# PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

# 1. Information on proponent and person making Referral

Name of Proponent:	Snowy Hydro Limited
Authorised person for proponent:	Ian Smith
Position:	Environmental Planning Coordinator – Gas Projects
Postal address:	P.O. Box 332, Cooma, NSW, 2630
Email address:	Ian.Smith@snowyhydro.com.au
Phone number:	02 6453 2204
Facsimile number:	02 6453 2046
Person who prepared Referral:	Seiko Toki
Position:	Environmental Planner
Organisation:	Sinclair Knight Merz Pty Ltd
Postal address:	P.O. Box 2500, Malvern VIC 3144
Email address:	stoki@skm.com.au
Phone number:	03 9248 3301
Facsimile number:	03 9248 3400
Available industry & environmental expertise: (areas of 'in-house' expertise & consultancy firms engaged for project)	Snowy Hydro Snowy Hydro has in-house experience in planning and managing major civil, electrical and mechanical projects, and experience specific to gas generation projects. Snowy Hydro currently owns and operates the 300MW Valley Power gas fired station, and the 320MW gas fired station which is the subject of this proposal. Areas of expertise include project management, engineering design, and relevant environmental areas including environmental management, greenhouse gas assessment, ecology, cultural heritage, and contaminated land management. Sinclair Knight Merz Pty Ltd (SKM) SKM is a multi-disciplinary consulting company with various EES expertise and experiences. For this particular EES Referral and associated assessments, SKM conducted project management and assessments of air quality, greenhouse gas, noise, cultural heritage, and planning-related issues.
	Integral – Landscape Architecture & Visual Planning Integral is a landscape architectural practice that specializes in visual assessment of infrastructure projects. For this project, Integral assessed the existing visual environment and the visual character of the development, including assessment of photomontage to determine visual impact and the need for visual amelioration treatment.

# 2. Project - brief outline

# Project title:

Snowy Hydro Laverton North Power Station (LNPS) Combined Cycle Gas Turbine (CCGT) Augmentation

**Project location:** (describe location with AMG coordinates and attach A4/A3 map(s) showing project site or investigation area, as well as its regional and local context)

The subject site is comprised of two sites, the existing LNPS at 147-161 Cherry Lane, Laverton North, and the site opposite at 136-142 Cherry Lane.

The CCGT augmentation works are proposed at the 147-161 Cherry Lane site which is approximately 16 kilometres west of Melbourne's Central Business District. The site is included in an Industrial 2 Zone (IN2Z) of the Wyndham Planning Scheme and is bound to the rear (south east) by the Princess Freeway (in bound) as shown in Error! Not a valid result for table.. The AMG coordinates of the site centre is 305358E, 5809166N.

The site at 136-142 Cherry Lane, located the north of the power station site across Cherry Lane, will be used as a constriction lay-down area. This site is included in an Industrial 3 Zone (IN3Z) of the Wyndham Planning Scheme.

**Figure 2** shows the subject site boundaries and surrounding area. Both power station site and construction lay down area are largely devoid of vegetation with the exception of a linear landscaped area fronting the Princes Freeway.

The power station site is bounded to the rear (south east) by the Princes Freeway (in bound). The land to the north and west of the Princes Freeway is also included in an IN2Z and has been developed for large warehouse and industrial manufacturing plants (Smorgon Steel Mill, IGA Distribution, Patrick Logistic and Autocare, Suzuki and SP AusNet Altona Power Station).

#### Short project description (few sentences):

Snowy Hydro is proposing to upgrade the Laverton North Power Station (LNPS) by converting both of the existing Open Cycle Gas Turbines (OCGTs) to Combine Cycle Gas Turbines (CCGTs). This involves the addition of a Heat Recovery Steam Generator (HRSG) to each of the two existing OCGT facilities and the addition of a Steam Turbine Generator (STG) set, and an Air Cooled Condenser (ACC).

The heat energy in the turbine exhausts, which is released to the atmosphere in the current open cycle plant configuration, will be recovered in the HRSGs and used to raise steam which in turn will be used to drive the STG and generate additional electricity. Installation of this equipment will "close the cycle" on the existing gas turbines, thereby creating a 430- 480 MW combined cycle gas fired power plant.

The new CCGT facility will have a capability to operate in open-cycle mode (i.e. without the HRSGs). In this case the air emissions would be directed into the two existing stacks which, after conversion to CCGT, would be referred to as "bypass stacks."

# 3. Project description

Aim/objectives of the project (what is its purpose / intended to achieve?):

The aim of this project is to augment the existing power station at 147-161 Cherry Lane, Laverton North to be able to operate in combined cycle mode, increasing the net generating capacity by between 110MW and 160MW. This proposed augmented power station will contribute to Victorian energy needs, while reducing greenhouse gas emission intensity.

Background/rationale of project (describe the context / basis for the proposal, eg. for siting):

The proposed augmentation works will enable Snowy Hydro to secure additional cost effective energy capability to support its own internal energy risk management needs, to meet external customer demand for energy intensive products, and assist Victorian electricity supply-demand requirements.

Siting of the project is dictated by the location of the existing LNPS. As the proposal is an augmentation to this station the proposed works can only be located immediately adjacent to the existing station, and within the current site boundaries as neighbouring land are roadways or occupied by other industry.

The site's Waste Discharge Licence No. EA 62044 issued on 30 April 2007 required consideration of combined cycle operation should a capacity factor of 10% be exceeded in any 12 month reporting period. This was completed through a pre-feasibility study from which the project presented was developed. The licence also required that the feasibility assessment consider appropriateness of technology. To this end an assessment of greenhouse gas intensity and a comparative assessment of dry and wet cooling options have been made in the greenhouse gas (GHG) specialist study supporting this application. This study also demonstrates the comparative energy efficiency of the proposed combined cycle operation in the context of other fossil fuel electricity generation facilities.

In the 2007 Statement of Opportunities (SOO), the National Electricity Market Management Company (NEMMCO) concluded that, based on its supply-demand outlook, low reserve conditions will be triggered in 2010/11 in Victoria and South Australia. Therefore reliability could be expected to fall below the Reliability Standard in 2010/11 in these regions if no additional capacity was made available to the market. NEMMCO predicts a reserve deficit of 105 MW at this time. The Laverton augmentation project is expected to be completed by 2010/11, and thereby will contribute to additional generation capacity available to Victoria. Further, the Minister for Energy and Resources has formally provided in-principle support for the project (**Appendix A**) based on the outcome of increased generation capacity by a more energy efficient generation process.

**Main components of the project** (nature, siting & approx. dimensions; attach A4/A3 plan(s) of site layout if available):

The augmentation will involve installation of the following equipment:

- 2 Heat Recovery Steam Generators (HRSGs), with associated ducting and diverter dampers from the gas turbines;
- Steam Turbines and Generator (STG) set;
- Air Cooled Condenser (ACC);
- Electrical infrastructure, including: transformers, high voltage connections, protection and controls; and
- Civil and structural works, support buildings, altered site access, and metering equipment.

