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Woodlawn Wind Farm Modification

Statement of Environmental Effects

January 2010



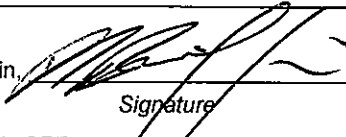
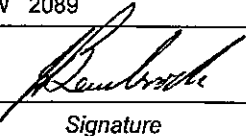
Prepared for
Woodlawn Wind
Pty Ltd

Certification - Statement of Environmental Effects

This Statement of Environmental Effects (SEE) supports an application by Woodlawn Wind Pty Ltd for modification of the Minister's Development Consent (5th October 2005) issued under Part 4 (Section 96(2)) of the Environmental Planning and Assessment Act 1979, in respect of:

Construction and Operation of the Woodlawn Wind Farm on the Great Dividing Range near Tarago NSW

The modification relates to the reduction of the number of installed turbines from 25 to 20, minor relocation of the approved turbines and associated infrastructure, inclusion of a 33kV transmission line from Woodlawn Wind Farm to the Capital Wind Farm substation, inclusion of use of an existing onsite gravel pit, changes in turbine specification including increase in hub height and rotor diameter. The amended Woodlawn Wind Farm project will be located on land described in Table 2.1 and shown in Figure 2.1 of this SEE.

Project Proponent SEE prepared for proponent based on proponent's project description, record of consultation and proposed measures to mitigate its impacts.	Mr David Griffin, Woodlawn Wind Pty Ltd Level 22, 56 Pitt Street SYDNEY NSW 2000
Certification of - Project Details, - Consultation - Mitigation Measures presented in the SEE.	I David Griffin,  Date: 29 January 2010 Signature certify that this SEE provides: - a true representation of the proposed project as amended - accurately represents the consultation undertaken - does not seek to materially mislead, and that - Woodlawn Wind Pty Ltd is committed to implementing the project environmental management measures set out in Chapter 15 of this SEE.
SEE prepared by Aurecon Organisation: Business Address:	Jeff Bembrick, Senior Environmental Consultant <i>(BSc 1974 and Master of Environmental Studies 1993, Certified Environmental Auditor)</i> Aurecon Australia 116 Military Road Neutral Bay NSW 2089
Certification of Environmental Assessment	I Jeff Bembrick,  Date 29 January 2010 Signature certify that this SEE: - addresses the requirements of the Director-General of NSW Department of Planning for the SEE in accordance with the Department's letter of 10th July 2009. - provides a thorough assessment of the potential impacts of the proposed modifications to the Woodlawn Wind Farm Project, and - does not seek to materially mislead

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Glossary and Acronyms

Term / Acronym	Description
Abatement (mitigation)	Decrease or reduction. In the context of greenhouse gas emissions, a wind farm is said to 'abate' the greenhouse pollution which would otherwise have been emitted by conventional fossil fuelled power generation.
Aboriginal archaeological site (Aboriginal site)	A place where physical remains or modification of the natural environment indicate past and 'traditional' activities by Aboriginal people. Site types include artefact scatters, isolated artefacts, burials, shell middens, scarred trees, quarries and contact sites.
ACMA	Australian Communications & Media Authority
AEMO	Australian Energy Market Operator
ARA	Appropriate Regulatory Authority
Band 111	VHF TV Channels 5A - 12
Base load generation	Power plants optimised economically and in an engineering sense to a relatively constant, steady and reliable stream of energy
Biodiversity	First coined in 1988 as a contraction of "biological diversity", diversity traditionally referring to species richness and species abundance. Biodiversity has been defined subsequently as encompassing biological variety at genetic, species and ecosystem scales (DASETT 1992). The maintenance of biodiversity, at all levels, is acknowledged internationally as a high conservation priority, and is protected by the International Convention on Biological Diversity 1992.
Biota	All the animal and plant life in a given area.
Blade-strike	The phenomenon of avifauna colliding with wind turbine blades resulting in casualty.
Bund	A barrier or wall to contain and control spillage. Normally associated with tank farms, fuel and chemical storage facilities.
Burial Site	Usually a sub-surface pit containing human remains and sometimes associated artefacts.
CB Radio	Citizens Band Radio
CDMA	Code Division Multiple Access Cellular MobileSystem
CO ₂	Carbon dioxide
CO _{2e}	Carbon dioxide equivalent
Commissioning	The final aspect of the construction phase. Manufacturers' and contractors' representatives undertake a series of tests and fine tuning relating to wind farm performance. Environmental impacts such as noise monitoring may be part of the commissioning tests.
Conservation	The management of natural resources in a way that will benefit both present and future generations.
Construction Environmental Management Plan (CEMP)	An element of an EMP that addresses the control, training and monitoring measures to be implemented during the construction phase of a project in order to avoid, minimise or ameliorate potentially adverse impacts identified during environmental assessments.
Consumer Price Index (CPI)	A fixed weighted price index that relates to household expenditure on retail goods and services and other items such as housing, government charges and consumer credit charges.
Control Cables	Cables used to send signals to central turbine operation and to monitor turbine and generator performance.
Crown Land	Land that is owned and managed by State Government. Crown land accounts for over half of all land in NSW and includes: Crown lands held under lease, licence or permit; community managed reserves; lands retained in public ownership for environmental purposes; lands within the Crown public roads network; and other unallocated lands.
Cumulative Effect	Refers to the accumulation of effects over time.
dB(A)	Abbreviation for A-weighted decibel. The most common measurement of sound pressure levels that approximates the response of the human ear.
DEC	Department of Climate Change (Federal Government)
DECCW	Department of Environment, Climate Change and Water (NSW)

Term / Acronym	Description
Decommissioning	The dismantling of a wind farm at the conclusion of its working life. The whole structure of the turbines and all related above ground infrastructure is removed, and the site landscaped to its original appearance.
Development Consent	Consent under Part 4 of the NSW EP&A Act to carry out development and includes, unless expressly excluded, a complying development certificate.
DEWHA	Department of Environment, Heritage, Water and the Arts (Federal Government)
Ecologically Sustainable Development (ESD)	Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained and the total quality of life, now and in the future can be increased.
Ecosystem	An interdependent system of interacting plants, animals and other organisms together with the non-living (physical and chemical) components of their surroundings.
Emergency Response	The reaction by personnel and emergency services such as Fire, Police, Ambulance, Industrial Fire Brigades, etc to an emergency.
EMI	Electromagnetic Interference
Endangered Species	Those plants and animal species likely to become extinct unless action is taken to remove or control the factors that threaten their survival.
Environmental Impact Assessment (EIA)	The orderly and systematic evaluation of a proposal, including alternatives and objectives, and its effects on the environment, including the mitigation and management of these effects.
Environmental Management (EM)	That part of the overall management system which includes organisational structure, planning activities, responsibilities, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining environmental policy. (Refer to the related term- Environmental Management System).
Environmental Management Plan (EMP)	The control, training and monitoring measures to be implemented during the design, construction and operation phases of a project in order to avoid, minimise or ameliorate potentially adverse impacts identified during environmental (being socio-economic, cultural, physical, biological) assessments.
Environmental Management System (EMS)	The concept and major components of an EMS are set out in the Australian / New Zealand Standard (AS / NZS) ISO 14001. An EMS has several key components as set out below: Organisational commitment, corporate environmental policy, environmental aspects register, objectives and performance indicators, environmental management program documentation (often called an EMP), operational and emergency procedures, responsibility and reporting structure, training and awareness program, environmental impact, regulatory and legal compliance, and environmental performance review audits performance monitoring and measurement.
EP&A Act	NSW Environmental Planning and Assessment Act 1979
EPA	Environment Protection Authority
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
EPL	Environmental Protection License
Fauna	Animals
Flora	Plants
Floristic Composition	The plant species present in a particular community, sub-community or site.
FM	Frequency Modulation
Frequency Control Ancillary Services (FCAS)	Unforeseen variations in generation and demand, and variations that occur within the 5-minute dispatch interval are managed by frequency control ancillary services. As the amount of intermittent generation in the NEM increases, there is likely to be an increase in the uncontrolled variation of generation levels and, therefore, an increase in the usage of these services.
Fresnel Zone	In optics and radio communications, the Fresnel zone is an elliptical region surrounding the line of sight path between transmitting and receiver antennas. Must be obstruction free for a microwave radio link to work properly.

