead, Campbelltown local government area. The project includes:*

1 *plant comprising **two** (four) gas turbines, generators and ancillary plant;*

2 *high voltage switchyard with transformers and circuit breakers;*

3 *security fencing and gatehouse;*

4 *control room, administration, amenities, car parking and workshop facility;*

5 *fire protection tank, potable water tank and septic tank;*

6 *sedimentation pond and associated earth bund and diversion drain; " air compressor plant;*

7 *switchroom;*

8 *emergency generator and transformers;*

9 *landscaping **to provide visual screening of the facility**;*

10 *evaporation pond to accommodate wastewater **discharges from the evaporative air inlet cooler; (and)***

11 *construction of internal roads; (and)*

12 ***upgrading and re-alignment of the access road to the site from Appin Road.***

Submission 440.19: The extent of the minimal changes can clearly be seen. Indeed the last item on roadworks was an addendum to the first application. The only change of importance is the reduction in installed capacity and that change is effectively tokenistic as the original application was only for the installation of 300 MW initially and Stage 2 was to add the second two units. Indeed AGL have left the same space that was occupied by Units 3 & 4 in the 2006 application in the current proposal for just Units 1 & 2. A capacity increase is certainly not ruled out for the future in the current application. And given the current power supply shortfalls in NSW it could be considered almost inevitable!!

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Submission 440.20: Figure 2.1 in our original submission showed a photograph the then proposed gas fired power station, which is effectively the extent of the current development application. Figure 2.2 in our original submission showed the layout of the original proposed power plant. Figure 1-2 of the new EA shows the layout of the new proposed plant unchanged that is, with the space reserved for the addition of Stage 2 at a later date -as described above. It is clear that nothing has changed – except the timing on when the full 600 (or more) MW is installed.

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15 % in the year for this proposal. Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

Submission 440.21: THE MOUNT GILEAD PROPERTY The Mount Gilead Property was originally established through a land grant back in 1812 – almost 200 years ago. The origin of the name is unclear but the name of the property local area. An extensive description of the history of the property was given in the submission of our first proposal - in Section 1.3.

Submission 440.22: It will not be repeated here other than to stress that MG is one of the most significant and historic rural properties within the greater Sydney Metropolitan area. It was recognised as such by his Hon. Justice McClennan (ex Chief Judge of the Land and Environment Court) at a Commission of Inquiry in 2004 (Matter 10272) in relation to development of the area's gas reserves.

Submission 440.23: The potential for adverse impact on the heritage significance of the property was further discussed in Section 3.6 of our first Submission.

Submission 440.24: The Mount Gilead property has been under considerable pressure for some time because of its developmental potential and natural resources. It was identified in the Metropolitan Development Program (MDP) as far back as 1995 as a future medium term residential development area. The area has long been known to have considerable coal reserves and since the 1990s there has been interest in the coal seam methane associated with those coal reserves - (see reference to Matter 10272 above in relation to the Camden Gas Stage 2 development of Sydney Gas). This proposal for the gas fired power station is just another conflict.

As noted in Chapter 15 and Appendix N of the Environmental Assessment, the historic heritage assessment conducted by specialist heritage consultants Navin Officer concluded that with respect to its landscape context, and in particular the distant views from the homestead, it is considered that the site has little aesthetic heritage significance, due to those views being blocked by landform and boundary tree plantings and compromised by more modern constructions in the landscape, such as electricity towers and transmission lines, the Hume Highway / South Western Freeway, the Main Southern Railway and communication towers. It is also considered that the proposed development will have no effect on that aspect of the homestead's significance.

Submission 440.25: The current EA should have addressed all of the conflicting values of the site:

1) **For residential growth -the principal value initially identified almost 15 years ago for residential expansion of the Campbelltown area.**

2) **For coal and associated coal seam methane (CSM) resources -the coal resource has been identified since the early development of the Camden area. The CSM resource has only been identified in the last 10 Y~9rs, Stages 1 and 2 of the Camden Gas project are approved (as a State Significant Project) and development is well advanced.**

3) **For a land buffer for AGL - Energy's Leafs Gully Power Project.**

4) **Uses 1) and 2) are ongoing commitments - they are approved or a strong commitment has been made.**

5) **The proposed power plant has no overwhelming claim to be located on this site and will adversely impact on the already compromised environment of this part of the Sydney Basin. Other sites investigated by AGL would offer a much better choice for the residents of Sydney particularly those of the south western suburbs.**

6) **Also the potential for this development to initiate further similar industrial type development on the outskirts: of Campbelltown should have been considered and assessed and it wasn't.**

In the interests of maximising the many and differing attributes of the MG property and the Gilead area generally, the proposal should be rejected.

The air quality assessment did not consider individual (existing) dwellings, rather a gridded approach was adopted, whereby pollutant concentrations were predicted every 500 m, across a 25 x 25 km grid. The results of the assessment indicated compliance with air quality criteria at all points on this grid, which implies that the proposal would not preclude the establishment of any new dwellings on the basis of air quality issues.

The noise assessment found that no noise exceedances at surrounding residences were predicted for the plant with mitigation measures. As these residences are closer to the Site than the Mount Gilead release area, there would not be exceedances for residences located in the Mount Gilead release area over 2 km away.

However, despite the above AGL has recognised that adjacent landowners are concerned about the proposal and as such has proposed a number of mitigation measures to ensure that future land use on neighbouring properties is not constrained by the power station.

These mitigation measures include:

- visual screening by way of 6 m high mound over 600 m long; and
- approximately 30 hectares of tree planting.

However, urban development in the future will need to be mindful of endangered ecological communities that exist in the region, something AGL has addressed by dedicating approximately 170 hectares of land for permanent conservation.

The existing value of land surrounding the Development Site is based on its current use, which as shown is currently zoned as non-urban. However, it has been suggested that part of the current value of the land surrounding the proposed project is based on a belief that within the future this land will be zoned residential, and can hence be developed for housing purposes. This is referred to as a speculative premium. Given the likely timeframes for potential re-zoning and development to occur, the speculative premium is likely to be limited at present.

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The likely impacts to land values in the short term are forecast to be limited on the basis of existing planning and zoning restrictions and due to:

- the unobtrusive nature of the proposed project given the size of the buffer zones afforded by the Leafs Gully property;
- the limited operational impacts (and operational times); and
- the limited supporting infrastructure requirements.

The closest proposed development area to the proposed Leafs Gully Power Project is the Mount Gilead land release area which is located approximately 2 km away. The Mount Gilead area is identified in strategic planning documents as a release area in the long term (at least after 2013). No other potential release areas are identified surrounding the Development Site or within closer vicinity.

The Metropolitan Strategy identifies that any substantially new greenfield area will be required to meet sustainability criteria. It states that *"lands outside the growth centres which are not on the Metropolitan Development Program are not needed for urban development over the next 25 years. This land will be maintained in its current land use for rural activities and resource production. Land will only be identified in non-statutory planning documents for urban investigation where it is the subject of a broad Strategy prepared by the State Government – or strictly as rural town expansions in local strategies[1]"*.

The conclusions of the strategic review conducted in 2007 (APP, 2007) further supports this with the conclusion that *"Macarthur South was not required to address regional and metropolitan housing needs"*[2].

It should be noted that the boundaries of the Metropolitan Strategy are not fixed and may be subject to on-going review by the Department of Planning in consultation with councils and stakeholders, in response to issues such as population and broader demographic needs. The work undertaken in this report has relied on existing planning forecasts for its analysis.

It is noted that large parts of the area surrounding the Leafs Gully site are within the South Campbelltown Mine Subsidence District. The current mine plan shows longwall extraction in the Bulli seam continuing over the next five to ten years in the Gilead area. It is unlikely the underlying Balgownie seam will be mined until the Bulli seam is exhausted which is a long term proposition, say 20 years. However, the timing of mining of longwall panels is never exact. Uncertainty of subsurface conditions, potential for equipment breakdown, emerging mining technologies and changes in global coal prices may all affect the way the mine is operated. Future longwall panels are planned but have not been approved and their exact location may change. This should be considered as being an issue that could influence the timing of urban development in the area.

AGL cannot comment on potential applications by other Proponents, although it is noted that such applications would be subject to the approvals process under relevant legislation with requirements for assessment of environmental impacts including cumulative impacts.

Submission 440.26: DETAILED EXAMINATION OF ISSUES OF CONCERN The following issues are those addressed in our submission to the first application. They were considered to be those with the most potential for adverse impacts on the properties north of the site -and the South Campbelltown area generally:

[1] Metropolitan Strategy, 2005, page 261

[2] APP Corporation Pty Ltd, Macarthur South Strategic Review for Department of Planning, September 2007, page 1

- **Site selection;**
- **Plant footprint selection;**
- **Visual assessment;**
- **Noise and vibration;**
- **Air quality;**
- **Land use and property;**
- **Heritage;**
- **Consultation; and**
- **Socioeconomics.**

They are examined again in this submission to assess whether anything has changed.

But to put this re-examination in context a couple of points need to be made:

Submission 440.27: The only significant change (refer Section 2 of this submission) is that the current proposal is two and not four gas turbines and the installed capacity sought is 300 MW and not 600 MW.... but Section 2.5, para 4 of the EA states..."This EA seeks approval for two units only, although allowance is made for an additional two units to be installed in the future (subject to a new environmental assessment and approvals)" When the current decision to be made involves what are considered to have major land use implications for the future we ask shouldn't an additional 2 units and possibly other potential developments of an industrial nature surrounding the station also be at least considered and evaluated now, even in a preliminary sense? (We made that point strongly in our preliminary submission of only a few months ago which was ostensibly for the purposes of community consultation and yet we received no feedback at all.)

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15% in the year for this proposal. Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

AGL received the Preliminary Submission made and discussed the submission with Tim Macoun at the time.

Submission 440.28: The current EA is almost identical to the 2006 one:

- **20 chapters previously - 22 now**
- **Chapters 1, 9, 10, 11, 16, 17, 18,20 and 21 are identical!**
- **Most other chapters except Chapters 8 and 19 are almost identical.**

The 2 new chapters are important but somewhat peripheral to the big issues --Chap (Health Impact Assessment) and Chapter 19 (Bush Fire Assessment) and were both errors and omissions in the first EA (- a fact we noted on page 12 of our previous submission)!

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The local air quality, noise assessments and visual assessments were updated for the current Environmental Assessment. Additionally, it is noted that a detailed site alternative assessment, health impact assessment, koala outcomes assessment and bushfire assessment, and inclusion of the access road have been incorporated into the Environmental Assessment that were not in the original Environmental Assessment. It is also noted that Chapter 20, Statement of Commitments, has been updated where required.

The specialist studies for the Environmental Assessment were prepared in accordance with the guidance documents referenced in the Environmental Assessment Requirements issued by the Director-General of the DoP.

Submission 440.29: PREFERRED SITE SELECTION Selection of the site location for the plant is again addressed in Chapter 3 of the new EA. Additional sites within target areas in NSW were "identified, visited and assessed by AGL" from Albury in the south to the Central Coast in the north.

Submission 440.30: Again no specific sites are identified in the EA -only local areas/suburbs. An assessment and ranking process was then carried out -but only for those economic and strategic matters of importance to AGL. To then show that some consideration had been taken of the environment a 'preliminary environmental comparative assessment' was carried in order to show that that AGL's two most preferred economic sites were still the best.

Submission 440.31: So in the current EA there is some further assessment of alternative sites but it is tokenistic. Given the opposition to the previous application there was no acknowledgement of the problems encountered previously or any attempt to assess the difficulties of considering a site within the Sydney basin or outskirts of the Sydney Metropolitan area. Rather AGL have maintained the argument that the Leafs Gully site is in the Appin area. It bears no relationship characteristic to the Appin area except it is located within the northernmost extent of the Appin map in the 1:25000 map systems. In fact:

- **It is closer to Campbelltown**
- **It is within the Campbelltown Local Government Area**
- **Most of the issues relate to land use impacts on Campbelltown residents**
- **And, the Leafs Gully site is the only site assessed that within the metropolitan area of Sydney.**

Submission 440.31: The site selection process in the first EA was flawed as set out in our original submission. The so called 'upgraded' assessment has not improved the calibre of the assessment. It reads like and is a postdate justification of a decision that was originally taken to obtain an option on the land prior to first application. It should not be located on this site or any within the Sydney Basin while there are other acceptable options.

Submission 440.32: Some of the criteria selected for evaluations that are carried out are clearly not appropriate:

- **Examples of other plants in metropolitan areas in other States do not justify this selection of the preferred site!**
- **The only example of a plant in the Sydney metropolitan area, the Smithfield plant in western Sydney, bas a Capacity of 162 MW and is in an industrially zoned area! (If it intended that this rural site be zoned for industrial land use that is not stated).**

- **Assessing alternatives by the relative distances from the city CBD is meaningless. The Hawkesbury-Nepean valley of western Sydney is a unique situation and environment. The decision to not proceed with the 2nd Sydney Airport at Badgerys Creek was taken by the Federal Department of Transport as much for the poor quality in the region as it was for any other reason.**
- **The process for selecting the Leafs Gully site remains seriously flawed.**

A detailed site alternative assessment was presented in Chapter 3 of the Environmental Assessment. AGL has undertaken a comprehensive review of existing gas turbine developments in Australia and also reviewed more than 10 alternate sites in NSW. At these alternate sites, network connections, land use and environmental impacts were reviewed. The Appin area remains the preferred region as no other region has the proximity to demand, concentration of infrastructure, and suitable distance from neighbouring properties and communities. In addition, output from a power plant in this region would not be constrained during peak periods as may the case with other locations.

Following additional analysis of alternate sites in NSW and existing facilities in Australia, locating a gas turbine peaking power plant in the Macarthur region is acceptable based on predicted environmental impacts. Strategically, the Site provides a location for reliable electricity generation at peak times to the key demand centre of NSW when the transmission system is constrained. In addition the Site has two sources of natural gas to draw upon. This ensures reliable electricity supplies for the electricity network.

The Development Site has a non-urban zoning and the Leafs Gully Power Project is permissible within this land use zone. The Development Site is subject to the provisions of Campbelltown City Council's Interim Development Order No. 15 – City of Campbelltown (IDO 15). The Site is zoned, Zone No.1 – Non-Urban under IDO 15. Development for the purposes of 'generating works' is permissible with development consent in the Non-Urban Zone under IDO 15 and therefore the Leafs Gully Power Project is permissible in the Non-Urban Zone under IDO 15.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

Submission 440.33: PLANT FOOTPRINT LOCATION SELECTION It was noted in the previous submission and repeated here in Section 1.1.1 that it was originally intended that the power station be located in the centre of the Leafs Gully site.

Submission 440.34: There was minimal discussion of this in the first EA. An assessment is now included assessing 3 internal sites or footprints -the preferred one and 2 others. The arguments about equity for sensitive receptors surrounding the site only prove that this site is very limiting in terms of the likely impacts on a collection of neighbours, irrespective of where it is to be located.

Submission 440.35: AGL's criteria for plant footprint selection have always been based on the perceived impacts on neighbours and largely economic factors from AGL's perspective.

Submission 440.36: The fact remains that an initial commitment was made to maximise buffer distances and locate the plant in the middle of the site. It was then rescinded. The site selected right on the northern boundary would result in major impacts to the 'northern alliance' properties of Meadow Vale

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and Mount Gilead. The site also threatens the greater Campbelltown area much more significantly than any other potential site on the property.

It is for this reason that it should be rejected.

When AGL secured Leafs Gully and prior to having made a decision on the preferred site, consultation was undertaken with a couple of neighbouring landowners. It was agreed by a representative of AGL at these meetings that a central location of the facility within the site might be appropriate. However, once feasibility studies for the site were conducted as detailed in Section 3.5 of the Environmental Assessment and the preferred site was selected. There was no "original" position on the site footprint within Leafs Gully by AGL although preliminary discussions may have suggested a site south of Leafs Gully would be considered that was subsequently found to be unsatisfactory.

The preferred site within Leafs Gully is equidistant between existing sensitive receptors (residences). The assessment of Leafs Gully will be determined to a large extent on existing sensitive receptors and not potential receptors. While a central location that is south of Leafs Gully may seem more equitable, the location of sensitive receptors is such that a site south of Leafs Gully will bring the nearest receptor to about 1 km from the facility whereas for the preferred site the nearest receptors are 1.5 km away. Most importantly, a location to the south of Leafs Gully would mean the proposal is still within a similar distance from the property boundary to another landowner. A site south of Leafs Gully is not more equitable for every landowner and is of benefit to landowners to the north of Leafs Gully. The proposed site within Leafs Gully is equitable for sensitive receptors and is not more equitable than other sites in terms of proximity to the property boundary. With all other factors being equal, the preferred location within Leafs Gully was selected on the basis of merit in terms of infrastructure connection.

Submission 440.37 VISUAL ASSESSMENT Introduction The landscape and visual assessment is Chapter 10 of the modified (compared with Chapter 9 previously). The text wording, figures and are almost identical to the previous EA.

The visual assessment was updated for the provision of two turbines as currently proposed.

Submission 440.38: Previous Assessment The importance of the visual impact assessment for a major power station proposed for a rurally zoned area with high visual natural character was the reason a considerable part of the previous submission in opposition was devoted to that assessment.

Submission 440.39: The components of previous submission included assessments of:

- **Visual Catchment**
- **Height and Massing**
- **Colour and Texture**
- **Light Spill**
- **Topography, and**
- **Mitigation and Management.**
- **New Proposal Visual Assessment**

Submission 440.40: As very little has been changed with this new proposal then our previous submission arguments stand. Not unsurprisingly the new EA findings are effectively the same. But we have a number of additional criticisms:

- **As before the EA finds that 'Only 1 of the 28 (27 previously) view locations are determined to have a MODERATE Visibility rating; and none of the 28 view locations are determined to have a HIGH visibility rating.' This is despite Figure 10-4 of the EA showing view locations 8a, 12,26,27,13, 14, 17,20, 21, 23 and 22 having a symbol signifying MODERATE Visibility rating?**
- **The view locations are (almost) identical to those adopted for the previous EA although it is noted again only 2 locations on the Mount Gilead property. a property of some 800 ha in area. were deemed necessary to assess to determine the visual impact on the property. This is despite the fact that the property covers most of the land area between the Leafs Gully site and the Campbelltown suburbs.**
- **There were no locations identified as view locations to assess impact within the southern suburbs of Campbelltown.**
- **Then the same visual simulations were undertaken. the same conclusions were drawn and finally the mitigation measures (this time contained in Section 10.9) are identical.**
- **The methodology for visual assessments is standard. However as a way of predicting potential impact something else needs to be introduced to make the assessment meaningful. Some of our conclusions previously have been summarised here to illustrate that point:**
- **From most view locations at least part of the 35 m high emission stacks WILL be visible. Such structures are not typical of a rural area.**
- **The nature of the proposed 'industrial type' development will be visually intrusive within the local rural area. It will be immediately recognisable as an industrial building and hence not typical of a rural area.**
- **The rural setting will be compromised through the inclusion of this industrial development from numerous vantage points including adjoining and neighbouring properties.**
- **The visual contrast between the power station structures and tree canopy background are se minimised when viewed from the east and west of the site. Presumably this would indicate that views from the north and south would not benefit from a background of the tree canopy and therefore there would be greater impacts form these two view directions.**
- **The security lighting may be designed not to spill outside the property boundary however light would potentially still be visible from elevated areas of higher topography in the surrounding locality. This does not appear to have been considered in the environmental assessment and could potentially impact neighbouring properties and other views from elevated positions. A significant light 'glow' is not typical of rural areas.**
- **The potential for visual and noise impacts would impact a greater number of people than the existing situation due to the proximity to the proposed plant. If it had been considered in relation to the rating system it is assumed that views from properties to the north and north east would have been given a much higher rating.**

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- **Our conclusions clearly challenged the conclusions drawn by AGL in the previous EA. However there was no refuting of any argument in the current EA!**
- **The location of the proposal is clearly only appropriate to the site if it is accepted that the industrial nature of the proposal is considered acceptable and the area will become an industrial area. Is that inconsistent with the surrounding locality? Well yes it is and that is what must be accepted for this proposal to be approved.**
- **Rural values and heritage values and their conservation would be lost. At least with urban development of some of the rural parts it would have been possible to maintain most of the heritage values. But not with industrial development!**
- **The alternative is to find a site more remote from the Sydney Basin where the surrounding area is either more industrial in nature or not identified as an area for potential urban expansion.**

An assessment of the visibility rating for each of the 28 view locations indicated that:

- 15 of the 28 view locations were determined to have a **NIL** visibility rating;
- 12 of the 28 view locations were determined to have a **LOW** visibility rating;
- 1 of the 28 view locations were determined to have a **MODERATE** visibility rating; and
- None of the 28 view locations were determined to have a **HIGH** visibility rating.

The visual assessment concluded that overall the Leafs Gully Power Project would have a low visual impact on people in areas surrounding the site.

It is considered that the visual assessment has adequately addressed the potential visual impact of the Leafs Gully Power Project. The visual assessment was prepared by a Registered Landscape Architect with over 15 years experience and employed a general methodology that has been utilised on a number of visual assessments for similar sized infrastructure projects.

Figure 10-4 in the Environmental Assessment presents the view locations in a colour coded manner to identify the visibility rating of each location. This figure shows only one location (View Location 8) in blue as having a moderate visibility rating. The locations with a low visibility rating are presented in green. The figure correlates with the conclusions made in the visual assessment.

The visual assessment identified the potential view catchments for the plant from the areas surrounding the Site on Figure 10-3 of the Environmental Assessment. The southern suburbs of Campbelltown are to the north of the Site and a located within the area shaded blue which was categorised as having screened views and being *"areas of land from which views of the proposed power station site are unlikely. Views would generally be screened by a combination of landform and vegetation."*

Submission 440.41: NOISE & VIBRATION Wilkinson Murray, acoustic consultants, have again prepared a very similar assessment for the EA for the lesser sized proposal of two operating units. The plant location has not been changed hence it is accepted that although DECC goals are undoubtedly complied with (albeit with 'Minor exceedance' at the Meadowvale homestead) this is undoubtedly acceptable subject to prescribed mitigation measures.

The noise assessment was updated and the revised proposal remodelled in the current Environmental Assessment.

Submission 440.42: However this proposal is objected to because it is proposed to be located within a hundred metres or so of the Leafs Gully site, hence with effectively no noise buffer to the industrial use. The introduction of the industrial use into an established rural area and in close proximity to a property boundary is not considered to be resolved through noise controls. Noise goals or landscaped bunds will not disguise the fact that there is a highly industrialised land use in very close proximity to the Mount Gilead land. Effectively it is sterilising the land adjacent the Mount Gilead southern boundary for anything other than a low intensity grazing or cropping land use.

The noise assessment found that no noise exceedances at surrounding residences were predicted for operation of the plant with mitigation measures.

However, despite the above AGL has recognised that adjacent landowners are concerned about the proposal and as such has proposed a number of mitigation measures to ensure that future land use on neighbouring properties is not constrained by the power station.

These mitigation measures include:

- visual screening by way of 6 m high mound over 600 m long; and
- approximately 30 hectares of tree planting.

However, urban development in the future will need to be mindful of endangered ecological communities that exist in the region, something AGL has addressed by dedicating approximately 170 hectares of land for permanent conservation.

Submission 440.43: The consent for the Sydney Gas plant adjacent to the Mount Gilead homestead, only resolved after the appeal in the LEC No.10297 of 2004, found that setting a noise goal was appropriate in those circumstances. However that was for a relatively modest gas compression facility, adjacent to a hard rock quarry and within sight of a dual carriageway freeway. The current proposal is of a different scale and has no such other neighbouring uses. It is a pristine rural area which had not been compromised by previous development.

Submission 440.44: Approval of this power facility will significantly affect the Meadowvale property and compromise a significant part of the Mount Gilead property.

Submission 440.45: The proposed development could only be appropriate only if a significant buffer zone or separation distance was created between the proposal and the established and longstanding uses of the area. This could only be achieved through locating the plant further to the south (as we have argued from the outset of negotiations with AGL).

The noise assessment found that no noise exceedances at surrounding residences were predicted for operation of the plant with mitigation measures.

There was no “original” position on the site footprint within Leafs Gully by AGL although preliminary discussions may have suggested a site south of Leafs Gully would be considered that was subsequently found to be unsatisfactory. The preferred site within Leafs Gully is equidistant between existing sensitive receptors (residences). The assessment of Leafs Gully will be determined to a large extent on existing sensitive receptors and not potential receptors. While a central location that is south of Leafs Gully may seem more equitable, the location of sensitive receptors is such that a site south of Leafs Gully will bring the nearest receptor to about 1 km from the facility whereas for the preferred site the nearest receptors are 1.5 km away.

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Submission 440.46: AIR QUALITY Appendices D, E and F of the new EA provide a Local Air Quality Assessment, a Regional AG Assessment (600MW) and a Regional AQ Assessment (300 MW) respectively for the proposal.

Submission 440.47: As before, emission levels from this plant are not considered to be great. There is also the supposed infrequent use that is proposed. However undoubtedly if this plant is constructed it would result in some incremental local as well as regional air quality effects.

Submission 440.48: The concern we have is that if such increases are allowed to occur it will be found to be acceptable in an area which is already stressed under certain scenarios and will occur at a time when there will be in all likelihood constraints in the supply system. There will be pressure on the NSW Government to 'accept' the situation. It will be the health of local residents that will be compromised!

Submission 440.49: Air quality assessments are not an accurate science. Also we have many unknowns and assumptions. The risk is not worth it – there should be no general power stations, either base load or peaking within the Sydney basin.

An assessment of the air quality impacts was presented in Chapter 7 of the Environmental Assessment. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. The regional air quality assessment concluded that the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case conservative scenario of 24-hour operation under all atmospheric conditions. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

Submission 440.50: LAND USE AND PROPERTY It is not proposed to add any further argument in this matter. An extensive submission was made previously. The main points were:

Submission 440.51: The Mt Gilead area is part of an area that had been identified for future residential development.

Submission 440.52: From a long strategic planning land use viewpoint, the Leafs Gully site is not an appropriate location for a power plant. The proposal would irrevocably compromise an option available to the State Government to extend Campbelltown to the south. This potential is a medium term one with the potential to provide a third interchange to the South Western Freeway to serve South Campbelltown, Menangle Park and Gilead.

Potential future urban development was discussed in Chapter 16 of the Environmental Assessment. As noted above, mitigation measures detailed in this Environmental Assessment relate to the control of the development's impact on noise levels, air and water quality, traffic and transportation, visual amenity and other environmental matters. These mitigation measures would be implemented to ensure that the proposed project is managed in an effective and efficient manner, with minimal impact on existing or possible future surrounding land uses.

The potential for interaction of the proposal with new urban development in the region was considered in the context of the NSW Government's plan for the development, the Sydney Metropolitan Strategy and the

Metropolitan Development Plan (MDP). It is noted that the Metropolitan Strategy focuses on the South West Growth Centre and the Development Site is not within the boundaries of this growth centre. However, Mount Gilead has been identified in the MDP as potentially providing 1,340 dwellings in the long term. The MDP defines Mount Gilead as an area of approximately 2 km^2 located approximately 2 km from the Development Site. No other areas closer to the Development Site have been identified in the MDP. It is noted that the Metropolitan Strategy states that lands outside growth centres which are not on the MDP are not targeted for development over the next 25 years. A strategic review undertaken in 2007 which addressed housing demand and land supply in the Macarthur South area determined that Macarthur South was not required to address regional and metropolitan housing needs.

It should be noted that the boundaries of the Metropolitan Strategy are not fixed and may be subject to on-going review by the Department of Planning in consultation with councils and stakeholders, in response to issues such as population and broader demographic needs. The work undertaken in this report has relied on existing planning forecasts for its analysis.

Submission 440.53: HERITAGE The area north of the Leafs Gully site has significant links back to the early settlement of the colony of NSW.

Submission 440.54: AGL does not accept that a change of land use south of these properties would compromise their values (Section15.8.2 Mitigation Measures – European Heritage). They do not address what would be the impact of an industrial area and rely on the power station being an isolated development in a rural land use. This is quite flawed.

The 'Mount Gilead' historic site is located approximately 2.9 km northeast of the Leafs Gully Power Project. The assessment presented in Chapter 15 and Appendix N of the Environmental Assessment specifically considered the potential impact of the historic significance of the Mount Gilead property. The assessment considered that the proposed development will have no impact on the site's heritage significance.

Submission 440.55: CONCLUSIONS The original application was withdrawn because of community concerns but then resubmitted within a little over two years with effectively no changes except to commit to only install Stage I of the previous application.

Submission 440.56: On the surface of it that could be considered a cynical exercise in community manipulation.

Submission 440.57: The Director's Requirements for the current EA do not give any clue as to the NSW Government's attitude to this. The fact that they were issued almost instantaneously may indicate the Government's concern is more in regard to a looming power crisis but that does not explain why Minister Sorter in December 2006 could not resolve the problems he saw in attempting to approve the 600 MW proposal. He saw major issues with:

- **Potential air quality**
- **Land use conflicts with surrounding properties**
- **The adequacy with the previous community consultation.**
- **Resolving the conflict with the Meadowvale property has not been achieved. Is that to be overridden for the State good?**

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- **All of these issues could have been resolved with a change of site. Was that the intended outcome? Have AGL committed to purchase the Leafs Gully farm -have they already bought it?**

Submission 440.58: This is unquestionably a poor site for a power station. Wherever on the site the plant were to be located, there are problems with this site. However we still contend that a preferable location on the current site is available. However that is not the proposal! The proposal therefore must be refused.

Submission 440.59: It could potentially be approved at most of the other sites investigated and the majority have good access to gas supplies and trunk high voltage power lines. So AGL need not be seriously compromised in economic terms. The key may be whether with the looming power shortages there are other options to make up the shortfall in the short term.

Submission 440.60: Should the Minister consider the issues we raise in this submission and the earlier one be not of sufficient weight to reject the application, we believe the application needs to be further examined by an independent panel of experts or the Planning Assessment Commission.

Submission 440.61:And we also ask that a requirement be established through the approval's process that no change in the operating capacity of the station, it's operating frequency or any other form of power development be approved within or adjacent to the site until the performance of the development has been assessed over at least 10 years of operational performance. If AGL cannot accept these constraints approval should be refused outright.

A detailed site alternative assessment was presented in Chapter 3 of the Environmental Assessment. AGL has undertaken a comprehensive review of existing gas turbine developments in Australia and also reviewed more than 10 alternate sites in NSW. At these alternate sites, network connections, land use and environmental impacts were reviewed. The Appin area remains the preferred region as no other region has the proximity to demand, concentration of infrastructure, and suitable distance from neighbouring properties and communities. In addition, output from a power plant in this region would not be constrained during peak periods as may the case with other locations.

Following additional analysis of alternate sites in NSW and existing facilities in Australia, locating a gas turbine peaking power plant in the Macarthur region is acceptable based on predicted environmental impacts. Strategically, the Site provides a location for reliable electricity generation at peak times to the key demand centre of NSW when the transmission system is constrained. In addition the Site has two sources of natural gas to draw upon. This ensures reliable electricity supplies for the electricity network.

This issue is for the consideration of the Department of Planning. However, it is noted that under Clause 23 of the *Environmental Planning and Assessment Act 1979*, the Minister cannot delegate his authority to the Planning Assessment Commission to determine critical infrastructure projects.

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15% in the year for this proposal. Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

Submission 441

Submission 441.01 I would like to object to the power station because it will cause extra pollution and make the community sick

Submission 441.02 Also property values will be affected and will go against councils vision for this area to be developed for houses.

Submission 441.03 The power station is to be used 15% of the time when complete how can we be assured this will not increase in time.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, health, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

An assessment of the possible health consequences arising from operation of the proposed Leafs Gully Power Project was presented in Chapter 8 of the Environmental Assessment and was prepared by Associate Professor David McKenzie, Head, Respiratory and Sleep Medicine, Prince of Wales Hospital and Dr Elizabeth Brown Research Fellow, Prince of Wales Medical Research Institute.

The assessment concluded that at the levels predicted, any health impact would be difficult to detect. Further it stated that “at the projected levels of the potential pollutants considered in the air quality impact document there is unlikely to be any adverse effect on mortality, lung development in children and adolescents, decline in lung function or rates of asthma development.”

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15 % in the year for this proposal. Any changes to the power plant would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

Submission 443

Submission 443.01 I object to the proposed power station because it will produce additional air pollution and impact on the existing air problems in the Macarthur Area.

Submission 443.02 It will effect land value in Macarthur and encourage other heavy industries to come to the area and cause more pollution.

Submission 443.03 The power station should be located outside the Sydney Basin

An assessment of the air quality impacts was presented in Chapter 7 of the Environmental Assessment. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. The regional air quality assessment concluded that the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

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The likely impacts to land values in the short term are forecast to be limited on the basis of existing planning and zoning restrictions and due to:

- the unobtrusive nature of the proposed project given the size of the buffer zones afforded by the Leafs Gully property;
- the limited operational impacts (and operational times); and
- the limited supporting infrastructure requirements.

AGL cannot comment on potential applications by other Proponents, although it is noted that such applications would be subject to the approvals process under relevant legislation with requirements for assessment of environmental impacts including cumulative impacts.

Submission 446

Submission 446.01: This submission is prepared by John Toon Pty Ltd, town planning and urban design consultants, on behalf of Leafs Gully Action Group Incorporated. Leafs Gully Action Group Incorporated comprises the majority of land owners who collectively own some 200ha located in the Campbelltown-Appin corridor, generally north of Mallaty Creek.

Submission 446.02: The submission relates to a proposal to build a 300 MW (nominally 360 MW) gas-fired peak power station. There is potential to expand this to a 600 MW (nominally 720 MW) plant; this would be subject to a second development application.

Submission 446.03: It is stated that this plant will not operate for more than 15% of time and that normal operations will run for only 2.3% of time.

Submission 446.04: Our investigations lead us to conclude (see Section 9 of this report) that the site planning of the proposal is predicated upon a second pod of generators with a combined output of 1200 MW (nominally 1440 MW) being accommodated on site. No reference is made to this possibility in the EIS.

Submission 446.05: This conclusion then leads us to query whether or not this plant could become a base-load plant In this regard we note the Tallawarra plant at Wollongong was originally conceptualised as a peak power plant but now operates as a base load plant. There is no discussion of this possibility in the EIS.

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15 % in the year for this proposal. Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

Submission 446.06: In preparing this submission the following documents have been referred to.

- ***Proposed Leafs Gully Power Project Environmental Assessment Voles 1, 2 and 3 and Appendices A to Q prepared by URS. February 2009.***
- ***Statement of Opportunities prepared by National Electricity Market Management Company Limited (NEMMCO). 2008.***

- ***Macarthur South Regional Environmental Study. DOP 1991.***
- ***City of Cities: A Plan for Sydney's Future. DOP December 2005.***
- ***NSW Government Energy Directions Green Paper. December 2004.***
- ***Health impacts of air pollution in the Sydney Basin. Report of the General Purpose Standing Committee of the Legislative Council of NSW. November 2006.***
- ***Macarthur South Strategic Review. AAP Corporation Pty Ltd. September 2007.***

Submission 446.07:This submission demonstrates that the location of the proposed power station has such serious impacts that it should not be approved.

Submission 446.08:The primary reasons are (1) that the impact of the emissions in a very sensitive air-shed is unacceptable and (2) that the location selected precludes the achievement of good urban outcomes when Macarthur South is eventually developed for urban purposes.

Submission 446.09: Leafs Gully is the wrong location for a peak power station. A site should be sought that is better ventilated and more remote from existing and potential urban development.