The current expectation, based on available design information, is that the HRSGs will be located adjacent to the existing OCGT exhaust stacks, and the ACC will be located in the eastern corner of the site as shown in **Figure 4**. The HRSG stacks are proposed to be 50m high with stack-top diameter of 7.1m, while the ACC will consist of 25 fans and be 30m high with a footprint of 60m by 60m. 55m stacks have also been evaluated and have been put forward to EPA Victoria as a viable option to the 50m stack height.

**Ancillary components of the project** (eg. upgraded access roads, new high-pressure gas pipeline; off-site resource processing):

#### Access:

Access within the site is currently provided via a single crossover to Cherry Lane, located towards the north-western corner of the site, and access roads to the site will not be required to be upgraded during or after the works.

However, the existing Powercorp 22kV medium voltage power transmission line alongside the site on Cherry Lane may need to be relocated underground in the case that the cable presents an obstruction for the site construction works. If this is the case, the access through the site needs to be altered during construction works to enter the site from Cherry Lane at the north western corner, follow the boundary of the site (within the site),and exist to Cherry Lane at the north eastern corner.

#### **Car Parking:**

Existing car parking spaces will be relocated within the site boundary and additional spaces shall be provided for the expected increase in staff in accordance with Wyndham City Council's requirements.

#### **Cable Connection:**

Connection of a Combined Cycle Gas Turbines (CCGTs) with capacity of up to 200 MVA output to the network at Altona Terminal Station (ATS) owned and operated by SPAusnet will be required. This is expected to be a single connection via a step-up transformer from generator voltage, with one or two primary windings depending on the size of the steam turbine. It is also assumed that connection to ATS will be made via underground cables of suitable capacity. The current expected connection arrangement to ATS is installation of a 15.7/220kV 200MVA step-up transformer located in the north-east corner of the proposed Steam Turbine Generator (STG) site (adjacent to the structure for the gas reducing station). Installation of a new 220kV 200MVA cable from the CCGT generator transformer terminals, underneath Cherry Lane and into the 220kV switchyard at ATS. The new 220kV cable and generator transformer is to be single switched at the ATS 220kV switchyard in a similar manner to the existing arrangements, and to be similar in construction/installation to the existing 220kV cables from the Laverton GTs.

#### Gas pipeline:

The main high pressure gas pipe on site may need to be buried underground depending on the response from tenderers. The pipe runs above ground from the gas receiving station to each of the gas turbines. The current above-ground installation may cause an obstruction for site construction works.

#### Gas Supply:

The Corio loop of the Brooklyn to Lara-Iona South-Western transmission pipeline (SWP) is an associated activity, although independent to the proposed augmentation to CCGT, enabling gas supply for the CCGT station.

Currently, natural gas is supplied to the station by GasNet via a licensed high pressure branch pipeline. The pipeline is 350 mm diameter and approximately 1.6 km long and is owned and operated by GasNet. The branch is taken off the 500 mm Brooklyn to Lara-Iona South-Western transmission pipeline (SWP). The VENCorp Gas Annual Planning Report - 2006, identifies current limitations on the Brooklyn-Lara section of the SWP. This is being addressed by augmenting this section with the Corio Loop. The loop is a 57 km duplication of the pipeline between Brooklyn and Lara. It will increase SWP capacity by 87 TJ/d and line pack by 20-25 TJ. The looping work is scheduled to be completed prior to winter 2008.

## Key construction activities:

Key construction activities comprise:

- Burial of high pressure gas pipe and relocation of site services, breaking up of internal access road, earthworks and foundations to install a Heat Recovery Steam Generator (HRSG) next to the existing gas turbine bypass stacks;
- Replacement of part of the gas turbine bypass stacks to install a bypass damper;

- Construction of heat exchange modules, casing, ductwork, stack and insulation and cladding for the HRSG;
- Installation of steam turbine generator and Air Cooled Condenser (ACC);
- Installation of high pressure steam pipework from the HRSG to the steam turbine, low pressure steam pipework from the steam turbine to the ACC and return condensate from the ACC back to the boiler;
- Additional pipework to supply demineralised water from the existing demin water tank to the HRSG, blowdown pipework for discharge of water effluent from the boiler, possible modifications to the existing oil water separator to increased capacity for the additional amount of surface water run-off on the site;
- Installation of stormwater and drainage system for the new development and possible integration with the site's existing drainage
- New access roads for oil tanker deliveries and additional access gate in the north-eastern corner of the site;
- Additional car parking facilities;
- Electrical and I&C cabling works for the new plant, and between the existing control and switchgear building;
- Auxiliary electrical distribution for the new development;
- New administration, workshop and stores building;
- Relocation of some of the existing services such as diesel handling area, fin fan coolers for generator/lube oil systems, ignition gas skid, evaporative cooling skid; and
- Extension of fire water services to new development.

It is anticipated that the construction period would last approximately 20 months from design and manufacture to construction and commissioning. All major components including HRSG, STG and ACC be transported to site in modules or prefabricated, therefore onsite fabrication is expected to be limited to 6-8months.

The construction lay down area described previously will be used to temporarily store construction material, equipment and machinery associated with the proposed augmentation works.

The existing industrial building within the lay down area is to be used for the storage of general construction materials, equipment and machinery and to fabricate necessary components for the proposed buildings and works. The interior of the building may also be used to locate a temporary shed for construction purposes associated during the augmentation works. It is anticipated that minor alterations will be required to the existing building façade to ensure suitable access for delivery vehicles.

#### Key operational activities:

#### Plant Commissioning:

Plant Commissioning is expected to be conducted over approximately a 10 week period. The key operational activities during the plant commissioning include:

- Cold commissioning and mechanical checks to determine plant integrity prior to operation (e.g. rotation of pumps etc.);
- Pressure testing of boiler heat exchange modules, steam drums and pressure piping;
- Chemical cleaning of the boiler after pressure testing followed by steam blows to removed any debris;
- Electrical and instrument checks;
- Steam testing for quality;
- Start-up and testing of steam turbine bypass;
- Leakage testing of the ACC;
- Run-up and part load testing of the steam turbine;
- Full-load testing including plant trips (e.g. full load rejection);
- Reliability run (estimated to be 14 days); and
- Performance testing.

For the majority of the commissioning time, electricity will be generated whilst gas is being consumed. Preliminary estimates indicated that around 2000 TJ of gas will be required and around 200 GWh of electricity will be generated during the plant commissioning.

#### **Normal Operation:**

The augmented facility will be operated as an intermediate/peaking plant

Air is drawn into each gas turbine via an air filter and the pressure and temperature are raised by an air compressor. Then, the air will be mixed with high-pressure fuel and ignited to achieve combustion. Expansion turbines are caused to rotate as the hot exhaust gases expand past the vanes of the turbine and this rotation drives a single shaft powering electric power generators. In combined cycle mode, high temperature exhaust gases from the gas turbine passes to the Heat Recovery Steam Generator (HRSG) which uses the thermal energy in the exhaust gas to heat water and produce steam. The steam will be in turn used to drive the steam turbine generator set and generate additional electricity.