Term / Acronym	Description
First Fresnel Clearance	Clearance to obstructions from the ray line on a radio Path which does not produce any additional loss above free space loss
Geotechnical	Relating to the form, arrangement and structure of the geology.
Greenhouse Effect	Predicted global climatic change (eg global warming) associated with build up of certain gases such as water vapour and CO ₂ within the atmospheric environment of the earth.
Greenhouse Gas	A gas which has an effect on the radioactive adsorptivity of the earth's atmosphere and the atmosphere's temperature.
Grid	The electricity transmission and distribution network.
Groundwater	Subsurface water contained within saturated zone.
GSM	European Digital Cellular Mobile System
Heritage (Cultural Heritage)	A term which encompasses Aboriginal and post-contract archaeological sites and material remains (cultural resources).
Hub	Attaches the rotor blades to the driveshaft that drives the gearbox and generator.
Hub Height	The height of the centre of rotor blades above ground level.
INP	NSW Industrial Noise Policy
Installed Capacity	The capacity of the generating plant installed that is the maximum that can be used at any point in time.
Integrated Development	Development that requires development consent and one or more of the approvals listed within section 91 of the EP&A Act 1979 (as amended).
Inter-Generational Equity	Principle whereby the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.
ITU	International Telecommunications Union
LEP	Local Environmental Plans
LF	Low Frequency (not used for sound broadcasting in Australia)
LGA	Local Government Area
Lithologies	Rock types.
Load Flow Analysis	An analysis of the potential dynamic effect on the power transmission capacity of a section of the electrical grid.
LPMA	Land and Property Management Authority
Mandatory Renewable Energy Target (MRET)	A target prescribed by Federal Government legislation of 9,500 GWh per year of new renewable energy generation to be implemented by 2010.
Mean	The average of a set of numbers obtained by dividing the total sum of all their values by the number of individual values.
Mean Annual Wind Speed	The average wind speed experienced at a specific location, at a given height, based on regular measurements throughout the year.
Median	The middle value of a set of values. If there are two middle values, then the median is the average of those two values.
MF	Medium Frequency
Mitigate (abate)	To lessen in intensity or level.
Monitoring	The checking of impacts of a proposal or an existing activity in order to improve or evaluate environmental management practices. To check the efficiency and effectiveness of the environmental impact assessment process. To determine if the requirements of environmental legislation and associated regulations are being met.
Nacelle	The structure on top of the tower that houses the gearbox and the generator.
Native Vegetation	A broad term for vegetation comprised of plant species which occur naturally in Australia (but which are not necessarily indigenous).

Term / Acronym	Description
NEM	National Electricity Market
NES	National Environmental Significance
NETS	National Emissions Trading Scheme
NGACs	NSW Greenhouse Abatement Certificates
NGER	National Greenhouse and Energy Reporting Act
Operational Environmental Management Plan (OEMP)	An element of an EMP that addresses the control, training and monitoring measures to be implemented during the construction phase of a project in order to avoid, minimise or ameliorate potentially adverse impacts identified during environmental assessments.
Phyllite	A green, grey, or red metamorphic rock, similar to slate but often having a wavy surface and a distinctive micaceous luster.
POEO Act	Protection of the Environment Operations Act 1997
Precautionary Principle	If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
Ramsar	Listed wetlands of International significance.
Renewable Energy Certificate (REC)	The mechanism for accounting for the environmental attributes of electricity generated from renewable sources. One REC represents 1 MWh of renewable energy eligible under the Renewable Energy (Electricity) Act 2001 (Commonwealth).
REP	Regional Environmental Plans
RET	Renewable Energy Target
Riparian	Of, on, or relating to the banks of a natural course of water.
rpm	revolutions per minute
Scarred Tree	Scars are caused on trees by the removal of bark by Aboriginals for the manufacture of utensils, canoes or for shelter. A toehole tree or possum tree also falls under this category as it is a tree which has had small patches of bark chopped out to provide hand and foot holds for climbers after possums or vantage.
Sediment / Detention Pond	Artificial earthen depression to retain water runoff for a period of time so as to control high intensity runoff and allow settling of sediment prior to discharge.
SEPP	State Environmental Planning Policy
Shadow Flicker Analysis	An analysis on the potential lighting fluctuations which a proposed wind turbine may cause at a specific location.
SML	Special Mining Lease
Substation	Any premises or place (including a switchyard) in which high-voltage supply is converted, controlled or transformed.
Sustainable Use	Use of organism, ecosystem or their renewable resource at a rate within its capacity for renewal.
Terrestrial	Of, or pertaining to the land as distinct from the water.
Transformer	A device which converts one voltage / current of electricity to a different voltage / current. A transformer at each wind turbine steps up the voltage from 690 V to a level of 33 kV for supply to the wind farm's substation where a larger transformer increases the voltage to 330 kV for distribution by the grid.
Transmission Losses	Electricity losses that occur in the transmission and distribution network, often as heat.
Turbine generator	A mechanical electrical generator.
UHF	Ultra High frequency
UHF Channels	TV Channels 28 - 46 (526 - 820 Mhz)
VHF	Very High Frequency
VHF Channels	TV Channels 0 to 12 (45 - 230 Mhz)

Term / Acronym	Description
Visibility	The extent to which particular components of a development may be visible from surrounding areas.
Visual Catchment or Viewfield	In the case of a wind farm this includes the areas from which the wind farm will be visible. For this assessment the area has been computed within 10 km of the nearest turbine and due to lack of detail on vegetation it is indicative only. It is likely that the viewfields shown in this assessment will be conservative.
VOC	Volatile organic compounds
Weed	Naturalised, non-indigenous plant species which may be noxious weeds (or agriculture), environmental weeds or any other generally undesirable introduced species.
Wind Energy Modelling	Manipulating raw wind data using software tools to develop an accurate understanding of wind energy resources in a particular location.
Wind Turbine Generator	In the context of this project: a large, three bladed wind driven turbine connected via a gearbox to an electric generator

Units

Term / Acronym	Description
GW	gigawatts – 1 billion watts
GWh	gigawatt hours – one billion watt-hours (or 1000 MWh). The amount of energy produced or consumed over one hour in a system operating at a capacity level of one gigawatt.
kV	kilovolt – one thousand volts
kgCO _{2-e} /MWh	Kilogram of CO ₂ equivalent per unit electricity generated (MWh)
L _{A90}	The noise level exceeded for 90% of the 15 minute interval. This is commonly referred to as the average background noise level.
L _{Aeq}	The equivalent continuous sound level in dB(A); that is, the constant sound level which has the same acoustic energy as the original fluctuating noise for the same period of time.
m/s	metres per second
m ³	cubic metre
mg/m ³	milligrams per cubic metre
MW	megawatt – one million watts (or 1000 kW)
MWh	megawatt hours – one million watt-hours
rpm	revolutions per minute
t	tonne



Executive Summary

ES.1 Introduction

This SEE has been prepared on behalf of the proponent, Woodlawn Wind Pty Ltd to support an application for modification of the existing development consent for the Woodlawn Wind Farm. This SEE describes the variations proposed by the proponent and addresses the issues identified by the Director General's assessment requirements for the SEE in respect of the amended project proposal.