The Environmental Assessment has presented a detailed assessment of the potential impacts on the environment in relation to air, noise, traffic, ecology, heritage, health, hazard and bushfire. No significant adverse environmental impacts have been identified through the course of studies. Environmental impacts that have been identified are within relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

An assessment of the air quality impacts was presented in Chapter 7 of the Environmental Assessment. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. The regional air quality assessment concluded that the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

Chapter 16 of the Environmental Assessment considered the land use implications and found that the closest proposed development area to the proposed Leafs Gully Power Project is the Mount Gilead land release area which is located approximately 2 km away. The Mount Gilead area is identified in strategic planning documents as a release area in the long term (at least after 2013). No other potential release areas are identified surrounding the Development Site or within closer vicinity.

The Metropolitan Strategy identifies that any substantially new greenfield area will be required to meet sustainability criteria. It states that *"lands outside the growth centres which are not on the Metropolitan Development Program are not needed for urban development over the next 25 years. This land will be maintained in its current land use for rural activities and resource production. Land will only be identified in non-*

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statutory planning documents for urban investigation where it is the subject of a broad Strategy prepared by the State Government – or strictly as rural town expansions in local strategies[3]".

The conclusions of the strategic review conducted in 2007 (APP, 2007) further supports this with the conclusion that *"Macarthur South was not required to address regional and metropolitan housing needs"*[4].

It should be noted that the boundaries of the Metropolitan Strategy are not fixed and may be subject to on-going review by the Department of Planning in consultation with councils and stakeholders, in response to issues such as population and broader demographic needs. The work undertaken in this report has relied on existing planning forecasts for its analysis.

Submission 446.10: Key assessment Requirements

The key assessment requirements as specified by the Director General of the Department of Planning are as follows:

1. Strategic planning;

2. Greenhouse Gases;

3. Air quality impacts;

4. Noise impacts;

5. Water quantity and quality;

6. Flora and fauna impacts;

7. Hazard and risk assessment; and

8. Heritage impacts.

This submission will focus on need, strategic planning, air quality impacts, noise impacts, visual impact and flora and fauna impacts.

Submission 446.11: The Submission

The need for the proposed Leafs Gully Power Station.

Submission 446.12: The proposed Leafs Gully Power Station is a scaled-down version of a 2006 proposal for a 600MW plant. The rationale for that proposal was the NEMMCO 2005 Statement of Opportunities which indicated an imminent shortfall of peak load power generating capacity in NSW.

Submission 446.13: The NEMMCO 2008 State of Opportunities concludes generating capacity in NSW is adequate through to 2014/15. This statement takes into account recent changes in generating capacity and demand.

Submission 446.14: The over-riding factor currently affecting power generation in New South Wales and SE Australia is the uncertainty relating to policy with respect to global warming. The shape of a future emissions trading scheme (ETS) or an alternative scheme, such as a carbon tax, is far from clear at the time of writing this submission.

[3] Metropolitan Strategy, 2005, page 261
[4] APP Corporation Pty Ltd, Macarthur South Strategic Review for Department of Planning, September 2007, page 1

Submission 446.15: Central to power generation in SE Australia is the position of the existing and any future coal-fired power stations. The abundance of coal resources in Victoria, New South Wales and Queensland have provided the three coal producing states, together with Tasmania and South Australia, with cheap energy; the only disadvantage of this mode of energy production is the relatively high emission of carbons into the atmosphere so contributing to global warming.

Submission 446.16: All governments in Australia are committed to reducing carbon emissions and promoting the use of cleaner, and greener, energy sources. The unit price of electricity generated by alternative (to coal) modes of energy generation is more expensive than the unit price of electricity produced by coal fired power stations. The object of government policy is to reduce carbon emissions by means of a tax or a trading scheme. It is almost certain that the incidence of additional costs by way of taxes will fall heaviest on high carbon emitters such as coal-fired power stations.

Submission 446.17: The absence of an agreed policy creates an uncertain and unstable environment for investment in the energy industry. This uncertainty affects decision-makers in the industry leading to a deferment of major investment decisions in new power generating plants, particularly those designed as base-load plants (usually in the order of 1500-2000MW capacity).

Submission 446.18: Pending the adoption of a firm policy, both Federal and Statement Governments are offering subsidies and other incentives for alternative energy technologies such as wind and solar power. Nevertheless the unit price of electricity generated by these modes is higher than that produced by coal-fired power stations. In addition the quantum and reliability of electricity produced by these alternative technologies is relatively low.

Submission 446.19: The unit costs of electricity generated by gas-fired power stations are also relatively high. Consequently gas-fired plants have been only considered suitable for supplying peak demand when wholesale prices are at their highest. Even so gas-fired power stations are now used as base load power stations. This may be attributed to the uncertainty surrounding investment in additional coal-fired power stations due to the absence of a firm policy position in relation to an ETS or carbon tax.

Submission 446.20: Both Federal and State Governments are also pursuing policies aimed at reducing energy consumption in transport, in industrial processes and in a range of commercial and residential buildings as well as in more efficient product design. Whatever success these policies have achieved has tended to be off-set by the more widespread use of energy-hungry equipment such as reverse-cycle air-conditioners, plasma TV screens and the internet.

Submission 446.21: The total demand for energy in SE Australia is monitored and managed by the National Electricity Market Management Company (NEMMCO). NEMMCO produce an annual Statement of Opportunities which, in essence, characterises the supply/demand equation in each State and collectively across SE Australia where the grids are connected, albeit tenuously. These annual statements take into account changes in productive capacity, policy changes and matters such as pricing that may affect demand.

Submission 446.22: The 2008 Statement of Opportunities (SOO) updates, inter alia, the time at which each State is expected to reach a trigger-point for closer investigation of the supply-demand equation. Submission 446.23: This point is not estimated to be reached until 2014/15 in NSW compared, for example, with 2008/09 for Victoria and South Australia combined. The Reserve Deficit for NSW in 2014/15 is estimated to be 283 MW.

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Submission 446.24: These figures, presented in much more detail in the 2008 SOO, take into account plants about to be commissioned and de-commissioned. The figures clearly demonstrate that the demand-supply equation in NSW is comfortable until 2013/14.

Submission 446.25: This suggests that there is no urgent need for an additional generating plant in the near future.

Submission 446.26: The EIS (dated 2009) makes no reference to the NEMMCO 2008 SOE. Instead it somewhat disingenuously refers to earlier statements and a range of other sources to support its claim for the need for a peak-power plant. The NEMMCO Annual Statement is regarded as the authoritative source on power generation supply and demand in SE Australia. The failure to refer to this source is not discussed in the EIS.

Submission 446.27: The proponent of the Leafs Gully plant indicates a preferred commissioning date of 2010/11. This does not tally with the NEMMCO findings in terms of need.

Submission 446.28: Further, a resolution of the policy framework for greenhouse gas emission can be anticipated by end 2010. At this time much of the uncertainty relating to the taxation of carbon emissions will have been resolved and a clearer picture will emerge of the comparative unit costs of electricity generated by the alternative modes and/or technologies. It can be anticipated that new base-load generating plants will be proposed following clarification of the policy regime under which power will be generated.

Submission 446.29: It is our considered view that the evidence does not demonstrate a need for a peak-power plant of the type proposed in the Sydney Metropolitan region in the near future, if at all.

Submission 446.30: There is inadequate discussion of need in the EIS. The case for a peak plant is not made. The case for a gas-fired power station in this location is not established.

Submission 446.31: The proponent also justifies the Leafs Gully plant on the commercial grounds that, as a retailer, the proponent is exposed to fluctuating wholesale prices (stated to range up to $10,000.00 per kW hour for periods of short supply) yet is constrained by regulated and capped prices at which it can sell electricity to consumers. The proponent seeks a plant from which peak-demand on the grid can be met at high wholesale prices, thus offsetting high wholesale costs that the proponent meets elsewhere.

Plan 1: Showing the location of the proposed Leafs gully power station in relation to land identified as suitable for urban development.

Submission 446.32: The writer is unaware of the wholesale prices paid for peak power in New South Wales. The proponent owns gas-fired peak power plants in South Australia and Victoria. The 2008 NEMMCO report highlights impending deficiencies in supply in those states suggesting that reliance on peak power plants in those states may be greater, implying higher wholesale prices can be achieved in these States, thus justifying the location of peak plants in those States.

Submission 446.33: The writer understands that the capacity of inter-state transmission lines is less than the capacity of networks serving the major metropolitan markets such s Sydney-Newcastle-Wollongong and SE Queensland. Nevertheless the objective of linking the transmission grids of the SE States was to achieve greater overall efficiency by enabling energy produced in zones of surplus capacity to be 'exported' to zones of deficiency in supply. For many years the Snowy Mountains Hydro

Electricity Scheme operated to top-up supplies to NSW and Victoria in times of shortage. Whilst the Snowy is no longer seen as a reliable source the network that it fed into still exists.

Submission 446.34: The peak-power plant at Uranquinty (near Wagga) understood to be recently commissioned, appears to be well located to meet peak demand in both the Victoria/South Australia and the NSW markets much as the Snowy Scheme has in the past.

Submission 446.34: The writer understands that 600MW peaking plants at Tomago and Munmorah (both designed to serve the Sydney-Newcastle-Wollongong market) have existing planning consents but have not yet been commissioned. This suggests that there is no critical urgency to provide additional peak supply in the Sydney metropolitan market.

Submission 446.35: The EIS refers to savings of $200,000 p.a. in network efficiency that can be achieved by locating a peaking plant at Leafs Gully. It is unclear where these savings are derived and what alternatives they relate to.

Submission 446.36: It is our considered view that the benefit to the public in terms of the cost-effectiveness or the certainty of supply is not established in the EIS. The proposed plant is surplus to the capacity of the NSW power generation system. The costs to the community in terms of adverse impact on the Sydney air-shed and the urban development potential of lands in the locality of the proposed site far outweigh any identifiable benefit.

The NEMMCO SO is only one of several factors that determine project need and timing. Other factors that determine project need and timing include the retail position of AGL at various points. This is influenced by AGL's ability to hedge future exposure through contracting and market pricing. These factors are commercially sensitive and are not explored in detail in the Environmental Assessment. The NEMMCO SOO is used to illustrate the case for building new generation and provides an external reference source. AGL has a growing retail position in NSW and as this retail position grows, the requirement for a peaking power station to mitigate risk and reduce the cost of electricity grows. The change in forecast from the 2006 to the 2008 SOO does not change the business case for AGL to construct and operate a power station.

Leafs Gully Power Project would be an important addition to the electricity infrastructure for NSW. It is close to the demand centre ensuring reliable electricity supply during peak consumption times. As the proposed power station would be able to operate without water in times of emergency, it would ensure essential services will not be affected should the current drought continue to affect other forms of generation. Further, natural gas is clean burning and has low greenhouse gas emissions. New power generation will continue to be required in the forthcoming years and the Leafs Gully Power Project would enhance the local electricity network including savings estimated to be $200,000 per annum in avoided capital works and network losses.

Submission 446.37: The Leafs Gully proposal is for a two-stage project, each stage comprising two open cycle gas turbines generating 300-360MW. The project is intended to be operational in 2011. The location of the proposed power station is shown on Plan 1.

The Project Application does not seek approval for a two stage project. The application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15 % in the year for this proposal.

Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

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Submission 446.38: The Leafs Gully proposal is one of some 14 peak load power plants currently approved or proposed in NSW. Some have consent and one, Tallawarra, is fully operational as a base load facility. All are gas fired and most are designed to meet peak demand. Table 1 shows the generating capacity, scheduling and standing of the known peak plants proposed for NSW. Peak power plants are also operational in both Victoria and South Australia. Table 1 indicates that the combined generating capacity of the approved and proposed peak load plants is some 4000 MW.

Table 1. Existing and Proposed Peak Gas Fired Power Stations in NSW

Name of Plant	Consent	Capacity	No. of stages	06	07	08	09	10	11	12	13	14	15	16
Greater Metropolitan Region														
Tallawarra	Yes	400MW	2											
Mummorah	Yes	600MW	2											
Tomago	Yes	790MW	3					?	?	?	?	?	?	
Bamarang		400MW	2					?	?	?	?	?	?	
Marulan		450MW	3					?	?	?	?	?	?	
Leafs Gully		600MW	2					?	?	?	?	?	?	
Rest of State														
Wagga Wagga	Yes	600MW	2											
Parkes		120MW	1											
Parkes		80MW	1											

Submission 446.39: We conclude from this analysis the satisfaction of any demand for peak power in the Sydney Metropolitan Region is not dependent on the Leaf Gully proposal.

Submission 446.40: We further conclude that the time frame outlined in Table 1 allows AGL sufficient time to select a more appropriate site and carry out the necessary environmental assessments (see under).

Submission 446.41: We conclude the proposed Leafs Gully Power Station is not critical to the provision of peak power supply in the Greater Metropolitan Area in the period 2009-2016.

It is possible that not all of the proposed developments referenced in the submission, approved or proposed, will proceed to operation. In some instances multiple plants may be proposed by a single proponent that may be seeking to maintain competitive tension for gas prices by having several options available for a gas fired power station. Government-owned corporations are proposing the majority of power generation developments. The Leafs Gully Power Project is consistent with Government policy indicating a preference for private investment in electricity generation. While the government-owned corporations have several proposals prepared, while private sector proposals are proceeding there is a reduced threat of electricity supply disruptions. Therefore, it is possible that only one or two of these will proceed. Amongst the private sector proposals, AGL is the only retailer and thus the only proponent able to proceed without the requirement for a long term electricity off-take contract from a third party. As such, Leafs Gully is a superior proposal in terms of financial viability in addition to previously stated benefits of having strategic location within the electricity and gas networks and no significant adverse environment impacts.

Submission 446.42: The Western Sydney and Menangle -Douglas Park Air-sheds.

The characteristics of the air-shed in the Sydney Basin are now well understood. The two specific characteristics of the air-shed that are identified with risks to health are the meteorological conditions

that cause periods of very still air where the pollution generated by urban activities builds up in the air-shed over a period of several days.

Submission 446.43: The first characteristic is the diurnal pattern of air movement of these episodes; this is a gradual draining out to sea of polluted air in the early part of the day and a reverse flow in the latter part of the day when the convection air currents occur as the land mass heats up and warm air over land is displaced by cooler air drawn from over the ocean. This is the well-known Sydney nor-Easter. These air currents diminish as they flow inland but the overall effect is to shunt the polluted air mass to the western part of Sydney.

Submission 446.44: This characteristic was well described in the NSW Government submission to the Inquiry into Health Impact of Air Pollution in the Sydney basin by the General Purpose Standing Committee of the Legislative Council of NSW which stated:

"In its submission to the Inquiry, the NSW Government noted that Sydney's topography and meteorology is of particular concern in relation to the formation of ozone in western Sydney:

Emissions of oxides of nitrogen and Voces produced by morning peak hour traffic and other sources can be transported offshore. In the presence of sunlight they begin to react to form ozone and with the arrival of the sea breeze the reacting plume is transported across the Sydney basin arriving in western Sydney mid to late afternoon. " (Section 2.61)

Submission 446.45: When the polluted air is tipped over the Blacktown Range, that is the range of higher land that separates the Hawkesbury River catchment from the Parramatta and Georges River catchments, it can become trapped in the Hawkesbury River catchment for several days.

Submission 446.46: The second characteristic is the katabolic winds, effectively cold air drainage, which roll off the higher land to the south and west of the Sydney basin, trapping polluted air and forming a distinctive layer of brown or white haze where the pollutants are concentrated at the upper levels of the warm air trapped by cold air.

Submission 446.47: This issue was highlighted in Report of the General Committee:

"The draft report on Regional Air Quality and Greenhouse Issues Affecting Development of North West and South West Sectors prepared by the then Department of Infrastructure, Planning and Natural Resources (DIPNR) and the Environmental Protection Authority (EPA) identifies south-west Sydney as having peak ozone concentrations significantly above the Sydney average and up to 75% above the national standard." (Section 2.60)

and

"Mrs Janette Barrios, a concerned citizen, also stated that Sydney's topography and meteorology traps pollution and creates a pollution 'hot-spot' in the 'western-south western Sydney basin':

The Sydney basin is a classic "closed" basin, bounded by high terrain to the south, west and north, and by temperature differentials between land and ocean on the eastern side. Trapped pollution may accumulate and circulate inside the basin ... until a strong wind, such as a "southerly buster" or strong westerlies, flushes 'dirty' air out of the basin. Temperature inversions exacerbate the smog trap situation with relative frequency." (Section 2.59)

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Detailed regional air quality studies were undertaken as part of the Environmental Assessment. The CSIRO was engaged to conduct the regional air quality assessment (Appendix E and F of the Environmental Assessment) in a greater level of detail than that normally conducted for equivalent developments outside of the Sydney airshed due to the incidence of photochemical smog in western and south western Sydney.

The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. Ozone is the major component of photochemical smog. NO_x is comprised of both nitrogen dioxide (NO_2) and nitric oxide (NO), with NO_2 being the primary concern in air quality guidelines.

Chapter 7 of the Environmental Assessment summarises the assessments and presents the conclusions made by both the preliminary photochemical smog assessment (specifically in Section 7.5.3) and detailed smog assessment (specifically in Section 7.5.5). Chapter 7 notes the following in the Summary of Outcomes:

- While the proposed plant will only operate for up to 15 % of the year, a worst-case scenario was modelled with a plant operating at full capacity continuously for a 12 month period. Under that scenario there was a maximum increase of NO_x of 0.4 parts per billion (ppb) and a maximum increase of NO_2 concentration of 3.7 ppb over a small area north west of the plant. The plume from the plant largely results in minimal change in ozone levels with some areas experiencing a minor reduction in ozone levels.
- While the proposed plant will only operate for up to 15 % of the year, a worst-case scenario was modelled where a four unit plant operated for 24 hours continuously on an ozone event day. Ozone event days are days with meteorological conditions known to be conducive to photochemical smog events and were selected by the Department of Environment and Conservation (DEC) as a basis for the assessment. Under that scenario there is a maximum increase of 6.8 ppb of ozone and 2.5 ppb of NO_2 occurring over small areas to the south west of the plant. Within the Sydney region, increases in ozone and NO_2 are minor and cover relatively small areas. The plume from the proposed power plant largely results in no change in ozone levels with some areas experiencing a minor reduction in ozone levels. This reduction is caused by the consumption of ozone by nitric oxide (NO) emitted by the plant. In addition, it is noted that the impacts from a two unit station (i.e. the subject of the Project Application) on the modelled ozone “event” days would be lower than those of the modelled four unit station.

The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

The diurnal atmospheric behaviour has been incorporated into the dispersion models used in the assessment. Similarly, katabolic wind flow would be captured by the meteorological stations which were incorporated into the dispersion modelling.

Submission 446.43: Current Policy Statements on Emissions and Air-sheds.

The NSW Government Energy Directions Green Paper identifies emissions into already polluted air-sheds as a significant constraint. It states:

'Regional air quality constraints are likely to present issues for gas-fired plants in the lower Hunter, Leawarra and Sydney Basin; regional air quality is not a major issue in other locations. '

and

'Cumulative pollution from power generation can limit opportunities for future industrial growth in areas with significant regional air pollution.'

and

'However to avoid land use conflicts, gas-fired plants should be located in industrial areas or avoid visually prominent locations. '

Submission 446.44: The Macarthur South Regional Environmental Study (DOP 1991) identified the incidence of photo-chemical smog in western and south-western Sydney to be of such concern that it recommended 'more stringent emission controls are required if Sydney's air is to meet current health standards.

Submission 446.45: This was also an issue of concern in the planning of the South-West Growth Centre.

Submission 446.46: The Macarthur South study concluded that:

'emissive sources should be located on high land'

and, in relation to Menangle/Douglas Park and its associated air-shed that

'emissive sources should be minimised'.

Submission 446.47: The proposed power station is located in a relatively low position, at RL150 in the Menangle/Douglas Park air-shed. The Campbelltown-Appin Road is generally aligned along a ridge that rises from RL190 at Rosemeadow to RL250 at Appin. This ridgeline defines the eastern edge of the Menangle/Douglas Park air-shed which is regarded as the pollution sink of the Sydney Region (see Plan 2).

Submission 446.48: The plume from the stacks of the proposed power station disperses over the Menangle/Douglas Park area which the Macarthur RES identifies as the area most affected by photo-chemical smog (see Plan 3).

Submission 446.49: In air pollution terms the location of the proposed power station is so unsatisfactory as to warrant rejection on these grounds alone.

Submission 446.50: The location of the proposed power station is contrary to all current policy statements. Current policy emphasises the need to avoid locating significant emitters in the Menangle / Douglas Park air-shed. The proposed power station is a significant emitter located in the Menangle/Douglas Park air-shed.

Plan2: Showing the location of the proposed Leafs Gully power station in relation to the 200 metre contour line which defines the Menangle/Douglas Park airshed.

Plan3: Showing a generalized indication of the plume dispersal as depicted in the EIS for Leafs Gully power station.

The conclusions in the Macarthur South Study referenced are likely to relate to emissive sources for other types of development and are general in nature. Open cycle gas turbines are a unique type of emission source with respect to exit temperature and velocity. The exhaust is hotter, and the volume flow rate and velocity greater than any other industrial source. The exhaust temperature is in the order of 500 degrees Celsius and travelling

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at well over 100 km/h. This means that the plume will rise upon release from the stack, where it is extremely unlikely to impact on the terrain directly surrounding the site.

The local air quality assessment has shown that the stack height is adequate to prevent near-field impacts. The average plume settling height for the Alstom running scenario was found to be approximately 500 m above the proposed plant, with the plume rising to well over a kilometre above ground level during calm conditions. The minimum height to which the plume centreline was predicted to rise was approximately 170 m above the proposed plant.

Good engineering practice would ensure that the stack would be designed to prevent near-field impacts. Beyond this additional stack height will have a negligible effect on reducing ground level concentrations of pollutants, whilst adding to the visual impact of the plant, and reducing the efficiency of its operation.

As noted above, an assessment of the air quality impacts was presented in Chapter 7 of the Environmental Assessment. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. The regional air quality assessment concluded that the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

Therefore the Environmental Assessment has demonstrated that there would be no significant adverse environmental impacts from the proposed Project. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

The plume dispersal referred to in these submissions is likely to be the CSIRO produced figures (Figures 7-1, 7-2, 7-3 and 7-4 in the Environmental Assessment) showing average difference in ozone between the base and test case scenarios. The figures demonstrate changes in levels of ozone and pollutants from Leafs Gully and show that the area of concern in referred to in the submission is actually a zone of slight reduction in ozone levels, which is attributed to the titration of ozone by NO. Refer to Section 7.5 of the Environmental Assessment for a summary of the CSIRO regional air quality study or Appendix E and F for the detailed assessment.

Submission 446.51: Ambient Air Quality.

The metropolitan strategy 'City of Cities' outlines proposals for the South West Growth Centre and the North West Growth Centre. The NSW Government has established the Growth Centres Corporation to implement the two growth centres. Both growth centres are located west of the Blacktown Range in the Hawkesbury River catchment. These growth centres are intended to accommodate the major part of new urban development over the period 2006-2031. The South West Growth Centre, based on a major centre at Leppington, is intended to provide for 155,000 new dwellings and 8,000 jobs. This growth centre will have a major impact on air quality in the west and south west of the Sydney basin.

Submission 446.52: The General Purpose Committee reported on this as follows:

"The Committee notes with concern that the proposed future development for Sydney, as described in strategic planning documents such as the Metropolitan Strategy involves expansion of those urban

areas that are already considered air pollution 'hot-spots'. The Committee notes that the Metropolitan Strategy Planning Report for the South West Growth Centre does not adequately address the issue of air pollution 'hot-spots' in the south west growth area, either in identification of the extent of the air pollution issue or in identifying mechanisms for mitigating the negative impact of development of the growth sector on air pollution levels." (Section 2.98)

Submission 446.53: Haggis (see Appendix 1) reported on this matter as follows.

"The South West Growth Centre (SWGC) is a planned region of metropolitan growth covering an area of approximately 100km2 and is to be under continual development to the year 2030. In addition to this, the Macarthur South (MS) sub-region is an area of development which is expected to cover some 140km2 with a development density of approximately 15 dwellings per hectare. Both of these developments are situated within the south west of Sydney and may have considerable impacts on both the local and regional air quality.

It is queried whether the impacts* of *such committed developments, which would result in significant increases in hydrocarbon (HC) emissions from the incomplete combustion* of *petrol in vehicle engines and fugitive emissions from petrol stations, have been adequately examined within the CSIRO photochemical study. The regional air quality modelling has been carried out using input form the* MAQS *emissions inventory, presumably using current emissions estimates, or those from previous years. It is questioned whether the inevitable large increases in emissions from the above committed developments have been taken into account in the assessment of photochemical pollution within the Sydney basin air shed.

Clarification is required as to the proposed operating times for the Leafs Gully Peaking Plant. Although the plant may only be planned to be operational for 15% of the year, there is the potential that if the plant were to operate for a continuous 24 hour period, it could become a significant contributor of photochemical precursors to the Sydney Basin air shed. "

Submission 446.54: We consider the situation to be even more critical than that outlined by the General Purpose Committee and Haggis. It is more critical because there are already approved major residential developments, each upwards of 1,000 dwellings at Wilton and Picton. These are within the Menangle / Douglas Park air-shed which is considered to be the pollution sink of the metropolitan region. The EIS shows many illustrations of the shape of the power station plume under different atmospheric conditions. These have been generalised in Plan 3 to demonstrate that the impact of emissions is considered to most seriously affect the Menangle / Douglas Park air-shed.

Submission 446.55: The EIS assumes that this area will remain rural over the life of the power station. That is unlikely to be the case. As noted above significant urban developments have been approved at Milton and Picton. There is every reason to expect that additional increments of urban development will be approved in the area covered by the Macarthur South Regional Study. These developments, together with the South-West Growth Centre, will inevitably have an adverse impact on air quality in the local air-shed. In our opinion it is unwise to compound pollution caused by normal urban development by adding a significant contributor to ozone and greenhouse gas emissions such as a power station.

Submission 446.56: We consider the air quality assessment contained in the EIS to be deficient in so far as the ambient air quality measures do not adequately represent the impact of committed and planned major urban developments in the south-west sector of the Sydney basin.

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Submission 446.57: Further we consider the potential for the cumulative effect of emissions generated by the proposed power station and by urban development on the scale envisaged in the metropolitan strategy to be so profound as to put current and future populations at high risk in public health terms.

Submission 446.58: We consider the potential for escalation of the size and operational times of the proposed plant and the consequent cumulative impact when added to proposed urban development in the sub-region has not been adequately considered in the EIS.

Submission 446.59: It is our view that the risk can be averted by locating the power station elsewhere.

While developments such as the new dwellings in the South West Growth Centre were not specifically assessed in the Environmental Assessment, the minor impact on air quality as a result of the Leafs Gully Power Project means it's potential to affect other developments in the region is negligible.

The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The local air quality assessment conservatively modelled the plant for operation 365 days and 24 hour operation to model the potential impact of the plant considering the meteorology conditions over an entire year. This is conservative as the plant would only operate for 15 % per annum. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

The air quality assessment did not consider individual (existing) dwellings, rather a gridded approach was adopted, whereby pollutant concentrations were predicted every 500 m, across a 25 x 25 km grid. The results of the assessment indicated compliance with air quality criteria at all points on this grid, which implies that the proposal would not preclude the establishment of any new dwellings on the basis of air quality issues.

As noted above, the plume dispersal referred to in these submissions is likely to be the CSIRO produced figures (Figures 7-1, 7-2, 7-3 and 7-4 in the Environmental Assessment) showing average difference in ozone between the base and test case scenarios. The figures demonstrate changes in levels of ozone and pollutants from Leafs Gully and show that the area of concern in referred to in the submission is actually a zone of slight reduction in ozone levels, which is attributed to the titration of ozone by NO. Refer to Section 7.5 of the Environmental Assessment for a summary of the CSIRO regional air quality study or Appendix E and F for the detailed assessment.

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15 % in the year for this proposal. Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

Submission 446.60: The impact on air quality of the emissions from the proposed power station.

The EIS uses air movement data from Macarthur Station which is located 11km NW of the site of the proposed plant.

The interpretation put on the wind roses (Fig 3.1, Appendix D -Local Air Quality) is that the SW winds are the dominant air flow. That is correct but the on-shore sea breezes in the NE quadrant account for 40% of wind by direction in summer, 28% in Spring and 15% in autumn. Wind in the NE quadrant is associated with the build-up in air pollution in the Campbelltown air-shed.

The background levels of air pollution (Table 4.1, Appendix D) are as at Macarthur monitoring station which is located at the University of Western Sydney campus. The high NO_2 and PM10 readings are attributed to traffic on nearby Narellan Road. The measurements were taken in 2006. Traffic volumes on Narellan Road have increased steadily as urban development has intensified around and within Campbelltown. Further development is anticipated in Spring Farm and Menangle Park as well as on-going intensification in existing urban areas. MDT's on Narellan Road (Gilchrist Drive) have risen from 23489 (1987) to 50387 (2002) to (2008). It is most probable that background levels of air pollution will have risen in parallel with the rise in traffic, there may be offsets due to improved emission control standards but the rate of growth scheduled for the SW sector (a three-fold increase in dwellings and jobs in the sub-region by 2030) is certain to lead to higher levels of ambient air pollution.

We conclude the intrusion of a significant emitter into this air-shed will only exacerbate what is likely to be a steadily deteriorating situation.

We note the comments made in the EIS regarding both regional and local emissions.

We have found this assessment difficult to reconcile with statements from other sources. For example the General Purpose Committee report states:

"The draft report on Regional Air Quality and Greenhouse Issues Affecting Development of North West and South West Sectors prepared by the then Department of Infrastructure, Planning and Natural Resources (DIPNR) and the Environmental Protection Authority (EPA) identifies south-west Sydney as having peak ozone concentrations significantly above the Sydney average and up to 75% above the national standard."(Section 2.60)

and

"Furthermore, the Government noted that as the population of western Sydney increases, more people may be exposed to concentrations that are above the national standard. Exceedances of the ozone standard predominately occur in the south-west and north-west of Sydney. " (Section 2.62)

and

"In its submission to the Inquiry, the Campbelltown City Council stated that an additional contributing factor to particulate air pollution in the area is Campbelltown's proximity to the Blue Mountains to the west and the ranges to the south, and consequent prevailing wind patterns.

***These topographical features have the effect* of *preventing the dispersal* of *fine particle pollution transported from other parts of the Sydney Basin and therefore increasing the level of localised air pollution." (Section* 2.68)**

Chapter 7 of the Environmental Assessment noted that the Regional Air Quality Assessment compared the relative changes in peak ozone concentration predictions from the current situation in Sydney to various scenarios involving the Leafs Gully Power Project. It is noted in Chapter 7 of the Environmental Assessment that while the proposed plant will only operate for up to 15 % of the year, a worst-case scenario was modelled where a four unit plant operated for 24 hours continuously on an ozone event day. Under that scenario there is a maximum increase of 6.8 ppb of ozone and 2.5 ppb of NO_2 occurring over small areas to the south west of the plant. Within the Sydney region, increases in ozone and NO_2 are minor and cover relatively small areas. The plume from the proposed power plant largely results in no change in ozone levels with some areas experiencing a minor reduction in ozone levels. This reduction is caused by the consumption of ozone by nitric oxide (NO)

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emitted by the plant. In addition, it is noted that the impacts from a two unit station (*i.e.* the subject of the Project Application) on the modelled ozone "event" days would be lower than those of the modelled four unit station.

The presence of ozone reductions to the west of the proposal is a result of the meteorology present in the DEC nominated cases. These cases are considered typical of conditions that are conducive to photochemical pollution and elevated ozone backgrounds.

These cases do not contain a single wind direction, rather the full range of wind directions that occurred throughout each case. The presence of impacts to the south west is considered significant of the meteorology that promotes ozone formation. This meteorology includes elevated temperatures, and sea breezes, which tend to occur from the north-east in Sydney.

The consideration of ozone impacts under other conditions (including south-westerly winds) was presented in Appendix F of the Environmental Assessment.

In instances where site specific meteorological data does not exist, as is the case for the Leafs Gully site, the predicted meteorological data used in the dispersion modelling is required to be representative of the surrounding area. It is an accepted standard Australian practice, that in situations where adequate site-specific meteorological data does not exist, TAPM is used to synthetically generate meteorological data. TAPM is a sophisticated, 3D meteorological model that has been extensively validated. In order to better represent the meteorology of the Leaf's Gully site, Macarthur AWS data for 2006 was incorporated into the predicted TAPM meteorology. The assessment of the predicted meteorology at the Leafs Gully site was discussed in the Local Air Quality Assessment and was shown to be consistent with general atmospheric parameters. It is therefore considered that the meteorological data used in dispersion modelling is appropriate.

The *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (DEC, 2005) suggest the use of the maximum measured ambient concentration, measured over at least a 12 month period, to be used as the background concentration within the modelling assessment. The 12 month period allows for seasonal variations in background concentrations to be represented. The most recent complete data set available from the DECC monitoring station at Macarthur at the time of modelling for the current assessment was for 2006. Therefore it is considered that the dataset is appropriate for the assessment and in accordance with the *Approved Methods.*

Submission 446.61:The Leafs Gully Action Group Incorporated retained Heggies to review the sections of the URS report on air quality (see Appendix 1 for the full report). Heggies reported as follows:

The emission rates of oxides of nitrogen from the generators have been modelled as total NOx, which includes nitrogen dioxide (NO_2), nitric oxide (NO) and traces of nitrous oxide (N_20). Ground level concentrations of NOx have been predicted using the TAPM air pollution modelling system. $N0_2$ concentrations have subsequently been calculated using one of the three methods approved by the NSW DEC in the "Approved Methods for the Modelling and Assessment of Air Pollutants in NSW" (DEC 2005). The method chosen, the Janssen method is used to calculate the oxidation of NO as a function of distance from the emission source, season, ambient ozone concentration and wind speed.

Within the URS AQIA, a significant deficiency has been noted in the application of this method.

• The percentages of NOx as NO_2, calculated using the method above seen in Table 6.2 on page 6-18, show that at those locations closest to the source «500m), NO_2 percentages of less than 5% are experienced. Janssen et al (1988) states that NOx from the combustion of fossil fuels for power generation comprises, for the most part, of nitric oxide (NO) (>95%) and for the lessor part of nitrogen

dioxide (NO_2) «5%). *Further,* a *study by Bland et al (2000) examined the formation* of *NO_2 in* gas *fired combustion* systems. *The study found that in general, NO_2 accounts for between* 5% *and 10%* of *total NOx emissions due to direct thermal conversion at the source. The implications for this* assessment *are that the NOx* as *NO_2 percentage at source may be* of *the order* of 5% *to 10%. The quoted percentages* of *N02 at 100m from source* of less *than* 1% *are therefore highly optimistic.* A *more realistic approach would be to* assume *that NO_2 percentages would be no* less *than 5% and to be conservative,* a *baseline NO_2/NOx percentage* of *10% is suggested.'*

and

Technical Review of *Appendix E: Regional Air Quality Assessment (Oct 2006)*

'It is noted from the regional air quality modelling that a *base* case *and* 5 *test* cases *were carried out to observe the effects* of *varying meteorology on the photochemical* smog *in the southwest region* of *the Sydney Basin.* A *hypothetical scenario* was *constructed for Test* Case *E, where artificial capping* of *the emissions within the boundary layer* was *achieved by reducing the stack temperature to 150"* C *to stop the usually buoyant plume from penetrating the boundary layer: The other Test* Case *days* seem *to be predominately days when emissions from the central regions* of *Sydney are transported on north-easterly winds to be proposed site. It is considered that it may be useful to model how the local photochemical air quality is predicted to be affected in the event* of *low wind speeds, high photochemical potential and atmospheric inversion to observe the worst* case *pollution effects."*

At 7.7 in the EIS the consultants stated the following:

'There are strong technical and economic regions for the location of peaking power generation in the Sydney air-shed. The regional air quality assessment demonstrates a minor impact on the Sydney air-shed while the local air quality assessment provides that emissions from the development are within criteria set by the DEC.'