The new Combined Cycle Gas Turbine (CCGT) facility will also have a capability to operate in open-cycle mode (i.e. without the HRSGs). In this case the air emission from the gas turbines would be directed into the two existing stacks which, after conversion to CCGT, would be referred to as "bypass stacks."

The fuel used in both closed cycle and open cycle operation will be mainly natural gas with the capacity for distillate to be used as a backup fuel. It should be noted, however, that distillate is expected to be used less than 1% of the operating hours.

The capacity factor of the augmented power station will be up to 80% for closed cycle operation mode and 10% for open cycle operation mode. These are included as maximum capacity factors which may be reached as electricity demand requires. Likely capacity factor for operation of the CCGTs is expected to be between 30% and 80%.

Key decommissioning activities (if applicable):

Not applicable.

#### Is the project an element or stage in a larger project?

**X** No **Yes** If yes, please describe: the overall project strategy for delivery of all stages and components; the concept design for the overall project; and the intended scheduling of the design and development of project stages).

Is the project related to any other past, current or mooted proposals in the region? No Yes If yes, please identify related proposals.

## 4. Project alternatives

**Brief description of key alternatives considered to date** (eg. locational, scale or design alternatives. If relevant, attach A4/A3 plans):

As indicated in section 3, siting of the project is dictated by the location of the existing LNPS. As the proposal is an augmentation to this station the proposed works can only be located immediately adjacent to the existing station, and within the current site boundaries as neighbouring land are roadways or occupied by other industry. Consequently, there are no viable alternatives with respect to project location.

The preferred option comprises two side entry Heat Recovery Steam Generators (HRSGs) with a single Steam Turbine Generator (STG) set and Air Cooled Condenser (ACC). These are the principle components required for the augmentation. This alternative was selected from available options including vertical or horizontal HRSGs, aligned as side or end entry; one or two STGs, and dry or wet cooling. Alternatives considered to date are driven by the extremely constrained space available at the site, water availability, meeting emissions compliance requirements for air quality and noise. The alternative HRSG configurations (e.g. end entry) have been considered but these appear to be too long to fit within the site boundary. However, the choice of HRSG configuration will be made after selection of the contractor for the works.

Alternative HRSG exhaust stack heights were considered. A 50m stack height is initially proposed, however, a viable option of a 55m stack was identified during sensitivity testing for NOx ground level concentrations (GLCs). The height of 50m is determined based on the functional design requirements of the HRSG, noise attenuation treatment, environmental compliance for in stack monitoring ports, and an additional section to improve ground level concentrations (GLC) and allow for additional silencers if required. The height is comprised of the HRSG body, an outlet transition from the HRSG to the exhaust stack, and a section in the lower part of the stack for silencers. A further 10.5m length was added as per the EPA requirements for in stack monitoring ports and an additional 4.5m section added to allow for further noise attenuation treatments should they be required, and to improve the ground level concentrations predicted by air dispersion modelling. Sensitivity tests in this regard showed that additional improvement in GLCs is minimal above 55m.

Wet and dry cooling options were considered during the feasibility stage of the project. However, the high water requirement (approximately 4.2 GL per year assuming an 80% capacity factor) means that sufficient water is not available nearby to support a wet cooled system. The dry cooling system has a higher capital cost and performance of the plant is inferior when ambient temperatures are high. However, the dry cooled system does not require any make-up water supply as it is a fully sealed system.

Brief description of key alternatives to be further investigated (if known):

The tenderers will study different designs of HRSG that can fit within the site constraints and can offer the best performance. These designs will be detailed during the engineering stage of the project.

# 5. Proposed exclusions

Statement of reasons for the proposed exclusion of any ancillary activities or further project stages from the scope of the project for assessment:

There are no proposed exclusions as part of this assessment.

# 6. Project implementation

Implementing organisation (ultimately responsible for project, ie. not contractor):

**Snowy Hydro Limited** 

Implementation timeframe:

It is Snowy Hydro's intention to commence the augmentation works during 2010 and for the augmented plant to be in service in late 2011.

Proposed staging (if applicable):

This is not a staged project.

# 7. Description of proposed site or area of investigation

Has a preferred site for the project been selected?
$\times$ No $\times$ Yes If no, please describe area for investigation.
If yes, please describe the preferred site in the next items (if practicable).
<b>General description of preferred site,</b> (including aspects such as topography/landform, soil types/degradation, drainage/ waterways, native/exotic vegetation cover, physical features, built structures, road frontages; attach ground-level photographs of site, as well as A4/A3 aerial/satellite image(s) and/or map(s) of site & surrounds, showing project footprint):
The proposed project site is within the boundary of the existing peaking gas-fired power station at 147-161 Cherry Lane, Laverton North (see <b>Figure 2</b> ). The land has been significantly disturbed for the construction of existing power plant and is devoid of native/exotic vegetation (sees <b>Figure 5</b> ). Except approximately 0.7 hectare unused land, the site is covered by concrete.
The existing facility comprises two Siemens V94.2 Open Cycle Gas Turbines. The gas turbine facilities are located side by side towards the centre of the site as shown in <b>Figure 3</b> . Each turbine facility is at approximately $30 \times 22.5 \times 20$ metres in length, width and height, respectively. An exhaust stack for each turbine is positioned towards the site frontage with an approximate height of 30 metres. The diameter of the stacks is 6.2 metres.
Ancillary infrastructure to the OCGTs include power transformers, cooling fans, water and fuel tanks, gas yard and pipelines, a demineralised water treatment plant, fuel unloading facilities, a control room, an administration building, work shop and storage building, a car park and an internal road network.
There are no waterways though the sites, and no discharge from the sites occur directly into a natural watercourse. The land surface of the subject sites are level with drainage from 136-142 Cherry Lane occurring as stormwater. From the LNPS drainage and discharge is made in accordance with a Trade Waste Agreement with City West Water with those discharges directed into City West sewers.
The LNPS site is a hardstand area where the existing OCGTs are located. The disused area to the east of the site proposed to install the ACC has been significantly disturbed with topsoil mechanically removed and the area levelled. The proposed laydown area is a concreted site with no exposed soils. Further, there is no evidence of contamination at the site with a previous assessment conducted by Golder and Associates in 1997 and secondary assessment conducted for the original construction Works Approval (PB, 2004). No further incidents or activities at the site that could have introduced contamination.
For depictions of the current site refer to the ground level photographs included in Figure 5.
<b>Site area</b> (if known): 3.25 (hectares) including an electricity transmission easement to the west (~0.2 hectares), the power station (~2.35 hectares) and a currently unused area to the east (~0.7 hectares).
Route length (for linear infrastructure) NA (km) and width NA (m)

#### Current land use and development:

The subject site is occupied by a peak load gas-fired power station owned and operated by Snowy Hydro. The power station has a power generation capacity of 320MW which can be increased depending upon fuel type and load conditions. Electricity generated by the power station is transferred to the Altona Terminal Station located on the northern side of Cherry Lane via 220KV underground cables.