The amended Woodlawn Wind Farm will consist of 20 turbines (total generation capacity of 42 MW) compared to the 25 turbine array (total capacity of 50 MW) permitted by the existing development consent. A 2.1 MW turbine is proposed in place of the 2 MW turbine, with all turbines having a hub height of 80 metres and rotor diameter of 88 metres. While a lesser number of turbines is proposed the overall power output of the amended wind farm is similar to that of the approved array.

Ancillary structures proposed include access tracks, underground cables, an overhead transmission line and a viewing platform. While there are minor variations to access track and cable route details these aspects are very similar to the approved project. However, the grid connection arrangement differs from the approved form in terms of voltage, substation location and location of the grid connection. The variation to the connection involves 12 kilometres of 33 kV overhead transmission line running from the Woodlawn ridgeline to the Capital Wind Farm substation where a third transformer will be installed, instead of the approved 22 kV/66 kV substation and about three kilometres of 66 kV overhead line for grid connection. Details of the project description are provided in Chapter 3 together with an explanation of the differences to the approved project (Figure ES1).

While specific details of the amended project differ from those for the approved project the purpose of the development remains unchanged and the variations relate to refinements to achieve an improved design with similar environmental impact. On this basis the amended project can be regarded as essentially the same as the approved project. This SEE reviews the environmental impacts for the amended project and in many cases the environmental management measures are of the same type and overall will achieve a similar environmental performance.

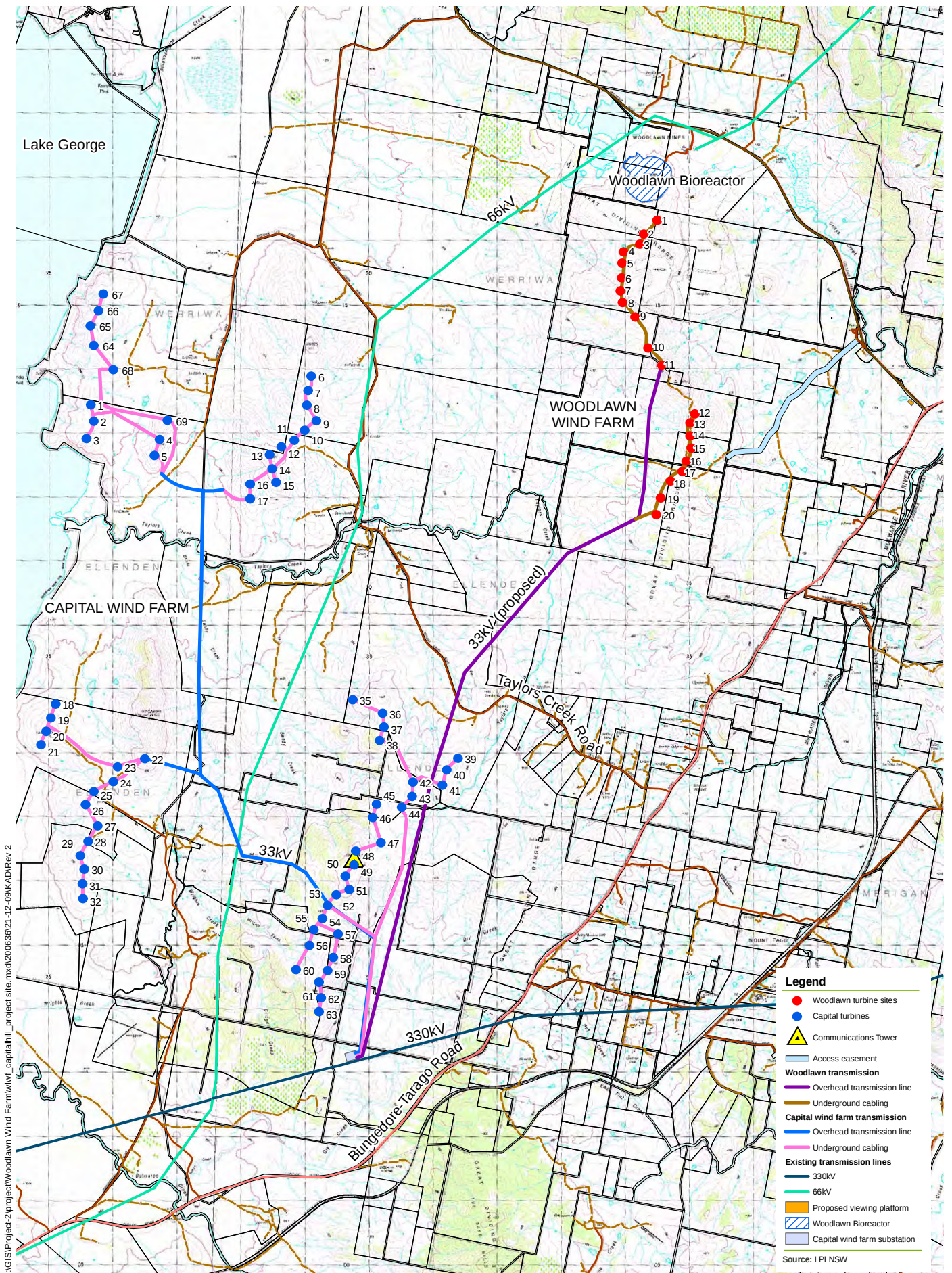
Project Location: The project is located in the Southern Tablelands of NSW 50 kilometres north east of Canberra and 37 kilometres south of Goulburn. The closest town is Tarago about seven kilometres to the east of the wind farm site. Lake George is about five kilometres to the west of the wind farm. The wind farm site is on the boundary between the Goulburn-Mulwaree Shire and Palerang Shire.

Other developments near to the Woodlawn Wind Farm site include the Woodlawn Bioreactor, the residual mining activities at the former Woodlawn Mine Site and the 67 turbine Capital Wind Farm to the south west of the Woodlawn Wind Farm site.

Proponent: Woodlawn Wind Pty Ltd is the project proponent and is wholly owned by Infigen Energy, a company specifically involved in developing wind farm projects. Infigen Energy has a demonstrated record in the area of wind farm development and operation. In Australia it owns the Alinta Wind Farm (89 MW) in Western Australia, Lake Bonney Wind Farm (280 MW) in South Australia and the recently constructed Capital Wind Farm (140 MW) in NSW. Infigen is also currently involved with a number of wind farm projects across Australia.