The review by Heggies of the air quality analysis contained in the EIS suggests that some of the assumptions and some of the methods used warrant re-examination. The Heggies review suggests that the result of the analysis may not adequately take into account conditions of Leafs Gully.

The analysis presented in the EIS is based on the assumption that Macarthur South will remain as rural uses throughout the life of the proposed power station. It is our very strong opinion that this will not be the case; the process of urban development in Macarthur South is already under way and is certain to continue.

It is of great concern to the Leafs Gully Action Group that the incompatibility of the power station with urban development will lead to a sub-optimal form of urban development in Macarthur South generally and the Appin-Gilead corridor in particular (see section 12 below). it is of even greater concern that the proposed location of the power station is adjacent to the optimum location for a new district centre in the Appin-Gilead corridor. It is our opinion that the assessment of local air quality reported in the EIS would put a dense population such as may be found in a district centre at severe and unacceptable risk. The deficiency in the local air quality assessment identified in the Heggies review only serves to persuade us that the impact of the power station on a future population in the Appin-Gilead corridor is simply unacceptable. (see section 15 under)

We consider the evidence regarding existing air quality in this south-west sector of the Sydney Region to be compelling.

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We consider the cumulative impact of the proposed power station and committed additional urban development in the south-west sector on air quality in the south-west sector air-shed to be unacceptably high and avoidable.

In our opinion the impacts on the Sydney air-shed of a power station at Leafs Gully far outweigh any economic benefits this location may confer upon the proponent.

We note the findings in relation to the impact of the proposal on the air-shed in the SW sector reported in the submission of Campbelltown City Council. We note these findings are consistent with the findings of Heggies commission to report on this matter by the Leafs Gully Action Group.

We consider the findings in relation to the adverse impact on the Campbelltown air-shed to be avoidable by not locating the gas-fired power plant in the Campbelltown air-shed.

Further we consider the discussion of alternative sites identifies at least two sites that are ranked highly in the URS EIS and are shown to be vastly superior with respect to the national ventilation of those sites and the consequent minimization of adverse impacts on the relevant air-sheds.

The Heggies Assessment was prepared in 2006 and therefore reviewed the local air quality assessment presented in the previous Environmental Assessment. The Local Air Quality Assessment was updated in October 2008 for the current proposal. Therefore the references in the Heggies review to the NO_x results are not current. The current Local Air Quality Assessment (Appendix D of the Environmental Assessment) stated (Section 7.2) that

> *"The ground level guidelines for oxides of nitrogen are limited to NO_2, the principal species of concern in terms of health effects. For this assessment, it has been assumed that all emitted NO_x exists in the form of NO_2. Given that emissions of oxides of nitrogen exist in the atmosphere as both NO_2 and NO this assumption is considered conservative."*

Further the assessment states that

> *"the modelling results shown in Table 7-1 represent the worst case short-term (1 hour) predictions based on the plant operating for every hour of the year with all emitted NO_x is present as NO_2, consequently the impacts are likely to be significantly less than modelled. In addition, the annual average NO_2 concentrations, when modelled under the Operating conditions were shown to be below criteria of 62 µg/m3. Given the background concentration of 23.1 µg/m³, and the predicted cumulative impact from operation of the site showed concentrations at or less than 0.3 µg/m³, long term impacts are negligible".*

Given that the purpose of the assessment is to demonstrate compliance with regulatory criteria, additional refinement of NO_2 fractions (of total NO_x) would be inconsequential to the conclusions of the assessment, as the results would be even lower. In addition, in NSW this assumption is commonplace, as the regulatory guidance *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* recommends 100% conversion of NO to NO_2, with additional refinement as necessary. Hence this is considered to be conservative, appropriate for its purpose, and endorsed by regulatory bodies.

The presence of ozone reductions to the west of the proposal is a result of the meteorology present in the DEC nominated cases. These cases are considered typical of conditions that are conducive to photochemical pollution and elevated ozone backgrounds.

These cases do not contain a single wind direction, rather the full range of wind directions that occurred throughout each case. The presence of impacts to the south west is considered significant of the meteorology that promotes ozone formation. This meteorology includes elevated temperatures, and sea breezes, which tend to occur from the north-east in Sydney.

The consideration of ozone impacts under other conditions (including south-westerly winds) was presented in Appendix F of the Environmental Assessment.

Submission 446.62:Operational Times of the proposed power station

The EIS is equivocal with respect to the amount of time the power station will operate. At Section 2.3 the proponent includes a comparative analysis of the operational times of existing gas peak power stations stating that the plants 'typically operate for 2 to 3% of the time'. The figure of 15% of the time is said to respond to community concerns to achieve greater certainty. The EIS goes on to state 'it is not possible to predict a maximum operating time, as it will depend on the supply and demand scenario'. It is assumed that this means that the power station may operate continuously for several days in a row. Such a situation could occur if there was an excessive heat wave in the metropolitan region. It is quite possible that such a situation could arise simultaneously with a severe air pollution episode. The worst-case air quality assessments are only based on a 24 hour operational scenario. The Heggies review comments on this matter as follows:

'Clarification is required as to the proposed operating times for the Leafs Gully Peaking Plant. Although the plant may only be planned to be operational for 15% of the year, there is the potential that if the plant were to operate for a continuous 24 hour period, it could become a significant contributor of photochemical precursors to the Sydney Basin air-shed.'

The amount of operational time will be most influenced by the relative costs of generating electricity using alternative modes of production. The cost of generating electricity by open cycle gas turbine is relatively high compared with the cost of output of a thermal coal power station. However the introduction of some form of carbon tax to promote minimization of greenhouse gases would change the comparative costs of alternative modes. The type of gas fired power station proposed is likely to become more competitive and may therefore be used for longer periods. It is noted that the Tallawarra plant, initially conceptualised as a peak power plant, is now a base load plant operating 24/7. There is every reason to infer that the Leafs Gully plant will also become a base load plant operating on a 24/7 schedule.

The paradox of this proposal is that if only operated for short periods, say an hour per day maximum, then the impact of emissions would be relatively minor and short lived. However the use of such a large site in an area of considerable urban potential would have to be questioned for such an occasional use.

Alternatively if it were used for longer periods the use of such a large site would be more justified but the impact of emissions would be greater and, at higher levels of usage, unacceptable.

In either circumstance we are strongly of the opinion that the use for the proposed purpose in this location is unjustified.

We consider the uncertainty with respect to operational hours to be unacceptable because at higher levels of continuous operation the risk of the power station contributing to higher levels of photochemical pollution in the south-west Sydney air-shed becomes much greater.

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We are strongly of the view that if the proposal is to be granted consent then very strict time and capacity limits should be applied to its operation.

As Section 2.3 of the Environmental Assessment refers to electricity demand, it is assumed the submitter is referring to Section 2.5 or alternatively referring to Section 2.3 of the previous Environmental Assessment.

Section 2.5 of the current Environmental Assessment states that "Peaking plants already in the AGL portfolio typically operate for 2 to 3 % of the time. AGL has analysed the operating times for peaking plants owned by others and has found that while operating times vary for peaking power plants in the NEM, low levels of operation are typical (refer to Figure 2-2). However, AGL recognises that the community would like greater certainty around future operating times and has conducted analysis indicating that the proposed plant could operate for up to 15 % of the time with any exceedances of this capacity to be approved relevant Authorities under particular circumstances. Consideration of this aspect, combined with the review of other peaking plants in the NEM, provides an indication of an "extreme" operating scenario. It is not possible to predict the actual operating times of the proposal, as it will depend on the supply and demand scenario." Should the Minister for Planning approve the proposal and use the draft Statement of Commitments as part of the consent conditions then AGL will be obliged to comply with a limit of 15% operations in a year.

All air quality modelling was conducted on the basis of worst-case weather conditions, worst-case ambient air quality and a 100 % operation of the power station. As such, the air quality assessment predicts the outcome of 100 % operation scenario and therefore for operation up to 15 % as committed by AGL, the assessment is conservative and any impact is likely to be less than that predicted by the modelling.

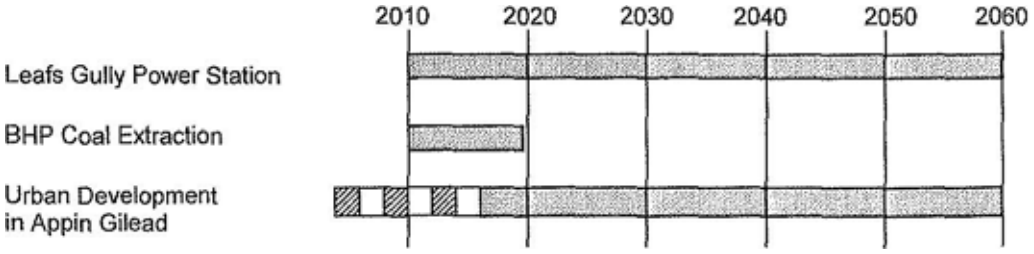
The Leafs Gully proposal is an open cycle gas turbine plant and its operation relies on peak electricity demand when the wholesale price of electricity is high. As a retailer, AGL relies on peaking power plants to limit the increase in the cost of wholesale electricity at peak times as these costs cannot be passed on to its customers. As such, the operating cost of an open cycle gas turbine is quite high. Should a carbon price signal be introduced then a more efficient means of gas-fired turbine would be built to replace coal-fired generation, known as combined cycle gas turbines. However, open cycle gas turbines would still be required to manage demand fluctuation during peak times and provide reserve capacity during other times. Therefore, as AGL has committed the open cycle gas turbine would operate up to a maximum of 15 % of the year.

The Tallawarra plant is referenced as being a base load plant. AGL's Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15% in the year for this proposal. Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

Submission 446.63:The Life of the Power Station

The proposed Leafs Gully power station is estimated to have a minimum working life of 50 years (NSW Government Energy Directions Green Paper). Development for urban purposes of the northern section of the Macarthur South sub-region has been deferred until now pending extraction of the high quality coking coal under BHP control. However if an additional area for new urban development is identified for whatever reason, there is little doubt that Macarthur South in general and the Appin-Gilead Corridor in particular would be prime candidates for early release whether or not the coal seams have been mined. The temporal relationship between the life of the power plant, coal mining and urban development in Appin-Gilead locality is shown in Table 2.

Table 2 - Temporal relationships at Leafs Gully showing the conflicts between the proposed power station, coal, mining and urban development



The inference to be drawn from Table 2 is that the proposed power plant at Leafs Gully will be in conflict with urban development for at least some 40 years. The deferment of urban development until the underlaying coal is extracted is seen as a short-term constraint whereas the proposed power station is a long-term constraint to the achievement of optimal use of land for urban purposes in Macarthur South.

This review of the critical temporal relationship between the proposed power station, the extraction of underlaying coal seams in the Appin district and the probability of urban development in the Appin-Gilead corridor leads us to conclude that the location of the proposed Leafs Gully power station has serious mid-term and long-term consequences for the efficient use of land for urban purposes in Macarthur South.

We conclude these consequences are so adverse as to warrant rejection of the proposed location a power station at of Leafs Gully.

The potential for interaction of the proposal with new urban development in the region was considered in the context of the NSW Government's plan for the development, the Sydney Metropolitan Strategy and the Metropolitan Development Plan (MDP). It is noted that the Metropolitan Strategy focuses on the South West Growth Centre and the Development Site is not within the boundaries of this growth centre. However, Mount Gilead has been identified in the MDP as potentially providing 1,340 dwellings in the long term. The MDP defines Mount Gilead as an area of approximately 2 km^2 located approximately 2 km from the Development Site. No other areas closer to the Development Site have been identified in the MDP. It is noted that the Metropolitan Strategy states that lands outside growth centres which are not on the MDP are not targeted for development over the next 25 years. A strategic review undertaken in 2007 which addressed housing demand and land supply in the Macarthur South area determined that Macarthur South was not required to address regional and metropolitan housing needs.

The implications on future land value is discussed in Chapter 16 of the Environmental Assessment which states that current land value is based on zoning controls applied which is non-urban. However in this area a speculative premium has been applied by the market on the basis that rezoning may occur in the future. Speculative investments made by other entities on land not identified for urban development in the next 20 to 30 years should not unduly influence developments that comply with all current regulatory and zoning requirements. Leafs Gully complies with all requirements and is permissible with consent in the current zoning.

However, despite the above AGL has recognised that adjacent landowners are concerned about the proposal and as such has proposed a number of mitigation measures to ensure that future land use on neighbouring properties is not constrained by the power station.

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These mitigation measures include:

- visual screening by way of 6 m high mound over 600 m long; and
- approximately 30 hectares of tree planting.

However, urban development in the future will need to be mindful of endangered ecological communities that exist in the region, something AGL has addressed by dedicating approximately 170 ha of land for permanent conservation.

Similar gas turbine installations in Australia demonstrate that the analysis by AGL in the Environmental Assessment is correct and that there will be no future land use conflict.

In addition, it should be noted that large parts of the area surrounding the Leafs Gully site are within the South Campbelltown Mine Subsidence District. The current mine plan shows longwall extraction in the Bulli seam continuing over the next five to ten years in the Gilead area. It is unlikely the underlying Balgownie seam will be mined until the Bulli seam is exhausted which is a long term proposition, say 20 years. However, the timing of mining of longwall panels is never exact. Uncertainty of subsurface conditions, potential for equipment breakdown, emerging mining technologies and changes in global coal prices may all affect the way the mine is operated. Future longwall panels are planned but have not been approved and their exact location may change. It is also noted that the submission has not allowed for the timeframe required to extract coal from the Balgownie seam which could be a number of further decades. This should be considered as being an issue that could influence the timing of urban development in the area.

Submission 446.64:The 1991 Concept Plan for Macarthur South.

In 1990-1 the NSW Department of Planning undertook a Regional Environmental Study for the Macarthur South Sub-region. The study was a preliminary assessment of the suitability of Macarthur South for significant urban development. The study was published in 1991.

The study included a concept plan for the Macarthur South sub-region, illustrated here as Plan 4. Although we recognise that the concept plan is a broad brush proposal we considered it very likely that the basic framework of any urban development proposal for Macarthur South would be based on the concept plan.

We considered it necessary to examine the Leafs Gully power station proposal to determine whether or not it was compatible with the concept plan (see sections 11-16 under).

The following is a brief overview of the DOP Concept Plan.

The concept plan covers an area of some 200km^2 located south of Campbelltown, generally bounded by the existing townships of Menangle, Douglas Park, Maldon, Wilton, Appin and Rosemeadow, the southernmost suburb of Campbelltown.

The shape of the concept plan is largely determined by the Nepean, Georges and Cataract Rivers, by existing major infrastructure such as the south-west freeway and the main southern railway and by the topography.

The dominant elements in the concept plan are the road network, the location of employment zones and the provision for two district centres. The plan envisaged a population of some 160000. It was conceptualised as a major urban district.

The plan shows two district centres, one located north of Appin and the other west of Wilton.

Plan 4: DOP Concept Plan for Macarthur South

The concept plan shows a major employment zone south of Menangle and west of the Nepean on the relatively flat land above the Menangle flood plain. The employment zone has an area of about 1000ha with a capacity of up to 5000 workers. It is comparable in area to the Wetherill Park/Smithfield employment zone.

This employment zone is located to take advantage of the high quality accessibility offered by the South Western Freeway, the Main Southern Railway and several local roads.

There are smaller secondary employments zones located in association with the two proposed district centres, capitalising in locations that offer good local accessibility.

The area east and south of the Nepean is primarily allocated in the concept plan to residential uses in a series of villages. These villages are separated by environmental protection corridors that are aligned with the system of rivers and creeks that flow into the Nepean. Appin Road, generally located on the ridgeline dividing the Nepean and Georges River catchments, forms the eastern boundary of this cluster of villages. There is, in our opinion, some scope for urban development on the east side of Appin Road overlooking Georges River.

The concept plan also shows major arterial roads necessary to support urban development in Macarthur South. The alignment of some of these roads suggests that they are upgrades of important local roads -namely Appin Road, Wilton Road, Menangle Road and Douglas Park Drive.

Additional arterial roads are also proposed. The significant ones are a new north-south road located centrally along the Appin-Gilead corridor between the Nepean River and Appin Road, and a new east-west road, also located centrally in the Appin-Gilead corridor linking the residential units in Appin-Gilead with the employment zone and major transport routes south of Menangle.

Our investigations conclude that this generalised distribution of land use is sound and is likely to form the basic principles for urban development in Macarthur South.

We also concluded that the Leafs Gully power station proposal was incompatible with the residential villages in the Appin-Gilead corridor. We considered it necessary to examine the impact of the power station on the proposals for the Appin-Gilead corridor in the 1991 Concept Plant to assess compatibility of use.

As noted in Chapter 16 of the Environmental Assessment, the DoP website states that the Macarthur South RES (1991) was *"Deferred"* and notes in the context of the abstract that the Macarthur South RES: "*Examines the suitability of the existing environment for urban development and suggests a possible strategy for future development of the Macarthur South area. The study concludes that major urban development should not proceed until issues of water quality in the Hawkesbury–Nepean River, air quality in western and south-western Sydney and coal mining conflicts with urban development have been satisfactorily resolved."*

A strategic review of the Macarthur South area was undertaken for the Department of Planning in September 2007. The strategic review addressed housing demand and land supply in the Macarthur South area. The review determined that Macarthur South was not required to address regional and metropolitan housing needs (APP, 2007). The review stated the following as referenced in Chapter 16 of the Environmental Assessment:

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- *"Demand for new housing is at historic lows in south western Sydney, and there are substantial stocks of land available for development in the short to medium term.*
- *There is already ample competition in the south-western Sydney market.*
- *Further strategic assessment of environmental issues would be required if the release of the entire area was to proceed but that key issues include managing the impacts on the Nepean River and addressing the relationship between urban development and mining resources[5]."*

It should also be noted that the boundaries of the Metropolitan Strategy are not fixed and may be subject to on-going review by the Department of Planning in consultation with councils and stakeholders, in response to issues such as population and broader demographic needs. The work undertaken in this report has relied on existing planning forecasts for its analysis.

Submission 446.67:The Site of the Proposed Power Station

The site for the proposed power station is located at Leafs Gully in the Appin-Gilead Corridor. It has an area of 280ha of which only 20ha will be used for the actual plant and associated infrastructure.

The site is near rectangular; the long side dimensions are circa 2000m by 2000m with a section cut out in the SE corner, leaving an apparent L-shaped site. Leafs Gully, a gorge up to 20m deep, cuts diagonally through the crank in the L-shape. The south boundary is formed by Mallaty Creek and the west boundary by the Nepean River. The site, other than the creek lines and associated gorges, has mild slopes ranging from 1 in 20 to 1 in 50. The site sits astride all the significant service easements including the Sydney Water Supply Canal, the 330kv and 66kv transmissions lines, two gas pipelines and a water supply pipeline.

The proximity of this infrastructure is a major attraction of the site, as is its proximity to the Sydney region which is anticipated to be the main source of demand for peak power.

It is assumed that the very large site is selected in order to minimise any externalities even though the proposal is conceptualised as being in a rural setting. The extemalities that are associated directly with site size are noise and visual impact. (see sections 16 under). The Heggies review also suggests that the recalibration of local air quality may indicate that ozone near the ground may be unacceptably high at distances less than 500m from the plant. We calculate that certain lands within 500m of the plant are outside the present boundary of the site for the proposed use.

We are of the opinion that the site for the proposed power plant is excessively large for the size of the plant and that it consumes an excessive amount of land in the Appin-Gilead corridor.

The power plant would be constructed and operated on an area less than 20 ha of the 280 ha property known as Leafs Gully Farm. In addition to the proposed plant, AGL are proposing to establish a Conservation Area, which spans Lots 101, 102 and 103 and is approximately 170 ha of the 280 ha property. The land would be re-titled for conservation purposes in consultation with DECC, either through a Voluntary Conservation Agreement (VCA), a Biobanking Agreement, or some other enduring protection mechanism.

As noted previously an assessment of the air quality impacts was presented in Chapter 7 of the Environmental Assessment. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is

[5] APP Corporation Pty Ltd, Macarthur South Strategic Review for Department of Planning, September 2007, page 1

operational under different conditions on five selected ozone event days. The regional air quality assessment concluded that the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

Submission 446.68:We note the findings of the flora and fauna assessment (Appendix K) which correspond to our own understanding of the locality. The area is Shale Sandstone Transition Forest (SSTF) but has been substantially cleared for agricultural purposes. Remnant SSTF occurs along the Nepean River and along the creek lines. Although SSTF contains species identified as Koala habitat there is no evidence of reported sightings of Koalas or evidence of Koala occupation of the site. Generally the incidence of Koala feed trees (principally Grey Gum and Forest Red Gum) is greater east of the Sydney Water Canal. This area has been substantially cleared with remnant vegetation remaining as isolated paddock trees and more densely along Leafs Gully (mainly Grey Gum) and Mallaty Creek (mainly Forest Red Gum).

The proponent intends to offer the balance of the site as a 'koala sanctuary' or conservation zone, said to be an area of 170ha.

Plan 4B. Overlay of URS Figure 8 : Conservation Area indicating the likely location of a second pod of generators with a combined output of 1200 MW.

A Koala outcomes report was prepared for the Environmental Assessment by Dr Steven Ward of EcoLogical who has undertaken significant research in the area on koalas. That assessment concluded that the Leafs Gully site includes areas considered to be of high value to the Campbelltown koala population. This is due to the site containing vegetation of high value to koalas in the region, and the potential to facilitate connections to other known koala populations. The project's conservation of and enhancement of connectivity is considered to be highly beneficial to the Campbelltown koala population.

Submission 446.69: On closer investigation this proposal is basically unsound for several reasons. Firstly, Leafs Gully is excluded from the conservation zone yet it represents the best koala habitat on site. Secondly, the exclusion zone includes most of part lot 103 (east of the water canal) which area has no apparent utility to the proposal. A serious koala conservation zone would include all of the Leafs Gully area (identified as high conservation value) and all part Lot 103 east of the canal adjoining Leafs Gully to provide a consolidated zone of SSTF with an area in excess of 120 ha. Thirdly, the areas allocated to the conservation zone include narrow edge plantings of 100 to 200m width which are unlikely to have much utility as a koala conservation zone due to the unusual stress conditions associated with habitat edges on koala populations. Analysis reveals that the only consolidated part of the conservation zone is the area between the Nepean River and the water canal which area is least suited to koala habitat.

When the proposal is considered in its entirety the following question arises: why is such a large area (in excess of 100 ha) excluded from the conservation areas? The pod housing the two, and potentially four, turbines only occupies an area about 350m x 350m, approximately 12 ha, in the 280 ha site.

The only conclusion that one can reach is that the large internal exclusion zone is designed to accommodate a second pod of 4 turbines, making eight in all. Such a second pod would need to be connected across Leafs Gully to the gas pipe lines and the transmission line which would explain why the ecologically significant Leafs Gully is also excluded from the conservation zone.

To test whether or not a second pod could fit on the site a mock-up of a twin pod arrangement was superimposed on URS Figure 8 Potential Conservation Area. Figure 8 shows the potential conservation

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areas (hatched) with the central exclusion zone which is concluded to be the area where the generators will be located. Pod No. 1 (the proposal) is shown north of Leafs Gully and the potential Pod No 2 is shown south of Leafs Gully . Note that there is sufficient space for a third pod within the area allocated for conservation. This plan (shown as Figure 48 in this report) provides persuasive evidence that the proponent has conceptualised the site planning for at least a 1200 MW capacity plant. This possibility is not canvassed anywhere in the EIS. In our opinion the failure to even mention this possibility borders on deceptive corporate behaviour.

It is our considered opinion that the proponent has conceptualised the planning of the site to include a second pod of generators with a combined output of 1200 MW (nominally 1440 MW).

The balance of the area termed the koala conservation zone is too fragmented to function as an effective habitat for koalas. If one were serious about creating a koala habitat then all of Leafs Gully plus the open area of part Lot 103 (east of the water canal) would be allocated to a conservation zone. Such a zone would have a consolidated area of SSTF of at least 100ha which may be the minimum requirement to establish de novo a koala colony.

There is no serious discussion of the capability of the proposed conservation areas to support a koala population. There is no discussion of the minimum size of a koala colony that is required to maintain genetic stability.

There is no discussion of the quality of koala feed trees and their ability to support a koala population. There is no discussion of the size of a koala colony that might be supported and the potential genetic consequences of a small population. And there is no discussion of the stress factors that koalas are known to experience at habitat edges due to human habitation, pets (particularly dogs) and mechanical equipment, not least cars. The proposal has extensive external and internal edges.

We are surprised that any ecologist would be willing to support such a misguided and ineffective proposal.

It is our considered opinion that the reference to establishing a koala sanctuary on this site in the manner proposed is a complete sham.

A Koala outcomes report was prepared for the Environmental Assessment by Dr Steven Ward of EcoLogical who has undertaken significant research in the area on koalas. That assessment concluded that the Leafs Gully Site includes areas considered to be of high value to the Campbelltown koala population. This is due to the site containing vegetation of high value to koalas in the region, and the potential to facilitate connections to other known koala populations. The project's conservation of and enhancement of connectivity is considered to be highly beneficial to the Campbelltown koala population.

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15 % in the year for this proposal. Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

AGL is proposing to establish a Conservation Area spanning Lots 101, 102 and 103 and extending approximately 170 ha. The land would be re-titled for conservation and maintenance purposes in consultation with DECC, either through a Voluntary Conservation Agreement (VCA), a Biobanking Agreement, or some other enduring protection mechanism. AGL has committed (Commitment H2) in Chapter 19 of the Environmental

Assessment to preparing "A Management Plan would be developed for Conservation Area including management of the conservation area …"

Submission 446.70:The Generation and assessment of Appin-Gilead Master Plans with and without a Power Station

The Directors requirements make specific reference to the need to consider strategic planning objectives for Macarthur South, making specific reference to the need to consider potential land use conflicts including reference to a foreshadowed DOP Macarthur South Position Paper. The latter at the time of writing this submission is not yet available.

The Department of Planning commissioned AAP Corporation Pty Ltd to undertake a Macarthur South Strategic Review which was published in September 2007. This report identified four options for the development of Macarthur South. An underlying assumption of the report was that the SE Sector Growth Centre, then under the control of the Growth Centre Commission would go ahead as planned with significant government investment in the necessary infrastructure. For a variety of reasons the SW sector growth centre has been scaled back in terms of government investment in infrastructure and the residential and population targets.

The APP report was also incorrect in its estimates of infrastructure costs for Macarthur South -a fact which the authors admitted at meetings following the release of the report. Certain major items were double counted leading to a significant inflation of the cost estimates used to support the argument to deter development of any part of Macarthur South.

Macarthur South is now demonstrably a lower cost urban development alternative to the SW Growth Centre. It is now considered that Macarthur South, and particularly the Campbelltown-Appin corridor, will provide an important and immediate contribution to metropolitan urban land requirements.

This position is quite widely known. The EIS does not discuss the impending urbanisation of the corridor, relying instead on the extremely outdated determination of 1993.

It is accepted that the current zoning is non-urban; however in view of the probable changes it is our considered opinion that the proposal should have been tested against urban conditions.

We considered it necessary to demonstrate how the proposed power station impaired the strategic value of Macarthur South in general and the Appin-Gilead corridor in particular for urban development. The method adopted to demonstrate this was by generating outline master plans for Appin-Gilead with and without a power station and making a comparative analysis of the two Master Plans. The basic structure of the two Master Plans is based on the Macarthur South Concept Plan.

Chapter 16 of the Environmental Assessment provides detailed discussion on development planning in the region and addresses the following strategies, strategic reviews, and policies in the context of implications for the Project:

- Macarthur South Regional Environmental Plan (1991);
- Cities for the 21st Century (1995);
- Sydney's Metropolitan Strategy (2005);
- Metropolitan Development Program (forecasts prepared in 2003, 2004 and updated in 2007); and

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- Macarthur South Strategic Review (2007).

Therefore the Environmental Assessment went well beyond 1993 as suggested by the submission.

The Environmental Assessment provided a summary of the implications for the surrounding area of the Development Site based on the review of all the above documents. The assessment stated that the closest proposed development area to the proposed Leafs Gully Power Project is the Mount Gilead land release area which is located approximately 2 km away. The Mount Gilead area is identified in strategic planning documents as a release area in the long term (at least after 2013). No other potential release areas are identified surrounding the Development Site or within closer vicinity.

The Metropolitan Strategy identifies that any substantially new greenfield area will be required to meet sustainability criteria. It states that *"lands outside the growth centres which are not on the Metropolitan Development Program are not needed for urban development over the next 25 years. This land will be maintained in its current land use for rural activities and resource production. Land will only be identified in non-statutory planning documents for urban investigation where it is the subject of a broad Strategy prepared by the State Government – or strictly as rural town expansions in local strategies[6]"*.

The conclusions of the strategic review conducted in 2007 (APP, 2007) further supports this with the conclusion that *"Macarthur South was not required to address regional and metropolitan housing needs"*[7].

It was noted in the Environmental Assessment that the boundaries of the Metropolitan Strategy are not fixed and may be subject to on-going review by the Department of Planning in consultation with councils and stakeholders, in response to issues such as population and broader demographic needs. The work undertaken in the Environmental Assessment has relied on existing planning forecasts for its analysis.

The Environmental Assessment has presented a detailed assessment of the potential impacts on the environment in relation to air, noise, traffic, ecology, heritage, health, hazard and bushfire. No significant adverse environmental impacts have been identified through the course of studies. Environmental impacts that have been identified are within relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

In particular, it is noted that the air quality assessment did not consider individual (existing) dwellings, rather a gridded approach was adopted, whereby pollutant concentrations were predicted every 500 m, across a 25 x 25 km grid. The results of the assessment indicated compliance with air quality criteria at all points on this grid, which implies that the proposal would not preclude the establishment of any new dwellings on the basis of air quality issues. The noise assessment found that no noise exceedances at surrounding residences were predicted for the plant with mitigation measures. As these residences are closer to the Site than the Mount Gilead release area, there would not be exceedances for residences located in the Mount Gilead release area over 2 km away.

However, despite the above AGL has recognised that adjacent landowners are concerned about the proposal and as such has proposed a number of mitigation measures to ensure that future land use on neighbouring properties is not constrained by the power station.

These mitigation measures include:

- visual screening by way of 6 m high mound over 600 m long; and

[6] Metropolitan Strategy, 2005, page 261
[7] APP Corporation Pty Ltd, Macarthur South Strategic Review for Department of Planning, September 2007, page 1

- approximately 30 hectares of tree planting.

However, urban development in the future will need to be mindful of endangered ecological communities that exist in the region, something AGL has addressed by dedicating approximately 170 ha of land for permanent conservation.

Submission 446.71:The method adopted was as follows:

Step 1 Broad bush site analysis;

Step 2 Identify land units suitable for urban development;

Step 3 Identify peak hour origin -destination (a-D) flows;

Step 4 Assign routes to accommodate a-D) flows;

Step 5 Re-form land units and assign uses and residential I worker densities;

Step 6 Present as master plans for the with and without power station cases'

Step 7 Make comparative assessment of master plans with and without power station.

Submission 446.72: Appin-Gilead Corridor: Site Analysis

The Appin-Gilead corridor is about 5km wide and 10km long; it is located between the urban development of Rosemeadow, Campbelltown to the north and Appin township to the south (see Plan 5).

The corridor is defined by two major north-flowing rivers -the Nepean and Georges Rivers, both of which are in narrow gorges some 40-60m deep. Appin Road is aligned along the ridge that divides the catchments of the two rivers; the ridge is located generally 0.5-0.75km west of Georges River. The major part of the corridor is located west of Appin Road and is generally some 3.0 to 4.0km wide. All this land drains in a general NW direction to the Nepean River. The several major creeks that drain into the Nepean are also typically in gorges generally up to 10-20m depth.

The Appin-Gilead corridor rises from an elevation of circa 100m at the NW adjacent to the Nepean floodplain north of Menangle -to an elevation of circa 250m in the vicinity of Appin township. The westward slopes are generally in the order of 1 in 50; there are some significant areas of broken terrain rising up to 50m above the general level having minorareaswithseveregradientsupto1in7. The major area of broken terrain is located centrally in the Appin-Gilad corridor at the head of Mallaty Creek, Leafs Gully, Nepean Creek and Ousedale Creek.

The 'grain' of the corridor is predominantly north-south. The main southern railway, Menangle Road and the south-western freeway are located west of the Nepean River and are aligned north-south. Within the Appin-Gilead corridor the Sydney Water Supply Canal, the 330kv and 66kv electricity transmission lines, the Moomba-Sydney and a second gas pipeline and a major water supply pipeline are all located in a sub-corridor some 1-1.5km wide located on undulating land close to the Nepean River. The alignment of these various services avoids the broken terrain referred to above but nevertheless crosses terrain that is significantly undulating.

The site analysis demonstrates that the Appin-Gilead corridor is well suited to primarily residential uses and can accommodate development at 15 dwellings per hectare (R15). The central area of broken terrain is suitable for a lower residential density, say 5 dwellings per hectare (R5). There are adequate areas of moderately sloping land suitable for schools, commercial and retail services.

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Submission 446.73: Generating the Master Plan.

The Macarthur South concept plan was based on a density of 10 lots per hectare. It is considered that a density of 15 dwellings per hectare is more consistent with current policies for new urban release areas. On that basis we have estimated that the Appin- Gilead corridor has a capacity to accommodate some 30000 dwellings, assuming no power station. We also estimate that the South Appin, or Appin-Wilton, sector has a capacity for some 20000 dwellings.

The basic approach to generating the Master Plans has been to define areas suitable for residential development between the principal creek lines. The creeks have been retained as environmental protection zones. The principal road network is envisaged as a system of transit-ways in a reservation combining both road traffic and transit. The district centres and local centres are located on the principal road system.

Development at 15 dwellings per hectare requires a more intensive road network than that proposed in the concept plan. We estimate that peak-hour trip generation from the Appin-Gilead corridor will be in the order of 18000 trips. If we assume a 50-50 split between cars and other forms of transit (bus, bike, and walk) then a road network capable of carrying 9000 vehicles per hour out of the Appin-Gilead corridor is required. At 1200 vph this would require approx 8 vehicle lanes. Appin Road is expected to become a six-lane urban arterial road linking to the proposed Georges River Parkway. The Appin-Gilead north-south spine road is also likely to become a six-lane arterial, linking to the urban arterial proposed for the west of Rosemeadow linking to Menangle Road. The capacity of these routes will be partially constrained by traffic generated by existing urban development. We undertook a simple origin-destination analysis of peak hour trips in the Appin-Gilead corridor to verify the design of the road network. The detailed workings are shown in Appendix 2.

Plan 5: Appin Gilead Site Analysis

The preferred alignment of the north-south road is west of the 66kv electricity transmission line. This transmission line has been aligned to avoid the broken terrain lying between it and Appin Road.

A minimum of a further 2 or 3 lanes are required. Our analysis confirmed the need for an east-west route as indicated in the DOP Concept Plan. The suggested east-west route, providing access to the Menangle employment zone, the railway and the south-western freeway is essential to meet the trip demand anticipated. Our analysis of trip generation concludes that the optimal location for this east-west route is to position it centrally between Rosemeadow and Appin. The reasoning for this is that a central spine road as suggested will become overloaded north of Nepean Creek. Thus the optimum location for the transverse east-west road is in the vicinity of Leafs Gully. We estimate that this was also the location selected for the east-west route in the concept plan. Diagrams of the trip generation analysis are presented in plans A1-A4 in Appendix 2.