The existing facility comprises two OCGTs. An exhaust stack for each turbine is positioned towards the site frontage with an approximate height of 30 metres. The diameter of the stacks is 6.2 metres.

Ancillary infrastructure to the OCGTs include power transformers, cooling fans, water and fuel tanks, gas yard and pipelines, a demineralised water treatment plant, fuel unloading facilities, a control room, an administration building, work shop and storage building, a car park and an internal road network.

**Description of local setting** (eg. adjoining land uses, road access, infrastructure, proximity to residences & urban centres):

The subject site is located approximately 16 kilometres south-west of Melbourne's Central Business District in the Laverton North industrial precinct.

Access to the site is provided via a single crossover to Cherry Lane, located towards the north western corner. Electricity generated on the site is transferred via 220KV underground cables to the AltonaTerminal Station, which is located to the north-east of subject site at 126 Cherry Lane.

The site includes three easements as follows:

- An 11 metre wide electricity transmission easement located parallel to the western boundary in favour of SECV;
- A 2 metre wide sewerage easement located parallel to the north western boundary (Cherry Road frontage) in favour of City West Water Ltd; and
- A 2 metre wide drainage easement located parallel to the south eastern boundary.

The land to the north and east of the Princes Freeway is also within the industrial precinct and has been generally developed for large warehouses and industrial manufacturing plants (Smorgon Steel Mill, IGA Distribution, Patrick Logistic and Autocare, Suzuki and SP AusNet Altona Terminal Station).

The land to the immediate north and east of the site is included in an Industrial 3 Zone (IN3Z) of the Wyndham Planning Scheme and has been developed for smaller scale industrial, warehouses and distribution facilities. Directly across from the subject site in the IN3Z is 136-142 Cherry Lane which has recently been purchased by Snowy Hydro.

The Kaynes Drain abuts the western boundary of the subject site, connecting William Angliss Native Grassland Reserve (to the north) with Laverton Creek (to the south). On the south eastern side of the Princess Freeway are the Laverton Grassland and land in the Altona Special Industrial Areas (zoned Special Use Zone 4 under the Hobsons Bay Planning Scheme).

The closest residential promises to the site are a residential house at 1 Old Geelong Road, Laverton (≈900m to the south-west of the power station) and Honey Hush Caravan Park on Leakes Road, Laverton North (≈800m to the west of the power station).

Planning context (eg. strategic planning, zoning & overlays, management plans):

The subject site and lay down area are located within an Industrial 2 Zone (IN2Z) and an Industrial 3 Zone (IN3Z), respectively, pursuant to the Wyndham Planning Scheme and is not affected by any overlays.

## Local government area(s):

Wyndham City Council

## 8. Existing environment

**Overview of key environmental assets/sensitivities in project area and vicinity** (cf. general description of project site/study area under section 7):

As above sections and in Section 11 of this form.

# 9. Land availability and control

is the proposal on, or partly on, Crown land?	
X No X Yes If yes, please provide details.	
Current land tenure (provide plan, if practicable):	
147-161 Cherry Lane is leased by Snowy Hydro Limited from owner Vaughn Industrial Projects.	
136-142 Cherry Lane owned by Snowy Hydro Limited	
Intended land tenure (tenure over or access to project land):	
147-161 Cherry Lane is leased by Snowy Hydro Limited from owner Vaughn Industrial Projects.	
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136-142 Cherry Lane owned by Snowy Hydro Limited.	
Other interacts in effected land (or economents, notive title claims);	
other interests in anected land (eg. easements, native title claims).	
The site includes three easements as follows:	
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<ul> <li>An 11 metre wide electricity transmission easement located parallel to the western boundary</li> </ul>	
in favour of SECV	
A 2 matrix wide conversion accomment located parallel to the parth western boundary (Charry	
• A 2 metre wide sewerage easement located parallel to the north western boundary (Cherry	
Road frontage) in favour of City West Water Ltd; and	
- A 2 metre wide drainage easement located parallel to the south eastern boundary	
• A 2 metre wide drainage casement located paraller to the south castern boundary.	

# **10. Required approvals**

State and Commonwealth approvals required for project components (if known):

Planning approvals for the proposed augmentation works at the Laverton North Power Station may be required under the following legislation:

- Environmental Protection Act 1970
- Environmental Effects Act 1978
- Planning and Environment Act 1987
- Airports Act (Commonwealth) 1996

Pursuant to Section 19A of the Environmental Protection Act 1970, a Works Approval is also required to augment the Laverton North Power Station.

Further, the existing Planning Permit is required to be amended under the *Planning and Environment Act 1987* for 147-161 Cherry Lane, and a new planning permit has been obtained for use of 136-142 Cherry Lane as a laydown area.

It is expected that the proposed augmentation works will not necessitate an Environment Effects Statement as only the greenhouse gas criteria was triggered. The greenhouse gas emissions for both the existing operations and the proposed operations were determined by the greenhouse gas and energy efficiency assessment (**Appendix D**) conducted as a part of Works Approval application process. As detailed in the **Appendix D**, the assessment is based on the worst case capacity factor (i.e. 10% for OCGT operation and 80% for CCGT operation) for the assessment of the proposed assessment while 10% capacity factor was used for the assessment of the existing facilities. In reality, the capacity factor of the proposed facilities is expected to be approximately 40%. Therefore, although the LNPS greenhouse gas emission intensity will be significantly reduced by the proposed augmentation, leading to an overall reduction in greenhouse gas emissions per unit of electricity generated in Victoria, the proposed facilities trigger the EES Referral criteria due to the increased generation and consequent increase in total greenhouse gas emissions. Greenhouse gas emissions are addressed in Part 2 below, with the Works Approval process dealing with this issue in further detail.

## Have any applications for approval been lodged?

 $\times$  No  $\times$ Yes If yes, please provide details.

An application to amend the existing Planning Permit No. WYP3502 was lodged to the Wyndham City Council in April 2008 and is currently being assessed.

A planning permit (WYP2135/08) for the construction lay down area to be used for a *store* and to *construct a building or construction or carry out works* was granted on 17 April 2008.

A Works Approval application for the augmentation works has been lodged with the Environment Protection Authority Victoria in April 2008 and is currently being assessed.