Woodlawn Wind Pty Ltd acquired the Woodlawn Wind Farm project in 2009. Following acquisition, it has reviewed the feasibility of the project and now proposes a number of variations to achieve a more cost effective and practical project while still ensuring that its environmental and social impacts are acceptable and that the Consent Authority is able to grant a modification of the development consent.

Context for wind energy developments: The project is proposed in the context of rapid global and national expansion of renewable energy generation and particularly for the growth of wind energy facilities. National support for expansion of renewable energy generation is evidenced by the Federal Government's Expanded Renewable Energy Target (ERET) scheme.



U:\GIS\Project-2\project\Woodlawn Wind Farm\wlf_capital\project site mxd\200636\21-12-09\KADirev 2



SCALE 1:80,000 @ A4

0 1.5 3km

Projection: MGA

Woodlawn Wind Farm **Statement of Environmental Effects**

FIGURE ES1: Project Site Plan



The generation from the amended wind farm using a renewable energy resource will be able to provide annual greenhouse gas emission savings of 146,000 tonnes of carbon dioxide equivalent (CO₂-eq) by displacing electricity generation from primarily fossil fuel sources.

Planning requirements: The existing development consent was granted by the NSW Minister for Planning under Part 4 of the Environmental Planning and Assessment (EP&A) Act. The proposed variations to the approved project require a modification of the development consent. The proponent provided the Department of Planning with details of the proposed variations and the Director General subsequently issued requirements for matters to be addressed by the SEE (Appendix A).

Chapter 4 of this SEE addresses those requirements and supports an application for modification of development consent in relation to the proposed variations. The application will be reviewed by Department of Planning and, as an integrated development, referral will be made to specific agencies as required under the EP&A Act.

ES.2 Property

The amended Woodlawn Wind Farm will be located on four properties where the landowners will lease or provide easements over their lands for the purpose of construction and operation of the wind farm project. All of the wind turbines will be located on land owned by Veolia Environmental Services and which was formerly the Woodlawn and Pylara Farm properties. The respective lands are still referred to by their former farm names. The 33 kV overhead transmission line will be partly located on land leased from Veolia Environmental Services and three land owners who have also leased their lands for the Capital Wind Farm development. Renewable Power Ventures owns the land within the Capital Wind Farm substation that is required for the 33 kV switch gear and additional 33 kV/330 kV transformer.

Chapter 2 sets out details of the variations to lands listed in the existing consent and those required for the amended project.

Other land uses at or close to the wind farm site include:

- Woodlawn Bioreactor – no impact expected on these activities
- the Sally Trig Station which is periodically used for survey activities – the Land and Property Management Authority has advised that it has no objections to the proposed positions of the turbine structures
- Woodlawn Special Mining Lease (SML) 20 overlaps the area and while future mining activities are indicated these appear to be separate from the areas of the wind farm development.

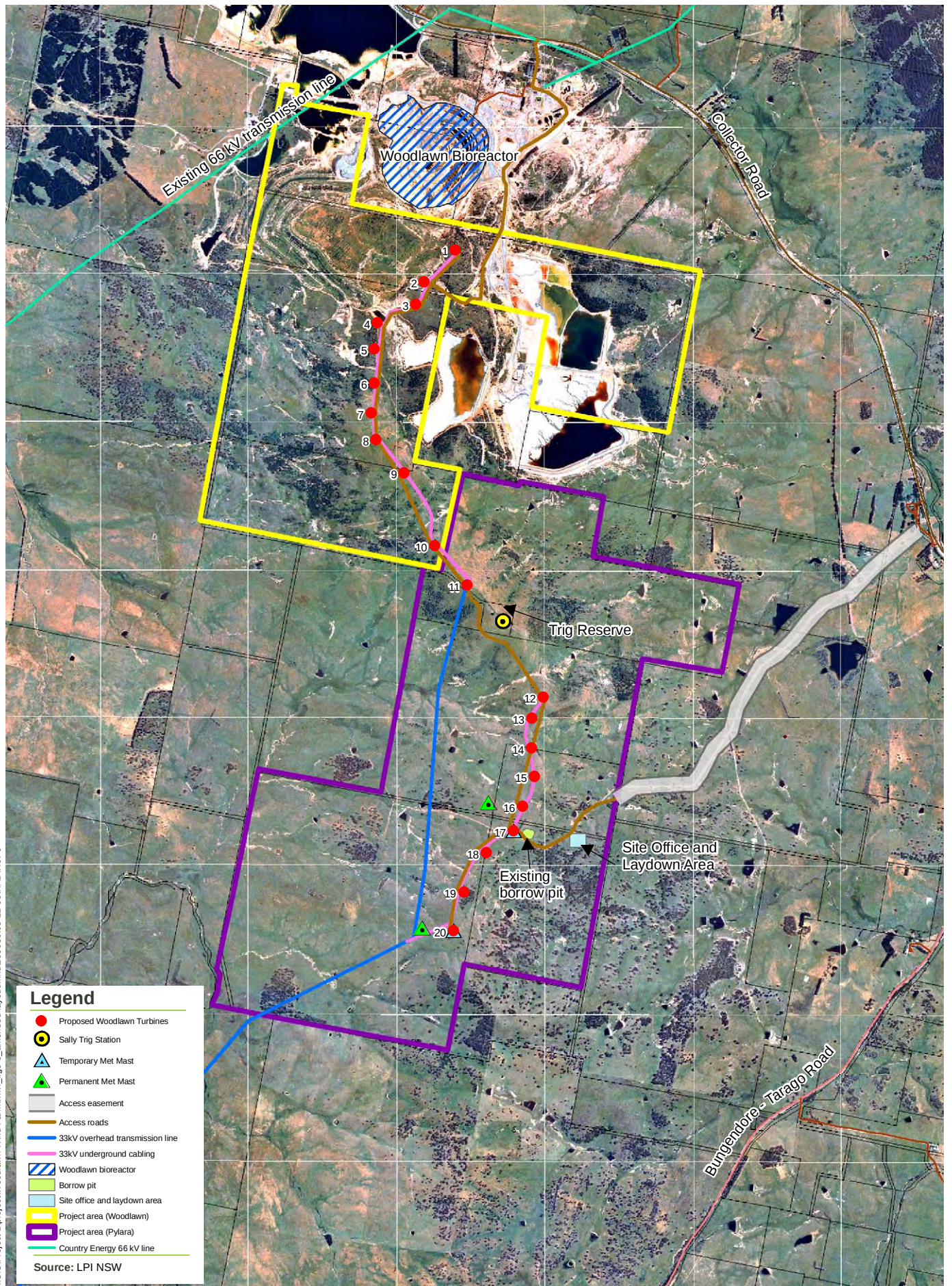
Neighbouring properties are rural lands some which have residences on the land.

ES.3 Project description

Chapter 3 provides details of the components of the amended project and the variations from the approved project for the construction and operations stages. Key aspects are described below.

The proposed amended Woodlawn Wind Farm will comprise 20 wind turbines, site access works including strengthening of the Capital Wind Farm substation access road causeway, two temporary and two permanent 80 metre meteorological masts, use of an existing gravel borrow pit adjacent to Turbine 17, 33 kV underground cable collection circuits, a 33 kV overhead transmission line from the Woodlawn Wind Farm to the Capital Wind Farm substation and a 33 kV/330 kV grid connection arrangement (Figure ES2).