Having established a preferred road/transit-way network we then went through an iterative process to achieve 'best-fit' Master Plans for the Appin-Gilead corridor with and without the proposed power station. These Master Plans are presented in Plan 6 and Plan 7.

We consider the 'best-fit' solution to be one where a district centre is located at the intersection of the east-west road and the central north-south spine road with local centres located at appropriate locations on the major road/transit-way network.

The conclusion we draw from the analysis of trip generation is that an east-west route linking the Appin-Gilead corridor to the employment zone and major routes west of the Nepean will be essential as urban development proceeds in Macarthur South.

We further conclude that the optimum location for an east-west route is in the vicinity of Leafs Gully.

Submission 446.74: Assessment of the Master Plan with power station.

The following assumes no encroachment on the existing boundaries of the power station site for any urban purpose.

The most significant factor of note is that the road network becomes sub-optimal. It is necessary to locate the central north-south spine road to the east to go around the site of the power station and the east-west road has to be located further north giving less satisfactory access to the Menangle south employment zone and more direct access to Menangle.

The opportunity to develop these two roads as generators for transit oriented development is diminished at their intersection because the site of the power station reduces the space available for district centre-type activities

The area available for a district centre is more constrained. Although the east-west route is only 1.25km north of the preferred location in the 'no power plant' master plan, this arrangement suggests the need for a supplementary east-west connector to the south.

There is a direct loss of some 200-250ha of land that is highly suitable for urban development. The potential of some 100ha of additional land in the vicinity of the power station site is also likely to be diminished in utility in this scenario.

In our opinion the Master Plan for the power station case is clearly demonstrated to be sub-optimal at the key intersection where the district centre is located.

The intrusion of the power station site into the Appin-Gilead corridor demonstrates the severe impact it will have in visual, noise and air quality terms on the surrounding residential areas and the district centre.

Plan 6: Appin-Gilead Master Plan with Power Station

Submission 446.75: Assessment of the Master Plan without power station.

The Master Plan without the power station is able to optimise the location of the central north-south spine road/transitway and the east-west connection. It achieves this by aligning the new spine to achieve equidistant accessibility across the whole corridor. Basically the new spine serves the western two-thirds of the corridor and Appin Road the eastern third plus any development on the Georges River side of Appin Road. The majority of urban districts are within 1km of a major transit route. The optimum alignment lies just to the west of the 66kv transmission line.

This Master Plan also achieves an optimum location for the east-west road. This alignment provides good access to the South Menangle industrial zone, to the south-west freeway (a new intersection is required) and to the main southern railway (a new station is preferred).

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The intersection between the east-west route and the north-south spine is located on land that is ideal for district centre uses at the head of Leafs Gully. This arrangement leaves plenty of scope for alternative district centre design.

In our opinion the Master Plan without power station clearly demonstrates that an optimal land use/transportation structure can be fitted to the topography of the Appin-Gilead corridor.

In our opinion this plan achieves excellent relationships between the residential units, the district centre and the major employment zone.

Plan 7: Appin-Gilead Master Plan, no Power Station

Submission 446.76: Comparative analysis of Master Plans with and without the power station.

Table 3 demonstrates the impact of the power station on any future urban development of the Appin-Gilead corridor. The analysis clearly shows that there are three major differences between the Master Plan.

These differences (1) in the spacing and location of the transport network, (2) the location and land capability of sites for district centre; and (3) access to the South Menangle employment zone.

Table 3 Comparative Analysis of Master Plans

Criteria	With	Without
1. road network efficiency	fair only; distorted around power station	rational and efficient
2. access to employment zone (South Menangle)	satisfactory	excellent
3. access to south-west freeway	satisfactory	excellent
4. access to Campbelltown	good	very good
5. access to railway station	good	satisfactory -excellent with new railway station
6. location of district centre	fair only; constrained options - adverse visual impact, adverse noise impact, greater exposure 0 emissions	excellent many very good options
7. interface with existing infrastructure corridor	satisfactory	good: dual use of easements for major spine road recommended and possible
8. conservation of significant environmental areas	good	good
9. overall distribution of urban land uses.	fair	excellent

The master plan with power station clearly leads to a sub-optimal network of roads due to the intrusive nature of the power station site viz-a-viz the corridor.

The master plan with power station, again because of the intrusive shape of the site in relation to the corridor, leaves residual sites around the power station that are not well suited to district centre uses. The degree to which intensively used sites adjacent to the power station site may be affected by emissions, that is noise and gases (see Appendix 1) is questioned. It may not be appropriate to locate district centre activities adjacent to the power station. The visual impact of the power station on activities located will adversely affect activities located on land adjacent.

The central location of the power station site viz-a-viz the Appin-Gilead corridor leads to a situation where the east west road has to be aligned sub-optimally.

The master-planning exercise was undertaken to test whether or not the location of the proposed power station would be likely to have any impact on the planning of the Appin-Gilead corridor when it is released for urban development.

The exercise confirms the soundness of the general town planning principles adopted for the Concept Plan in the Macarthur South Regional Environmental Study (DOP 1991)

The exercise also confirms that the power station as proposed would have a pronounced negative impact on the ability to achieve an efficient urban arrangement in the Appin-Gilead corridor.

The master plan presented in the submission is one view of how the land could be developed.

It is reiterated that Chapter 16 of the Environmental Assessment provides detailed discussion on development planning in the region and addresses the following government strategies, strategic reviews, and policies in the context of implications for the Project:

- Macarthur South Regional Environmental Plan (1991);
- Cities for the 21st Century (1995);
- Sydney's Metropolitan Strategy (2005);
- Metropolitan Development Program (forecasts prepared in 2003, 2004 and updated in 2007); and
- Macarthur South Strategic Review (2007).

These studies identify the government direction for the region.

Other than the Mount Gilead land release area which is located approximately 2 km away, no other potential release areas are identified surrounding the Development Site or within closer vicinity.

The Metropolitan Strategy identifies that any substantially new greenfield area will be required to meet sustainability criteria. It states that *"lands outside the growth centres which are not on the Metropolitan Development Program are not needed for urban development over the next 25 years. This land will be maintained in its current land use for rural activities and resource production. Land will only be identified in non-statutory planning documents for urban investigation where it is the subject of a broad Strategy prepared by the State Government – or strictly as rural town expansions in local strategies[8]"*.

The conclusions of the strategic review conducted in 2007 (APP, 2007) further supports this with the conclusion that *"Macarthur South was not required to address regional and metropolitan housing needs"*[9].

It was noted in the Environmental Assessment that the boundaries of the Metropolitan Strategy are not fixed and may be subject to on-going review by the Department of Planning in consultation with councils and stakeholders, in response to issues such as population and broader demographic needs. The work undertaken in the Environmental Assessment has relied on existing planning forecasts for its analysis.

[8] Metropolitan Strategy, 2005, page 261
[9] APP Corporation Pty Ltd, Macarthur South Strategic Review for Department of Planning, September 2007, page 1

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Notwithstanding this, the Environmental Assessment has presented a detailed assessment of the potential impacts on the environment in relation to air, noise, traffic, ecology, heritage, health, hazard and bushfire. No significant adverse environmental impacts have been identified through the course of studies. Environmental impacts that have been identified are within relevant standards and are capable of being mitigated through the use of appropriate environmental controls. In particular, it is noted that the air quality assessment did not consider individual (existing) dwellings, rather a gridded approach was adopted, whereby pollutant concentrations were predicted every 500 m, across a 25 x 25 km grid. The results of the assessment indicated compliance with air quality criteria at all points on this grid, which implies that the proposal would not preclude the establishment of any new dwellings on the basis of air quality issues. The noise assessment found that no noise exceedances at surrounding residences were predicted for the plant with mitigation measures. As these residences are closer to the Site than the Mount Gilead release area, there would not be exceedances for residences located in the Mount Gilead release area over 2 km away.

However, despite the above AGL has recognised that adjacent landowners are concerned about the proposal and as such has proposed a number of mitigation measures to ensure that future land use on neighbouring properties is not constrained by the power station.

These mitigation measures include:

- visual screening by way of 6 m high mound over 600 m long; and
- approximately 30 hectares of tree planting.

However, urban development in the future will need to be mindful of endangered ecological communities that exist in the region, something AGL has addressed by dedicating approximately 170 ha of land for permanent conservation.

Submission 446.77: Assessment of Impacts on Master Plans of Proposed Power Station

Spatial Impact

The plans clearly demonstrate the sub-optimal road network and the constrained district centre arrangement that are caused by the intrusion of the Leafs Gully power station site into the Appin-Gilead corridor.

These two impairments are in our view sufficiently significant to warrant the rejection of the power station in this location.

As noted above, notwithstanding that the area is not identified in the current government policy for urban expansion, AGL has recognised that adjacent landowners are concerned about the proposal and as such has proposed a number of mitigation measures to ensure that future land use on neighbouring properties is not constrained by the power station.

These mitigation measures include:

- visual screening by way of 6 m high mound over 600 m long; and
- approximately 30 hectares of tree planting.

However, urban development in the future will need to be mindful of endangered ecological communities that exist in the region, something AGL has addressed by dedicating approximately 170 ha of land for permanent conservation.

Submission 446.78: Air Quality

The intrusion of a major emitter in the form of the power station in close proximity to high population density activities associated with a district centre is a cause for concern. The Heggies review suggests that the local air quality may be worse than that indicated in the EIS. The incidence of comparatively high concentration of precursor pollutants in close proximity to schools, shopping centres and recreation facilities such as are commonly found in district centres highlights the conflict between this location for a power station and this location for a district centre.

It is our opinion that the justification for a district centre being located as shown on the master plans is far more compelling than the justification for a power station.

As noted previously, the Heggies assessment was prepared in 2006 and therefore reviewed the local air quality assessment presented in the previous Environmental Assessment which it is noted was for the original larger proposal. The Local Air Quality Assessment was updated in October 2008 for the current proposal. Therefore the submission references to the Heggies review considering that "the local air quality may be worse than indicated in the EIS *[sic]*" are not current.

As noted previously, the air quality assessment did not consider individual (existing) dwellings, rather a gridded approach was adopted, whereby pollutant concentrations were predicted every 500 m, across a 25 x 25 km grid. The results of the assessment indicated compliance with air quality criteria at all points on this grid, which implies that the proposal would not preclude the establishment of any new dwellings on the basis of air quality issues.

Submission 446.79: Noise

The noise analysis indicates that it is possible to achieve a 40dBA maximum LAeq. 15 min at the boundary of the site. Bearing in mind the extremely quiet setting we consider it to be feasible to achieve a maximum level of 35dBA at the boundary of the site.

We are concerned that the operation of the power station over longer periods of time would raise the LAeq 15min to substantially higher levels.

Should the power station be granted consent we recommend that a condition be imposed to ensure a maximum LAeq. 15 min of 35dBA be secured at the boundary of the power station.

The operational noise criteria for the development, as stated in Chapter 12 of the Environmental Assessment, is 35 dBA $L_{Aeq,\ 15\ min}$ at residences. Based on this criteria, the noise assessment found that no noise exceedances at surrounding residences were predicted for the plant with mitigation measures.

The noise assessment was conducted consistent with the NSW Government Industrial Noise Policy. As such, noise predictions were conducted at the nearest residential dwellings.

Submission 446.80: Visual Impact

The assessment of visual impact is based on the locality remaining as a rural setting. Our position is that this is a transient condition and the area will become urbanised over a significant percentage of the life of the project.

The assessment is flawed in that the selected viewpoints are not typical of the principal viewsheds and that the interpretation of the degree of visibility is masked by the extent of trees in this rural setting.

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In our assessment there is a viewshed in the form of an arc overlooking the proposed power station from the broken terrain to the east of the site of the proposed power station.

The photograph is indicative of the high visibility of the stacks from the view arc running through 180 from south to north east of the proposal. There is another view arc located west of the proposed site ranging from Finns Road to Douglas Park. Although more distant the proposal will be very visible from these locations.

We are also of the opinion that the stacks of the power station will be visible from locations in close proximity to it. This includes high density activities in the district centre such as schools, shopping centres, entertainment and recreation facilities. It is our opinion that the visual impact of the stacks will detrimentally affect the community's enjoyment of such facilities.

We consider the visibility of the power station will significantly detract from the outlook from existing and future residences located in these view sheds.

We consider the outlook over a power station will diminish the attractiveness of significant parts of the Appin-Gilead corridor and the Douglas Park locality for residential purposes and community purposes.

As noted in Chapter 10 of the Environmental Assessment, a total of 28 view locations were identified and assessed as part of the visual assessment process. The methodology for the visual assessment comprised:

- desktop study addressing visual character of the region;
- fieldwork;
- assessment of visual impact of the power plant using:
  - visibility catchment of the power plant site;
  - identification and mapping of potential view locations;
  - analysis of cross sections;
  - analysis of visibility;
- visual simulations from key view locations; and
- identification of mitigation measures.

The view locations included views from a range of situations including:

- residences;
- commercial premises;
- private access tracks;
- local road corridors;
- transport corridors (highway and railway);
- private land; and
- public lookout area.

The visual assessment has identified and assessed view locations where viewers are most likely to occur. An underlying rationale for the visual assessment is that if people are not recorded as being present at a particular view location then there is likely to be a nil visual impact at that location. Therefore the visual assessment does not generally consider views from areas where people were not identified or recorded as being present at the time the assessment was carried out.

'View sheds', or view locations that afford panoramic views to surrounding areas, were identified along ridgelines to the east and west of the proposed development site and are illustrated on the Potential View Catchments figure (Figure 10-3 in the Environmental Assessment). Both the south east and west 'view arcs' were identified during the visual assessment and are clearly represented on the Potential View Catchments figure.

The 'view shed' from the south east of the proposed development contains a very small number of residences that would have a potential view toward the proposed development. The majority of views from residences are blocked by landform and vegetation. The 'view arc' is open and extensive from elevated areas through the south east to north east of the proposed development, with the upper portions of the exhaust stacks forming a very small element in the total overall available view. The 'view arc' from the west of the proposed development is again open and extensive, and potential views to the upper portions of the exhaust stacks would be viewed in the context of the open and extensive nature of the available views, and form a small element in the total overall view. The visual assessment has determined that the majority of views from existing residences in the 'view sheds' will be limited to upper portions of the exhaust stacks, and that the majority of views would be distant (around or in excess of 2 km).

The upper portions of the exhaust stacks would be viewed in the context of the open and extensive nature of the available views, and form a small element in the total overall view. The exhaust stacks would also generally be viewed against a backdrop of vegetation where viewed from surrounding elevated areas, with the stacks coloured sympathetically to minimise visual contrast between the backdrop and the stacks.

The visual assessment did not identify any existing district centre, schools, shopping centres, entertainment or recreation facilities in close proximity to the proposed development site at the time of the field work, and it is difficult to determine a visibility rating for people residing or working in a high density activities area that does not exist or for which detailed layout plans have not been provided.

As with most developments incorporating high density activities, there would be a significant amount of screening of views from within the urban development area toward the power station site created by buildings and structures. High density buildings and structures have the potential to block views toward the power station site from existing residences and view locations identified in the visual assessment.

It is not clear if this submission refers to the attractiveness of the Appin-Gilead corridor and Douglas Park locality prior to, or subsequent to, the urbanisation of the area as indicated in other sections of the same submission.

The visual assessment concluded that the proposed development would have a low visual impact on people in areas surrounding the site, and that the low visual impact would be due to a combination of factors including:

- existing vegetation screening views toward the site;
- visibility of proposed development generally restricted to upper portions of the exhaust stacks; and

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- the outlook over the power station from elevated areas is generally against a backdrop of vegetation as opposed to skyline views.

It is therefore unlikely that the outlook over the proposed development would diminish from the attractiveness of significant parts of the Appin-Gilead corridor.

Generally, views toward the development site from Douglas Park are screened or blocked by the surrounding undulating landform to the north east of Douglas Park.

The visual assessment concluded that overall the Leafs Gully Power Project would have a low visual impact on people in areas surrounding the site with 27 of the 28 view locations having either a nil or low visibility rating.

It is considered that the visual assessment has adequately addressed the potential visual impact of the Leafs Gully Power Project. The visual assessment was prepared by a Registered Landscape Architect with over 15 years experience and employed a general methodology that has been utilised on a number of visual assessments for similar sized infrastructure projects.

The visual assessment could not determine the potential visual impact of the power plant solely on the basis of future urban growth that may or may not be developed in the locality, without additional details of where, and which categories of viewers may occur in relation to the power plant. We understand that this level of information is not available for any areas of future urban growth surrounding the proposed power plant.

It is not possible to determine the level of impact for view locations from future residences, as their number, location and orientation to the development site is not known. It is likely that any future urban development in areas surrounding the proposed development site will impact on views from view locations identified in the visual assessment.

Submission 446.81: No Employment Benefits to the Macarthur Region of the Proposal

This type of power plant provides no employment save for limited security and maintenance. The severe impacts on the air-shed and the land unit are not offset by any advantage to the local economy.

There are no benefits to the Macarthur region in this proposal. It consumes a vast quantity of land and provides only six jobs.

It is estimated that about 250 workers would be needed during construction. The project complements the State Government's Employment Lands Strategy for South West Sydney, which will reserve land for new industries and provide thousands of jobs for local residents.

A reliable source of electricity is essential to attract business and industry to the region and create new jobs. On this basis it is considered that the Project is consistent with the strategic directions in the Campbelltown 2025 Looking Forward document for "growing the Regional City", and "creating employment and entrepreneurial opportunities".

Submission 446.82: There are superior alternative locations

The proponents indicate that they considered a number of alternative sites in the locality and in the Southern Highlands. These sites are considered in Volume I of the EIS. (Please note that this file became corrupted towards the last two weeks of the exhibition period and the references to the EIS are therefore generalised as precise data was inaccessible.) The obvious attractiveness of this site for the proponent does not detract from the fact that the proponent gave inadequate attention to the competing

claim for this land over the lifetime of the project and its likely impact on future land uses in Macarthur South.

The key factors for the proponent are the proximity of the gas pipelines and the 330 kw distribution grid. These two lines run in reasonably close proximity through to the Southern Highlands and there must be many alternative sites along the route.

A detailed site alternative assessment was presented in Chapter 3 of the Environmental Assessment. AGL has undertaken a comprehensive review of existing gas turbine developments in Australia and also reviewed more than 10 alternate sites in NSW.

The submitter noted that as the gas pipelines and the 330 kw distribution grid run in close proximity through to the Southern Highlands and there must be many alternative sites along the route. The site alternative assessment addressed sites in southern NSW (amongst others) in the following locales:

- Nowra - Turpentine and Braidwood Roads, Tomerong;
- Wollongong – Dapto substation;
- Marulan – Marulan substation;
- Moss Vale – Wingecarribee Reservoir;
- Wagga Wagga – Bomen Industrial area and 330kV substation; and
- Canberra – Hume Power Station proposal.

At all of the alternate sites assessed, network connections, land use and environmental impacts were reviewed. The Appin area remains the preferred region as no other region has the proximity to demand, concentration of infrastructure, and suitable distance from neighbouring properties and communities. In addition, output from a power plant in this region would not be constrained during peak periods as may the case with other locations.

It is regrettable that the submitter could not access the Environmental Assessment, however it is noted that the Environmental Assessment was made available on the websites of DoP and AGL. Additionally, copies of the Environmental Assessment were made available for public viewing at the following locations:

- DoP, Information Centre, 23-33 Bridge Street, Sydney;
- Nature Conservation Council of NSW, Level 2, 301 Kent Street, Sydney; and
- Campbelltown City Council, Civic Centre, Corner Queen and Broughton Streets, Campbelltown.

Submission 446.83: Alternative Sites

The EIS canvases some nine alternatives sites ranging from an unidentified site near Appin, to sites in the Southern Highlands, the south of the State and to sites on the South Coast (Wollongong and Nowra). The Leafs Gully site scored highly because of the absence of any competing (that is, urban) land uses. The two other sites that scored highly were the Appin and the Nowra site. The primary objection to the Nowra site was that it was Crown Land and therefore seen to be less readily accessible.

If the Leafs Gully site is considered to be potential urban then the alternative two sites considered become equally if not more attractive. The failure of the EIS to consider any possibility of urban development in the Campbelltown-Appin corridor is clearly a self-serving approach to the consideration

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of alternative sites. An objective assessment of alternatives would certainly have flagged urban development around the proposed site as a major constraint to the long-term use of this site for a gas-fired power station.

It is concluded that the consideration of alternative sites fails on grounds of objectivity and specifically on the grounds of not giving adequate weight to the impending development of the corridor for urban purposes.

As noted above, at all of the alternate sites assessed, network connections, land use and environmental impacts were reviewed. Based on known impacts of gas turbines and previous installations in Australia, when identifying target sites AGL assessed a number of land-related issues. These included:

- existence of adequate undeveloped land available for a power station site;
- land zoning compatible with proposed development; and
- adequate separation from sensitive neighbours such as existing residential housing.

These issues are generally satisfied by sites that:

- contain areas greater than 10 ha that are reasonably flat and level;
- zoned general industry or rural (most NSW zoning plans allow power generation in rural areas with consent); and
- ideally more than 1 km from existing housing.

The assessment focussed on the presence of existing residences as it is not possible to determine future residences, as their number, location and orientation to the development site is not known.

Submission 446.84: The Director Generals Requirements

The material outlined in this submission indicates that the EIS has given insufficient attention to strategic planning and air quality impacts.

We conclude that the EIS should be rejected because it has failed to give adequate attention to strategic planning and the temporal consequences of the proposal with respect to anticipated land use change in the locality.

We conclude the EIS should not be accepted because the assessment of air quality has not taken into account the extent of committed urban development in the South-West Sydney air-shed and because there are weaknesses in the method of analysis.

We conclude the visual impact assessment to be impaired because it does not adequately assess areas from which the proposal will be visible nor does it take into account the visual impact on anticipated land use change in the locality.

Conclusion

We consider the proposal for a power station at Leafs Gully should not be granted consent for the following reasons:

1. the impact of emissions into the sensitive air-shed of south-west Sydney because of the risk to public health;

2) the impact of the proposal on committed and anticipated land use change in the south-west sector generally and on the Appin-Gilead corridor in particular.

As noted previously Chapter 16 of the Environmental Assessment addressed development planning in the region through a review of strategies, strategic reviews and policies in the context of implications for the Project. Similarly the air quality impacts of the Project were addressed in detail in Chapter 7 of the Environmental Assessment.

Environmental impacts associated with the proposed power plant have been identified and addressed in this Environmental Assessment according to the Environmental Assessment Requirements issued by the 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 comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

Submission 447

Submission 447.01: We confirm we act for *[name and address withheld]*, which lands adjoin the site of the proposed gas-fired power plant. *[name and address withheld]*, have owned these lands for some 20 years when they were purchased for future urban development.

Submission 447.02: *[name and address withheld]*, strongly object to the proposed power station for the following reasons:-

1. There is no demonstrated need for a peak power plant in this location in the period up to 2015.

The proposed Leafs Gully Power Project is needed to ensure the adequate, reliable and consistent supply of electricity during times of peak electricity demand in NSW, specifically for the key demand area of Newcastle-Sydney-Wollongong. It comprises two generating units, each of approximately 150 MW capacity (nominally 125 MW to 180 MW).

The Project is consistent with Government policy indicating a preference for private investment in electricity generation. Peaking power generation enables AGL to manage its cost of electricity sold to consumers and minimises market exposure.

The NSW Government's *Energy Directions Green Paper* and the *2006 National Electricity Market Management Company Statement of Opportunities* predict that over the next decade rising electricity demand from the whole of NSW will exceed existing generation capacity. To meet the peak immediate growth in demand for electricity, a number of additional power plants will be required to serve peaking capacity.

Submission 447.03:

2. The proposed location is contrary to all current policy statements relating to the Campbelltown/Menangle/Douglas Park air-shed which is identified as having the worst air quality conditions in the metropolitan region and, consequent upon the latter, higher levels of respiratory aliments in the SW sector than any other part of the metropolitan basin.

Submission 447.04:

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3. We consider the air quality assessment contained in the EIS to be deficient because it relies on ambient air quality data that does not take into account recent and foreshadowed urban development in the SW sector.

An assessment of the air quality impacts was presented in Chapter 7 of the Environmental Assessment. The CSIRO was engaged to assess the regional formation of ozone and NO_2 when the plant is operational under different conditions on five selected ozone event days. The regional air quality assessment concluded that the Leafs Gully Power Project is unlikely to result in exceedances of air quality criteria additional to that already experienced.

The local air quality assessment was prepared in accordance with the DEC (2005) *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW* (the *Approved Methods*) as specified in the Environmental Assessment Requirements. The local air quality assessment provides that emissions from the development are well within regulatory criteria set by the DECC. The local air quality study used dispersion modelling to predict the impact of the plant emissions on local air quality based on a worst-case scenario of 24-hour operation under all atmospheric conditions. The impacts on local air quality from this development would be minor and adverse impacts are unlikely. The regulatory criteria are set at levels that ensure the continued health and well being of the population.

As noted in Chapter 2 of the Environmental Assessment, given the intermittent operation of the plant, the changing nature of atmospheric pollution in the region, the future environmental context is difficult to forecast. There also exists a large uncertainty in transport emissions, given the uncertainties in the success of proposed emission reduction programs and growth / decline in vehicle use. The most difficult component of this analysis is the estimation of the future planning mechanisms and regulatory policy through which air quality issues could preclude the development of another industry.

Ideally, the analysis would assess future trends in emissions to the airshed, and then derive an associated air quality impact (from the airshed capacity) which would incorporate future trends in meteorology. From this point the analysis would need to predict some threshold in air quality which is at an appropriate level such that future public interests and policy instruments would influence planning processes in such a manner as to restrict a proposed development. A quantitative analysis of such an issue, would involve significant uncertainties which restrict the ability to incorporate a meaningful assessment of the issue.

Submission 447.05:

4. Further we consider the EIS does not consider the very high probability of escalation of the size of the plant and the period of operation (up to 2417) and the extreme adverse impact any escalation will have on the air-shed and on current and future urban development in the sub-region, including Macarthur South and the Appin-Gilead corridor in particular.

The Project Application seeks approval for construction and operation of a two unit peaking power plant. AGL is committed to a maximum operation of 15% in the year for this proposal. Any changes to the power plant as currently proposed would go through a similar process to that conducted for the current application to determine the feasibility at various locations, assess its environmental impacts and be subject to the approvals process under relevant legislation.

Submission 447.06:

5. We consider the visual impact, the noise impact and the air quality impact on [name and address withheld], lands to be totally unacceptable. It should be noted that most of these lands are located immediately south and east of the proposed site and are elevated above the site. The localised impacts will severely impair the potential of these lands for urban development. The plant will be most conspicuous viewed from these lands. The noise impacts will be severe as there is not effective barrier. The air quality impacts, notably ozone and NO2, will be a severe hazard to any habitation. In this regard we note the DOP advice that such plants should be located in an industrial zone. The land around Leafs Gully and [name withheld] lands have significant slopes that are not suitable for industrial uses.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

A visual assessment was presented in Chapter 10 of the Environmental Assessment. The Visual Assessment concluded that the proposed Leafs Gully Power Project would have a low visual impact on people in areas surrounding the Development Site. This is due to a combination of existing trees and natural landforms, views to the stacks being generally restricted to upper portions of the stack structures, views to the lower sections of the power plant and associated infrastructure blocked by existing trees and local undulating landform, minimising the visual contrast between the power plant structures and tree canopy background, construction of an earth mound to the north and north east of the site, tree planting on the mound and other supplementary planting and lighting design.

An underlying rationale for the visual assessment is that if people are not recorded as being present at a particular view location then there is likely to be a nil visual impact at that location. Therefore the visual assessment does not generally consider views from areas where people were not identified or recorded as being present at the time the assessment was carried out.

The visual assessment could not determine the potential visual impact of the power plant solely on the basis of future urban growth that may or may not be developed in the locality, without additional details of where, and which categories of viewers may occur in relation to the power plant. We understand that this level of information is not available for any areas of future urban growth surrounding the proposed power plant.

The air quality assessment did not consider individual (existing) dwellings, rather a gridded approach was adopted, whereby pollutant concentrations were predicted every 500 m, across a 25 x 25 km grid. The results of the assessment indicated compliance with air quality criteria at all points on this grid, which implies that the proposal would not preclude the establishment of any new dwellings on the basis of air quality issues.

The Leafs Gully Farm is 280 hectares (ha) in size and a number of locations within the Development Site were reviewed before a specific location was selected based on providing a balanced outcome between competing interests of various landowners, the environment and cost considerations. The Development Site has a non-urban zoning and the Leafs Gully Power Project is permissible within this land use zone.

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Submission 447.07:

6. My clients have long familiarity with the land which is used for agricultural purposes. My clients categorically state that koalas have not been seen on their lands for at least three decades and maybe longer. We consider the suggestion that the site be used as a koala sanctuary to be ill-informed and an affront to the intelligence of the local community.

A Koala outcomes report was prepared for the Environmental Assessment by Dr Steven Ward of EcoLogical who has undertaken significant research in the area on koalas. That assessment concluded that the Leafs Gully site includes areas considered to be of high value to the Campbelltown koala population. This is due to the site containing vegetation of high value to koalas in the region, and the potential to facilitate connections to other known koala populations. The project's conservation of and enhancement of connectivity is considered to be highly beneficial to the Campbelltown koala population.

Submission 447.08:

[name withheld], strongly endorse the findings of the submission by [name withheld] on behalf of the Leafs Gully Action Group Incorporated.

Noted.

Submission 449

Submission 449.01: The Macarthur Branch of the National Parks Association supports the request of both Campbelltown and Wollondilly Councils that a Public Inquiry should be held in regard to this Development Application.

This is a matter for consideration of the Department of Planning.

Submission 449.02: Although our preference would be that no development takes place along the Appin / Campbelltown Road between the Georges and Nepean Rivers, as the region is the last remaining wildlife corridor between the two rivers, the reality is that at least some of the area on the western side of the road will be developed in the future.

As stated in the Statement of Commitments (Chapter 19 of the Environmental Assessment), AGL has committed (Commitment H1) that *"Land identified for the Conservation Area would be re-titled for conservation purposes either through a Voluntary Conservation Agreement (VCA) or AGL would enter the land into the NSW Biobanking Scheme or some other enduring protection mechanism. A decision on which conservation mechanism is to be adopted would be made following the determination of the Project and would depend on whether the Biobanking Scheme is operational and details of that scheme."* Therefore it is noted that AGL have committed to maintaining a wildlife corridor over a large proportion of the Site.

Submission 449.02: The public cannot make informed and reasoned comment on the proposed Gas-Fired Power Station without first knowing whether the pollution generated from the development would be higher than that of the building of homes, and we believe that a Public Inquiry is the only way of clearly defining this issue.

The Environmental Assessment for Leafs Gully demonstrates the proposal is suitable for the region. Impacts such as air quality, visual amenity, traffic, noise, flora and fauna, water, heritage, land use and risk were all considered in detail as well as a review of alternate sites. No significant adverse environmental impacts were identified in the Environmental Assessment through the course of studies. Environmental impacts comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

The issue of a public inquiry is a matter for the consideration of the Department of Planning.

Submission 449.04: We also point out that the proposed wildlife corridor suggested by the Applicant would need to have the protection of a permanent Conservation Agreement entered into with the National Parks and Wildlife Service (DEC), in order to secure its enduring tenure and ongoing appropriate management.

As stated in the Statement of Commitments (Chapter 19 of the Environmental Assessment), AGL has already committed (Commitment H1) that *"Land identified for the Conservation Area would be re-titled for conservation purposes either through a Voluntary Conservation Agreement (VCA) or AGL would enter the land into the NSW Biobanking Scheme or some other enduring protection mechanism. A decision on which conservation mechanism is to be adopted would be made following the determination of the Project and would depend on whether the Biobanking Scheme is operational and details of that scheme."*

Statement of Commitments Section 4

Table 4-1 below updates Table 20-1 of the Environmental Assessment Volume 1 Main Report. It provides the commitments proposed by the Proponent for the Leafs Gully Power Project.

An additonal column has been added referencing new / amended commitments to those presented in the Environmental Assessment.