Approval agency consultation (agencies with whom the proposal has been discussed):

- Wyndham City Council: Peter Van Til, Sian Smith
- Environment Protection Authority Victoria: Quentin Cooke, Wendy Tao, Silvia Armand, John Marsiglio (Greenhouse gas), James Nancarrow (Noise), John Frame (Air Quality)
- Department of Planning and Community Development: Ashley Stephens
- Civil Aviation Safety Authority is to be informed: Kim Jones Manager, Airways & Aerodromes Branch

#### Other agencies consulted:

Department of Primary Industry: Minister Peter Bachelor

# PART 2 POTENTIAL ENVIRONMENTAL EFFECTS

# 11. Potentially significant environmental effects

**Overview of potentially significant environmental effects** (identify key potential effects and comment on their significance and likelihood, as well as key uncertainties):

The following reports outline the results of the investigation:

- Appendix B: Noise Assessment (Sinclair Knight Merz)
- Appendix C: Air Quality Impact Assessment (Sinclair Knight Merz)
- Appendix D: Greenhouse Gas and Energy Efficiency Assessment (Sinclair Knight Merz)
- Appendix E: Landscape and Visual Assessment (Integral)
- Appendix F: Preliminary Cultural Heritage Desktop Review (Sinclair Knight Merz)

#### Noise:

The Noise Assessment has shown that the proposed augmented plant would satisfy the *State Environment Protection Policy No. N-1 "Control of Noise from Commerce Industry and Trade"* criteria at the nearest sensitive receivers (viz at the domestic residence on 1 Old Geelong Road and at Honey Hush Caravan Park). Further, the current Low Frequency Noise (LFN) emission levels will be reduced and will improve the amenity, with respect to noise, at the nearest industrial neighbours for both the combined cycle and open cycle operation of the augmented plant.

## Air Quality:

The Air Quality Assessment found that the proposed augmentation of the existing Laverton North Power Station to combined-cycle operation satisfies the requirements of the *State Environment Protection Policy (Air Quality Management) (SEPP(AQM)*, and is not expected to cause any exceedences of *SEPP(AQM)* Schedule A and Schedule E. Specifically the proposed facility's expected emissions of the highest risk air pollutant, oxides of nitrogen, are not expected to cause any exceedences of the Design Criterion for nitrogen dioxide. Therefore, it was concluded that the existing open cycle gas power station and the proposed combined cycle power station are not expected to cause any significant risks to human health.

## **Greenhouse Gas and Energy Efficiency:**

The proposed augmented plant has been estimated to emit 1,725 kilotonnes CO<sub>2</sub>-e in each year of its proposed 25 to 30 year life span. This is a significant increase from 192 kilotonnes CO2-e/ year of the existing plant (assuming 10% capacity factor) due to the large increase in the plant's capacity factor in order to address the reserve deficit in Victoria projected by the National Electricity Market Management Company (NEMMCO).

However, the conversion from open cycle gas turbines to combined cycle gas turbines will result in enhanced energy efficiency, therefore significantly reducing the greenhouse gas emission intensity. The greenhouse gas emission intensity of the proposed augmented plant was estimated to be reduced to approximately 481 tonnes  $CO_2$ -e /GWh, from 665 tonnes  $CO_2$ -e /GWh for the existing plant. This is also low in comparison with coal-fired power stations in Australia that produce, typically, over 1,000 t  $CO_2$ -e /GWh each. This is compliant with the Victorian Greenhouse Strategy action to aim to lower the emission intensity associated with electricity production.

## Landscape and Visual:

The Landscape and Visual Assessment concluded that the proposed augmentation does not have a significant visual impact. This is due to it borrowing visual character and scale from the existing development on the site and the industrial nature of the surrounding land uses. All of these factors create a visual context within which the development is appropriate. Even though impacts on the Freeway and Cherry Lane immediately adjacent to the site remain low, insuring that the current landscape treatment is allowed to establish to maturity would increase visual integration levels. Regardless of this treatment, the impact is not regarded as significant.

## Cultural Heritage:

The Laverton North augmentation site has either been subject to significant ground disturbance with topsoil mechanically removed, or is a hardstand area. Consequently, there is no reasonable likelihood that Aboriginal Places occur within the activity area.

It is noted that a Cultural Heritage Management Plan may be required if any part of the project requires an EES.

No known non-Aboriginal historical sites were identified within the project site or surrounds in the preliminary desk top review. It is also unlikely that archaeological deposits are located within the proposed project site as the majority area within the site has been subject to significant ground disturbance through construction of industrial buildings and urban infrastructure.

# 12. Native vegetation, flora and fauna

#### Native vegetation

Is any native vegetation likely to be cleared or otherwise affected by the project?		
$\times$ NYD $\times$ No $\times$ Yes If yes, answer the following questions and attach details.		
The subject site is devoid of native vegetation and was highly disturbed at the time of constructing the existing power station.		
What investigation of native vegetation in the project area has been done? (briefly describe) Not applicable as none exists within the project area.		
What is the maximum area of native vegetation that may need to be cleared?		
NYD Estimated area(hectares)		
How much of this clearing would be authorised under a Forest Management Plan or Fire Protection Plan?		
Which Ecological Vegetation Classes may be affected? (if not authorised as above)		
$\times$ NYD $\times$ Preliminary/detailed assessment completed. If assessed, please list.		
Have notential vegetation offsets been identified as yet?		
NYD Yes If yes, please briefly describe.		
Other information/comments? (eg. accuracy of information)		

NYD = not yet determined

# Flora and fauna

What investigations of flora and fauna in the project area have been done? (provide overview here and attach details of method and results of any surveys for the project & describe their accuracy)
It was not considered there was a reasonable need to conduct flora and fauna investigations for the proposed works due to the highly developed nature of the site and surrounding land. The site and adjacent lands are largely hardstand areas or roadways with no vegetation or habitat excepting a narrow strip of immature landscaping on the rear boundary of the LNPS site, The only section of land not covered by concrete or asphalt has had topsoil stripped by mechanical means. Therefore, due to the developed nature of the proposed project site and surrounding land, that the works will be contained within the site boundary with any water discharges occurring to sewer, there is no flora or fauna that would potentially be impacted by the proposed works and therefore no assessment has been conducted or planned to be conducted.
Have any threatened or migratory species or listed communities been recorded from the
× NYD × No × Yes If ves. please:
<ul> <li>List species/communities recorded in recent surveys and/or past observations.</li> </ul>
Indicate which of these have been recorded from the project site or nearby.
If known, what threatening processes affecting these species or communities may be exacerbated by the project? (eg. loss or fragmentation of habitats) Please describe briefly.
Are any threatened or migratory species, other species of conservation significance or listed communities potentially affected by the project? NYD X No X Yes If yes, please: • List these species/communities:
<ul> <li>Indicate which species or communities could be subject to a major or extensive impact (including the loss of a genetically important population of a species listed or nominated for listing) Comment on likelihood of effects and associated uncertainties, if practicable.</li> </ul>
Is mitigation of potential effects on indigenous flora and fauna proposed?
NYD X No X Yes If yes, please briefly describe.
Other information/comments? (eg. accuracy of information)

# 13. Water environments

Will the project require significant volumes of fresh water (eg. > 1 Gl/yr)?NYDXNYDXYesIf yes, indicate approximate volume and likely source.	
Will the project discharge waste water or runoff to water environments?	
NYD X No X Yes If yes, specify types of discharges and which environments.	
Are any waterways, wetlands, estuaries or marine environments likely to be affected?	
NYD X No X Yes If yes, specify which water environments, answer the	
following questions and attach any relevant details.	
Are any of these water environments likely to support threatened or migratory species?	
NYD X No X Yes If yes, specify which water environments.	
Are any potentially affected wetlands listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'?	
🗙 NYD 🗙 No 📉 Yes If yes, please specify.	