U:\GIS\Project-2\project\Woodlawn Wind Farm\wlf_fig3-3_amended layout.mxd(200636)(08-12-09)KAD/Rev 0



SCALE 1:35,000 @ A4

0 500 1,000 Meters

Projection: MGA

Woodlawn Wind Farm **Statement of Environmental Effects**

FIGURE ES2: Amended Woodlawn wind farm layout



The key variations to the originally approved project include the following:

- Reduction in the number of turbines from 25 to 20
- Small changes in the locations of some turbines within the original turbine envelope
- Changing from Vestas V80 2 MW turbines to Suzlon S88 2.1 MW turbines
- Increasing the hub height to 80 metres for all turbines. This will provide for a marginal increase in the output of the respective turbines for the same wind speed
- Reduction in the overall wind farm capacity from 50 MW to 42 MW. Annual generation may nevertheless exceed that previously indicated for the approved wind farm.
- Installation of generator transformers at the base of each turbine
- Intra wind farm collection circuit voltage increased from 22 kV to 33 kV
- Construction of a 12 kilometre 33 kV overhead transmission line from the Woodlawn Wind Farm to the Capital Wind Farm substation, negating the need for a substation at the Woodlawn site and a three kilometre section of 66 kV overhead transmission line
- Relocating the site office and temporary storage area to a more suitable and sheltered location adjacent the main access track
- Installation of two permanent 80 metre meteorological monitoring masts near Turbines 16 and 20. Temporary masts to be located at the sites of Turbine 16 and 20 prior to their construction.
- Increase the width of access tracks from 6 to 10 metres during the construction phase
- Removal of wind turbine lighting requirements
- Strengthen Capital Wind Farm substation access road causeway

The construction phase will extend for about eight months with activities including site establishment, formation of access tracks and site earthworks, transport of materials, plant and equipment to site, erection of the turbines and installation of the 33 kV transmission line and items at the Capital Wind Farm substation including the 33 kV/330 kV transformer.

The construction will be undertaken in accordance with an approved Construction Environmental Management Plan (CEMP) as was required by the existing Development Consent. The CEMP will address the variations to the project and as indicated in Chapter 15 the revised mitigation measures for the amended project. It is expected that the Traffic Management Plan for the construction phase will be similar to that for the Capital Wind Farm with similar routes and the same types of vehicles involved. As such controls successfully applied for Capital Wind Farm are deemed appropriate.

Subject to gaining modification of the development consent it is expected that construction will commence in 2010. However, to allow for any unforeseen delays the proponent is seeking a one year extension of the time for lapsing of the development consent.

Operation of the Woodlawn Wind Farm will be subject to an approved Operation Environmental Management Plan and may be managed in conjunction with Capital Wind Farm despite the two projects being separate projects in terms of ownership and supply into the National Electricity Market (NEM).

ES.4 Planning context and consultation

The application for modification of the development consent for the proposed Woodlawn Wind Farm will be assessed under Part 4 of the EP&A Act and in the context of the current statutory environment for Commonwealth, State and local environmental issues. Details of issues pertinent to the project variations and the modification of development consent are described in Chapter 4 and Appendix C of this SEE. A summary of key aspects is provided here.

In August 2004 the Minister Assisting the Minister for Infrastructure and Planning declared the proposed Woodlawn Wind Farm to be a state significant development under Section 76A(7)(b) of the EP&A Act. As a result of this, the Minister for Infrastructure and Planning is the consent authority for the proposed wind farm.

The project is also regarded as designated development and Integrated Development. The application for modification of development consent is sought under Section 96(2) of the EP&A Act and has considered matters referred to in Section 79C as required by the Director-General's requirements and the EP&A Act.

The project spans two Local Government Areas (Goulburn-Mulwaree and Palerang) and lands located within the jurisdiction of three Local Environmental Plans (LEPs) as listed below. Zoning under the respective LEPs is shown in Figure 4.1.

- Goulburn Mulwaree (2009)
- Mulwaree (1995)
- Yarrawlumla (2002)

The project is on the boundary of the Lake George and Wollondilly River catchments (Figure 4.2 and Figure 5.5). The part of the wind farm site to the east of the Woodlawn topographic ridge is within the Sydney Outer Catchment area. The previous assessment in the 2004 EIS has shown that there is a neutral effect on the Sydney Drinking Water Catchment and the proposed changes do not alter the outcome of that assessment.

Due to revisions to the Protection of the Environment Operations (POEO) Act, wind farms are no longer scheduled premises and do not require a licence under Act. In this situation the respective Councils are the Appropriate Regulatory Authorities (ARA) for the parts of the project within their LGAs.

Approval of Goulburn Mulwaree Council will be required for works to upgrade the entrance to Pylara Farm that will provide the single point of entry to the wind farm site. Consultation to confirm engineering and safety details for the entry will be undertaken as part of pre-construction activities.

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) requires the approval of the Commonwealth Minister for the Environment, Water, Heritage and the Arts for actions that may have a significant impact on matters of National Environmental Significance (NES). Approval from the Commonwealth is in addition to any approvals under NSW legislation. The Proposal has been assessed by relevant specialists as not having a significant impact on matters of NES and referral under the EPBC Act is not required.

The Civil Aviation Safety Authority has advised that it has no requirement for lighting of any wind turbines and that it has no role or authority regarding this as the wind farm is beyond the Obstacle Limitation Surface for any aerodrome. The proponent will advise the details of turbine coordinates and dimensions so that they can be incorporated in relevant obstacle databases.

Table 4.1 lists approvals to be gained or aspects to be addressed in relation to an agency approval.

Section 4.9 of the SEE sets out the consultation undertaken and proposed for the wind farm. It indicates the stakeholders identified and consulted in respect of the project, key stages of



consultation, issues arising from consultation and the proponent's response to issues raised by stakeholders.

ES.5 Existing environment

Elements of the existing environment are described in Chapter 5 of the SEE or the section indicated in Table 5.1 of the SEE.

Project Location: The project is located on the Great Dividing Range to the east of the mostly dry Lake George. Topographic variations for the project area are shown in Figure 5.1 and 5.2. Representative photos of the project area are also provided in Plates 5.1 to 5.10.

Air Quality and Soils: The only air quality issues that require control during the construction phase are the control of dust for earthworks, emissions from construction machinery, and the potential for any wind blown wastes. These issues will be managed through the CEMP and the subsidiary Soil and Water Sub Plan and the Waste Management Sub Plan.

Water supply: Water supply demand for the operating wind farm is low but a temporary supply will be needed during construction to assist control of dust for site earthworks. The contractor will confirm arrangements for supply of water during the construction phase.

Water quality: Potential impacts of erosion and sedimentation or from spillage of fuels, oils or chemical on local watercourses and associated water quality will be controlled through measures incorporated in the CEMP. In general, the wind farm construction presents a low risk to water quality.

Landuse at the locality: The project is a general pastoral area but with mining and waste to energy activities close to the wind farm site. Neighbours to the wind farm site are setback more than 2.5 kilometres from the closest turbine sites of the amended array.

Socio-economic issues: The proposed variations will not significantly change the impact of the project at the locality from that outlined in the 2004 EIS. Furthermore the construction of the Capital Wind Farm has shown that the project can be integrated in the local area and that positive benefits flow through to local businesses.