Table 4-1 Summary of Mitigation Measures and Commitments

Amend'ts	Item	Mitigation Measures / Commitments	Implementation	Responsibility
		General		
	A1	– AGL would carry out construction and operation generally in accordance with the: • Project application • EA • Draft Statement of Commitments	Design, Construction and Operation	AGL
	A2	AGL would ensure that all buildings are constructed generally in accordance with the plans provided as part of the EA, the Building Code of Australia and the relevant parts of the EP&A Act building certification.	Design and Construction	AGL
	A3	AGL would ensure that all practicable measures are implemented to prevent or minimise any impacts to the environment that may arise from the construction, commissioning and operation.	Design, Construction, Operation	AGL
	A4	Leafs Gully Power Project would only operate on natural gas for firing in the power station turbines. AGL would not use liquid fuels to fire the proposal without the written approval of the Director-General.	Operation	AGL
	A5	Leafs Gully Power Project would operate as a peaking plant for up to 15% of the year with any exceedances of this capacity to be approved by the relevant government authority	Design and Operation	AGL
	A6	– Prepare and implement: – CEMP; and – OEMP.	Construction and Operation	AGL and Contractor
		Consultation		
	B1	Consultation with landholders in proximity to the site during key phases of project development i.e. pre-construction, construction and initial operation.	Design, Construction and Operation	AGL and Contractor
	B2	Ongoing consultation with local landholders and key community groups to inform them of development progress.	Design, Construction and Operation	AGL and Contractor

Section 4 Statement of Commitments

Amend'ts	Item	Mitigation Measures / Commitments	Implementation	Responsibility
		Air Quality		
	C1	As part of the detailed design of the development, the assumptions and emission estimates used in this assessment will be reviewed and should the expected emission rates used in the Environmental Assessment alter detrimentally, the modelling will be revised to ensure that DECC air quality standards and goals will be met.	Design	AGL
	C2	Nitrogen oxide emissions would be measured throughout operation, using a Constant Emissions Monitoring System (CEMS).	Design and Operation	AGL
	C3	Undertake further liaison with CASA regarding aviation safety.	Design	AGL
	C4	Throughout the design process, opportunities to further minimise emissions to air will be investigated and implemented wherever feasible to ensure that off-site impacts are kept to a minimum.	Design	AGL
AMENDED	C5	Emissions of particulates (dust) would be specifically minimised through the implementation of mitigation measures, which would be incorporated into a construction environment management plan (EMP) including but not limited to dust suppression, stockpile stabilisation, and construction access road management.	Construction	AGL
	C6	All major access roads would be sealed and vehicle speeds on unsealed areas would be controlled to minimise dust.	Construction and Operation	AGL
		Soils		
	D1	A nominal east to west cross-fall of 3 % shall be applied to the platform to provide adequate site surface drainage.	Design	AGL
	D2	Where excavation work extends into bedrock, suitable material would be reused as engineering fill on the site.	Design and Construction	AGL and Contractor
	D3	Weathered sandstone from the proposed excavation to 12 m depth on the eastern side of the switchyard would be used; where practical; to create a reasonable all-weather surface for the site platform and laydown areas.	Design and Construction	AGL and Contractor
	D4	Assess need for groundwater control and collection system.	Design and Construction	AGL and Contractor
	D5	Where practicable, material excavated from the site (except for say 150 mm of topsoil and root-affected material) would be suitable for use as engineered fill in any cut/fill operations.	Design and Construction	AGL and Contractor
	D6	The visual screening mound located towards the northern perimeter of the Site would be constructed from excess fill generated in excavations where practical.	Design and Construction	AGL and Contractor
	D7	A Construction Soil and Water Management Plan would be developed and implemented as part of the CEMP for the construction works to ensure effective management of potential soil erosion issues.	Construction	AGL and Contractor
	D8	Construction would be planned to minimise the time that disturbed land is exposed.	Construction	AGL and Contractor
	D9	Disturbed areas would be quickly revegetated or covered with a non-erodable surface following construction.	Construction	AGL and Contractor

Amend'ts	Item	Mitigation Measures / Commitments	Implementation	Responsibility
	D10	Use of cement-stabilised layers in flexible pavements and use of rigid pavements would be avoided, wherever possible to protect against subsidence effects.	Design	AGL
	D11	All structures would be designed to accommodate the strains and tilts arising from the predicted subsidence. Approval of the structural design would be sought from the Mine Subsidence Board.	Design	AGL
	D12	Provision of a synthetic liner (probably high density polyethylene) for the evaporation pond. The liner would not be covered by a "protective" soil layer.	Design	AGL
	D13	Evaporation pond(s) will be designed such that they can be maintained and operated without overflow under the range of operational and climatic conditions expected.	Design	AGL and Contractor
	D14	Discharge from the sedimentation pond would be through an appropriately designed dissipating structure to minimise soil erosion potential in Leafs Gully.	Operation	AGL
	D15	Appropriately bunded areas would be installed and maintained for storage of fuels, oils and chemicals.	Construction and Operation	AGL and Contractor
	D16	Areas within the operational plant area would be appropriately drained so that surface runoff would be prevented from infilitrating directly onto the ground and from reaching the groundwater.	Operation	AGL
		Landscape and Visual		
	E1	Colour and texture of structures in the power station should be dark in tone and utilise non-reflective materials unless required otherwise by a government authority.	Design	AGL
	E2	Create an earth mound on the northern side of the power station to provide visual screening to views from the north generally in accordance with the landscape plan using excess fill generated from foundation excavations.	Design and Operation	AGL and Contractor
	E3	Broad scale tree and shrub planting would be carried out on the top and side slopes of the proposed earth mound as well as to other areas surrounding the power plant site identified in the Flora and Fauna section of the EA. AGL will consult with suitably qualified consultants to develop a vegetation plan.	Operation	AGL
	E4	Woodland species indigenous to the area would provide additional screening potential to views from the north and east of the power plant site. These will be planted in accordance with a vegetation plan.	Operation	AGL
	E5	Lighting of external plant areas would avoid direct line of sight from homesteads to the east of the site.	Design and Operation	AGL
	E6	Top of the stacks would not have lighting unless required by CASA.	Design and Operation	AGL
	E7	Large floodlights not to be used for normal operations.	Design and Operation	AGL
	E8	Security lighting would not spill onto neighbouring residences or onto the SSTF in Leafs Gully. This will be achieved through the use of down lights and motion sensor lighting.	Design and Operation	AGL

Section 4 Statement of Commitments

Amend'ts	Item	Mitigation Measures / Commitments	Implementation	Responsibility
		Traffic and Transportation		
	F1	Separate right turn lane priority intersection (RTA intersection type 'CHR') will be installed at the intersection of the access road and Appin Road. An additional right turn lane will be provided for the residence on Appin Road opposite the access road.	Design , Construction and Operation	AGL
	F2	Large rigid and articulated vehicles approaching from the south to be directed north to u-turn at the Copperfield Road roundabout and enter the site using the separate right turn lane.	Construction and Operation	AGL and Contractor
	F3	Sufficient signposting would be installed as necessary to reinforce the banned left turn movement for oversize vehicles.	Construction and Operation	AGL and Contractor
	F4	Undertake further assessments to identify and cater for any necessary remedial treatments to facilitate passage once the actual weight and dimensions of the proposed plant equipment are known.	Design	AGL and Contractor
	F5	Transport of over-mass and over- dimensional loads to be undertaken under RTA and NSW Police permit conditions and approved routes	Construction	AGL and Contractor
		Noise and Vibration		
	G1	A Construction Noise Management Plan is to be developed as part of the CEMP to confirm assumptions made in the assessment and to investigate reasonable and feasible noise mitigation measures if necessary.	Construction	AGL and Contractor
	G2	The Construction Noise Management Plan would consider, if appropriate, the use of temporary barriers and the positioning of plant / processes.	Construction	AGL and Contractor
	G3	Limiting the "clustering" of plant / processes.	Design and Construction	AGL and Contractor
	G4	Include noise attenuation (such as an upgraded silencer on the stack and upgrading the façade enclosure for the turbine and generator) in detailed design such that the INP noise goals are met for the existing residences. These requirements would be referred to the preferred Tenderer.	Design and Operation	AGL
	G5	Low frequency noise to be addressed during detailed design consistent with the most recent assessment process that has been developed overseas, in lieu of the INP.	Design	AGL
	G6	Confirm assumptions used in operational noise modelling based on choice of final turbine system. Confirm requirements for mitigation.	Design	AGL
		Flora and Fauna		
	H1	Land identified for the Conservation Area would be re-titled for conservation purposes either through a Voluntary Conservation Agreement (VCA) or AGL would enter the land into the NSW Biobanking Scheme or some other enduring protection mechanism. A decision on which conservation mechanism is to be adopted would be made following the determination of the Project and would depend on whether the Biobanking Scheme is operational and details of that scheme.	Design, Construction and operation	AGL

Amend'ts	Item	Mitigation Measures / Commitments	Implementation	Responsibility
AMENDED	H2	A Management Plan would be developed for Conservation Area including management of the conservation area (incorporating the Pultenea Recovery Area) would include measures as discussed in the Section 8.3 of the Biodiversity Assessment (Appendix K). The Plan would be prepared by an appropriately qualified bush regeneration contractor or ecological consultant.. Full details of the proposed management regime would be included in a management plan that would be prepared in consultation with DECC.	Design, Construction and Operation	AGL and Contractor
	H3	The management of the Conservation Area would be funded by proceeds of the Biobanking Trust Fund if that mechanism is chosen, or from revenue from the operation of the power plant.	Construction and Operation	AGL
	H4	A Construction Environmental Management Plan (CEMP) would be developed for the Site and would include measures for the minimisation or avoidance of impacts on native flora and fauna in accordance with the recommendations in Section 7.2 of the Biodiversity Assessment (Appendix K) and include: - ground cover management; - tree- fauna management; - site management procedures; - weed and pest management; and - soil erosion and runoff control.	Design and Construction	AGL and Contractor
AMENDED	H5	Create and manage the Pultenaea Recovery Area by: • Ceasing grazing. • Controlling invasive exotic grasses, particularly *Pennisetum clandestinum* (Kikuyu); and *Paspalum dilatatum* (Paspalum). Thinning of the native shrub *Kunzea ambigua* (Tick Bush) may be required at a later stage to prevent shading of Pultenaea pedunculata seedlings (if present). • Monitoring of regenerating species for *Pultenaea pedunculata* seedlings. • Prior to the installation of the water pipeline to the Upper Canal, further targeted surveys for Pultenaea pedunculata and, if necessary, placement of the pipeline adjacent to the visual screening mound is recommended to avoid potential habitat disturbance. • Investigate the use of low intensity burn within the area (excluding the location of the Pultenaea pedunculata record) to facilitate germination from the seed bank.	Design and Operation	AGL

Section 4 Statement of Commitments

Amend'ts	Item	Mitigation Measures / Commitments	Implementation	Responsibility
	H6	Qualified ecologists shall conduct a detailed pre-clearance survey prior to development of the Site in accordance with the recommendations in the Biodiversity Assessment in (Appendix K). If nests or nestlings of Threatened species are observed within, or close to, the development footprint then construction should be postponed until the nestlings have hatched and fully-fledged. If construction constraints mean that this delay is not practicable then DECC should be consulted to determine if relocating the species is acceptable.	Design	AGL
	H7	Complementary planting and rehabilitation shall use local provenance seed, propagules, or saplings where possible for plantings and utilise best practice bush regeneration techniques.	Design, Construction and Operation	AGL
	H8	Prior to the installation of the water pipeline to the Upper Canal, further targeted surveys for *Pultenaea pedunculata* should be conducted and, if necessary placement of the pipeline adjacent to the visual screening mound is recommended to avoid potential habitat disturbance.	Design	AGL
	H9	During detailed design for Appin Road widening, a survey of the area shall include plotting individual trees within the road corridor to better quantify the extent of tree removal necessary.	Design	AGL
		Water Management – Soil Erosion		
	I1	At a minimum the measures outlined in the Managing Urban Stormwater – Vol 1 Soils and Construction would be implemented. Measures may include: • limiting slope length, • installation of sediment filters and • the construction of a sedimentation basin downstream of the plant area	Construction	AGL and Contractor
	I2	Soil erosion and sedimentation devices would remain in place until the surface is restored. These devices would also capture any gross pollutants.	Construction	AGL and Contractor
		Water Management – Spills and Site Management		
	J1	All possible pollutant materials would be stored well clear of site boundaries and stormwater drainage lines and stored in a designated covered area.	Construction and Operation	AGL and Contractor
	J2	Waste collection areas would be designated.	Construction and Operation	AGL and Contractor
	J3	Waste disposal and collection would be undertaken in an appropriate manner.	Construction and Operation	AGL and Contractor
	J4	All major vehicle and equipment maintenance would be undertaken offsite.	Construction and Operation	AGL and Contractor
	J5	Any vehicle washing on-site (if not restricted by Sydney Water from time to time) would be restricted to specific bunded areas.	Construction and Operation	AGL and Contractor
	J6	Staff facilities would be provided, ,installed and maintained so that pollutants, including wash water are not conveyed from the site in stormwater	Construction and Operation	AGL and Contractor

Statement of Commitments Section 4

Amend'ts	Item	Mitigation Measures / Commitments	Implementation	Responsibility
	J7	Water for dust suppression would be sourced from the existing dams on the site or imported if required	Construction	AGL and Contractor
		Water Management – Surface water		
	K1	There will be no direct drainage from power plant site to Upper Canal lands.	Design, Construction and Operation	AGL and Contractor
	K2	Further consultation with Sydney Catchment Authority for necessary approvals to be undertaken should the Upper Canal water supply source option be the preferred water source.	Design	AGL
	K3	Water management strategies will be developed and implemented to maintain zero water discharge from the power plant site except for natural surface flows.	Design and Operation	AGL
	K4	Water from the power plant site would be directed through oil and grit traps before discharge from the site designed to remove any oil and minimise suspended solids to an acceptable level prior to discharge. This system would also be fitted with a gross pollutant trap to collect any large material mobilised by stormwater.	Operation	AGL
	K5	The outlet of the power plant site's stormwater system would be designed to maximize the dispersion of these high flows and spread the flow out over a wider area and thereby minimize their potential to cause soil erosion downstream.	Design and Operation	AGL
	K6	Blow down water would be collected in evaporation ponds lined with a synthetic liner (such as high density polyethylene) to minimise the risk of the saline blow down water escaping into the natural groundwater system.	Design and Operation	AGL
	K7	Landscaping around the base of the screening mound would minimise the potential for soil erosion.	Design	AGL
	K8	Undertake hydrologic and hydraulic studies and implement mitigation measures if required to address local flooding from Leafs Gully.	Design	AGL
	K9	Domestic wastewater would be treated by a zero discharge proprietary treatment system or stored and disposed of offsite by a licensed contractor.	Design, Construction Operation	AGL
		Aboriginal Heritage		
	L1	Undertake a program of archaeological subsurface testing across a representative sample of the LGPAD1 deposits with the aim of determining the nature and significance of any Aboriginal objects present as detailed in the indicative program and scope of subsurface testing provided in the Cultural Heritage Assessment (Appendix M). The draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation would be followed. On completion of the program DECC are to be provided with updated site information for inclusion in their AHIMS register.	Design	AGL
	L2	If necessary, appropriate management strategies should be formulated to mitigate any development impacts to identified heritage values.	Design	AGL
	L3	No development-related ground disturbance is to occur until this program has been completed.	Design and Construction	AGL

Section 4 Statement of Commitments

Amend'ts	Item	Mitigation Measures / Commitments	Implementation	Responsibility
	L4	The CEMP would be developed and implemented addressing heritage issues. The CEMP would detail the management strategies to be followed in the event that an Aboriginal object or non Aboriginal archaeological relic is uncovered during construction as detailed in the indicative program and scope of subsurface testing provided in the Cultural Heritage Assessment (**Appendix M)**. In the first instance, all works must cease in the affected area. A protocol for Human Skeletal Remains will be developed and followed.	Construction	AGL and Contractor
		European Heritage		
	M1	A pipeline connection with the Upper Canal will:		
	M1.1	Be designed to minimise direct and indirect impacts to the fabric and context of the canal;	Design	AGL
	M1.2	Be consistent with the provisions of the existing Conservation Management Plan for the Upper Canal (Higginbotham and Associates 2002).	Design and Construction	AGL and Contractor
	M1.3	Comply with any heritage impact mitigation actions as required by Conservation Management Plan (such as conduct archival recording)	Design and Construction	AGL and Contractor
		Socio-Economic Assessment		
	N1	Where practicable, local contractors and supply companies would be utilised for the provision of labour and services during the construction phase and subsequent operation and maintenance of the plant.	Construction and Operation	AGL and Contractor
		Waste Management		
	O1	Store and dispose all hazardous and industrial waste (as defined by *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes (*Environment Protection Authority 1999)	Construction and Operation	AGL and Contractor
	O2	Prepare Waste Management and Re-use Sub-Plans as part of the CEMP and OEMP addressing the management of wastes during these stages. The Sub-Plans will include:	Construction and Operation	AGL and Contractor
	O2.1	Application of the waste minimisation hierarchy principles of avoid / reduce / reuse/ recycle and dispose	Construction and Operation	AGL and Contractor
	O2.2	Waste handling and storage	Construction and Operation	AGL and Contractor
	O2.3	Disposal of waste with specific details provided for cleared vegetation, glass, metals and plastics hydrocarbons (lubricants and fuels) and sanitary wastes.	Construction and Operation	AGL and Contractor
	O2.4	Any waste material that is unable to be reused, reprocessed or recycled will be disposed at a facility approved to receive that type of waste.	Construction and Operation	AGL and Contractor
		Preliminary Hazard Analysis		
	P1	Conduct an assessment of the safety management system to be implemented and used at the site, specifically as it applies to the proposed hazardous materials handling, pipelining and storages within the first year of operation.	Operation	AGL

Amend'ts	Item	Mitigation Measures / Commitments	Implementation	Responsibility
	P2	High and low pressures of the natural gas supply to be monitored during (and, if applicable, outside) operation of the Power Plant. If required (as defined in a detailed HAZOP study to be conducted) these conditions may need to be associated with an automatic trip / shut down.	Operation	AGL
	P3	Use of fusible tubing around high risk natural gas piping to be investigated – such tubing would be linked to automatic shut down of the fuel source.	Operation	AGL
	P4	The detailed design of the turbine housing and associated equipments should clearly outline to basis of safety used to ensure that explosive situations do not arise (the risk is rendered negligible). Reference should be made to European ATEX Directive and the UK HSE PM84 or other guidance / regulation of equivalent safety.	Design	AGL
	P5	Fire protection inside the turbine housing to be determined, including use of explosion panels and use of fire retardant material.	Design	AGL
	P6	A system should be put in place to ensure that any removal of critical safety function (e.g. for repair or exchange) is subject to careful scrutiny by plant management (decisions on whether to shut down plant or a turbine if a critical safety function is removed need to be canvassed).	Design and Operation	AGL
	P7	Rotating machines to be designed such that risk associated with projectile is minimised (gas pipelines protected or not in probable line of projectile, people protected etc.)	Design	AGL
	P8	Loud alarm and visual indication (e.g. strobe light) to be installed within the turbine housing, alerting any persons within these housings of the pending discharge of asphyxiants and allowing escape.	Design and Operation	AGL
	P9	A 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.	Design, Construction and Operation	AGL and Contractor
		Bush Fire		
	Q1	Prepare Bush Fire Management Plan, which would include management and maintenance of APZs, threatened species management (i.e. *Pultenaea pendunculata* and SSTF), water supply, access and other bush fire protection measures for the site.	Construction and Operation	AGL
	Q2	Create Asset Protection Zones on northern, western and southern and eastern sides of proposed facility as follows: • 25 m Asset Protection Zone on northern side (measured from diesel tank) • 35 m Asset Protection Zone on northwestern side (measured from the Admin Building) • 50 m Asset Protection Zone on the western side (measured from the western limit of the turbines) • 50 m Asset Protection Zone on the south and southwest (measured from the Gas Receiving Station).	Design, Construction and Operation	AGL and Contractor

Section 4 Statement of Commitments

Amend'ts	Item	Mitigation Measures / Commitments	Implementation	Responsibility
	Q3	Detailed design to position diesel tank storage and Gas Receiving Station with consideration of *Bush fire Guideline* to reduce potential bush fire risk and avoid disturbance of SSTF vegetation in creating an Outer Protection Area. For the diesel tank consider altering the location of the diesel tank or constructing underground.	Design and Operation	AGL
	Q4	Ensure adequate Asset Protection Zone achieved between the plant and proposed mass plantings for the Conservation Area. Asset Protection Zones should be managed according to 'Standards for Asset Protection Zones (RFS undated).	Design and Operation	AGL
	Q5	Ensure adequate water supply (through installation of water reticulation and hydrants and/or tanks) at appropriate locations around the northern, western and southern perimeters of the facility, in consultation with Rural Fire Service. The proposed water supply tank should have fittings suitable for Rural Fire Service uses. Water should not be reliant upon external power supply. Hydrants should be installed according to *AS 2419 Fire Hydrant Installation* and delivered via a ring main system.	Design and Operation	AGL
	Q6	Creation of a sealed two-way all weather perimeter access road for fire fighting vehicles. Consultation with Rural Fire Service regarding adequacy of proposed laydown area for this purpose.	Design and Operation	AGL
	Q7	Ensure medium to long-term maintenance of proposed mass plantings to minimise fuels loads and fire risk. Avoid contiguity of vegetation (vertical and horizontal) in landscaping areas, including dense plantings of sclerophyllous native shrubs. Choose mesic or rainforest species in locations subject to potential flame attack. Ensure watering systems are maintained in working order. Avoid stockpiling of mulch and other organic materials for extended periods.	Design and Operation	AGL
	Q8	Trees and other vegetation in the vicinity of power lines should be managed in accordance with specifications in Vegetation Safety Clearances (Energy Australia 2002).	Design and Operation	AGL
	Q9	Prepare Emergency Response Plan as part of the CEMP and OEMP. The Plan would include emergency response provisions for bush fire in site Emergency Response Plan. Ensure Plan includes evacuation arrangements, routines, and nominated control staff for bush fire events. Consult local Rural Fire Service branch in preparation of Plan.	Design, Construction and Operation	AGL
	Q10	Remove flammable weed species (e.g. African Olive) from bushland to be retained on-site.	Design and Operation	AGL

Conclusion Section 5

This Submissions Response Report (Report) supports the Environmental Assessment of the proposed Leafs Gully Power Project Application MP 08-0077 by providing a response to matters raised during the public exhibition period.

AGL is not proposing changes to the project, and therefore a Preferred Project Report is not required.

Following exhibition of the Environmental Assessments, copies of all submissions to the NSW Department of Planning (DoP) were provided to AGL. AGL has reviewed the submissions and responded to issues raised in **Section 3** of this Report. The main issues raised related to:

- air quality;
- health;
- noise impact;
- traffic impact;
- location of the plant in Campbelltown;
- property values;
- potential for expansion of the plant;
- consideration of the potential for future development around the Site.

Responses have been provided to all issues raised and where required.

Section 4 presents the revised Statement of Commitments.

Environmental impacts associated with the proposed development have been identified and addressed in the 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 comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.

Updated community consultation documentation

Appendix A

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Media release

Conservation plan delivers benefits to local koalas: expert

21 October 2008

A LEADING koala expert has praised plans by AGL to establish a new wildlife reserve of more than 150ha on the banks of the Nepean River to help preserve one of Sydney's last surviving koala populations.

The plan is part of AGL's proposal to build and operate a peaking (stand-by) power plant near Appin. The plant will operate for less than 15% of the year and will be switched off the rest of the time.

AGL will protect and rehabilitate approximately 60% of the site, including enhancement of wildlife corridors linking the site to existing koala habitat in the area, to increase their prospects of long-term survival.

In a new report prepared for AGL, koala expert Dr Steven Ward says: "Connectivity of the Campbelltown koala population to other known populations … is considered to be crucial, particularly given the relatively small size of the Campbelltown population (90-200 koalas) and ongoing pressure from urban areas."

Dr Ward, who completed his PhD in koala ecology on the Campbelltown koala population in 2002, says the proposal by AGL will benefit the local koala population.

During his investigations into the Leafs Gully site, Dr Ward found it contained koala feed trees. In his report, he concludes: "The Leafs Gully site contains vegetation of high value to koalas in the region, and the potential to facilitate koala connections."

"The Campbelltown koala population will be under ongoing pressure from urban expansion and associated impacts such as habitat fragmentation, dogs and vehicle mortality. The study site (Leafs Gully) is thus considered to be situated such that it could enhance connectivity for the koala in this respect," Dr Ward concluded.

AGL will submit its Environmental Assessment (EA) for the peaking plant to the Department of Planning. The EA will be placed on public exhibition, giving the local community the opportunity to provide feedback.

A new website, www.aglleafsgully.com.au, will be launched as part of AGL's ongoing community consultation process.

AGL is proposing to construct and operate a 300 MW gas turbine power station at Leafs Gully on an area less than 10ha of the 280ha site, with a large proportion of the remaining land rehabilitated and protected from future development. This will provide significant capacity for buffer zones and screening to adjoining properties.

The setback available to adjoining properties and urban development at the Leafs Gully site is favourable relative to other currently operating similar plants.

The two gas turbines will use natural gas as fuel and are a low emission generation technology. Extensive studies into the effect on air quality and any potential health impact have been completed with no adverse findings.

The NSW Government has recognised the importance of such proposals to ensure a reliable supply of electricity to the people of NSW by declaring all power station projects over 250 MW to be critical infrastructure.

Further inquires:

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About AGL
AGL is one of Australia's leading integrated energy companies and is taking action toward creating a sustainable energy future for our investors, communities and customers. Drawing on over 170 years of experience, AGL operates retail and merchant energy businesses, power generation assets and an upstream gas portfolio. AGL has Australia's largest retail energy and dual fuel customer base. AGL has a diverse power generation portfolio including base, peaking and intermediate generation plants, spread across traditional thermal generation as well as renewable sources including hydro, wind, landfill gas and biomass. AGL is Australia's largest private owner and operator of renewable energy assets and is looking to further expand this position by exploring a suite of low emission and renewable energy generation development opportunities.

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Media release

Leafs Gully power project brings jobs and boost for local economy

26 February 2009

AGL's proposed new 'peaking' power plant at Leafs Gully will generate up to 250 jobs during the construction period, helping to provide much needed local jobs and an economic boost to the area during difficult economic times.

The potential employment that the $200 million project will bring to the area during the two years of construction has found strong favour among local residents.

A recent Newspoll survey conducted for AGL found that, when informed that the plant would be used for less than 15% of the year during periods of peak demand, 75% of the Macarthur residents surveyed indicated they were in favour of Leafs Gully and only 14% against,

However, the level of support jumped to 79% when they were informed about the number of jobs that would be created during construction.

An Environmental Assessment of the Leafs Gully project will be on public exhibition from 25 February until 24 April. During this time, members of the public are invited to provide feedback and comments on the proposal.

AGL power development manager Steven Jackson said the project would provide significant employment opportunities for people living in the region and inject millions of dollars into the local economy.

"We will instruct the construction company chosen to build the new plant to give priority where ever possible to locals, when filling the hundreds of jobs that this project will create," Mr Jackson said.

Interested job seekers are encouraged to register their interest at www.aglleafsgully.com.au/jobs

The project complements the State Government's Employment Lands Strategy for South West Sydney, which reserves land for new high tech industries and will eventually provide thousands of jobs for local residents.

A reliable source of electricity is considered essential to attract business and industry to the region, create new jobs and guard against electricity blackouts during times of high demand.

Mr Jackson said the Leafs Gully project would not only provide jobs, but would secure future industry for the area by bolstering electricity supplies.

The survey also found that 7 in 10 locals agree that the government should be putting aside land for industry as well as providing more parks and open spaces.

More than half (53%) of residents in Campbelltown and surrounding suburbs believe improving electricity supply is more important than building more houses.

Mr Jackson said the results of the Newspoll, which surveyed more than 300 people, demonstrated that there was a high level of support in the local community for the new jobs and economic boost for the region that the new Leafs Gully project would provide.

Plans for the proposed stand-by gas powered generator, which will operate for less than 15% of the year and will be switched off the rest of the time, are currently on public exhibition.

"We will continue to work closely with the local community during this next stage of the process, to ensure that we can answer their questions and respond to any concerns they may have," Mr Jackson concluded.

Exhibition details are available at www.planning.nsw.gov.au.

The Environmental Assessment is available at www.aglleafsgully.com.au

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Media release

Overwhelming support from Macarthur residents for protection of Campbelltown koalas

AGL reveals areas to be preserved for koala 'corridors' under Leafs Gully plan

04 March 2009

A Newspoll survey has found that 98% of Macarthur residents believe it is important that steps are taken to protect the Campbelltown koala population.

The survey found that 86% of people thought it was "very important" to protect the koalas, while a further 12% thought the issue was "somewhat important".

The findings come after evidence was found recently of a second koala population living further to the south of Campbelltown.

AGL Energy commissioned the Newspoll after announcing a conservation plan for Leafs Gully that would establish a new wildlife reserve of more than 170ha on the banks of the Nepean River to help preserve one of Sydney's last surviving koala populations.

The plan is part of AGL's proposal to build and operate a peaking (standby) gas-fired power plant near Appin that would operate for less than 15% of the year during periods of very high demand.

AGL's Power Development Manager, Steven Jackson, said: "AGL is committed to making a positive contribution to the communities in which we work and invest. We would be delighted to be able to permanently protect this land to help ensure the survival of the local koala population if the project is approved."

Local media representatives were today given their first viewing of the proposed new koala sanctuary and wildlife preservation area, escorted by local koala expert Dr Steven Ward, who completed his PhD in koala ecology on the Campbelltown koala population in 2002.

Dr Ward explained that the site had a clear role to play in connecting koalas in the area after evidence was found recently to the south of the site of a mother koala travelling with a cub.

"The main issues for the koala population in this region is the loss of habitat, and connections to other koala populations," Dr Ward said. "We have long known about the Campbelltown koala population to the north of Leafs Gully so the evidence of more koalas to the south places this site in a key context.

"As part of their package, AGL proposes to protect a considerable piece of koala habitat, and to increase the value of a key linkage to other known koala populations. Both of these would be a very positive outcomes for the region's koalas."

Dr Ward, who completed a report for AGL about how the Leafs Gully site could help koala connectivity, said the site stretched along the banks of the Nepean River. He said the site of the sanctuary was heavily wooded, with a range of koala feed trees.

Dr Ward said he had advised AGL that widening and extending existing treed wildlife corridors, stretching out from the site towards the Campbelltown koala habitat and along known koala travel corridors, would benefit the entire Campbelltown koala colony. AGL proposes to implement this recommendation by planting thousands of koala feed trees to widen and extend the corridors.

An Environmental Assessment (EA) for the proposed 300 MW generator is now on public exhibition.

Exhibition details are available at www.planning.nsw.gov.au.

The Environmental Assessment is available at www.aglleafsgully.com.au

Further inquires:

Media
Nathan Vass, Senior Media Adviser
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e-mail: nvass@agl.com.au

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ABN: 74 115 061 375

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Media release

Leading business groups say Leafs Gully power project will bring jobs and boost local economy

29 April 2009

The state's leading business advocacy groups have expressed support for AGL's proposal for a "peaking" power station at Leafs Gully, saying the construction of the plant would "generate local employment opportunities during a period of economic uncertainty".

In a submission to the Department of Planning supporting the development, the NSW Business Chamber and the Sydney Chamber of Commerce said the creation of 250 new jobs during construction would provide critical support to the manufacturing and construction sectors.

The support of the Chambers comes in the wake of reports that the Macarthur region lost 6,000 jobs last month at the rate of nearly 200 a day.

"During a period of economic downturn, this project represents an opportunity to support local employment," said Mrs Patricia Forsythe, Executive Director of the Sydney Chamber of Commerce.

Mrs Forsythe has urged the NSW Government to use planning policy to stimulate economic growth during this time of unprecedented economic uncertainty.

"NSW Business Chamber and the Sydney Chamber of Commerce support the progression of the Leafs Gully power plant as an economic development priority for the South West Sydney region," the Chambers said in their joint submission.

"The unemployment rate in the outer South Western Sydney region currently stands at 8.2 per cent and has consistently ranked above the state average.

"Leafs Gully power plant would make a significant economic contribution to South Western Sydney, which will generate local employment opportunities and economic growth during a period of economic uncertainty."

The potential employment that the $200 million project will bring to the area during the two years of construction has also found strong favour among local residents.

A Newspoll survey conducted for AGL found that, when informed that the plant would be used for less than 15% of the year during periods of peak demand, 75% of the Macarthur residents surveyed indicated they were in favour of Leafs Gully and only 14% against.

However, the level of support jumped to 79% when they were informed about the number of jobs that would be created during construction.

The public exhibition period for the Environmental Assessment of the Leafs Gully project concluded on Friday.

AGL power development manager Steven Jackson said the project would provide significant employment opportunities for people living in the region and inject millions of dollars into the local economy.

"We will instruct the construction company chosen to build the new plant to give priority where possible to local residents, when filling the hundreds of jobs that this project will create," Mr Jackson said.

Interested job seekers are encouraged to register their interest at www.aglleafsgully.com.au/jobs

The project complements the State Government's Employment Lands Strategy for South West Sydney, which reserves land for new high tech industries and will eventually provide thousands of jobs for local residents.

The Chambers state in their submission that the 300 MW gas-fired generator would "contribute to securing the state's energy supply at times of peak demand".

"We believe that gas power should be actively promoted as one element of the state's energy supply strategy as it is a clean burning fuel and supports an industry which has a strong record of environmental consciousness," the submission states.

A reliable source of electricity is considered essential to attract business and industry to the region, create new jobs and guard against electricity blackouts during times of high demand.

The survey also found that 7 in 10 locals agree that the government should be putting aside land for industry as well as providing more parks and open spaces.

Twice as many residents in Campbelltown and surrounding suburbs believe improving electricity supply is more important than building more houses.

Mr Jackson said the results of the Newspoll, demonstrated that there was a high level of support in the local community for the new jobs and economic boost for the region that the new Leafs Gully project would provide.

Proposal details are available at www.aglleafsgully.com.au

Further enquires:

Media
Nathan Vass, Senior Media Adviser
Direct: + 61 2 9921 2264
Mobile: + 61 (0) 405 040 133
e-mail: nvass@agl.com.au

THE SCOREBOARD

CRICKET U/10 WHITE:
The Oaks 138 d Magpies 66

CRICKET U14/2:
Camden 138 d Collegian Blue 51

SEAN CUNNINGHAM'S FREEDOM OF SPEECH

Savour the moment

SPORT must be one of the hot topics of discussion at any gathering, whether it's a backyard barbecue or any other function.

The range of debate revolving around sport is vast.

It varies from who is the best cricketer in the Australian team to comparing today's champions with legends from yesteryear.

It's a bit like comparing apples with oranges really.

I don't see how you could judge the winner of boxer Muhammed Ali against Mike Tyson.

We are talking about different eras, different technology and different training.

I think it would difficult to predict the outcome of one of the champion St George rugby league teams which went on an 11-premiership winning streak during the 1950s and 60s if they played 2008 premiers Manly.

I could write a list as long as my arm about sporting subjects aired among friends.

It's puzzling to arrive at a reason why sport is so popular.

Maybe it gives people an identity and many times it forms a bond between like-minded people.

I fell into this trap when I attended the Socceroos' World Cup qualifier against Iran at Melbourne Cricket Ground in 1997.

Being part of a crowd of 100,000 had the hairs standing on the back of my neck as our national anthem started.

I shared the joy with the majority of the crowd as the Aussies scored the first goal.

Unfortunately, I shared the disappointment at the end of the game, realising Australia's failure to reach the final stages after drawing 2-2 would set soccer back a decade.

It's better fortune this year as the Socceroos only need a win against their next opposition, Uzbekistan, in front of home fans at Sydney, to qualify for the 2010 World Cup finals in South Africa.

Many sporting moments stick in your mind and you can tell your children or grandchildren, "I was there".

Hopefully, Australia qualifying will be one of them.

I suppose sport's attraction at the start of an event is the unknown outcome which has many people in suspense.

We've all shared the nailbiting moments towards the end of a close game. Let me know your memorable moments in sport at wollondillyadvertiser.com.au.

LOOKING BACK

1998: Acrobatic sports pilot Richard Sams was pictured at Camden Airport.

Picture: Courtesy of Camden Historical Society

SPORT SOAPBOX - Email your comments or stories: scunningham@fairfaxmedia.com.au

SPORTS SHORTS

NRL trial at stadium

A trial game between Sydney Roosters and Parramatta Eels on Saturday has been relocated from Bluetongue Stadium, Gosford to Campbelltown Sports Stadium.

The date and time of the game will remain the same with gates opening at 5.15pm at Campbelltown Sports Stadium.

Toyota Cup will kick off at 5.30pm and the NRL trial at 7.30pm.

Share your sport history

The *Advertiser* is looking for people to send in old sporting photos.

It could be a team photograph or an action shot.

Send them and some details about the picture and when it was taken, if known, to scunningham@fairfaxmedia.com.au.

Motocross opportunity

Motorcycling Australia is calling for applications from riders to compete in the World Junior Motocross Championship in Taupo, New Zealand on August 15-16..

Riders wishing to apply for a place must compete at one of the first two rounds of the 2009 Australian Motocross Championship.

Applications close on Friday and forms can be found at www.ma.org.au/wjmx09. More details: andrew@ma.org.au.

Blow that whistle, ref

The call has gone out for referees for Group 6 Country Rugby League games for the coming season.

Group 6 Referees Association director of referees John Dayball urged existing whistle blowers to join for the 2009 season.

"At this stage we have 15 referees so we really need more," Dayball said. "We need a few more, at least another three.

"We're looking for juniors and seniors but especially people to referee the senior games."

Details: 0412 806 202.

Leafs Gully Power Project Proposal

Australia's leading integrated renewable energy company, AGL Energy Limited, which provides energy to more than 3 million customers, is proposing a 300 MW backup power generator at Gilead, approximately 4.5km north of Appin, to meet peak energy supply needs.

The proposed development would occupy less than 10ha of the 280ha site, leaving the rest as green open space, with approximately 180ha rehabilitated and protected from future development to preserve vital bushland corridors for the Campbelltown koala population.

Up to 200 jobs will be created in the local area during construction.

An extensive environmental assessment including specialist studies has been completed by AGL with no adverse findings. These studies and the full Environmental Assessment will be on public exhibition from Wednesday 25th February.

Further details about where to view the Environmental Assessment and how to make a formal submission can be found at the NSW Department of Planning website **www.planning.nsw.gov.au**.

To view the Environmental Assessment and other information about the proposal online or to provide feedback to AGL go to **www.aglleafsgully.com.au or Freecall 1800 039 600**.