Could the project affect streamflows?	
NYD X No X Yes If yes, briefly describe implications for streamflows.	
Could regional groundwater resources be affected by the project?	
🗙 NYD 🗙 No 🗙 Yes If yes, describe in what way.	
Could environmental values (beneficial uses) of water environments be affected?	
NYD X NO Yes If yes, identify waterways/water bodies and beneficial uses	
(as recognised by State Environment Protection Policies)	
Could aquatic, estuarine or marine ecosystems be affected by the project?	
X NYD X NO X Yes If yes, describe in what way.	
In there a notantial for extensive or major effects on the health or highly arbity of equation	
is there a potential for extensive or major effects on the health or biodiversity of aquatic,	
Via Via If van places describe. Commant on likeliheed of effects and	
X NO X Yes II yes, please describe. Comment on likelihood of effects and	
associated uncertainties, il practicable.	
Is mitigation of notantial affects on water environments proposed?	
NYD V No Ves If ves please briefly describe	
Other information/comments? (eq. accuracy of information)	
It is anticipated that the proposed augmentation will not impact on the water environment as there	
is not expected to be a significant change to the water requirements with the proposed	
augmentation and the waste water will continue to be discharged to sewer.	
Ŭ	
Stormwater volumes are expected to increase slightly from the existing plant as there will be an	
increase in hard stand areas. However, stormwater management procedures for external areas	
are in place to ensure that the contamination risks are minimised.	

# 14. Landscape and soils

Landscape		
Has a preliminary landscape assessment been prepared?		
🗙 No 🗙 Yes If yes, please attach.		
See Appendix E.		
Is the project to be located either within or near an area that is:		
Subject to a Londonne Significance Overlay or Environmental Significance Overlay?		
• Subject to a Landscape Significance Overlay of Environmental Significance Overlay? $\times$ NYD $\times$ No $\times$ Yes If yes, provide plan showing footprint relative to overlay.		
<ul> <li>Identified as of regional or State significance in a reputable study of landscape values?</li> <li>NYD × No × Yes If yes, please specify.</li> </ul>		
<ul> <li>Within or adjoining land reserved under the National Parks Act 1975 ?</li> <li>NYD × No × Yes If yes, please specify.</li> </ul>		
<ul> <li>Within or adjoining other public land used for conservation or recreational purposes ?</li> <li>NYD × No × Yes If yes, please specify.</li> </ul>		
Is any clearing vegetation or alteration of landforms likely to affect landscape values?		
NYD X No X Yes If yes, please briefly describe.		
Is there a notential for effects on landscape values of regional or State importance?		
$\times$ NYD $\times$ No $\times$ Yes Please briefly explain response.		
Is mitigation of potential landscape effects proposed?		
X NYD X No X Yes If yes, please briefly describe.		
Other information/comments? (eg. accuracy of information)		
See Appendix E.		

**Note:** A preliminary landscape assessment is a specific requirement for a referral of a wind energy facility. This should provide a description of:

- The landscape character of the site and surrounding areas including landform, vegetation types and coverage, water features, any other notable features and current land use;
- The location of nearby dwellings, townships, recreation areas, major roads, above-ground utilities, tourist routes and walking tracks;
- Views to the site and to the proposed location of wind turbines from key vantage points (including views showing existing nearby dwellings and views from major roads, walking tracks and tourist routes) sufficient to give a sense of the overall site in its setting.

Soils

Is there a potential for effects on land stability, acid sulphate soils or highly erodil NYD X No Yes If yes, please briefly describe.	ole soils?
Are there geotechnical hazards that may either affect the project or be affected by	it?
NYD X NO Yes If yes, please briefly describe.	
Other information/comments? (eg. accuracy of information)	
There are currently no ground contamination issues at the site and it is not anticipated that this project will have significant impacts on the soil environment.	
A contamination assessment was conducted in 1997 as a part of original site feasibility	
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assessment for the construction of the existing plant by Golder and Associates. With the exception of some metals al anolytes were reported below laboratory detection limits or less than the adopted assessment criteria. Arsenic (As), chromium (Cr), Copper (Cu), Nickel (Ni) and zinc (Zn) were reported at concentrations above level B environmental investigation levels of the Australia and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC/NHMRC Guidelines(1992)). However, all reported metals concentrations were below the National Environment Protection Measure (NEPM) guidelines for commercial/industrial land use.

Since the construction of the existing plant, there have been no new sources of ground contamination. Activities have been highly controlled up to present with all incidents of a type that may lead to contamination, such as spills and waste management, reported and investigated by Snowy Hydro and there have not been any contamination incidences. Appropriate measures are in place to ensure that no spills of liquid materials can reach the land environment and wastes are contained until they are disposed off-site. Contamination risks will not change after the proposed augmentation.

# 15. Social environments

Is the project likely to generate significant volumes of road traffic, during construction or	
NYD X No X Yes If yes provide estimate of traffic volume(s) if practicable.	
Is there a potential for significant effects on the amenity of residents, due to emissions of dust or odours or changes in visual, noise or traffic conditions? NYD X No Yes If yes, briefly describe the nature of the changes in amenity conditions and the possible areas affected.	
Discharges potentially affecting amenity and human or environmental health are emissions to air and noise emissions. The detailed assessments of these two aspects have identified that all discharges will comply with relevant legislation and will not have a significant effect on amenity. Further, the low frequency noise levels emitted from the existing LNPS will be reduced after the augmentation. Please see <b>Appendix B</b> for detailed noise and air quality assessments.	
Is there a potential for exposure of a human community to health or safety hazards, due to emissions to air or water or noise or chemical hazards or associated transport? NYD X No X Yes If yes, briefly describe the hazards and possible implications.	
As for previous question.	
Is there a potential for displacement of residences or severance of residential access to	
community resources due to the proposed development?	
Are non-residential land use activities likely to be displaced as a result of the project?	
Do any expected changes in non-residential land use activities have a potential to cause adverse effects on local residents/communities, social groups or industries?	
Is mitigation of potential social effects proposed?	
X NYD X NO X Yes It yes, please briefly describe.	
Other information/comments? (eg. accuracy of information)	

Cultural	heritage

Have relevant Indigenous organisations been consulted on the occurrence of Aboriginal	
cultural heritage within the project area?	
Yes If yes list the organisations so far consulted	
What investigations of cultural heritage in the project area have been done?	
(attach details of method and results of any surveys for the project & describe their accuracy)	
A Preliminary Cultural Heritage Desktop Review (Appendix F) has been undertaken by Sinclair	
Knight Merz. The primary purpose of this assessment was to assess whether there are any	
potential cultural heritage interactions.	
Is any Aboriginal cultural beritage known from the project area?	
NYD X No X Yes If ves. briefly describe:	
Any sites listed on the AAV Site Register	
Sites or areas of sensitivity recorded in recent surveys from the project site or nearby	
Sites or areas of sensitivity identified by representatives of Indigenous organisations	
Are there any cultural heritage places listed on the Heritage Register or the Archaeological	
Inventory under the Heritage Act 1995 within the project area?	
X NYD X NO X Yes If yes, please list.	
Is mitigation of potential cultural beritage effects proposed?	
NYD X No X Yes If ves. please briefly describe.	
Other information/comments? (eg. accuracy of information)	
See Appendix F.	