ES.6 Visual issues

Chapter 6 provides a review of the visual impact of the amended project in relation to proposed project variations and the 2004 visual assessment for the approved project. Key variations that have potential to result in changes to the project's visual impact relate to:

- the lesser number of turbines to be installed
- the increase in hub height of the turbines and the larger rotor diameter
- relocation of some turbine sites
- installation of 12 kilometres of 33 kV line between Woodlawn Wind Farm and Capital Wind Farm substation
- omission of the 22 kV/66 kV substation at the wind farm site and the three kilometre section of 66 kV line

The visual assessment in this SEE complements that for the 2004 EIS. The assessment reviewed landscape characteristics, wind farm and transmission characteristics in relation to terrain and in respect of key viewpoints surrounding the project area. It has also provided a visual catchment for the wind farm and photomontages of the amended project from representative viewpoints including several close to viewpoints used for the 2004 visual assessment.

In addition to preparation of the representative photomontages, assessment of visibility of the amended wind farm from neighbouring residences within three kilometres of the wind farm was undertaken. There are only three neighbouring residences within three kilometres of the Woodlawn



turbine sites. Kildare and Glendale residences are assessed as having moderate visual impact while Torokina was assessed as having a potentially high visibility of the wind farm.

An assessment of shadow flicker in respect of viewpoints around the project area was also undertaken, with no neighbouring residences expected to be significantly impacted.

Route selection for the single pole 33 kV double circuit transmission line has resulted in the line being located distant from neighbouring residences and within the valleys of Taylors Creek catchment and Dry Creek catchment. The visibility of 33 kV transmission lines decreases significantly with distance.

Chapter 6 also outlines mitigation measures proposed for the project. Overall the visual impact of the amended wind farm project will be very similar to that of the approved project.

ES.7 Noise assessment

Chapter 7 documents the findings of a noise assessment undertaken by Vipac for the construction and operation of the amended wind farm. Results were compared to the noise impacts of the approved wind farm project and for receiver locations (residences) between the Capital and Woodlawn Wind Farms.

The noise assessment reviewed four background monitoring sites from the 2004 EIS (noise assessment by Wilkinson Murray) together with three sites from the 2006 EA for Capital Wind Farm (Vipac 2005 noise assessment). The seven sites were used to establish noise amenity criteria at residences surrounding the amended wind farm in accordance with the South Australian EPA Environmental Noise Guidelines, 2003.

Vipac also undertook noise modelling that was used to predict noise levels from the amended wind farm at receiver locations between two and five kilometres of the wind farm (nearest turbine). The modelling was based on the noise characteristics of the currently proposed Suzlon S88 2.1 MW turbine rather than the Vestas V80 2 MW turbine noise characteristics. The predicted noise levels for the surrounding residences are provided in the 2009 Vipac report and summarised in this SEE.

The amended wind farm was found to result in noise levels slightly less than for the approved array. The reduction in noise levels is attributed to a lesser number of turbines and removal of turbines from the central highest part of the ridgeline. The omission of the substation at the wind farm site also removes a noise source from this location.

The proposed 12 kilometre section of 33 kV overhead transmission line from the Woodlawn Wind Farm to the Capital Wind Farm substation will have a minor noise impact during the line construction and no noise impact once it is operational.

The augmentation of the 33 kV/330 kV substation will involve installation of an additional large 33 kV/330 kV transformer that represents an additional noise source once the Woodlawn Wind Farm becomes operational. Vipac also undertook an assessment of the noise impact of the augmented substation at the nearest receiver locations at distances of about 1.2 kilometres and found that the predicted noise levels were below the relevant noise amenity criteria under the NSW Industrial Noise Policy that is applicable for the substation noise impacts.

The construction noise impacts are expected to be similar to those identified for the approved development. Noisy construction activities may include earthworks, transport of plant and materials to the site, drilling for rock anchors and turbine erection. Construction of the wind farm is expected to occur over an eight month period. The construction hours are identified in the consent conditions and are 7am to 6pm on weekdays, and from 7am to 1pm on Saturday (8am to 1pm when audible). The construction noise impacts are expected to be very similar to that of the original project proposal, with a reduction in the period of construction noise impacts associated with the decrease in the number of turbines from 25 to 20 and no earthworks being required for the substation that was to have been located at the wind farm site. Given the distance of the respective turbine sites from neighbouring



residences the proponent is seeking approval to conduct turbine erection activities outside the approved construction hours.

ES.8 Flora and fauna

Chapter 8 provides an assessment of the potential impacts of the amended project on the flora and fauna at the site. Potential for impacts on flora and fauna arise out of the potential disturbances associated with the construction phase of the proposed development. The amended project has resulted in little change to potential impacts for the wind farm array but involves a lesser impact in respect of the substation that is no longer required at the site but an additional area of potential impact for the 33 kV overhead transmission line. Kevin Mills and Associates (KMA) provided an assessment of the route of the 33 kV transmission line north of Capital Wind Farm to the ridgeline where the Woodlawn Wind Farm will be located.

The results of the flora survey of the transmission line area indicated that the Woodlawn Wind Farm site is characterised by mostly cleared grassland and pasture with small patches of woodland, planted copses of mostly local tree species and scattered paddock trees. The woodland areas at the northern end of the survey area are dominated by Narrow-leaved Peppermint, with some Blackwood, Black Wattle, and Black She-oak, and an understorey of Bracken. The southern end of the transmission line area consists of very few trees, and is dominated by native pasture and grassland. A woodland of Inland Scribbly Gum with Broad-leaved Peppermint and a few Yellow Box is located at the southern edge of the Woodlawn Wind Farm. The transmission line route passes between turbines located at the northern end of the Hammonds Hill group of Capital Wind Farm, an area with only scattered paddock trees, including Black Wattle, with the grassland being mostly exotic or native pasture. It was concluded that there would be no significant impact on native flora in the area.

The results of the fauna survey indicated that the fauna in the transmission line area were typical of a rural environment in that region. The species are generally wetland species found on farm dams, woodland species in remnant patches of woodland and robust species associated with cleared farmland. Species observed typically covered a range of mammals, birds, reptiles and frogs. Threatened species that were known to live in the region were assessed, and it was concluded that it was unlikely that any of these species would be present in the area, although some species were known to appear occasionally in the area. Consequently, it was concluded that the Woodlawn Wind Farm and the associated transmission line would not have any significant impact on native fauna.

Where KMA have identified areas of remnant native vegetation that have conservation value the design of the project will be fine tuned to avoid impacts on the identified flora values. KMA concluded that no significant impact on listed threatened species, populations or communities was to be expected by the proposed development.

The main potential for impacts on fauna during the operation phase is that some avifauna (such as native birds and bats) may strike the moving turbine blades or in the case of bats be affected by turbulence and dramatic air pressure changes. The issue of impact on avifauna was assessed by the 2004 EIS and it is noted that the amended project involves five less turbines but each turbine will have a larger area swept by the rotor. When these changes are taken into account the amended wind farm is associated with a 3.5% reduction in the area swept by the turbine blades compared to the approved project. The reduction in swept area slightly reduces the risk to avifauna. While Lake George and Lake Bathurst remain dry then the risks to avifauna could be expected to remain very low. The existing consent conditions also include requirements for a Bird and Bat Adaptive Management Plan and this is expected to be retained in any modification of consent.

ES.9 Heritage

Chapter 8 of the SEE provides a review of the proposed changes to the approved project, particularly for the proposed 33 kV overhead transmission line from Woodlawn Wind Farm to the Capital Wind Farm substation.