Energy in action.®

AGL

Leafs Gully
Community Consultation Hotline Contact Register

Note: Callers names and identifiers removed

1. *27.03.09, 11.04am* Message: Calling from [Respondent]. Provide switch, control and environment rooms. Would like an opportunity to quote for work on the Leafs Gully power station. Please call to discuss. *31.3.09, 9.26am* SJ contacted and advised of contracting methodology (EPC) and directed his to relevant contacts at gas turbine companies.
2. *27.02.09, 12.06pm* Message: Calling from [Respondent]. Wanting an update on where Leafs Gully is up to with regards to construction. Please call to discuss. *05.03.09 10:12am* SJ contacted mobile and left message explaining progress and how to participate.
3. *25.02.09, 2.00pm* Message: [Respondent], based in Campbelltown area. Wondering if you require the services of traffic controllers. Please call me to discuss. *26.02.09* SJ contacted and explained progress and how to participate.
4. *25.02.09, 5.48pm* Message: "I'm a resident in the Appin area. I do agree with the Leafs Gully power project proposal. I think it's a fantastic idea – good on you guys, AGL. I certainly give it the go ahead. Thank you."
5. *24.10.08 11.42am* Message: Owner of [Respondent]. Could Penny Barker please call me at any time. I note that today is the 24th and you have asked for submissions by the 28th. This is pretty quick and doesn't seem right. *27.10.08 9.30am* SJ spoke to [Respondent]. Explained this is an additional opportunity to provide comment or question to AGL, date is to encourage prompt response, and that formal EA exhibition and submission period will be later in the year or next year and that he is welcome to talk or write to us at any stage outside that process. He asked about differences from previous proposal (where those rotten buggers were jumping up and down), explained reduction from 4 units to 2 and now includes protection of 170ha which will be rehabilitated. (call length about 1 minute).

6.
22.10.08, 4.09pm to 1800
Message: Received your letter saying you're going to build a power station at Leafs Gully. I don't know where the bloody hell Leafs Gully is. This is unsatisfactory. Can someone call me to tell me where you're talking about.
Follow up action required.

23.10.08 10.49am
SJ left a message on answering machine at above number with name and number and message to call back please.

23.10.08 2.40pm
Ron Smith returned call, he had settled down, apologised for the message he left yesterday and does not have a problem now, he is Moreton Park Pty Ltd, the piggery immediately west of LG on other side of the river. Margaret has passed away. He has quarried the Macarthur Onslow property in the past and currently intends to develop his property into "employment lands" although has been talking to Walkers. He does not see that our proposal impacting his plans at all.

7a.
22.10.08, 2.35pm to 1800
Message: Please call me

7b.
22.10.08 Phone call to URS Nicole Brewer
Received letter and said it was the first she had heard about the project. Was unsure which of her properties was affected and queried location of Leafs Gully. Owns a property at [Respondent]. Asked about timeframe of the project and was advised by URS that the project is currently in the approvals phase. URS directed her to the website for more information. She said her tenants may not know about the project, so URS offered to send a letter and suggested she may wish to send them a copy also.
See above.

23.10.08 10:30am Call returned.
[Respondent] is satisfied with the information provided by URS yesterday, I told her that Walker Corp were aware of the project and we had met with them in the past, she has no objection to AGL's project.

Leafs Gully
Website Feedback Register

Note: Respondents names and identifiers removed

Comment

1.

22.04.09, 11.53am

Comment: Can you please email me a map of the proposed locations of electricity towers and transmission lines to and from the plant with some description of the size and impact this infrastructure will have on the corridors through which they will pass. Thank you.

23.04.09, 9.23am

Email response by SJ

"Hi [Respondent],

Thanks for your interest in the Leafs Gully project. One of the reasons the Leafs Gully property about 4km north of Appin and 15km south of the Campbelltown CBD was selected was the access to all required infrastructure is within the project site preventing the need to impact other properties to access the existing infrastructure. The transmission towers (the yellow dots on the attached figure) and transmission connection required for the project, if approved, would be completely within the site. Further information is contained within the environmental assessment which can be viewed at www.aglleafsgully.com.au."

Attached Fig 2.1 from EA.

Comment

2.

22.04.09, 12.31pm

Comment: Hi, I was wondering if I could please have a copy of the more recent AGL Annual Report. Thanks, [Respondent]

23.04.09, 9.03am

Email response by SJ

"Hi [Respondent],

Thanks for your interest in AGL and our Leafs Gully project, the latest annual report can be viewed at: http://www.agl.com.au/ABOUT/INVESTORTOOLKIT/Pages/AnnualReports.aspx"

Comment

3.

26.02.09, 11.01pm

Comment: Steve thanks for the chat please contact me regarding work on this project. Cheers, [Respondent]

Job Application

4.

26.02.09, 11.01pm

Qualifications: B.App.Sc(QS) Steve thank you for the chat today. I am extremely keen to be involved in this project which is located close to my home. I am looking forward to meeting you and will send you my resume if this is of interest. My mobile is which is the best way to contact me [Respondent]

Government Authority Responses

Appendix B

MINE SUBSIDENCE BOARD

In reply please send to: Picton

Our Reference: FN82-01456P0 DB:LE

Your Reference: 9042110

Contact: Darren Bullock (02) 4677 1967

MAJOR INFRASTRUCTURE ASSESSMENTS
RECEIVED
30 MAR 2009
NSW Department of Planning

DEPARTMENT OF PLANNING
DX 10181
SYDNEY STOCK EXCHANGE

18 March 2009

ATTENTION: MR SCOTT JEFFRIES
MANAGER–CRITICAL INFRASTRUCTURE & SPECIAL PROJECTS
MAJOR PROJECT ASSESSMENTS

Dear Mr Jeffries

PROPOSED LEAFS GULLY GAS TURBINE POWER STATION
(APPLICATION: 08-0077)

We refer to your letter of 23rd February 2009 and accompanying Environmental Assessment.

Parameters found in the report are appropriate for predicted subsidence impact based on current mining plans.

The proposed Leafs Gully Power project lies above West Cliff collieries proposed LW34 and LW35. The Mine Subsidence Board suggests that the project be staged around proposed mining, and so as to limit any risk to the Mine Subsidence Board's compensation fund.

Should you require any further information please contact our Picton office.

Yours faithfully

Darren Bullock
District Manager

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Facsimile: (02) 4677 2040
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DX 7317 Wyong

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SYDNEY CATCHMENT AUTHORITY

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Level 4, 2-6 Station Street
Penrith NSW 2750
Tel 1300 722 468 Fax 02 4725 2599
Email info@sca.nsw.gov.au
Website www.sca.nsw.gov.au

MAJOR INFRASTRUCTURE ASSESSMENTS
RECEIVED
22 APR 2009
NSW Department of Planning

Ref: D2009/00979
Your Ref: 9042110

Mr Scott Jeffries
Director
Major Infrastructure Assessments
Department of Planning
GPO Box 39
Sydney NSW 2001

Dear Mr Jeffries

Proposed Leafs Gully Gas Turbine Power Station, Campbelltown Local Government Area (Application: 08_0077)

Thank you for giving the Sydney Catchment Authority (SCA) the opportunity to review the Environmental Assessment (EA) report for the above proposal and make a submission. The SCA understands that the project application has been re-submitted by AGL Energy Limited (AGL) with amendments in consideration of all issues raised during the exhibition of the original application in 2006.

The SCA has previously made a submission to the Department (our reference - D2006/09854) and there have been multiple correspondences between AGL and SCA that are included in EA Appendix C – Statutory Authority Correspondence (SCA letter reference D2006/04372 and AGL letters to the SCA dated 16 October 2008 and 28 July 2006).

The SCA has reviewed the updated EA documents and notes the following:

1. The new application is for a gas turbine power station half the size (now 300 MW) that was originally proposed. The plant is proposed to be operated as a peaking power plant and generation levels would not exceed 15% of the time in any year.
2. AGL are proposing to permanently protect from development approximately 172 ha of the 280 ha site, including all areas within approximately 200 m of the Upper Canal within the Leafs Gully site.
3. Issues relating to impact on the structural integrity and heritage significance of the Upper Canal and protection of water quality in the Upper Canal have been satisfactorily assessed and, the proposed mitigation measures in the EA are considered adequate.
4. AGL in their correspondence to the SCA have indicated their commitment to preparation and implementation of Management Plans to ensure ongoing protection of the Upper Canal during Construction and Operation of the power station.
5. The operation of the proposed power plant is expected to require about 8 ML water annually. AGL is seeking permission to source this water from the Upper

Canal by construction of a water connection pipe and pumping station only if water from the main primary preferred source (water supply main from Macarthur Water Treatment Plant) is unavailable. This approach for sourcing the plant's process water needs is acceptable to the SCA. AGL have indicated in the EA that they consider the Upper Canal, when in operation, to be a reliable source of water meeting their needs. AGL also acknowledge the limitations of the Upper Canal water supply system (frequent and irregular outages for operation and maintenance and therefore continuity of supply and quality of water not being guaranteed) and the consequent risk posed to the gas plant operation. The draft Statement of Commitments in the EA includes a commitment to further consult with the SCA for necessary approvals to be sought should the Upper Canal water supply source option be the preferred water source.

The SCA acknowledges that AGL has consulted with the SCA during various phases on an ongoing basis regarding the Leafs Gully gas turbine power station proposal. The SCA considers that AGL has addressed issues of interest to the SCA adequately in the updated environmental assessment.

The SCA would appreciate being involved in any further assessment of the application and requests that the SCA be provided with copies of Construction and Operational Environmental Management Plans.

If you wish to discuss any matter raised in this letter please contact Ravi Sundaram on 47242455 or ravi.sundaram@sca.nsw.gov.au.

Yours sincerely

20/4/09

PAUL GRIMSON
Manager Statutory Planning

28

NSW Government
Department of Water & Energy

MAJOR INFRASTRUCTURE ASSESSMENTS
RECEIVED
23 APR 2009
NSW Department of Planning

Contact: Christie Jackson
Phone: (02) 6701 9652
Fax: (02) 6701 9682
Email: christie.jackson@dnr.nsw.gov.au

Department of Planning
Attention: Scott Jeffries
GPO Box 39
Sydney NSW 2001

21 April 2009

Dear Mr Jeffries,

Subject: Proposed Leafs Gully Gas Turbine Power Station, Campbelltown Local Government Area, MP 08_0077

I refer to your letter dated the 23 February 2009 seeking the Department of Water and Energy's (DWE) comments and requirements on the Environmental Assessment (EA) for the proposed Leafs Gully Gas Turbine Power Station in the Campbelltown Local Government Area. Departmental officers have reviewed the Environmental Assessment and offer the following comments.

Water Issues
As mentioned in previous correspondence by the Department, the critical issue with the development is a reliable water supply. The EA states a number of options for a water supply for the development however they are not definite or confirmed by the provider. The proponent has not been issued any water licences for the development by DWE. The option for obtaining water from any surface water source such as the Nepean River is unlikely to be available without the purchasing of existing available water licences, due to current surface water embargoes. There may be the opportunity to obtain a groundwater licence but this would need to be discussed further with licencing officers.

The EA discusses the possible connection to the mains supply and also the upper canal. It appears from correspondence in the EA the connection to the mains supply is unlikely. The upper canal is considered a valuable potable water supply for the Sydney area. It seems to be a conflict to use drinking water for industrial developments when a desalination plant is being constructed to manage Sydney's water shortage. The water supply is a critical component for the development and should be confirmed prior to considering issuing consent.

Groundwater Issues
Section 9.2.2 of the Environmental Assessment report indicates that professional hydrogeological judgment indicates that groundwater impacts are likely to be negligible however this is not supported by field data. It also alludes to the confirmation of this supposition during the detailed design phase of the project.

If there are any groundwater works proposed as part of additional field studies, including bores for the purpose of investigation, extraction, dewatering, testing or monitoring, these must be identified and approval obtained from DWE prior to their installation. Also, if groundwater is likely to be intersected as part of the excavations required for this proposal an approval may be required from DWE under Part 5 of the *Water Act 1912*.

The Department would appreciate receiving a copy of any of the field study reports to assist in determining if specific authorisations are required from DWE.

Harvestable Rights

The proponent has not addressed the NSW Farm Dams Policy in the environmental assessment. The EA outlines there are currently 10 existing dams on the property. Any new dams proposed as part of the development will need to be consistent with this policy. A licence may be required under the policy in relation to the proposed dams to be constructed.

Any dams to be constructed on site must be built to minimum construction standards (permeability of 1 x 10^{-9}) to prevent pollution by leakage into the subsoil, groundwater and surface water bodies. The dams would also need to withstand the level of subsidence which may occur as a result of the approved Area 5 West Cliff Colliery.

Stormwater Management

All stormwater management works should be conducted in accordance with the NSW Department of Housing 'Managing Urban Stormwater – Soils and Construction Volume 1 (NSW Department of Housing, 2004). Appropriate stormwater management will need to be implemented to minimise impacts on downstream environments, surface water, groundwater and adjoining land.

Erosion and Sediment Control

All erosion and sediment control measures must be maintained during the works and until all disturbed areas are appropriately reinstated and revegetated.

Riparian Issues

The proposed development is located within close proximity to Leafs Gully, the Nepean River and the Upper Canal. The EA does not discuss the management of riparian areas. It appears the development is located outside of the riparian zone. However, should the development have the potential to impact on riparian areas, the Department would like to have the opportunity to provide comment and recommendations.

For your information, the Departments 'Guidelines for Controlled Activities: Riparian Corridors (2008)' outlines recommended Core Riparian Zone (CRZ) widths and Vegetated Buffers (VB) for riparian areas. An asset protection zone (APZ) is a requirement of the NSW Rural Fire Service. Any requirements for APZs are not to compromise in any way the extent, form or function of the riparian zones. The Department requires that all APZs must be located outside the riparian zones. The APZ is to be measured horizontally landward from the outer edge of the riparian zone setback.

Mine Approval

The proposed power plant is located within Area 5 of the approved West Cliff Colliery. The site is currently un-mined however is approved for longwall mining. The power project will need to be constructed to withstand any subsidence once mining occurs. Also, any consent issued for the power project would need to be consistent with the already approved Area 5 West Cliff Colliery.

If you require clarification on any of the above please don't hesitate to contact me on (02) 6701 9652.

Yours sincerely,

Christie Jackson
Planning and Assessment Coordinator

914

campbelltown
city council

22 April 2009

Mr S Jefferies
Major Assessments Branch
Department of Planning
GPO Box 39
SYDNEY NSW 2001

Dear Mr Jefferies

MAJOR PROJECT APPLICATION NUMBER 08-0077 - LEAFS GULLY FARM, APPIN ROAD, CAMPBELLTOWN - AGL GAS TURBINE POWER STATION - CAMPBELLTOWN CITY COUNCIL SUBMISSION

Council has reviewed the Environmental Assessment accompanying the Project Application for the abovementioned power station proposal and would like to make a submission on the matter for the Department's consideration.

In considering the matter at its Ordinary Meeting on 7 April 2009, Council resolved to express its strongest objection to the Project Application for the Leafs Gully AGL Gas Turbine Power Station for the following reasons.

a) The potential impacts of the power station on:

   i. Local, regional and inter-regional air quality and in particular the extent and implications of ozone formation as they relate to the existing and future air shed and community health;

   ii. The take up of medium and longer term housing supply potential for metropolitan Sydney that occurs in the Macarthur South Release Area including residential land supply at Gilead as included in the Metropolitan Development Program;

   iii. Future urban residential amenity; and

   iv. The visual landscape.

b) That approval of the application would set an undesirable precedent and give rise to an unacceptable risk for other power generation plants to establish in the locality given the strategic co-location of natural gas and electricity transmission line infrastructure that currently exists across the Macarthur South area.

c) The application has failed to adequately address and demonstrate:

   i. The true extent of the impact of air emissions and in particular ozone;

Civic Centre Queen Street Campbelltown PO Box 57 Campbelltown NSW 2560 DX5114
Telephone 02 4645 4000 Facsimile 02 4645 4111 TTY 02 4645 4615
Email council@campbelltown.nsw.gov.au Web www.campbelltown.nsw.gov.au
ABN 31 459 914 087

ii. Any discernible greenhouse gas offsets relating to the development;

iii. The visual impact of the development noting the absence of any photographic montages that accurately depict the visualisation of the development in existing landscape settings from selected viewpoints;

iv. The nature and extent of any required planning and management of bush fire risk, including vegetation removal; and

v. The extent and impact of the development on flora and fauna due to an unsatisfactory survey effort and solutions including those associated with the assessment of potential and core Koala habitat pursuant to SEPP 44.

d) The likely upgrading of this power station to a base load power station to meet demand, as outlined in the Government Green Paper and the considerably high level of emissions from such a plant should that upgrade occur.

Furthermore Council questions the validity of the three year old environmental study and standards therein and request that it be upgraded to current standards.

Specifically Council objects to the proposal in light of the following matters:

1. Environment Protection and Biodiversity Conservation Act 1999

A Significant Impact Assessment under the Commonwealth Environmental Protection Biodiversity Conservation Act 1999 is not included as part of the Terrestrial Biodiversity Assessment Report.

Council's assessment of the project documentation concludes that the Applicant has not satisfactorily addressed the EPBC Act (refer to Threatened Species Conservation Section later in this submission).

2. Threatened Species Conservation Act 1995

The Flora and Fauna Assessment concludes that there is no likelihood of the proposal imposing a significant effect on any threatened species, populations or ecological communities listed under the NSW Threatened Species Conservation Act 1995. Similarly, it concludes that there will be no adverse effects on any matters of national environmental significance listed under the Commonwealth Environmental Protection Conservation Act 1999.

The conclusions are based on the avoidance, mitigation and offset measures that have been employed as part of the proposal.

However, it is considered that a range of flora and fauna issues still need to be addressed as outlined in the environmental section included later in this submission.

3. State Environmental Planning Policy No. 44 - Koala Habitat Protection (SEPP 44)

SEPP 44 applies to the Leafs Gully Power Project as the site is located within the Campbelltown Local Government Area (listed in Schedule 1 of SEPP 44 as land to which SEPP 44 applies).

The Flora and Fauna Assessment prepared identifies potential koala habitat within the site. Where potential habitat is identified, the area must be investigated for core koala habitat, defined as an area of land with a resident breeding population of koalas, evidenced by attributes such as breeding females and recent sightings and historical records of a

population. Where core koala habitat is found to occur, SEPP 44 requires that a site-specific Koala Plan of Management be prepared.

The Applicant has indicated that core koala habitat was not identified on the site and hence a Koala Management Plan is not required under SEPP 44

Council has reviewed The Terrestrial Biodiversity Assessment prepared by URS and the Project Review: Koala Outcomes prepared by Eco Logical Australia (Dr Steven Ward) for the Leafs Gully Power Project. Both reports indicate that the land subject to the Part 3A application (Lots 101 to 105 DP 716209 "Leafs Gully Farm" Appin Road, Mt Gilead) constitutes "Potential Koala Habitat" in accordance with State Environmental Planning Policy (SEPP) No 44 – Koala Habitat Protection.

As outlined in the Koala Outcomes Report, this is evidenced by the mapping of the site as preferred koala habitat on the Campbelltown Koala Habitat Planning Map (CCC 2005), the presence and abundance of suitable food trees, and the proximity of the site to known koala areas.

Within the Koala Outcomes Report, factors suggest that the site could also be used by a resident population of koalas. Supporting this view is the fact that remnant vegetation on the study site, Shale Sandstone Transition Forest (SSTF), includes areas occurring on soils derived from shale-based substrates. As evidenced in Ward S (2002) *Koalas and the Community: a study of low density populations is southern Sydney*. Ph.D. Thesis, University of Western Sydney, this is of particular importance as female koalas with access to vegetation on such soils have been found to have higher fertility rates than female koalas with access to vegetation occurring on soils derived from sandstone-based substrates.

In *Urban Wildlife: more than meets the eye,* Royal Zoological Society of NSW Mosman, it was found that SSTF, exhibits the highest level of relative exploitation by koalas compared to any other vegetation type within the Campbelltown region.

Clarification is therefore required as to whether the site constitutes "Core Koala Habitat" in accordance with SEPP 44. It is considered that neither the Terrestrial Biodiversity Assessment nor the Koala Outcomes Report have undertaken a sufficient assessment to rule out the presence of core koala habitat within the site. In this regard, it is recommended that additional koala surveys be undertaken prior to a decision being reached as to whether a site specific Koala Plan of Management needs to be prepared for the site in accordance with the requirements of SEPP 44.

It is also important to note that SEPP 44 applies to the site irrespective of whether the development applies to the whole or only part of the site.

It is noted that the recommendation to undertake additional plantings along Mallatys Creek to the south of the site as outlined within the Koala Outcomes Report has not been incorporated into the development proposal.

Therefore it is considered that the Application has not satisfactorily addressed SEPP 44.

4. Campbelltown 2025 Looking Forward

'Campbelltown 2025 Looking Forward' is a statement of broad town planning intent for the longer term future of the City of Campbelltown that:

- *Responds to what Council understands people want the City of Campbelltown to look, feel and function like;*
- *Recognises likely future government policies and social and economic trends; and*

- *Sets down the foundations for a new town plan that will help achieve that future.*

The document establishes a set of strategic directions to guide decision-making and development outcomes. These directions are broad in nature and form a prelude to a new statutory town plan for the City.

The strategic directions relevant to the Project Application are:

- *Protecting and enhancing the City's key environmental assets*
- *Growing the Regional City,*
- *Creating employment and entrepreneurial opportunities.*

Some of the relevant desired outcomes of the strategic directions included in Campbelltown 2025 include:

- *Development and land use matches environmental capacity and capability*
- *Match the type, scale and intensity of new land use and development within the capability of the local environment to sustain that land use/development*

The Applicant has not addressed Campbelltown 2025 Looking Forward in the Environmental Assessment. It is considered appropriate that the Applicant has regard to Campbelltown 2025 Looking Forward in the Environmental Assessment and that the Department be satisfied that the project is consistent with the strategic directions and desired outcomes within the document prior to the application being forwarded to the Minister for Planning for determination.

5. Community Consultation

The Environmental Assessment details the community and stakeholder consultation carried out by the Applicant. Under the Act, the Applicant is required to undertake a 'Planning Focus Meeting', notify and consult with relevant government agencies and to respond to submissions received during the public exhibition period. This was undertaken on 9th March 2006 held at Council Offices and included a site inspection of the development site.

In addition to satisfying the legislative requirements, the Applicant has produced and distributed a number of 'Community Information Sheets' and has conducted five phases of formal consultation with stakeholders.

- Phase 1: May-June 2006 – Stakeholder and issue identification and provision of information to stakeholders.
- Phase 2: July 2006 – Stakeholders provided feedback on the environmental and socio—economic assessment studies and proposed mitigation strategies.
- Phase 3: November 2006 – Provision of information to stakeholders on key findings of the assessment.
- Phase 4: November 2006 – December 2006. Exhibition of the Environmental Assessment report and receipt of stakeholder submissions.

- Phase 5: October 2008 – Consultation carried out as part of the current application. This phase provided additional opportunity to stakeholders to provide feedback, in particular in response to the revised project scope.

The Applicant reports that 80 participants took part in phase 1, 28 in Phase 2 and 26 in Phase 3. Phase 5 included letters sent to landowners within 2km radius of the project site, and Wollondilly and Campbelltown Council, the Department of Environment and Climate Change, the Sydney Catchment Authority and the Mine Subsidence Board. Three community information sheets were produced and circulated throughout the community (May 2006, July 2006 and October 2006). A total of 5,500 of each of the three community information sheets were distributed to neighbouring communities including Appin, St Helens Park and Rosemeadow.

Whilst the Applicant has carried out a satisfactory level of community consultation it was undertaken almost three years ago. Concern is raised that community expectations may have changed considerably since notification in 2006. In addition, community and indeed government perception and understanding of global warming and green house gas issues (including the concept of appropriate "offsets") has recently emerged as a major challenge for the whole community.

In addition there would have been new landowners who may have moved into the area that may not be aware of the proposal given this three year gap.

Council wishes to express its disappointment to the Department not requiring that the Applicant re-engage the community consultation i.e. community information sheets and wide distribution, prior to the new exhibition of the revised project for the site. This would provide a current opinion from the community and informed community consideration of the new and revised proposal.

6. Environmental Considerations

The Environmental Assessment (EA) details a comprehensive assessment of the potential environmental impacts of the development under the following key headings:

- Air quality;
- Soils, geology and groundwater;
- Visual assessment;
- Traffic and transport;
- Noise and vibration assessment;
- Flora and fauna assessment;
- Water;
- Heritage;
- Land use and property impacts;
- Socio-economic assessment; and
- Preliminary hazard analysis.

Council has reviewed the Applicant's investigation and assessed each issue. Having regard to this assessment it is considered that the following matters require further attention.

a. Air Quality

The air quality within the Macarthur region is strongly influenced by topographical features such as the Blue Mountains, which have the effect of entrapment and recirculation of pollutants originating from sources such as vehicle emissions from other parts of the Sydney Basin. An Inquiry into the Health Impacts of Air Pollution in the Sydney Basin by the New South Wales Legislative Council undertaken in 2006

identified the south west of the Sydney Basin as an area with high pollution levels. In this regard, the ambient level of Ozone (a key contributing factor to the formation of photochemical smog) within the region is known to have exceeded the applicable Department of Environment and Climate Change (DECC) criteria on occasions for a number of years.

Consequently, it is noted that the Department of Planning required the Environmental Assessment (in the form of Director General's Requirement items) to include a comprehensive assessment of air quality impacts and greenhouse gas emissions associated with the proposed power generating facility. The EA contains a Local Air Quality Assessment. (which assesses the local air quality impacts of the proposal) and a Regional Air Quality Assessment (which addresses the potential for increased photochemical smog formations). The modelling of air quality impacts as part of the Air Quality Assessments was conducted by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) while specialist consultant URS, conducted the Local Assessment (which incorporates the Greenhouse Gas Assessment) and prepared the summary report in the main body of the EA.

Council notes that the following provides a summary of the key findings of each of these Assessments.

- ***Regional Air Quality Assessment***

  The CSIRO was engaged to assess the regional formation of ozone and Nitrogen dioxide when the plant is operational under different conditions. The EA states modelling was assessed comparing the relative changes in peak ozone concentration predictions from a worst-case scenario operating continuously year round. The modelling was based on meteorological data supplied by the DECC for five days that contained the most favourable conditions for the formation of ozone and dispersal of emitted pollutants within the plume.

  Whilst noting that the south west of Sydney can be subject to high ozone episodes, URS concluded in its summary report that the modelling found there is no adverse impact on photochemical smog formation occurring as a result of the power plant operation. It also concluded the plume from the proposed plant would have *only a minor localised impact on ozone that would largely result in no change in ozone levels, with some areas experiencing a minor reduction in ozone levels*. The EA seeks to partly justify this impact due to the *"strong technical and economic reasons for the location of peaking power generation in the Sydney airshed"*.

- ***Local Air Quality Assessment***

  This assessment of local air quality impacts of the proposal (within the boundaries of the emitted plume), focused on air quality issues associated with Nitrous oxides (NOX) emissions. The assessment provides background information with regard to meteorological data, methodology of modelling undertaken by CSIRO and an assessment of potential impacts.

  The assessment concluded that cumulative ambient levels as a result of the operation of the plant would be well within DECC criteria and the impacts on local air quality from the development would be minor to unlikely. The EA notes that the proposed operation of the plant (up to 15% of the year) would further reduce the local air quality impacts within regulatory limits.

- ***Impact of Greenhouse Gases***

  The EA notes that greenhouse emissions from open cycle gas-fired plants is two-thirds that of coal-fired based load plants. The greenhouse gas emissions of the Leafs Gully Power Project are estimated to be 0.29 million tonnes of CO2-e per year, which would represent an increase of greenhouse gas emissions from power generation in NSW by 0.37%.

- ***Impact of Stack Emissions on Aviation from Plume Emissions***

  The Air Quality Assessment was also required to assess potential impacts of the emitted plume on aircraft operations. In this regard, a plume rise assessment was undertaken on the basis that the plant was operating at full load for the entire year. The results concluded that consideration should be given for the plant to be designated a hazard to aircraft operations in the area with ongoing consultation with CASA required.

Peer Review of Air Quality Assessment by Council

Specialist consultant firm 'Atmospheric Solutions' was engaged by Council to undertake a peer review of the documentation submitted with the Part 3A application relating to air quality, referred to above. The consultant was requested to address the following key tasks:

i. Summarise air quality issues;
ii. Comment on the approach, validity of data and interpretation of the modelling undertaken associated with the application;
iii. Assess the cumulative impacts on local air quality and within the Macarthur region;
iv. Undertake an assessment of greenhouse gas emission issues;
v. Undertake a review of the application's compliance with the Director General's Environmental Assessment Requirements; and
vi. Review the validity of the interpretation of the air quality assessments in the Environmental Assessment.

The specialist consultant's report addressed each of these matters, which are summarised below. A copy of the consultant's report is attached to this submission.

(i) Summary of Air Quality Issues Associated with the Proposed Facility

The specialist peer review report prepared by Council's consultant noted that topographical features and the transportation of pollutants such as nitrous oxides within vehicle emissions from other parts of the Sydney Basin influenced the ambient air quality in the Macarthur region. It noted that whilst a slight downward trend in ozone levels within the Macarthur region was observed, exceedances of the DECC ambient levels are forecast to occur for some time, without significant changes to the region and/or the contributing sources to the local pollution levels.

The report advises that in a complex chemical reaction, Nitrogen oxide (upon emission) reacts with the background ozone to form Nitrogen dioxide (thereby reducing the ozone levels). Conversely, on the perimeters of the plume, Nitrogen dioxide can break down in favourable meteorological conditions to form Ozone.

The report states the two gas-fired turbines associated with the facility will emit significant levels of atmospheric pollutants, comprising oxides of nitrogen (NOX), carbon monoxide and volatile organic compounds. The report also states that NOX

emissions are the primary emission of concern in regard to this proposed development for both their:

- Direct environmental and health impacts, primarily of Nitrogen dioxide; and
- Indirect ozone generation and subsequent potential for photochemical smog production.

The specialist peer review report supports the view of the Air Quality Assessment submitted with the Project Application that the cumulative impacts on ambient levels of NOX (both Nitrogen oxide and Nitrogen dioxide) as a consequence of the construction of the facility are well within the DECC criteria leaving sufficient capacity for future urban growth. However, it also advises that the expected increase in NOX emissions from vehicles, based on growth figures supplied for the Macarthur Region, will result in an increase in the ambient level of Nitrogen dioxide, although the DECC criteria would not be likely to be exceeded (based on these figures) for at least 10 years. The report further states that the high background levels of ozone will increase the potential for Nitrogen dioxide formation which could result in higher impacts within the Macarthur Region as compared against if the plant was located in alternate locations where background levels of ozone are not in excess of DECC criteria

Based on the information provided in the peer review report, it can therefore be concluded that ozone is the primary immediate concern regarding air quality impacts associated the proposed facility due to the current ambient levels exceeding DECC criteria. However, depending on the determined scale, nature and extent of proposed urban expansions such as Macarthur South, the levels of Nitrogen dioxide will also become an issue due to its associated health impacts and increased potential for formation of ozone (under suitable meteorological conditions) as outlined above.

Validity of the Data and Interpretation of the Modelling

Council's Brief required the specialist peer review to verify the current validity of the ambient air quality data of the Macarthur region used in the Local Air Quality Assessment (2006) and the Regional Assessment (2002). The report concluded, based on analysis of the most recent metrological data (2007), that the data used in the modelling was representative of the current ambient air quality of the region and is satisfactory.

The specialist peer review report supports the modelling of the facility operating on a year-round basis. Data showed 'worst case' meteorological conditions as a valid methodology of achieving the stated purpose of predicting the worst-case cumulative impacts on ambient air quality levels. However, the report also notes that the 5 worst-case meteorological conditions supplied by DECC all comprise wind directions in an arc from a south east to north east direction and that other wind directions have not been modelled. Whilst the specialist report considers this is adequate (within the objective of the Air Quality Assessment), Council officers consider the conducting of other wind direction modelling would enable a greater understanding to be obtained regarding 'distribution and extent' under different meteorological conditions to those currently contained in the Assessment.

Conclusions of the Specialist Peer Review Report

- The methodology used by CSIRO is satisfactory and that appropriate data and emission factors have been used.

- The conclusion of the modelling shows that the cumulative air quality levels as a consequence of the operation of the Gas Fired Plant comply with relevant NSW criteria for air quality with the exception of Ozone, is supported.

- The modelling results indicated that slight increases are predicted to occur to the number of ozone exceedences experienced, the peak concentrations, and the areas of land over which the exceedences are forecast to occur. This differs to the interpretation of the modelling contained in the Environmental Assessment.

- The identified short-comings of the modelling by the specialist report included:

  - There has been no assessment of partial load scenarios of the operation of the facility. Whilst it is unlikely a peaking plant (like Leafs Gully) would operate under partial loading, the report notes the possibility of this occurring;

  - The NOX emissions have been modelled under the assumption of all NOX being emitted as Nitrogen dioxide but in reality, the emissions are likely to be largely comprised of Nitrogen oxide with a smaller quantity of Nitrogen dioxide. The report noted that whilst this approach is satisfactory, this anomaly should be considered in future air quality assessments.

Council notes the conclusion of the specialist report regarding the validity of the methodology of the modelling undertaken by the CSIRO. However, Council would request the EA include modelling of additional wind directions to enable an understanding of air quality impacts under a range of conditions other than 'worst scenario' conditions as has occurred in the Assessment.

(ii) Assessment of Cumulative Impacts on Local Air Quality and within the Macarthur Region

The specialist peer review report was required to examine the adequacy of the assessment of the identified cumulative impacts of the proposed development on the air quality of the Macarthur Region as well as its conclusions and recommendations. The assessment of *'cumulative impacts'* is considered critical as this combines the existing ambient air quality levels of the region and the modelled increased pollutants associated with the proposed facility.

The conclusions of the specialist peer review report are:

- That the predicted increase in ambient levels of NOX within the region as a consequence of the operation of the plant were well within relevant DECC criteria.

- Exceedances of the DECC ambient criteria for ozone within the region currently occur and will remain an issue for future development.

- The high background levels of ozone will increase the potential for Nitrogen dioxide formation (which has a high health risk) from the NOX exhaust stream within the plume, which could lead to higher impacts on surrounding areas as compared against locating the facility in an area where ozone levels are not a concern.

- The specialist peer review report supports the view of the Air Quality Assessment that the cumulative impacts on ambient levels of NOX (both Nitrogen Oxide and Nitrogen dioxide) as a consequence of the construction of the facility are well within DECC criteria leaving sufficient capacity for future urban growth within Macarthur South. However, it also advises the expected increase in NOX emissions from vehicle emissions based on growth figures supplied for the

Macarthur Region, will result in an increase in the ambient level of Nitrogen dioxide with associate implications for ozone formation due to the interrelationship between the two pollutants.

- In regard to health impacts, the specialist report notes the level and scope of assessment conducted is considered low for a development that would likely result in an increase in ozone levels within a region that already exceeds criteria. The review also notes that health impacts associated with Nitrous dioxide are significantly greater than for Nitrous oxide.

Council recognises that the primary immediate pollutant of concern associated with the facility is ozone due to the cumulative ambient levels of NOX. However, Council recommends that the EA assess the cumulative impacts of the facility on regional air quality within the context of the additional emissions of NOX within the region associated with likely future urban growth within Macarthur South. Council recommends the Department to require the EA to assess potential impacts of ozone formation associated with the proposed facility on surrounding land uses and community health.

(iii) Assessment of Greenhouse Gas Emissions

Council's Brief required the specialist peer review to examine the adequacy of the Air Quality Assessment in terms of the modelling of all direct emissions (emitted from the turbines) and downstream emissions (outside of the operational boundary of the facility) as well as the adequacy of mitigation measures such as offsets.