# 16. Energy, wastes & greenhouse gas emissions

What are the main sources of energy that the project facility would consume/generate?				
	Electricity network. The project facility will generate electricity for the National Electricity Market (NEM), this is quantified below.			
	➤ Natural gas network. Estimate of gas consumption is from 10,033,710 GJ/annum to 26,756,560 GJ/annum based on 30% to 80% capacity factors, respectively, a nominal station capacity of 477MW, and running in combined cycle mode only.			
	Senerated on-site. If possible, estimate power capacity/output Estimate of electricity generated is from 1,256 GWh/annum to 3344 GWh/annum, based on 30% to 80% capacity factors, respectively, a nominal station capacity of 477MW, and running in combined cycle mode only.			
	Other. Please describe. Please add any relevant additional information.			
What a	re the main forms of waste that would be generated by the project facility?			
	Runoff (mainly storm water) from excavation activities during the construction period are expected to be minimal and well controlled. During operation wastewater will be similar to that currently discharged under the Trade Waste Consent with City West Water, with some increased runoff due to the enlarged hardstand area, and will be discharged to the existing sewer after proper treatment.			
	5 t/hour blowdown (up to 35,040t/year) from the HRSG will be discharged to the existing sewer when the plant is operated in combined cycle. The liquid effluent will be treated on site prior to disposal off-site through the existing sewer.			
	Solid chemical wastes. Describe briefly.			
	Excavated material. Describe briefly. There will be a small amount of excavated material from foundation construction, which will be reused where practical or disposed to a licensed landfill site.			
	× Other. Describe briefly.			
	Emissions to air will be the primary source of waste generated by the project facility. Please refer to <b>Appendix C</b> for the detailed Air Quality assessment.			
	Low grade heat would be emitted from the CCGT station as exhaust from the HRSG after extraction of the bulk of the heat energy for use in the STG, and as residual heat emissions from the ACC.			
	Use of this low grade heat has been considered and found to be limited only to the heat transferred to the air in the Air Cooled Condenser (ACC), however, this cannot be practically 'captured' and re-used. The ACC relies on a sealed system so that there is not any water/condensate loss. Were a wet cooling system put in place, this would be a source of low grade heat that could be practically used; however, limited water availability to site has restricted this option. A ready local market to which the captured 'waste' energy can be directed has not been identified.			
	Please provide relevant further information, including proposed management of wastes.			
	The construction waste materials will be managed by the construction environment management plan which will be developed by the construction contractor. The waste materials associated with the operation of the proposed augmented plant will be managed by the Environmental Improvement Plant prepared by Snowy Hydro as a			



# 17. Other environmental issues

# Are there any other environmental issues arising from the proposed project?

 $\times$  No  $\times$  Yes If yes, briefly describe.

## Noise:

The Noise Assessment (**Appendix B**) has prepared noise predictions for the proposed augmented plant, and validated the computer prediction model. The results show that the augmented plant will satisfy the *State Environment Protection Policy No. N-1 "Control of Noise from Commerce Industry and Trade"* criteria at the nearest sensitive receivers (viz at the domestic residence on 1 Old Geelong Road and at Honey Hush Caravan Park).

Further, the current Low Frequency Noise (LFN) emission levels will be reduced and will improve the amenity, with respect to noise, at the nearest industrial neighbours for both the combined cycle and open cycle operation of the augmented plant.

## Air:

The Air Quality Impact Assessment (**Appendix C**) has assessed potential air quality impacts from the proposed LNPS upgrade in accordance with the *Victoria State Environment Protection Policy (Air Quality Management)*. Air dispersion modelling has been undertaken with the latest version of the EPA approved model, AUSPLUME (V.6), and input parameters identified in consultation with the EPA.

The assessment focuses on the highest risk air pollutant identified for this project; i.e., oxides of nitrogen (NOx). This air quality assessment finds that the proposed augmentation of the existing LNPS OCGT power station to combined-cycle operation is not expected to cause any exceedences of SEPP (AQM) criteria. Specifically, emissions of the highest risk, oxides of nitrogen, are not expected to cause any exceedences of the Design Criterion for nitrogen dioxide. In conclusion, the existing OCGT station and the proposed combined cycle power station are not expected to cause any significant risks to human health.

# 18. Environmental management

What measures are currently proposed to avoid, minimise or manage the main potential adverse environmental effects? (if not already described above)				
Siting: Please describe briefly				
× Design: Please describe briefly				
As described in Section 4, a dry cooling option was chosen, as opposed to wet cooling, due to limited availability of water to the site. This will significantly reduce the water requirements of the augmented plant.				
Noise mitigation measures will be introduced to the bypass stacks and the HRSG stacks. Installation of the HRSGs between the existing OCGTs and Cherry Lane will also mitigate noise emissions in the direction of Cherry Lane from the bypass stacks when the plant is operating in open cycle mode.				
The HRSG stack height will be increased to a height above that required for compliance with SEPP (AQM) in order to further reduce ground level concentrations particularly with respect to NOx.				
Resource efficiency applications will be installed wherever financially viable during construction and operation of the augmented plant. These will apply primarily to the auxiliary aspects of the station, i.e. items that are not major plant components, including office facilities, waste generation, auxiliary energy use, and water use.				
Environmental management: Please describe briefly. The Environmental Improvement Plan has been developed and updated by Snowy Hydro every year as a condition to the EPA Waste Discharge Licence No. EA62044. The Environmental Improvement Plan will be updated to cover the environmental risks associated with the proposed augmented plant operation. An Environment and Resource Efficiency Plan (EREP) will also be developed for the station during 2008, in consultation with EPA Vic, with implementation and updates to that Plan during construction and operation of the augmented plant.				
X Other: Please describe briefly				
Add any relevant additional information.				

# 19. Other activities

Are there any other activities in the vicinity of the proposed project that have a potential for cumulative effects?

 $\times$  NYD  $\times$  No  $\times$  Yes If yes, briefly describe.

The project site is located within an Industrial 2 Zone of the Wyndham Planning Scheme and adjacent to an Industrial 3 Zone. A number of industrial manufacturing plants including Smorgon Steel Mill, Suzuki and SP AusNet Altona Power Station are in the vicinity. The cumulative air quality impacts have been assessed through the incorporation of background air quality data into the air quality modelling conducted, this is detailed in **Appendix C**.