A detailed assessment of the wind farm site, turbine array and ancillary aspects was previously undertaken by Biosis Research and documented in the 2004 EIS. The report focussed on the access track locations, turbine locations, the route of the proposed 66 kV electricity transmission line, and a public viewing platform. The assessment of the wind farm site identified artefacts at the site and subsequently sub surface excavation was undertaken under the required Section 87 Permit.

Consent to Destroy was subsequently granted under Section 90 of the NPW Act with salvage and care of identified artefacts as indicated in the associated Permit. Woodlawn Wind Pty Ltd is arranging for the salvage of the identified artefacts under the existing Permit. Subject to completion of the salvage it is deemed that the minor variations of the turbine sites within the area of the assessed turbine envelope can be undertaken without adverse impact on Indigenous Heritage Values.

The originally proposed 66 kV line has since been replaced with a 33 kV line on a different route and connecting the Woodlawn Wind Farm to the Capital Wind Farm substation. Austral Archaeology Pty Ltd was engaged by Woodlawn Wind Pty Ltd to undertake an Aboriginal archaeological and cultural heritage assessment of the route of the 33 kV line, including a 15 metre wide easement along each side of the proposed line route.

Relevant stakeholders were consulted in respect to Aboriginal Heritage issues for the area and the line route. The relevant stakeholders included in the consultation process included the Buru Ngunawal Aboriginal Corporation (BNAC), Ngunawal/Ngambri Local Aboriginal Land Council (NLALC), Pejar Local Aboriginal Land Council (PLALC) as well as the Native Title Claimants, the Gundungurra Tribal Council Aboriginal Corporation (GTCAC).

The Woodlawn Wind Farm transmission line field survey and assessment methodology consisted of a pedestrian survey of the area, identifying Aboriginal archaeological and cultural sites, identifying potential areas of archaeological deposit and landscapes, as well as consulting the Aboriginal stakeholders in relation to the cultural values of the areas and discussing possible techniques to mitigate the impact on Aboriginal heritage in the area.

Seven areas of archaeological potential were identified in the study area. Two were associated with surface artefact material while the remainder were determined based on landform characteristics alone. One particular site (WLTL-C SITE 3) was estimated as having 80 – 100 artefacts scattered across the surface. Typical artefact types included ground edge axes, flakes and nodules. Most of the individual sites assessed in the study area had a low potential for new information, except for WLTL-C SITE 3 (moderate) and WLTL-C PAD 3 (high). The rarity of the findings at each individual site were assessed as low in most of the sites, except for WLTL-C SITE 2 (moderate), WLTL-C SITE 3 (moderate - high) and WLTL-C PAD 3 (moderate). These three sites also contained a moderate to high research potential.

A number of mitigation measures will be implemented for the project in order that the Aboriginal Heritage impacts attributed to the project development are minimised. These measures include:

- the salvage and care of surface artefact items at the wind farm site,
- adjustments to the route of the transmission line and placement of supporting pole structures and trackwork for installation to avoid potential archaeological deposit WLTL-C PAD 3, and potentially valuable PAD's.
- should any items of indigenous or non-indigenous heritage significance be identified during the site works then works will be stopped at the location and specialist advice sought to determine how the issue is to be managed.



ES.10 Traffic and transport issues

Chapter 10 identifies the traffic and transport issues relevant to the amended project and updates the issues and mitigation measures in relation to the current plans for implementation of the project.

The traffic and transport issues will principally apply to the construction phase of the proposed development, as there will be minimal traffic associated with the project during the operation phase. This is mainly due to the additional volume of traffic on the normally lightly trafficked local roads and the need to use over-size and over-mass vehicles for the delivery of a range of components for the proposed development.

The daily traffic movements will consist of approximately 50 staff movements to and from the site. Other movements during the construction phase will include approximately 30 over-size trucks carrying the 44 metre long blades, 20 over-mass trucks carrying the 60 tonne nacelles, as well as another 80 over-mass trucks delivering the tower sections (each tower section will be between 30 and 50 tonnes). Another over-mass truck will deliver the 33 kV/330 kV transformer to the Capital Wind Farm substation. Moderate size trucks and tankers will also deliver a range of materials and parts including concrete, reinforcing steel, water, pipes, cable and various other materials.

A number of mitigation measures will be implemented with the aim of minimising the traffic and transportation impacts associated with the Woodlawn Wind Farm and will be developed in consultation with Goulburn Mulwaree and Palerang Councils. These measures will include a community awareness and consultation program prior to the construction process commencing, in order that the local residents are aware of the increased road use over the construction phase. Other measures will include the use of the agreed Restricted Access Vehicle (RAV) transport routes, and travel times (to provide the safest route and avoid school zones), compliance with permit requirements for over-size and over-mass vehicles, as well as an inspection and maintenance program to prevent degradation of roadways.

ES.11 Telecommunications interference

Chapter 11 provides an updated assessment of potential for interference to telecommunications associated with the amended project. The key project changes with potential for telecommunications interference are the changes to the turbine array including revised turbine locations and dimensions of individual turbines. Being large structures, wind turbines have the potential to cause radio signal interference. This interference could potentially affect services such as aircraft navigation systems, radio signals, television signals, microwave links, and mobile phones.

The 2004 EIS provided an assessment of the potential for telecommunications interference in respect of the original project. It was identified that television broadcasting services were likely to be the only services significantly impacted by the proposed development. This interference is dependant on wind speed and direction, as well as proximity of the receiver to the turbines.

In 2009, Lawrence Derrick & Associates provided an updated assessment in respect of the amended array. This indicated that the final array will need to be reviewed to ensure adequate clearance for point to point communications paths and where necessary minor adjustments made to sites of one or two turbines to avoid interference to these services

The effects of telecommunications interference with respect to analogue television broadcasting can be easily mitigated, through antenna adjustments, the switching to digital television, or alternatively through the use of satellite technology (when digital technology is not suitable for a particular location). There are a limited number of residences in vicinity of Woodlawn Wind Farm that can potentially have adverse effects on television reception and with implementation of the available measures, as suitable, the impact is relatively straightforward to address.

ES.12 Safety issues

Chapter 12 of the SEE provides a review of the safety issues relevant to the amended project. The principal safety hazard issues identified in the 2004 EIS for the Woodlawn Wind Farm development related to:

- aviation
- bushfire risk
- physical safety of site infrastructure
- potential health risks including electromagnetic fields and shadow flicker
- electrical safety
- road safety
- other construction issues

The revised wind farm design involves turbines having a maximum height of 124 metres measured to the top of the area swept by the turbine rotor. As the structures exceed 110 metres in height the potential for them to be an aviation hazard to commercial, agricultural and recreational aircraft needs to be reviewed. The 2004 EIS indicated that Obstacle Limitation Surfaces (OLS) can extend up to 16 kilometres from an aerodrome. Based on the distance of the Woodlawn Wind Farm from Goulburn and Canberra, the wind farm development is well beyond the extent of the OLS for each of the aerodromes and is not regarded as a hazard to users of those aerodromes. Accordingly, aircraft safety lighting is not required on the wind turbine structures.

However, considering the height of the wind turbines, CASA will be informed of the location and dimensions of the proposed wind turbine generators. The wind turbine structures are not considered to be safety hazards to aerial agriculture operations or recreational aviation as the structures are readily visible and the pilots can easily avoid them. The existing consent condition 64 also provides that the proponent must fully fund the difference between the cost of aerial weed spraying and a reasonable alternative weed control method in the event that aerial spraying of land is restricted.