The conclusions of the specialist report are:

- The greenhouse assessment was found to be satisfactory in the approach taken. It also concludes the greenhouse estimations are in accordance with the National Greenhouse Accounts Factors Guidelines (2008) and the assumptions regarding fuel consumption and resultant emissions are considered appropriate.

- The assessment has not identified any greenhouse gas abatement measures or offsets (other than a statement that the proponent (AGL) handles a large renewable portfolio).

The specialist peer review report also concludes that the proposed use of low NOX burners (a means of controlling NOX emissions), complies with the Director General's requirement requiring Australian best practice with respect to the control of NOX emissions. However, it notes that the Environmental Assessment refers to the use of Selective Cathodic Reduction' (world's best practice that has not yet been used in Australia), which involves the post treatment of emissions. However, there are operational constraints associated with the use of this technology on peaking plants (like Leaf's Gully) as well as potential generation of ammonia emissions (a pollutant with health implications).

While Council notes constraints with the technology associated with potential ammonia emissions, Council recommends that the Department require the Applicant to further investigate the viability of installing the Selective Cathodic Reduction as a world's best practice as a means of reducing NOX emissions from the facility and associated impacts on the air quality of the Macarthur region.

(iv) Level of compliance with the Director General's Requirements

Council requested the specialist report to rank the level of compliance of the Assessments (relating to air quality matters) with the Director General's requirements, outlining the reasons for any items identified as non-compliant or partially-compliant. The outcomes of this review (noted items of non-compliance or partial compliance) is summarised in the table below.

Director General's Requirement	Non-Compliant/ Partially Compliant	Comment in Specialist Peer Review Report
Evaluation of the feasibility of additional measures to reduce greenhouse gas emissions, including offsets	Non-Compliant	The Assessment only states AGL handles a large renewables portfolio
Assessment of air emissions and existing background air quality at an interregional level (i.e. within the Sydney Basin)	Partially Compliant	While the Assessment has assessed cumulative impacts on existing ambient air quality levels within the region, it has not identified potential impacts associated with air flow within the Sydney Basin despite listing factors affecting air quality such as the Blue Mountains
Air quality impacts of the operation under partial load conditions	Partially Compliant	The review notes while unlikely, the potential exists for a Peaking Plant to operate under this mode of operation.
Analysis of the potential for the development to preclude or limit transport related or employment generating emissive industries	Non-Compliant	The main body of the EA states this analysis is difficult and is best undertaken by the Department of Planning.
The EA must include a strategic analysis of the project, an analysis of the suitability of the proposed site with respect to potential land use conflicts with existing and future surrounding land uses.	Compliant: as this was not a requirement specifically relating to air quality assessment	Whilst the EA is considered to comply with this requirement, the assessment of air quality related impacts on existing and future land uses is restricted to interpretation of the air quality modelling and a detailed analysis has not been conducted.

Council recommends the Department require the amendment of the EA to ensure full compliance with the Director General's applicable items with regard to air quality as well as greenhouse gas emissions in accordance with the comments contained in the above table.

(v) Validity of the Interpretation of the Air Quality Assessments in the Environmental Assessment

Council's Brief also required the specialist peer review report to determine if there are any identified discrepancies in the interpretation of the conclusions of the Air Quality Assessments within the main body of the EA. The outcome of this review is summarised in the table below.

Identified Inconsistency in EA	Recommendations/Comment of Peer Review
The EA states *ozone is an air pollution item of concern and that the south west regions of the Sydney Basin can be subject to high ozone episodes.*	The EA does not include reference to exceedences in DECC criteria as referred to in the air quality assessments.
The EA states *the modelling found that there is no adverse impact on photochemical smog formation occurring as a result of the power plant.*	The modelling results indicate that slight increases are predicted to occur to the number of ozone exceedences experienced, the peak concentrations resulting in exceedences, and the areas of land over which the exceedences are forecast to occur. While slight, these increases in ozone concentrations should be noted for the peak ozone events. Also, the use of "no adverse impact" should be reconsidered given the existing background levels currently exceed the criteria above which adverse impacts may be realised.
The EA highlights the results of a single day of modelling for the 2006 regional air quality assessment, when five separate days were modelled.	The EA should display results for all days modelled, or provide a summary of all five days, rather than focusing on the specific results of one out of the five days

Council would draw the Department's attention the discrepancies and inconsistencies identified by the specialist peer review report and recommends the Department to require the Applicant to address these matters, prior to the final consideration of the EA.

(vi) Particulate Matter Emissions

The peer review obtained by Council advises that methodology and concluding results contained within the Local Air Quality Assessment in terms of particulate matter emissions associated with the proposed development, is appropriate. It notes that the emissions of P2.5 (which have significantly higher health implications than P10) have not been assessed but acknowledges that this is standard practice for the assessment of potential air quality impacts associated with gas fired power stations.

However, the peer review notes that the air quality criteria for P10 within the local region were exceeded four times in 2006 during periods of bush fire activity within the vicinity of the Sydney Basin. In this regard, a report of the Intergovernmental panel on Climate Change in a report titled *'Climate Change 2007: Impacts, Adaption and Vulnerability'* advises *'that an increase in intensity and frequency of bushfires (*as a consequence of forecasted variations in climate*) is virtually certain'* should be considered.

Any increase in background concentrations of particulate matter within the Sydney Basin as a consequence of increase in future bushfire activity will likely result in adverse impacts on the air quality within the Macarthur region due to the influence of previously described factors such as localised terrain features.

Accordingly Council recommends the Department ensure that the EA fully assess the potential health and environmental cumulative impacts associated with particulate matter emissions (for both P10 and P2.5) the proposed development in light of periods of high background levels. Further, Council

would also recommend that the Department requires that this assessment be conducted within the context of a likely increase in background levels of particulate matter as a consequence of forecasted climatic changes associated with global warming.

(vii) Summary of Air Quality Issues

The potential cumulative impact on the ambient air quality of the Macarthur region is considered a key issue due to the significant volumes of gasses (particularly NOX) from the facility and the identification of the region as a 'pollution hotspot' due to the influence of topographical features and pressures associated with current and potential future urban expansion. In this regard, the ambient ozone level (a primary component) in the formation of photochemical smog) has exceeded DECC criteria on occasions for a number of years. The ambient level of ozone has significant implications for air quality impacts associated with the facility, due to its complex chemical reaction with oxides of nitrogen within the plume and on the perimeters of the plume of emissions as it disperses.

Given the highly specialist field of modelling and the interpretation of potential air quality impacts associated with the facility, the services of a specialised consultant were obtained. This peer review identified the local and regional air quality assessments to be satisfactory in their approach, using appropriate and consistent methodology and also concluded the assessment of greenhouse gas emissions from the facility was in accordance with applicable guidelines.

The peer review report supported the conclusion of the Air Quality Assessments that the predicted cumulative regional ambient Nitrogen dioxide levels as a consequence of the facility are well within the applicable DECC criteria.

However, the report also stated that the high background levels of ozone will increase the potential for Nitrogen dioxide formation. This could result in higher environmental and health impacts within the Macarthur region as compared to a situation where the plant was located in alternate locations where background levels of ozone are not already in excess of the DECC criteria. It also concluded that future urban expansion within Macarthur South would result in increased formation of Nitrogen dioxide due to the relatively high ozone levels

With regard to the assessment of potential impacts on ozone levels, the peer review identified that the main body of the EA had not accurately interpreted the modelling contained in the Air Quality Assessments. Therefore, it can be concluded ozone is the primary immediate concern regarding air quality impacts. Levels of Nitrogen dioxide would also become an issue as would the increased potential for formation of ozone (under suitable meteorological conditions) depending on the level of emissions associated with future urban expansion.

Accordingly, Council recommends the Department to ensure that the EA fully assess the implications of emissions taking into account future likely urban expansion in Macarthur South (in particular oxides of nitrogen) in the modeling of air quality impacts associated with the proposed facility. Further, Council would also recommend that the Department to require the Applicant to address identified discrepancies of the interpretation of the assessment in the EA in terms of the nature and extent of impacts on ozone levels. In addition, Council would seek to ensure that the issue of greenhouse gas offsets is properly addressed by the EA.

b. **Visual Impact**

The Environmental Assessment details a visual impact assessment undertaken by the Applicant. The proposed 30 to 35 metre high gas turbine stacks are the most visually prominent components of the power generation facility. The gas turbines and evaporative inlet air cooler would be housed in a 20 metre high structure and new 330kV electricity poles would be 22 metres high.

The Applicant proposes to minimise the visual impact by implementing the following:

- The use of dark colours and non-reflective materials on the power station;
- The construction of an earth mound to the north and north east; and
- Additional tree planting.

The EA concludes that the visual impact of the power station would be low in light of the proposed measures above, and due to the following circumstances:

- Existing trees and natural landforms generally screen the majority of views from 'view locations';
- The power station stacks would only be visible from a limited number of existing residences;
- No visible emissions would be discharged from the turbine stacks.

The visual analysis indicates several categories of view catchment. The primary view catchment is described as comprising "areas of land from which the power station site and associated infrastructure would be visible and generally prominent within the immediate field of view. A secondary view catchment is described as comprising "areas of land from which only a portion of the power station site and associated infrastructure may be visible. Views would generally be restricted to the upper portion of structures".
The report concludes that the stacks will be visible from sections of the Hume Highway, Southern Railway, and Menangle Road, particularly where they cross ridges. The Applicant considered the views will be of "secondary view catchment" significance.

It is likely that the power station will visually dominate the semi-rural landscape as viewed by commuters south of Campbelltown and could be significant in terms of creating a perception identifying this area of Campbelltown as an "industrial suburb".

No photographic images were provided in the visual impact report from the Hume Highway, Southern Railway and Menangle Road. This is considered to be a significant omission and needs to be drawn to the attention of the Department.

No details of the visual impact assessment clarified the impact of lighting from the power plant nor from security lighting. This could accentuate the visual prominence of the development at night time, further compounding its visual dominance in this rural/bushland setting.

It is noted that views toward the proposed development from Appin Road are constrained by a combination of undulating landform and trees along the road corridor. Clarification should also be sought as to whether this will still be the case when trees are removed to facilitate the Appin Road/Access Road intersection upgrade.

The Landscape and Visual Assessment has not considered visual impacts associated with the upgrade of the Appin Road/Access Road intersection. Up to 44 trees could potentially be removed from the existing roadside. It is considered that this could potentially change the visual amenity of Appin Road.

Additionally, the extent of potential visual impact may be greater in the event that the general locality is redeveloped for urban purposes in the future. (A review of future urban growth in the locality is described in greater detail below.)

The project documentation fails to satisfactorily address or confirm the visual impact of the development.

c. **Future Urban Growth**

The NSW Government introduced the Metropolitan Development Program (MDP) to coordinate the planning and supply of new housing for Sydney, located on the urban fringe, and identifies a number of new urban release areas such as for example, the Menangle Park release area.

Significantly the MDP also nominates a site at Mt Gilead (in proximity to the Leafs Gully site) for future urban release to accommodate approximately 1,340 dwellings.

More recently, it is understood that the Department has been undertaking a strategic review of future land release potential in the whole of the area historically known as "Macarthur South". This area was previously deferred for consideration for future urban land release given air quality issues.

The current strategic review addresses housing demand and supply in the Macarthur South area, and it is understood that the initial findings indicated that land release may not be warranted in the immediate future. Notwithstanding, the South West Sub Regional Planning Strategy (Draft) also prepared by the Department of Planning and published for public comment in 2008, notes specifically that:

> *"Interim development at Macarthur South should not limit options for urban development and infrastructure in the future and have regard to the principles in the State Plan of providing jobs close to residential areas..."*

It is not unreasonable for Council to conclude, that the Macarthur South 'Urban Release Area' will be likely to develop at some time in the future, as Metropolitan Sydney continues to grow and demand additional land supply for housing.

Council considers that the take up of any future land release, either at Mt Gilead (as currently listed on the MDP) or elsewhere in Macarthur South, will be compromised by the gas-fired power generating facility, should it be constructed.

Given the strategic co-location of electricity transmission line networks and natural gas pipelines in the vicinity of Mt Gilead and elsewhere in the Macarthur South area approval of the current proposal for the Leafs Gully power generating facility would no doubt set a precedent for the construction of other additional power generating facilities in the Macarthur South area. The proximity of one or multiple such facilities within the Macarthur South area would lead to a sterilisation of its future potential urban land release capacity, and to Sydney's future housing disadvantage.

As stated above, the Environmental Assessment fails to address the Department of Planning's 'Metropolitan Urban Development Program', which in 2007 identified 1,340

future residential allotments in the Gilead area. Whilst that land does not immediately adjoin the proposed power station site, the creation of residential allotments under the Metropolitan Urban Development Program would result in additional residential allotments closer to the power generating facility than what has been identified in the EA.

Notwithstanding the above, the EA reports that the power station has been designed to "not prevent" future urban growth on adjoining land. The EA considers that the proposed noise, visual and waste management measures to be adopted would allow residential development to occur along the boundary of the subject site.

It is difficult to quantify the extent to which the power station would impact upon future urban development or moreover the take up of any future planning opportunity for urban development given that there have not to date been any detailed studies undertaken of the land to confirm its suitability for urban uses given local constraints.

It is considered that any future urban development within the immediate locality would only be sustainable as low-density development, with a likely 'buffer' between the power station and residences. In addition, it is likely that the value of that urban land would be less than would otherwise be the case if a power station were not constructed on the adjoining land.

A high level of concern from Council and the broader community over the development's impact on the future take up of lands in Macarthur South warrants further detailed consideration.

Importantly, Council would draw the Department's attention to the likely precedent that any decision to approve the application, would set for additional power generation facilities, that would significantly impact upon the take up of the significant potential for future metropolitan housing and urban growth that exists within the Macarthur South area.

Council recommends that prior to determination of the application, the Department of Planning undertake a preliminary urban capability study of the land surrounding the subject site to determine whether additional mitigation measures are necessary to allow a power station and future residential development to co-exist and if indeed such an outcome can be achieved and is appropriate.

d. **Noise and Vibration**

The Environmental Assessment details that the operation of the power generating facility would not result in unacceptable noise or vibration impacts on existing or future residents in the locality. The applicant claims that a more stringent approach, above that normally required by the NSW Industrial Noise Policy has been used to ensure that the operation of the facility would have minimal impact on existing residents. The outcome would potentially allow neighbouring landholders to build residential homes right to their boundary should the zoning of land be changed from rural to urban.

It is recommended that the Department of Planning undertake a detailed assessment of noise and vibration against relevant environmental legislation.

e. **Flora and Fauna**

AGL is proposing to establish a conservation area as part of the proposed development, which includes some of the vegetation located on Lots 101, 102 and 103. This proposed conservation area comprises:

- Two Endangered Ecological Communities being Shale Sandstone Transition Forest (which is listed under the NSW TSC Act 1995) and the Commonwealth EPBC Act 1999) and River Flat Eucalypt Forest (which is listed under the NSW TSC Act 1995);

- The area in which the only threatened species "*Pultenaea pedunculata*" was recorded on site (referred to as the Pultenaea Recovery Area); and

- Exotic grassland.

Overall, a total land area of approximately 170ha would be taken up by the proposed conservation area. It is understood that AGL intends to re-title this land for conservation purposes in consultation with the DECC, either through a Voluntary Conservation Agreement (VCA), a BioBanking Agreement, or some other enduring protection mechanism.

It is important to note that the majority of the native vegetation located on Lots 102, and 103 has been identified as being of high biodiversity value as part of the Campbelltown Biodiversity Study. The importance of this vegetation has also been identified within the Hawkesbury-Nepean Catchment Action Plan and it is further understood by Council that the DECC considers the conservation of native vegetation in this area to be of a high regional priority. In this regard, it is considered that the proposed conservation area associated with this proposal should be expanded to include all vegetation on these allotments of high to moderate biodiversity value and if possible other areas of biodiversity value located off-site.

Further it is considered that any management plan that is prepared for the proposed area should be prepared in close consultation with the DECC to ensure that the area is managed in accordance with DECC Best Practice Standards for the Management of Cumberland Plain Vegetation.

It is also suggested that the dedication of the conservation area and the preparation of a suitable Plan of Management, to guide the area's effective management should be included, in any future conditions of approval should a decision be reached by the Minister to approve the proposed power generating plant.

A total area of 50.8ha of exotic grassland forms part of the proposed priority conservation area. It is proposed that habitat corridor/compensatory plantings are to occur on up to 30ha of this grassland. However clarification is required as to how the remaining 20ha of this exotic grassland will be managed as part of the conservation area. The Terrestrial Biodiversity Assessment Report accompanying the Environmental Assessment indicates that such areas show a long history of cropping and grazing and have a minimal likelihood of natural or assisted regeneration.

The management of the proposed conservation area could potentially be funded through the establishment of a biobanking site within the conservation area. However, clarification is required as to how the proposed conservation area would be appropriately managed if it is not feasible to establish a biobanking site.

Council recommends that consultation be undertaken with the DECC in relation to the proposed management measures for the Pultenaea Recovery Area. It is suggested that the DECC requirements in relation to this area should be included as part of any future conditions of approval should a decision be reached by the Minister to approve the proposed power generating plant.

It is further recommended that the Department of Planning liaise closely with the DECC on the planning, implementation and management of the proposed conservation area.

Flora and Fauna Survey Effort and Assessment

The extent of the study area that is the focus of the Terrestrial Biodiversity Assessment is not clearly defined within the Terrestrial Biodiversity Assessment Report. No justification is provided as to how the extent of the Study Area was determined. In the "Guidelines for Threatened Species Assessment" (DECC and DPI 2005) for development applications assessed under Part 3A of the EP&A Act 1979, the study area means the development footprint and any additional areas that are likely to be affected by the proposal, either directly or indirectly during both the construction and operational phase of the proposed development.

Therefore the study area should extend as far as is necessary to take all potential direct and indirect impacts of the development into account, and should include all areas directly and indirectly affected by the power generating plant development's footprint, the upgrading of the access road, the upgrading of the intersection between Appin Road and the Access Road as well as the alignment or proposed alignment of the water pipeline from the upper canal and the transmission and gas pipeline routes.

Council recommends that the Department of Planning seek clarification as to the extent of the Study Area that was the focus of the Terrestrial Biodiversity Assessment.

The flora and fauna survey effort to date has predominantly been restricted to the proposed power generating plant development's footprint and directly adjacent vegetation. The entire site (comprising Lots 101, 102 and 103, the area the consultant was engaged to survey) has not been systematically surveyed.

The level of survey effort that has been employed as part of the Terrestrial Biodiversity Assessment has not been appropriately justified within the Terrestrial Biodiversity Assessment Report. Insufficient details are included in relation to the level of survey effort that has been employed in the area subject to the Appin Road/Access Road intersection upgrade.

In accordance with the Guidelines for Threatened Species Assessment (DECC and DPI 2005) for development applications assessed under Part 3A of the EP&A Act 1979, surveys are required to be undertaken during optimal climatic and seasonal conditions and consider issues such as migratory species movements, availability of shelter, breeding and food resources, and the statistical issues associated with minimising sampling error. The survey effort that has been employed as part of the Terrestrial Biodiversity Assessment has been undertaken outside the optimal survey period for some species. These species are likely to include cryptic species and threatened orchids not in flower during late summer. Therefore further survey work is required.

The *Pultenaea pedunculata* is most easily detected when in flower during August-December. Only two days were spent surveying for this species during its optimal detection time and this was in August when the plant is only likely to have recently commenced flowering. The occurrence of this species can be easily overlooked.

Council recommends that additional surveys for these species be undertaken during optimal detection conditions for this species as part of the Terrestrial Biodiversity Assessment.

The Terrestrial Biodiversity Assessment Report does not specify whether any of the hollow bearing trees identified for removal within the power generating plant's development footprint or identified for potential removal along Appin Road are actually utilised by threatened bat species as roosting sites. In this regard, the Microchiropteran Bat Report that was prepared by Fly By Night Bat Surveys Pty Ltd as part of the Terrestrial Biodiversity Assessment recommended a resurvey of the site during the months of November and December. The purpose of the resurvey is to indicate which species are breeding in the vicinity of the proposed power plant and are potentially reliant on these areas for foraging during the development and raising of young. Disappointingly, such a resurvey has not been undertaken as part of the Terrestrial Biodiversity Assessment.

The full extent of vegetation that is to be removed and or modified as a result of the proposed power generating facility remains unknown and cannot be determined until such time as:

1) The extent of tree removal required for the proposed Appin Road/Access Road intersection upgrade is known;

2) The route of the water pipeline from the Upper Canal is finalised; and

3) The transmission and gas pipeline routes are finalised.

Impacts associated with the route of the water pipeline from the upper canal and transmission and gas pipeline routes have not been fully considered. Whilst AGL consider that such impacts will be minimal it is suggested that all impacts on native vegetation should be considered as a whole before a decision is reached as to whether the proposed development will or will not have a significant impact on threatened species or ecological communities.

Whilst it is understood that there is no requirement for a consent authority to consider Section 5A of the EP&A Act when determining a project application under Part 3A of the Act, the Terrestrial Biodiversity Assessment does include Assessments of Significance for those threatened species and ecological communities with suitable habitat on-site. It is considered that the upgrading of the Appin Road/Access Road intersection and any other incidental clearing associated with water pipeline, transmission and gas pipeline routes have not been adequately considered as part of this process.

Further, a Significant Impact Assessment under the Commonwealth Environmental Protection Biodiversity Conservation (EPBC) Act 1999 is not included as part of the Terrestrial Biodiversity Assessment Report. The assessment criteria used to determine whether an action is likely to have a significant impact on a protected matter differs between the EPBC Act 1999 and the NSW Threatened Species Conservation Act 1995. In this regard, it is considered that an assessment under the EPBC Act should be included as part of the Terrestrial Biodiversity Assessment Report to clearly

demonstrate that the proposed development will not have a significant impact on any matters of national significance particularly the EPBC listed Endangered Ecological Community (Shale Sandstone Transition Forest) that occurs on site.

Council recommends that the Department of Planning ensure that potential impacts on native vegetation associated with changes to surface water overflow and potential runoff from the development site including overflow from the sedimentation pond, be examined as part of the flora and fauna assessment.

It is noted that an embankment will be placed in close proximity to the Pultanaea Recovery Area. Clarification is required as to whether this embankment has the potential to alter water flow to the Recovery Area and if so, potential implications for *Pultenaea pedunculata* should be considered.

Overall, Council recommends the Department to ensure that the EA properly assess the impact of the proposed power generating facility on flora and fauna and ensure that appropriate survey effort and assessment is undertaken as part of that process.

f. **Water Quality and Nepean River**

As the Leafs Gully Power Project site adjoins the Nepean River, an assessment of the method of water quality control is critical. The EA details an assessment of the water quantity and quality impacts of the proposal with reference to the water needs of the project, the proposed source of water, the implementation of water saving measures, the identification and method of the disposal of wastewater and how stormwater is to be managed at the site.

A review of the EA indicates that the operation of the power plant could be undertaken in a manner that would not result in any off-site water quality impacts.

Council recommends that the Department of Planning undertake a detailed assessment of water quality against relevant environmental legislation.

g. **Heritage**

The EA reports that no Aboriginal objects or sites were located on the subject site. However, an area of potential archaeological deposit was identified in the study area. The footprint includes areas of moderate and low-moderate archaeological potential, which would be subject to a 'development impact' under relevant legislation.

A small section of the Sydney Water Supply Upper Canal System (item of State Heritage Significance) is impacted by the power station. This would result from the construction of a water pipeline connection with the Upper Canal. The EA concludes that the impact of the connection would be minor in nature.

The EA indicates that the power station would not have any significant impact on the heritage significance of the locality.

Council recommends that the Department of Planning undertake a detailed assessment of heritage impacts of the development against relevant heritage conservation legislation and in consideration with relevant indigenous groups.

h. Bushfire Risk

The subject site is identified on the Rural Fire Service 'Campbelltown LGA Bushfire Prone Land Map'. The proposal, as a Major Project to determined under Part 3A of the EP&A Act, does not require approvals for bushfire under either the Rural Fires Act 1997 or the EP&A Act.

Additionally the proposal does not require referral to the NSW Rural Fire Service under Section 79BA of the EP&A Act as neither residential nor rural-residential development are proposed.

Notwithstanding, as part of the Part 3A process, the Department of Planning may choose to refer the application to the Rural Fire Service for advice considering the following:

1) the proximity of the proposed power plant to surrounding vegetation;

2) the fact that the Bushfire Assessment that has been undertaken indicates that no vegetation will need to be removed to establish suitable Asset Protection Zones (APZs) and that the proposed corridor/compensatory plantings could be undertaken within their proposed locations whilst still achieving required Asset Protection Zones (APZs); and

3) the subsequent flora and fauna assessment is based on this scenario.

Council recommends that the Department of Planning refer the proposal to the Rural Fire Service to ensure that proposed APZs are adequate and that no further vegetation will need to be removed or the proposed corridor/compensatory plantings be relocated to provide suitable APZs, prior to the application being determined.

i. Transport and Road Access

The site is located off Appin Road and is accessed by a 2.3 kilometre private road via a Right of Carriageway. The Applicant proposes to upgrade the intersection of the access with Appin Road by way constructing a right turn in/out lane to Roads and Traffic Authority (RTA) standards. The EA details that post construction traffic would be minor and would not result in adverse impacts upon adjoining properties.

The EA also refers to upgrading the existing private access road to comply with applicable standards for the purpose of constructing and operating the power station. The EA reports that these works would have minimal environmental impact and that it can be appropriately constructed to conform with Council's standards. Overall Council is not satisfied that vegetation removal associated with such works has been considered appropriately.

However, it is considered that the access road design is satisfactory subject to the following conditions:

1. The access road be constructed (at a minimum) to Council's rural residential Category G (minor rural cul-de-sac) standard i.e. 5.5m wide carriageway with 2 coat seal and shoulders 1.2m wide. Pavement thickness determined using minimum 2x10^4 ESA's; or to a greater standard if considered necessary by the applicant.

2. The applicant to liaise with the RTA regarding Appin Road intersection requirements.

3. The access road to be realigned to be contained in the existing 10m and variable reserve.

4. All design of engineering works to be carried out in accordance with the requirements set out in the Campbelltown (Sustainable City) Development Control Plan 2007

5. All design and construction work, lots and roads created to be in accordance with Council's requirements as follows:

   a. Council's specification for Construction of Subdivisional Road and Drainage Works (as amended);

   b. Campbelltown (Sustainable City) Development Control Plan 2007 Volume 2;

   c. 'Soils and Construction (2004) (Bluebook); and

   d. Relevant Australian Standards and State Government publications.

Council recommends that the Department to consider these requirements as part of the determination of the application.

j. Draft Statement of Commitments

The Draft Statements of Commitment are considered broad, general and non-committal in that they often use phrases such as *"opportunities to further minimise emissions to air will be investigated and implemented where ever feasible to ensure that off-site impacts are kept to a minimum"* and *"consider further noise attenuation from both air intake and the enclosure"*. Some of the statements are post-operative potential commitments which may be implemented if the need arises.

Council wishes to express its concern to the Department of Planning over the lack of certainty associated with a number of the Draft Statement of Commitments.

k. Competition

Council is not aware of whether there are other similar infrastructure projects under preparation, or for consideration which will provide a service that AGL is proposing in the form of Peak Power Generation, either within the same general locality or elsewhere in New South Wales.

Tallawarra Power Station in Wollongong currently operates a 400MW power plant and it is proposed to construct an additional 450MW power plant along side it. This totals 850MW of power generation. The power generated from this development will not only serve Wollongong, but can also be accessed by Sydney as well. Therefore, it is recommended that the Department of Planning consider whether the development at Leafs Gully is necessary. The Department is encouraged to also consider other forms of power generation such as wind-farm generation to supplement the current supply of electricity to the State in order to commit to energy generation that is more sustainable.

A review of the currently published Department's "Major Projects – Infrastructure Developments" identifies the following electricity generating developments:

	Gas Fired Power Stations	Location	Capacity	Purpose	Status	Company
1	Hanging Rock	Hanging Rock – Sutton Forest	300MW	Base load combined cycle	DGRs issued	Loran Energy Products Pty Ltd
2	Marulan Gas Fired Power Station	Marulan	400MW to 450MW	Stage 1 – Peak Demand – open cycle Stage 2 – Conversion to base load	Dept preparing a response	Delta Electricity and Energy Australia
3	Tallawarra Gas Fired Power Station	Wollongong Region	800MW	Stage 1 operation serves both peak and base load supply Stage 2 – additional 450MW Combined Cycle peak and base load	DGR's issued	Tru Energy
4	Parks Gas Fired Power Station	Parks	80MW	Base load combined cycle	DGR's issued	NP Power Pty Ltd ("NP Power") and Babcock & Brown Pty Ltd ("Babcock & Brown").
5	Narrabri Gas Fired Power Station	Narrabri	175MW	Open cycle peaking plant	DGR's issued	East Coast Power Pty Ltd
6	Bega Gas Fired Power Station	Bega	120MW	Combined cycle base load	DGR's issued	Wambo Power Ventures Pty Ltd
7	Bamarang Gas Fired Power Station	Nowra	400MW	Base load combined cycle	Approved	Delta Electricity
8	Munmorah Gas Fired Power Station	Central Coast	500 MW to 600 MW	Open cycle peaking plant	Approved	Delta Electricity
9	West Parks Gas Fired Power Station	Parks	120MW	Open cycle peaking plant	Approved	International Power (Australia)
10	Wellington Gas Fired Power Station	Wellington	600MW to 660MW	Open Cycle peaking plant	Approved	ERM Power Pty Ltd

In addition to the Gas Fired Power Stations, it is also understood that the State Government has considered or is currently considering a number of wind generation power plants which include Black Springs, Conroy's Gap, Yass Windfarm, Boco Rock,

Ben Lamond, Silverton, Gullen Range and Glen Innes Windfarms. These windfarms will provide between 30MW to 1000MW (Silverton). The windfarms are proposed to generate and supply electricity to the existing electricity grid infrastructure.

With respect to solar energy generation as a peak load power supply, the Applicant has expressed a view that the low capacity and high technology cost for electricity generation is such that it is not feasible. Further, storage technology is not sufficiently advanced to store large amounts of energy for later use.

Concern is held by Council as to whether there is a saturation of peaking plant electricity operations. If this were to be the case, the Leaf's Gully site should not be supported.

It would not be a significant investment for the Leaf's Gully site to increase the size of the power plant (eg double it's size) and add additional infrastructure for it to become a combined base load plant such as coupling to a steam turbine. Such a plant could operate on a permanent basis and replace an ageing coal fired generation plant, which is subject to increased pressure from the public and the Federal Government's Carbon Pollution Reduction Scheme to phase out inefficient power generation plants.

Subsequently the application for a 2 x 150MW open cycle gas turbine power station cannot unreasonably be considered to be a stage 1 development of the site. The original application for a 600MW power plant was withdrawn due to public opposition, additional information sought and to seek out alternative sites. If AGL concludes that this site is the most suitable, it sets the stage for further additional infrastructure to be applied for on the site. Clearly it would not be unreasonable to suggest that AGL may aim to increase the capacity of the site if the initial capital outlay is $200M. What is also concerning is that it is understood that an open cycle gas turbine can be retrofitted to become a combined cycle plant and can ultimately operate as a base load plant operating on a 24 hour - 365 days per year basis.

I. Carbon Pollution Reduction Scheme: Australia's Low Pollution Future - White Paper 15 December 2008

The Federal Government is implementing a comprehensive strategy for tackling climate change in Australia. The strategy is built on three pillars: reducing Australia's carbon pollution; adapting to unavoidable climate change; and helping to shape a global solution.

The White Paper sets out the Government's policy in relation to two major elements of its mitigation strategy: a medium term target range for national emissions, and the final design of the Carbon Pollution Reduction Scheme.

The Government remains committed to meeting its long-term target of a 60 per cent reduction in greenhouse gas emissions from 2000 levels by 2050.

It also commits to a medium-term national target to reduce Australia's greenhouse gas emissions by between 5 per cent and 15 per cent below 2000 levels by the end 2020

The Renewable Energy Target requires 20 per cent of Australia's electricity to be sourced from renewable generators by 2020. This will require the rapid, large scale deployment of renewable technology, and will significantly reduce the emissions intensity of Australia's electricity supply.

Council notes that the Environmental Assessment makes no reference to greenhouse gas offsets. This is very disappointing, and should be a major item for the Department's consideration.

The Leafs Gully Power Project is expected to contribute to meeting the rising demand for electricity in Sydney, Newcastle and Wollongong. It is recognised that projects of this nature are necessary to ensure that electricity demand in NSW will not exceed generating capacity. The proposed power station would generate electricity supplies to provide reliable electricity generation at peak times when the transmission system may otherwise be constrained.

This review has been undertaken during the public exhibition period. It has not had the benefit of considering expert comments from relevant Government Agencies that undertake an assessment of the impacts of the development against specific environmental legislation. Consequently, the review is neither comprehensive, nor all encompassing. Notwithstanding, a review of the EA and supporting documents identify a number of aspects of the development that require further attention prior to the power station proposal being determined.

Council is not satisfied that the EA has fully examined worlds best practice environmentally sustainable principles in the design of the power station, particularly in respect of the matters of emissions controls noting that there may also be potential adverse impacts associated with such technology. This is not considered to be an acceptable outcome. However, it is acknowledged that there may be some tangible benefits if the most environmentally sensitive part of the land were dedicated to the NSW Government for permanent conservation purposes, subject to further clarification by the DECC.

Should the Macarthur South Precinct be developed for future urban purposes, the take up of development would be compromised by the construction of the power station. The EA does not have adequate regard to that outcome.

With regard to the environmental impacts and the economic benefits of the development, the power station is considered to be the "right project on the wrong site". Council maintains it's original position that there are alternative sites with better topography, less environmental constraints and located further from existing and future urban populations, which would result in an improved development and environmental outcome.

Consequently, Council has decided to notify the Department and Minister of our strongest objection to the Leafs Gully Gas Turbine Power Station proposal and respectfully requests that the matters raised in this submission be carefully considered and addressed as part of the Departments review and subsequently the Minister's determination.

Should any further information be required, please do not hesitate to contact Council's Director Planning and Environment Mr Jeff Lawrence on 4645 4575.

Yours faithfully

Paul Tosi
General Manager

Sydney WATER

MAJOR INFRASTRUCTURE ASSESSMENTS
RECEIVED
29 APR 2009
NSW Department of Planning

24 April 2009

Director - Major Infrastructure Assessments
Department of Planning
GPO Box 39
SYDNEY 2001

Reference: MP 08_0077

Attention: Scott Jefferies

Dear Director,

Re: Leafs Gully Gas-fired Power Station MP 08_0077

I refer to the Leafs Gully Gas-fired Power Station, 555-557 Appin Road, Gilead (MP 08_0077). In Sydney Water's letter of 2 February 2007 (attached) we indicated that the proposed connection to the Macarthur Water pipeline requires permission from both Sydney Water and Macarthur Water Pty Ltd. Sydney Water's position on the water requirements for the proposal remains unchanged.

In Sydney Water's letter of 2 February 2007 we indicated that all customers discharging trade waste into Sydney Water's wastewater systems must have written permission from Sydney Water and that there were capacity issues relating to fire-fighting. It is made apparent in the environmental assessment that both fire-fighting and trade waste processes will not utilise Sydney Water systems. As such, Sydney Water is no longer concerned with these issues. Sydney Water acknowledges that the development will endeavour to connect to recycled water provided by a proposed Sewage Treatment Plant (STP) at Appin. Sydney Water is currently in the process of reviewing the servicing strategy for the Appin area. The two short listed options for the servicing of this area include transfers to the existing Glenfield STP and construction of two local STPs in the Appin area. Sydney water will only provide recycled water to the area where it is deemed economically viable. Sydney Water will come to a decision on the preferred servicing option by mid 2009.