LNPS site manages water discharges in accordance with a City West Water Trade Waste Consent. This allows discharge into City West managed sewers which also receive discharge from business in the surrounding area, and consequently is part of a cumulative effect. However, the proposed augmentation is expected to result in only minimal increases in stormwater or water waste discharged to sewer as there will be no increase to the existing site area, a small increase in hardstand area, and no additional need from the project for hazardous materials for operation.

# 20. Investigation program

#### Study program

Have any environmental studies not referred to above been conducted for the project? No Yes If yes, please list here and attach if relevant.

Has a program for future environmental studies been developed?

#### Consultation program

## Has a consultation program conducted to date for the project?

No X Yes If yes, outline the consultation activities and the stakeholder groups or organisations consulted.

Table below presents the consultation activities conducted up to date.

Date	Agency	Name	Details
14 Feb 2008	Wyndham City Council	Peter Van Til	Meeting providing a general introduction to the proposal and identification of Council's potential concerns and preferred application process.
28 Feb 2008	Environment Protection Authority (Vic)	Quentin Cooke	Meeting providing a general introduction to the proposal, discussion of EPA's preferred application process, and inter departmental support for the project.
4 Feb 2008	Department of Primary Industries	Andrew Dillon	Communication introducing the project, its benefit to Victoria, and project outline provided.
Feb 2008	Department of Planning and Community Development	Ashley Stephens	Communication providing recommendation on conducting EES referral self-assessment
27 Feb 2008	Department of Primary Industries	Minister Peter Bachelor	Provision of an in-principle letter of support for the project.
28 Feb 2008	Environment Protection Authority (Vic)	Quentin Cooke	Communication of appropriate assessment for works approval and proposed exemption process.
3 Mar 2008	Environment Protection Authority (Vic)	Wendy Tao	Communication of appropriate assessment for works approval and proposed exemption process.
Mar 2008	Environment Protection Authority (Vic)	Wendy Tao	Communication of appropriate assessment for works approval and proposed exemption process.
14 Mar 2008	Environment Protection Authority (Vic)	John Marsiglio	Communication providing an outline of Energy Resource Efficiency Program (EREP) requirements and association with augmentation works.
17 Mar 2008	Wyndham City Council	Sian Smith	Identification of technical requirements for the 136-142 Cherry Lane site
26 Mar 2008	Wyndham City Council	Peter Van Til, Sian Smith	Meeting to present detail on assessment process, outstanding issues, and Council's application process requirements.
27 Mar 2008	Environment Protection Authority (Vic)	Wendy Tao, Silvia Armand, James Nancarrow, John Frame, John Marsiglio	Pre-acceptance meeting to identify EPA requirements for Works Approval application, and outstanding requirements from specialist studies.
Late Apr 2008	Immediate industrial neighbour	Bowens	One on one presentation was provided. The presentation outlined existing operation and provided an overview of the proposal including preliminary design information, operational expectations, visual assessment, and expected timing of works.
28 Apr 2008	Immediate industrial neighbour	VISY	As above
Late Apr	Immediate industrial neighbour	Shaw Removals	Presentation as above was offered, however, Shaw's indicated they had no issues with the proposal and did not request a presentation.
21 Apr 2008	Department of Planning and Community Development	Ashley Stephens	Communication providing the result of the EES referral self-assessment and getting the clarification on the EES Referral requirements.
28 Apr 2008	Environment Protection Authority (Vic)	Quentin Cooke, Wendy Tao, Sylvia Armand, James Nancarrow	Post-submission meeting to discuss about additional requirements for Works Approval application.

#### Has a program for future consultation been developed? NYD X No X Yes If yes, briefly describe.

An information sheet has been produced and will be distributed to neighbours in the locality and each of the immediate neighbours that did not express an interest in a one-on-one presentation. The information sheet will outline the proposal and provide a line of communication for direct inquiries. The distribution will be to all neighbours in the industrial precinct encompassed by Doherty Road to the north, Fitzgerald Street to the west, and Cherry Lane to the south.

#### Authorised person for proponent:

I, Ian Smith, Environmental Planning Coordinator – Gas Projects of Snowy Hydro Limited, confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature

14/05/08 Date

#### Person who prepared this referral:

I, Seiko Toki, Environmental Planner of Sinclair Knight Merz, confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature Date 15/05/08

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Figure 1 Laverton North Power Station Location Map



Figure 2 Laverton North Power Station Site and Surround Area



# Figure 3 Existing Site Layout



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# Figure 4 Proposed Site Layout



# Figure 5 Ground-level Site Photos



Figure 5-1: Hard Stand Area between existing gas turbines



Figure 5-2: Existing Stacks and Administration Building, the road way to the left of the stacks is the proposed HRSG location, Cherry Lane is to the left of the photo.



Figure 5-3 View along landscaped strip (only vegetation onsite) with the disused area to the immediate right where the ACC is proposed to be located, Princes Freeway is to the left of the photo.

# Appendix A Letter from the Minister for Energy and Resources



# **Minister for Energy and Resources**

Our Ref: SU504725

Mr Terry Charlton Chief Executive Officer Snowy Hydro Limited Level 37, AMP Centre 50 Bridge Street SYDNEY NSW 2000 1 Spring Street GPO Box 4440 Melbourne Victoria 3001 Telephone: (03) 9658 4660 Facsimile: (03) 9658 4631 ABN 42 579 412 233 DX: 210404

Dear Mr Charlton,

#### LAVERTON FEASIBILITY STUDY

I understand that Snowy Hydro is currently applying for permits and other regulatory approvals as part of a process to determine the feasibility of a project to convert the Laverton North Open Cycle Gas Turbine plant into a Combined Cycle Gas Turbine plant (CCGT).

I have been informed that if the Laverton plant is converted to CCGT its thermal efficiency will increase by approximately 50 % or more, due to the recovery of heat energy in the exhaust of a gas turbine. The capacity of the plant will also increase from 320MW to a nominal capacity of 430MW.

As you maybe aware, the National Electricity Market Management Company's annual *Statement Of Opportunities* has forecast the need for additional capacity in the combined South Australian and Victorian region to meet increased electricity demand from 2010/11. The Victorian Government is aware of a number of projects which will help meet that increased demand, most or all of which are subject to meeting various necessary approvals.

The Government of Victoria welcomes and encourages new investment in generation capacity for the benefit of the wider community, which is consistent with government policies including in relation to emissions and the prohibition on nuclear power.

Please do not hesitate to contact Mr Neil Jenkins, Senior Policy Analyst (Energy and Earth Resources Policy Division, Department of Primary Industries) on telephone (03) 9658 4185 if you have any enquiries in relation to this.

Yours sincerely er Batchelor

Minister for Energy and Resources

12008

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# Appendix B Noise Assessment

# Appendix C Air Quality Assessment

# Appendix D Greenhouse Gas and Energy Efficiency Assessment

Appendix E Landscape and Visual Assessment

# Appendix F Preliminary Cultural Heritage Desktop Reveiw