Issues associated with the bushfire risk may involve the potential for the construction activities to initiate a bushfire, the potential for operational facilities to initiate a bushfire, and the impacts on the facility from a bushfire affecting the site (whether originating from the site or elsewhere). During the construction phase of the project, a number of measures will be taken to safeguard from the risk of bushfires. These measures include compliance with the Bush Fires Act and the Fire Brigade Act (and all relevant regulations), creation of fire breaks when necessary, and the presence of a 1000 litre tanker unit and knapsack sprays throughout the construction phase. The bush fire risks during the operational phase are considered to be manageable, through the controlling of vegetation levels and the observance of electrical standards.

The issue of physical safety will be addressed firstly through ensuring that all plant and equipment meets the relevant Australian and/or overseas standards. In particular, the turbine structures will be designed and constructed in accordance with standards including AS/NZS 1170.2 - Structural Design Actions, including earthquake load considerations, AS 2550 - Cranes - Safe Use, AS 3600 - Concrete Structures, AS 4100 - Steel Structures (except Tower), Steel Tower – DIN 18 800, and IEC 61400-1 Wind Turbine Generator Systems - Safety Requirements.

Other physical safety issues which may be relevant in relation to wind turbines include potential for tower failure, blade separation, ice throw and contact with moving blades. These risks issues are largely negated or very low due to the remote location of the turbines within a rural setting, since it is very unlikely that people will be present in the area and the comprehensive inspection and maintenance routines that are undertaken for operating wind farms.

The electrical equipment at the turbine sites, substation and the 33 kV underground cables and overhead transmission lines can be associated electric and magnetic fields in the close vicinity of these items. These electric and magnetic fields have been sighted as a potential health risk when people experience prolonged exposure to high field strengths. Despite extensive research and



numerous public inquiries, a connection between electromagnetic fields and adverse health effects has not been established. The design of the project is such that the turbines, underground cables and substation are not located within close proximity to any residences or public places. The route of the 33 kV overhead transmission line is also on land leased for the project and distant from neighbouring residences.

Any shadow flicker effect produced by rotating turbines and affecting neighbouring residences will only occur for very short periods (less than ten hours per year) and for the distances involved (greater than 2.5 kilometres) to the nearest neighbouring residences that could be affected, the intensity of the effect is extremely weak. The project does not appear to pose a threat to sensitive people with photosensitive epilepsy, since the maximum flicker frequency is well below the minimum frequency at which seizures can be induced in people suffering from epilepsy and as a result, the risk of shadow flicker causing health risks in this way is negligible.

Electrical safety is a key design consideration for power generation projects, and will be achieved through ensuring that plant, equipment and the overall installation are in accordance with the relevant standards or where necessary, that approval is obtained for an alternative specification. The electrical components of the substation pose a substantial risk to the public, and consequently the substation will be enclosed within a secure perimeter fence to prevent public access. Another electrical safety consideration is that the wind turbines will be exposed to lighting strikes. This is mitigated primarily through the addition of conductors in the turbine blades, as well as sufficient earthing of support structures.

The principal road safety issues associated with the development proposal relate to the construction phase of the project, since the operational phase will require limited maintenance work and therefore a low occasional impact on users of local roads. The road safety issues associated with the construction process include increased traffic, the presence of oversized vehicles on local roads, and site entry points from local roads used by long loads associated with delivery of turbine equipment. The site entry will be designed in consultation with Goulburn Mulwaree Council.

It was also identified that the steep slopes around many of the wind turbine sites could pose a considerable safety risk especially for operators of oversize vehicles and some machinery. This risk is to be managed through appropriate design of access tracks, the use of barriers, warning signs, tapes to alert drivers to any hazard and in some cases observers to watch for and warn drivers of proximity to steep slopes.

ES.13 Greenhouse issues

Chapter 13 provides a review of the potential greenhouse savings arising from the development of the Woodlawn Wind Farm. Electricity supplies in NSW are currently mainly sourced from coal fired power stations with relatively small contributions from gas fired plant and renewable energy generation. Wind power has low greenhouse gas emissions (typically around 10-15 kg CO₂/MWh) and much less than for coal fired power generation where emissions can be over 850 kg CO₂/MWh. Projects such as Woodlawn Wind Farm reduce the emissions intensity of electricity supplies and assist the national objective of reducing growth in greenhouse gas emissions.

The amended 20 turbine wind farm will have a total generation capacity of 42 MW reduced from the approved wind farm capacity of 50 MW. However, the increased capacity of individual turbines from 2 MW to 2.1 MW and increased dimensions of the turbine structures means that the annual power output of the wind farm will be slightly increased relative to the approved wind farm.

Based on the power output of the amended project and displacement of generation with emissions represented by the NSW pool coefficient, then the potential greenhouse gas emission savings will be approximately 146,000 tonnes of CO_{2-eq}/year. These emissions savings represent some 3.65 million tonnes CO_{2-eq} over the project life and complement the emission savings of the Capital Wind Farm and the nearby Woodlawn Bioreactor.



ES.14 Cumulative impact

The Woodlawn Wind Farm will result in a second wind farm project at the Tarago locality and together with the Capital Wind Farm and Woodlawn Bioreactor these projects will provide over 200 MW of electricity supplies generated without the use of finite fossil fuel resources.

The proposed variations to the approved project will also avoid the need for construction of an additional substation at the locality and will utilise the existing Capital Wind Farm station that will be augmented with an additional 33 kV/330 kV transformer and associated electrical equipment. While a 12 kilometre section of 33 kV overhead transmission line will be added to the project, approximately three kilometres of 66V transmission line that was originally proposed for grid connection will not be installed.

The impacts of the Woodlawn Wind Farm project have been assessed in the context of social and environmental issues for the local and regional area and as applicable in respect of cumulative impacts of one or more developments. The cumulative impacts include the beneficial aspects of the project development and several adverse impacts that will be managed through appropriate design and through implementation in accordance with approved CEMP and OEMP documentation.

ES.15 Mitigation measures

Chapter 15 of the SEE provides a compilation of the mitigation measures for the amended project in the context of the existing development consent and the associated schedules, conditions and General Terms of Approval in relation to Aboriginal Cultural Heritage. The aspects relating to the project variations and identified in this SEE will need to be incorporated in the respective CEMP and OEMP documentation as applicable.

The material provided in Chapter 15 sets out suggested variations to the existing conditions of consent.

ES.16 Project justification

Chapter 16 provides the basis for justification of the amended project as described in this SEE and to be implemented in accordance with the 2004 EIS and the updated assessment and proposed mitigation measures in this SEE.

Overall the amended project represents substantially the same development as relates to the existing development consent. The wind farm is located on the same section of ridgeline as originally proposed. While it has a lesser number of turbines the wind farm will provide a similar amount of power from a renewable energy source. The point of grid connection has been changed to provide a more practical and cost effective outcome without any significant change to the project's environmental impact.

The development of Woodlawn Wind Farm will

- Provide an additional renewable energy generation supply source
- Avoid demands on finite fossil fuel resources
- Assist reduction in emissions intensity of electricity generation
- Provide income to landowners where the project is located
- Assist local businesses through local income generation

The above factors support the project proceeding with appropriate integration of measures to mitigate its social and environmental effects.