Sydney Water Servicing
Sydney Water will assess the impact of the proposed development when the proponent applies for a Section 73 Certificate. This assessment will enable Sydney Water to specify any works required as a result of the development and to assess whether amplification and/or changes are applicable. Sydney Water requests the Department continue to instruct developers to obtain a Section 73 Certificate from Sydney Water.

The developer must fund any adjustments needed to Sydney Water infrastructure as a result any development. The developer should engage a Water Servicing Coordinator to get a Section 73 Certificate and manage the servicing aspects of the development. Details are available from any Sydney Water Customer Centre on 13 20 92 or Sydney Water's website at www.sydneywater.com.au.

Sydney Water e-planning
Sydney Water has created a new email address for planning authorities to use to submit statutory or strategic planning documents for review. This email address is urbangrowth@sydneywater.com.au. The use of this email will help Sydney Water provide advice on planning projects faster, in-line with current planning reforms. It will also reduce the amount of printed material produced. This email should be used for:

- Section 62 consultations under the *Environmental Planning and Assessment Act 1979*
- Consultation where Sydney Water is an adjoining land owner to a proposed development
- Major Project applications under Part 3A of the *Environmental Planning and Assessment Act 1979*
- Consultations and referrals required under any environmental planning instrument

Sydney Water Corporation ABN 49 776 225 038
115 - 123 Bathurst Street Sydney NSW 2000 Australia PO Box 53 Sydney South NSW 1235 Australia
Tel 13 20 92 Fax (02) 9350 4466 DX 14 Sydney www.sydneywater.com.au

- Draft LEPs, REPs, SEPPs or other planning controls, such as DCPs
- Any proposed development or rezoning within a 400m radius of a Sydney Water Sewage Treatment Plant
- Planning strategies
- Any proposed planning reforms or other general planning or development enquiries
- Planning Assessment Commission (PAC) consultation

If you have any queries or require further information, please contact Luke Kennington of the Urban Growth Branch on 02 9350 6066 or e-mail luke.kennington@sydneywater.com.au

Yours sincerely

Sharon Davies
Manager, Urban Growth Strategy and Procurement

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WOLLONDILLY SHIRE COUNCIL

Our Reference: 1147 GR:AD

MAJOR INFRASTRUCTURE ASSESSMENTS RECEIVED 28 APR 2009 NSW Department of Planning

Director – Major Infrastructure Assessments
Department of Planning
GPO Box 39
SYDNEY NSW 2001

24 April 2009

Dear Sir/Madam,

MP 08_0077 – MAJOR PROJECT: LEAFS GULLY GAS-FIRED POWER STATION

Reference is made to the above described major project application, currently on public exhibition. Wollondilly Shire Council, by resolution at its ordinary meeting of 20 April, 2009, objects to the proposal.

Council submits that the proposal is unacceptable and should be refused for the following reasons:

(a) The site is unsuitable for the development
(b) The proposal would result in unacceptable impacts on the environment particularly with regard to air quality, public health and land stability.
(c) The proposal would significantly decrease the values of surrounding lands.

Council also resolved to formally request that this matter, being controversial as it is, be subject to a commission of enquiry.

Finally, Council further resolved to request that, in the unfortunate event the Department of Planning intends to support the proposal, Council be given opportunity to comment on any conditions of consent prior to the matter being finally determined.

A written response is requested to the specific issues raised in this and other submissions received during the public exhibition process be provided and then further opportunities for comment be provided prior to the final determination.

Should you have any questions regarding this matter please contact me on 4677 1170.

Yours faithfully,

Ally Dench
ASSISTANT GENERAL MANAGER

All Correspondence to PO Box 21 Picton NSW 2571
62-64 Menangle Street Picton **DX:** 26052 Picton **Phone:** 02 4677 1100 **Fax:** 02 4677 2339
Email: council@wollondilly.nsw.gov.au **Web:** www.wollondilly.nsw.gov.au **ABN:** 93 723 245 808

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MAJOR INFRASTRUCTURE ASSESSMENTS
RECEIVED
29 APR 2009
NSW Department of Planning

2 February 2007

Leafs Gully Power Project Submissions
Critical Infrastructure and Special Projects
NSW Department of Planning
GPO Box 39
SYDNEY NSW 2001

Dear Mr Jeffries,

Attn: Ingrid Ilias

RE: Proposed Leafs Gully Gas Turbine Power Station, Appin Road, Gilead (Application 06_0117)

I refer to your Major Project exhibited from 20 October 2006 to 18 December 2006, inviting Sydney Water to comment on the proposed Leafs Gully Gas Turbine Power Station, located at 555-557 Appin Road, Gilead (MP 06_0117). The project includes:

- Plant comprising four gas turbines, generators and ancillary plant;
- High voltage switchyard with transformer and circuit breakers;
- Security fencing and gatehouse;
- Control room, administration, amenities, car parking and workshop facility;
- Sedimentation pond and associated earth bund and diversion dam;
- Air compressor plant;
- Switchroom;
- Emergency generator and transformers;
- Landscaping;
- Evaporation pond to accommodate wastewater discharges; and
- Construction of internal roads.

Sydney Water has reviewed the information provided for this proposal, and provides the following comments for the Department's consideration.

Connection to the Macarthur Pipeline
The Macarthur Water pipeline is owned and operated by Macarthur Water Pty Ltd (this is referred to as United Utilises in the Environmental Assessment) under a Build Own Operate (BOO) contract with Sydney Water. This critical pipeline provides potable water to in excess of 200,000 people in the greater Campbelltown region. The proposed connection to the pipeline requires permission from Sydney Water and Macarthur Water Pty Ltd.

Sydney Water and AGL have been discussing the requirements and arrangements necessary to ensure that the proposed development may connect to the Macarthur Water

If you have any queries or require further information, please contact Annie Manson of the Urban Growth Branch on 02 9350 5243 or email Annie.Manson@sydneywater.com.au.

Yours sincerely

Andrew Jackson,
Manager, Strategic Market Analysis

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Fax to:	Scott Jeffries	of:	Department of Planning
Fax no:	9228 6366		
From:	Joe Woodward	of:	Department of Environment and Climate Change
Phone:			
cc:			
Date:	1 May 2009	No of pages (including this page): 11	

RE: Leafs Gully Gas Turbine Power Station

Hi Scott,

Please find following advice from the Department of Environment and Climate Change regarding the Leafs Gully Gas Turbine Power Station proposal.

A hard copy will follow in the mail.

Regards

Alison

A. Coleman
1/5/09

PO Box A290 Sydney South NSW 1232
59-61 Goulburn St Sydney NSW 2000
Tel: (02) 9995 5000 Fax: (02) 9995 5999
TTY (02) 9211 4723
ABN 30 841 387 271
www.environment.nsw.gov.au

Department of **Environment & Climate Change** NSW

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Our reference: WO786/12:DOC09/9090:GN
Contact: Greg Newman, (02) 4224 4100

Department of Planning
Major Developments Assessment Unit
(Attention: Mr Scott Jeffries)
GPO Box 39
SYDNEY NSW 2001

30/4/09

Dear Mr Jeffries

I refer to the Project Application, Environmental Assessment and accompanying information provided for the Leafs Gully Gas Turbine Power Station proposal which was received by the Department of Environment and Climate Change (DECC) on 25 February 2009.

DECC has reviewed the information provided and supports the proposal subject to the recommended conditions of approval included in Attachment 1 and the additional Statements Of Commitments (SOCs) sought in Attachment 2.

I request an opportunity for DECC to review the draft Director-General's Environmental Assessment Report for this proposal. The proponent will also need to make a separate application to DECC to obtain an Environment Protection Licence (EPL) should project approval be granted. If approved, DECC would intend to use the recommended conditions of approval in developing an EPL.

DECC does not accept the proposed alternative method to assess low frequency noise. The current method specified in the Industrial Noise Policy has been reviewed by industry and community representatives and approved by Cabinet as a "whole of government" policy. Therefore it is not appropriate for the Department of Environment and Climate Change to accept other methods such as that specified in the Environmental Assessment without stakeholder consultation, and further policy development if necessary. DECC is happy to consider any reference material the proponent may wish to provide in relation to this matter, which will be taken into account when the Industrial Noise Policy is next reviewed. Correction factors for low frequency noise, as specified by the Industrial Noise Policy have been included in the attached recommended approval conditions.

Should you have any queries in relation to this matter, please call Greg Newman on (02) 4224 4100 in the DECC Wollongong Office.

Yours sincerely

JOE WOODWARD
Deputy Director General
Environment Protection and Regulation

Att: 1. DECC Recommended Conditions of Approval
2. Recommended Amendments to the Draft Statement of Commitments

cc: AGL Energy Limited
(Attention: Steven Jackson)
Locked Bag 1837
ST LEONARDS NSW 2065

PO Box A290 Sydney South NSW 1232
59-61 Goulburn St Sydney NSW 2000
Tel: (02) 9995 5000 Fax: (02) 9995 5999
TTY (02) 9211 4723
ABN 30 841 387 271
www.environment.nsw.gov.au

Attachment 1

Leafs Gully Gas Turbine Power Station

Recommended Conditions of Approval

Administrative Conditions

A1 Information supplied to the EPA

A1.1 Except as expressly provided by these recommended conditions of approval, works and activities must be carried out in accordance with the proposal contained in:

1. Project application for Leafs Gully Gas Turbine Power Station, Project Application Number 08_0077.
2. DECC correspondence dated 15 January 2008 (DOC08/60571), 28 November 2008 (DOC08/49350),12 December 2007 (DOC07/51044), and 9 December 2008 (DOC08/57743).

Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air or water from the point.

EPA Identification No	Type of Monitoring Point	Type of Discharge Point	Description of Location
1	Air emissions monitoring	Discharge to Air	Stack Serving Turbine 1
2	Air emissions monitoring	Discharge to Air	Stack Serving Turbine 2

Note 1: A Site Map must be provided with the Environment Protection Licence (EPL) application identifying the location of the new discharge and monitoring point.

P2 Air

Stack Sampling Positions

P2.1 The proponent must ensure that the design and construction of the facility includes sampling positions that comply with TM-1 as set out in the *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW*

Approved Fuels

P2.2 Natural gas is the only fuel approved for firing of the power station turbines.

P3 Water

P3.1 The design capacity of the sedimentation pond must be designed to handle the 85th percentile storm depth.

Limit Conditions

L2 Air

Emission Limits

L2.1 For each monitoring/discharge point specified in the table below the emission of a pollutant discharged at that point must not exceed the emission limits specified for that pollutant in the table.

Points

Emission Point(s)	Pollutant	Units of measure	100 percentile concentration limit	Reference conditions
1	Nitrogen dioxide (NO_2) or nitric oxide (NO) or both, as NO_2 equivalent	milligrams per cubic metre	51	Dry, 273 K, 101.3 kPa, 15% oxygen (O_2)
2	Nitrogen dioxide (NO_2) or nitric oxide (NO) or both, as NO_2 equivalent	milligrams per cubic metre	51	Dry, 273 K, 101.3 kPa, 15% oxygen (O_2)

L2.2 The concentration limits prescribed in Condition L2.1 above do not apply to the emissions from an individual turbine during the following periods:

(a) a start-up period – that is, while a turbine is being brought up to normal operation following a period of inactivity; or

(b) a shutdown period – that is, while a turbine is being taken out of service from normal operation to inactivity.

- **Note 1:** While the concentration limits specified in Condition 1 do not apply during start-up or shut down periods, the proponent is subject to the requirements of section 128 (2) of the *Protection of the Environment Operations Act* in relation to the prevention and minimisation of air pollution.
- **Note 2:** Condition 2 only applies to an individual turbine during a start-up or shut down period for that turbine. The concentration limits specified in Condition 1 continue to apply to the other turbine if it is operational during these periods.
- **Note 3:** Emissions from start-up and shut-down periods must be included in Load Based Licensing assessable pollutant load calculations.

L3 Water

L3.1 Except as expressly provided by an Environment Protection Licence for the project, the Proponent shall comply with Section 120 of the Protection of the Environment Operations Act 1997 which prohibits the pollution of waters.

L3.2 There must be no discharge to groundwater or surface waters from the evaporation pond.

L3.3 Process wastewater; wastewater generated from equipment washing, cleaning, or maintenance; or contaminated water from bunded areas must be discharged to the evaporation pond unless otherwise agreed in writing by the EPA.

L4 Noise Limits

L4.1 Noise from the premises must not exceed the sound pressure level (noise) limits presented in the Table below. Note the limits represent the sound pressure level (noise) contribution, at the nominated receiver locations in the table.

Noise Limits (dB(A))

Noise Assessment Location	Day	Evening	Night	
	$L_{Aeq(16\ minute)}$	$L_{Aeq,\ (15\ minute)}$	$L_{Aeq,\ (15\ minute)}$	$L_{A1,\ (1\ minute)}$
The closest, or potentially most affected noise sensitive receiver location(s)	35	35	35	45

L4.2 For the purpose of Condition 6.1:

- Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays,
- Evening is defined as the period from 6pm to 10pm
- Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays

L4.3 Noise from the premises is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of the dwelling where the dwelling is more than 30 metres from the boundary, to determine compliance with the noise level limits in Condition L4.1 unless otherwise stated.

L4.4 Noise from the premises is to be measured at 1m from the dwelling façade to determine compliance with the $L_{A1\ (1\ minute)}$ noise level in L4.1.

Where it can be demonstrated that direct measurement of noise from the premises is impractical, the DEC may accept alternative means of determining compliance. See Chapter 11 of the NSW Industrial Noise Policy.

The modification factors presented in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.

L4.5 The noise emission limits identifies in condition L4.1 apply under meteorological conditions of:

- Wind speed up to 3m/s at 10 metres above ground level; or
- Temperature inversion conditions of up to 3°C/100m and wind speed up to 2m/s at 10 metres above the ground.

Construction

L4.6 All construction work at the premises must be conducted between 7am and 6pm Monday to Friday and between 8am and 1pm Saturdays and at no time on Sundays and public holidays, unless inaudible at any residential premises.

L5 Load Limits

L5.1 The Project will be incorporated into the Load Based Licensing scheme under the fee based classification, *Electricity Generation – Coal and Gas.*

Note: The EPA Load Based Licensing Load Calculation Protocol lists the following assessable pollutants under this activity: air – oxides of nitrogen; water – total suspended solids and salt.

L6 Potentially Offensive Odour

L6.1 The licensee must not cause or permit the emission of offensive odour beyond the boundary of the premises.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

L6.2 No condition of this licence identifies a potentially offensive odour for the purposes of Section 129 of the Protection of the Environment Operations Act 1997.

Operating Conditions

Bunding

O1 All liquid chemicals, fuels and oils must be stored in containers inside suitable bund(s). Bund(s) are to be designed, constructed and maintained in accordance with EPA Technical Guidelines "Bunding and Spill Management".

Waste

O2 All wastes generated or stored at the premises must be assessed, classified and managed in accordance with the *DECC Waste Classification Guidelines (2008)*, or any other EPA document superseding this guideline.

Monitoring and Recording Conditions

M1 Air

Requirement to monitor concentration of pollutants discharged

M1.1 For each monitoring/discharge point specified below, the proponent must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The proponent must use the sampling method, units of measure and sample at the frequency, specified opposite in the other columns:

Monitoring Point(s)	Pollutant	Units of measure	Frequency	Sampling Method
Stack serving turbine 1 and Stack serving turbine 2	Nitrogen dioxide (NO_2) or nitric oxide (NO) or both, as NO_2 equivalent	milligrams per normalised cubic metre	Continuous	CEM-2

Note: The sampling methods set out in the above table are those specified in the *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW*.

M3 Noise Monitoring

M3.1 Noise from the development must be monitored via attended noise surveys at the closest, or potentially most affected noise sensitive receiver location(s). Noise monitoring must be undertaken annually during the first two years of operation. The requirements for ongoing annual monitoring will be determined by EPA, in consultation with the Proponent, based on the results collected.

Special Conditions

E1. Long Term Air Emission Benchmark – Operation

E1.1. The purpose of this condition is to ensure the long term proper and efficient operation of the turbines based on emission performance achieved in practice.

E1.2. By at least 12 months from the end of commissioning, but not longer than 24 months, the proponent must submit a report to the EPA proposing an annual average nitrogen oxides emission benchmark for the turbine stack(s) per the table below. The annual average emission benchmark will reflect the average performance of the power station during normal operation and the proper and efficient operation of the turbines. The benchmark will also:

i. be derived using NO_x emission data from the Continuous Emissions Monitoring Systems for the turbine stack(s);
ii. be determined following the collection of a NO_x concentration dataset that is sufficient to represent the likely longer term operating patterns of the power plant;
iii. take into account the variation of NO_x concentrations at different generating loads;
iv. recognise that generating load patterns may vary from year to year due to differences in electricity market demands and include an appropriate allowance for this variation; and
v. include provision for the probable increase in NO_x emissions with time due to reasonable wear and tear of the power plant.

Emission Point(s)	Pollutant	Units of measure	Emission Benchmark	Averaging Period (note 1)	Reference conditions
Stack serving turbine 1	Nitrogen dioxide (NO_2) or nitric oxide (NO) or both, as NO_2 equivalent	milligrams per cubic metre	TBD (note 2)	Annual Average	Dry, 273 K, 101.3 kPa, 15% oxygen (O_2)
Stack serving turbine 2	Nitrogen dioxide (NO_2) or nitric oxide (NO) or both, as NO_2 equivalent	milligrams per cubic metre	TBD (note 2)	Annual Average	Dry, 273 K, 101.3 kPa, 15% oxygen (O_2)

Note 1: The annual average benchmark applies over each reporting period as defined in the Environment Protection Licence.

Note 2: If the emission benchmark in the table above is exceeded, the proponent must provide an initial report to EPA within 1 month and an action plan within 3 months of the exceedance. The action plan will include:

i. a review of all practicable measures to reduce NOx emissions,

ii. an evaluation of the marginal cost of incremental NOx reductions and;

iii. proposed modifications to plant / operation that produce NOx reductions consistent with i and ii above.

E2. Evaporation Pond Water Cycle Management Plan

The proposed development site is situated in a drinking water catchment area adjacent to the Nepean River and in a *high groundwater vulnerability area* (as classified by *NSW*

Government Natural Resource Atlas). The evaporation pond will be used to store wastewater from the power station containing salts and antifouling chemicals, and other consituents from the cleaning and maintenance of the equipment.

The objective of this condition is to

- detail the design, operation, and ongoing management of the evaporation ponds
- demonstrate there will be no discharge from the evaporation ponds to waters or groundwater.

E2.1 Prior to the commencement of construction a Water Cycle Management Plan for the evaporation pond must be submitted to the EPA that must include, but may not be limited to:

i. a description of how all water and wastewater streams are managed on the premises.
ii. a description of all of the likely constituents of the wastewater to be discharged to the evaporation pond including biocides and antifoulants
iii. a demonstration that the capacity of the evaporation pond(s) will be sufficient to manage blow down water and any other process or cleaning water to maintain freeboard capacity and to operate without discharge under a range of operational scenarios and climatic conditions as represented by local historical rainfall and evaporation data. This must include daily or monthly time-step modelling of pond behaviour under typical median, dry and wet years.
iv. details on how the evaporation pond(s) will be designed to permit any waste solids/sludge to be periodically collected, classified against the EPA Waste Classification Guidelines 2008, and appropriately disposal of (e.g. through being sized sufficiently to allow periodic drying-out of the pond, pumping water between ponds, etc).
v. details on stormwater management including the sediment pond design capacity and a management regime to ensure there is no discharge causing pollution of waters.
vi. The results of the groundwater field investigations undertaken by the proponent to characterise local groundwater conditions and identify any site constraints.
vii. Recommendations, considering all of the above, for the ongoing management of the evaporation pond to ensure no discharge to waters or groundwater.

Note: In consultation with the Proponent, the EPA may use this Plan to develop water and / or groundwater monitoring conditions for the EPL if required.

E3. Notification of Commissioning Schedule

E3.1 Prior the commencement of commissioning the proponent must notify the EPA in writing of the proposed timing of commissioning the Power Station and how all plant and equipment will be brought on line to ensure compliance with all relevant environment protection requirements.

E4 Air Quality Verification

E4.1 By three months following the end of commissioning the Proponent must submit an Air Quality Verification Report which includes but need not be limited to air emissions monitoring results (including test methods and full results) to confirm that the emissions performance of each turbine is consistent with the emissions used in air quality modelling for Environmental Assessment of the power station. The monitoring required by this condition is set out in the following table:

Monitoring Point(s)	Pollutant	Units of measure	Sampling Method
Stack serving turbine 1 and Stack serving turbine 2	Carbon monoxide (CO)	milligrams per normalised cubic metre	TM-32
	Dry gas density	kilograms per cubic metre	TM-23
	Fine particles (PM_{10})	milligrams per normalised cubic metre	OM-5
	Moisture content	percent	TM-22
	Molecular weight of stack gases	grams per gram mole	TM-23
	Nitrogen dioxide (NO_2) or nitric oxide (NO) or both, as NO_2 equivalent	milligrams per normalised cubic metre	TM-11
	Oxygen (O_2)	percent	TM-25
	Speciated organic compounds	milligrams per normalised cubic metre	TM-34
	Sulfur dioxide (SO_2)	milligrams per normalised cubic metre	TM-4
	Temperature	degrees Celsius	TM-2
	Velocity	metres per second	TM-2
	Volumetric flowrate	cubic metres per second	TM-2

Note: The sampling methods set out in the above table are those specified in the *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW.*

E4.2 The monitoring required by Condition E5.1 must be undertaken at such time(s) as is necessary to provide an adequate characterisation of the emissions from each turbine during normal operation.

E5 Noise Compliance Verification

E5.1 By twelve months following the end of commissioning the Proponent must submit a report to the EPA of a noise monitoring program. The report must confirm the findings of the Noise Impact Assessment included in the Environmental Assessment, and demonstrate compliance with Condition L4. The assessment must be prepared by a suitably qualified and experienced acoustical consultant and undertaken in accordance with the EPA Industrial Noise Policy.

E5.2 If the noise monitoring identifies any non-compliance with the Condition L4, the Proponent must detail what additional measures will be implemented to ensure compliance, clearly indicating who would implement these measures, when these measures would be implemented, and how the effectiveness of these measures would be measured and reported to the EPA.

Attachment 2

Leafs Gully Gas Turbine Power Station

Recommended Amendments to the Draft Statement of Commitments

DECC seeks the following revisions to the Draft Statement of Commitments (SOCs)

Aboriginal Heritage

- SOC L1 should read: "Undertake a program of archaeological subsurface testing across LGPAD1 with the aim of determining the nature, extent and significance of any Aboriginal objects present. The draft Guidelines ..."

- SOC L2 should read: "~~If necessary~~, development impacts to identified heritage values will be mitigated through documented appropriate management strategies."

- An additional SOC to undertake the subsurface testing excavation (as referenced in Appendix M of the EA) in accordance with the Draft DECC *Aboriginal Cultural Heritage – Sandards and Guidelines Kit, 1997.*

  Comment
  As referenced in the above Guidelines, hand excavation is the preferred methodology accompanied by adequate depth recording (i.e., hand excavation of uniform pits in spits, with each spit satisfactorily recorded). The methodology should be in line with other commonly used excavation methodologies. The testing programme should also include at least one open area excavation. Post-excavation analysis should incorporate geomorphological information and dating analysis where possible as well as robust lithic analysis in line with other analyses in the Metropolitan Region.

- SOC L4 should be modified to read: The CEMP would be developed and implemented addressing heritage issues.

  The CEMP will:
  - be informed by the results of the subsurface testing program
  - consider development impacts on ACH sites
  - be developed in consultation with the Aboriginal community and the DECC
  - detail the management strategies to be followed in the event that an aboriginal or non aboriginal relic is uncovered during construction

Air Quality

- SoC C5 should be strengthened to require construction dust impacts to be <u>minimised</u> rather than to be 'controlled".

Threatened Species

Comment
The site for the proposed facility contains considerable stands of remnant vegetation which adjoins the Nepean River. The remnant vegetation is dominated mostly by the Endangered Ecological Community (EEC) Shale Sandstone Transition Forest (some River Flat Eucalypt Forest). In addition the EA lists a number of new sightings of *Pultenea pedunculata* which is listed as endangered under the TSC Act.

The EA states that the proponent agrees to permanently conserve vegetation in a Conservation Area and develop a protection mechanism (such as a Voluntary Conservation Agreement or Biobanking Agreement) and accompanying management plan in consultation with the DECC, subject to consent. This Potential Conservation Area is shown in Figure 4-11 of the EA and incorporates a Pultenea Recovery Area. The existing SOC regarding the conservation area should, however, include a clear timeframe. The Department suggests the existing SOC be amended to include the following:

- The land identified for the conservation area will be secured for long term conservation through a means agreed to by the DECC in consultation with the Proponent within 12 months of the commencement of construction

DECC also recommends the SOC be amended to reflect the following:

- The Plan of Management for the conservation area (incorporating the Pultenea Recovery Area) should be prepared by an appropriately qualified bush regeneration contractor or ecological consultant in consultation with the DECC prior to undertaking any works.
- The SOC proposes low intensity ecological burns to assist in recovery of Pultenea. We advise there is little scientific information on this species ability to recover from fire. DECC recommends SOC H5 be amended to investigate the use of low intensity burns within the area (excluding the location of the *Pultenea pedunculata* record) to facilitate germination from the seed bank.

There are areas of land on the project site, but outside the Conservation Area that also contain significant biodiversity values, including the presence of the State and Nationally listed EEC Shale Sandstone Transition Forest. Any future action, development or activity in these areas will need to be appropriately assessed through the relevant Commonwealth and State approvals process to determine whether it is likely to significantly affect threatened species, populations or ecological communities, or their habitats.

Water Management – Soil Erosion

The existing SOC regarding the Water Management – Soil Erosion should include a specific requirement for a soil and water management plan which may be included as part of the CEMP. The Department suggests the following wording be considered in modifying the existing SOC.

- Prior to the commencement of construction a Construction Soil and Water Management Plan (SWMP) will be prepared. The SWMP will include but may not be limited to:

i. details on how soil erosion and sediment pollution will be managed following the guidelines and recommendations in Volume 1 of *Managing Urban Stormwater: Soils and Construction* (the Blue Book) during the construction phase;
ii. plan drawings showing the locations for sediment and erosion measures in accordance with (i) for the construction site during all construction stages;
iii. details on the installation, monitoring and maintenance requirements for each of the recommended measures for erosion and sediment control;
iv. detailed drawings of any engineering structures such as sediment and evaporation ponds, including design standards and management regimes.

DEFINITIONS

In these General Terms of Approval except in so far as the context or subject matter otherwise indicates or requires

"Commissioning" means the commencement of the initial firing of the gas turbines and ends when the power station is handed over to the owner. Commercial operation will follow the end of commissioning.

"dB(A)" means the units used to measure "A weighted " sound pressure levels. A-weighted is an adjustment made to sound level measurement to approximate the response to the human ear

"EPL" means Environment Protection Licence

"EPA" means the NSW Environment Protection Authority

"LAeq(15 minute)" means the equivalent continuous A weighted sound pressure level measured over a 15 minute period

"$L_{A1(1\ minute)}$ " means the sound pressure level that is exceeded for one per cent of the time when measured over a 1-minute period

"m/s" means metres per second

"m^3/s " means meters cubed per second

"Proponent" means AGL Power Generation Pty Ltd

"°C" means degrees Celsius

"Kg/m^3" means Kilogram per cubic metre

"g/s" means grams per second

"mg/m^3" means milligrams per cubic metre

"POEO" means Protection of the Environment Operations Act 1997.

479

CAC 09M475

Director
Major Infrastructure Assessments
NSW Department of Planning
GPO Box 39
SYDNEY NSW 2001

Attention: Scott Jeffries

PROPOSED LEAFS GULLY GAS TURBINE POWER STATION (DA 08_0077)
CAMPBELLTOWN LOCAL GOVERNMENT AREA

Dear Scott,

I refer to your undated letter (your reference: 08_0077) received by the Roads and Traffic Authority (RTA) on 30 March 2009 with regard to the above-mentioned major infrastructure development, which was referred to the Roads and Traffic Authority (RTA) for comment.

The RTA has reviewed the traffic report submitted with the application and notes that the construction and operation of the proposed power station will involve vehicular access directly off Appin Road (classified state road) via a private access road.

Given that Appin Road is a high speed rural road environment, the RTA endorses the recommendation in the submitted traffic report that a Type 'CHR' intersection treatment be constructed for right turn movements into the private access road from Appin Road in order to enable southbound through traffic on Appin Road to safely and efficiently pass a stationary vehicle on Appin Road waiting to turn right into the subject site. In addition, the RTA also endorses the proposal to widen and seal the existing road shoulder on the western side of Appin Road on approach to the private access road.

However, road safety concerns are raised with regard to the tightness of a vehicle larger than 12.5 metres turning left from the northbound carriageway of Appin Road into the private access road. This is highly undesirable in a high speed rural road environment as drivers of articulated vehicles (ie semi trailers) are likely to track on to the wrong side of Appin Road when attempting to turn left into the private access road due to the tightness of this turn. The applicant's consultant has recognised this road safety issue and has recommended that a left turn prohibition be placed on this left turn movement by erecting a regulatory 'No Left Turn' sign at the driveway access facing northbound motorists on Appin Road. However, given that the private access road is not a public road, this sign is not legally enforceable.

To have this road safety concern satisfactorily addressed, the RTA requests the applicant submit the following information to the RTA for assessment:

1. A swept path plan of the largest vehicle (accessing the site) turning left into the access road from Appin Road overlayed on a survey plan.

2. A road safety audit shall be undertaken by an independent and certified road safety auditor, which examines this road safety issue and is to be submitted to the RTA for review.

To ensure that there is a solution to this road safety issue, it is preferable that this issue is addressed to RTA satisfaction, prior to the determination of the development application. However, if the Department does not deem this necessary, then at a minimum the above requirements should be provided as consent conditions to be addressed to the satisfaction of the RTA, prior to the issuing of any Construction Certificate.

Further to the above, the RTA provides the following requirements with regard to the civil works at the intersection of Appin Road and private access road, which are to be included in the development consent:

1. Type 'CHR' Treatment

In accordance with Figure 6.41 of Austroads "Guide to Traffic Engineering Practice Part 5 – Intersections at Grade", the warrant is met for the provision of a Type 'CHR' intersection treatment on Appin Road at the private access road intersection.

This Type 'CHR' treatment shall be designed and constructed in accordance with the RTA's Road Design Guide.

In addition, the RTA endorses the proposal in the submitted traffic report that a Type 'CHR' treatment also be provided for the farm driveway opposite (eastern side of Appin Road).

2. Road Shoulder

The road shoulder shall be sealed on the western side of Appin Road on approach to the private access road and shall be in accordance with the RTA's Road Design Guide.

3. Street Lighting

Due to the rural road environment of the Appin Road and private access road intersection, street lighting may be required at the intersection, which shall be at full cost to the applicant.

4. Works Authorisation Deed

The developer will be required to enter into a Works Authorisation Deed with the RTA. In this regard the developer is required to submit detailed design plans and all relevant additional information, as may be required in the RTA's Works Authorisation Deed documentation, for each specific change to state road network for the RTA's assessment and final decision concerning the work. This will include payment of fees and charges, well as the lodgement of a bond.

Comment: The developer is advised that the conditions of consent set by the consent authority do not guarantee the RTA's final consent to the specific road work, traffic control facilities and other structures works on the classified road network. The RTA must provide a final consent for each specific change to the state road network prior to the commencement of any work.

5. 'Construction Certificate'

The 'Construction Certificate' for the proposed development shall not be released until such time that the all roadworks on Appin Road are fully constructed and operational to RTA satisfaction.

6. Stormwater Drainage

Detailed design plans and hydraulic calculations of any changes to the stormwater drainage system are to be submitted to the RTA for approval, prior to the commencement of any works.

Details should be forwarded to:

The Sydney Asset Management
Roads and Traffic Authority
PO Box 973 Parramatta CBD 2124.

A plan checking fee will be payable and a performance bond may be required before the RTA's approval is issued. With regard to the Civil Works requirement please contact the RTA's Project Engineer, External Works Ph: 8814 2114 or Fax: 8814 2111.

7. Utility Relocation

The developer shall be responsible for all public utility adjustment/relocation works, necessitated by the above work and as required by the various public utility authorities and/or their agents.

8. Over Size and Over Mass Vehicles

No over dimensional and/or over mass road transport convey is to take place unless the applicant obtains a special permit from the RTA.

The applicant is advised to email the RTA at special_permits_unit@rta.nsw.gov.au to obtain information with regard to the process in obtaining a special permit from the RTA.

9. Cost of Road Works

All costs associated with the above-mentioned works, shall be at full cost to the developer.

Any inquiries in relation to this development application can be directed to the undersigned on telephone 8849 2047.

Yours sincerely,

James Hall
A/Senior Land Use Planner
4 May 2009

Koala Outcomes Response

Appendix C

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Steven Jackson
AGL

7 May 2009

ECO LOGICAL AUSTRALIA PTY LTD
ABN 87 096 512 088
www.ecoaus.com.au

Dear Steven,

RE: Leafs Gully Power Plant & SEPP44

This letter responds to comments by Campbelltown City Council in their letter of 22 April 2009, specifically item 3, State Environmental Planning Policy 44 – Koala Habitat Protection (SEPP44), where Council requests clarification as to *'whether the site constitutes "Core Koala Habitat" in accordance with SEPP 44'*.

Council's letter notes that the ecological community, Shale Sandstone Transition Forest (SSTF), occurs on the Leafs Gully site. Council identifies the importance of this vegetation community, as female koalas with access to vegetation on soils derived from shale substrates (including SSTF), have been found to have higher fertility rates than female koalas who only have access to vegetation derived from sandstone-based substrates. Council further notes that the SSTF has been found to have the highest relative koala exploitation rate of any vegetation community in the Campbelltown region. I concur that SSTF is present at the Leafs Gully site, and that this vegetation has value to Campbelltown region koalas.

The 'Project Review: Koala Outcomes' report does consider outcomes for koala management as a result of the proposal. Overall, the proposal was considered to be beneficial to koalas due to the proposed retention and conservation of SSTF, and based on the understanding that 170ha will be the subject of a conservation covenant, and the rehabilitation or planting of cleared or degraded areas will occur. Comment on the SEPP44 status of the site was outside of the scope of the brief for this report.

I also note that for lands committed to conservation, the usual practice is to prepare a Plan of Management identifying proposed management actions and the funding commitment required. A 'Koala Plan of Management' is required for development applications under Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act), if a site is identified as being 'core koala habitat' under SEPP44.

Guidelines identify the following matters to be addressed in individual Koala Plans of Management:

i) an estimate of population size;

ii) identification of preferred feed tree species for the locality and the extent of resource available;

iii) an assessment of the regional distribution of koalas and the extent of alternative habitat available to compensate for that to be affected by the actions;

iv) identifications of linkages of Core Koala Habitat to other adjacent areas of habitat and provision of strategies to enhance and manage these corridors;

v) identification of major threatening processes such as disease, clearance of habitat, road kill and dog attack which impact the population;

vi) provision of detailed proposals for amelioration of impacts on koala populations from any anticipated development within zones of Core Koala Habitat;

vii) identification of any opportunities to increase size or improve condition of existing Core Koala Habitat.

The matters identified for individual Koala Plans of Management could potentially be addressed as part of a Plan of Management for the 170ha of conservation lands identified. Such a document could draw on the Draft Campbelltown Comprehensive Koala Plan of Management, and published research for the Campbelltown.

Regards,

Dr Steven Ward