
Submission to Department of Planning – New South Wales**Preliminary Environmental Assessment**

Paling Yards Wind Farm, New South Wales

Prepared by Tract Consultants Pty Ltd

8 April, 2010

1 Introduction

Tract Consultants on behalf of Union Fenosa Wind Australia (UFWA) have prepared this Preliminary Environmental Assessment (PEA) to provide preliminary details of the Paling Yards Wind Farm to the NSW Department of Planning.

The proposed wind farm site is located on the western extent of the Great Dividing Range in NSW, 60km south of Oberon, 60km north of Goulburn and approximately 140km west of Sydney. It is understood that this document will allow the drafting of *Director Generals Requirements* to be addressed by an Environmental Assessment (EA).

The proposed wind farm supports the NSW Government's renewable energy policies and directly implements the Federal Government's renewable energy target of 20% of Australia's energy sourced by renewable energy by 2020.

This document represents an overview of the site and surrounds, describes the proposal in its preliminary form, summarises the planning instruments and outlines the key issues and next steps for the project.

2 The Site and Surrounds

2.1 Regional and Local Context

The site is located on the western extent of the Great Dividing Range in NSW, 60km south of Oberon, 60km north of Goulburn in NSW and approximately 140km west of Sydney. Please refer to **Figure 1 – Locality Plan**.

The surrounding area is predominantly National Park with the eastern edge of the site bordered by Kanangra Boyd National Park and Abercrombie National Park to the west and south. The site is situated in the Oberon Local Government Area (LGA).

The area is heavily undulating with some steep slopes. The site is bisected by Taralga Road which links the towns of Oberon and Taralga. The closest towns are Porters Retreat and Curraweela which have township populations of approximately 180 and 320 respectively.

Several water courses traverse the area including the Abercrombie River which flows into the Lachlan River. The Abercrombie River forms the southern boundary of the site.

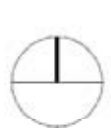
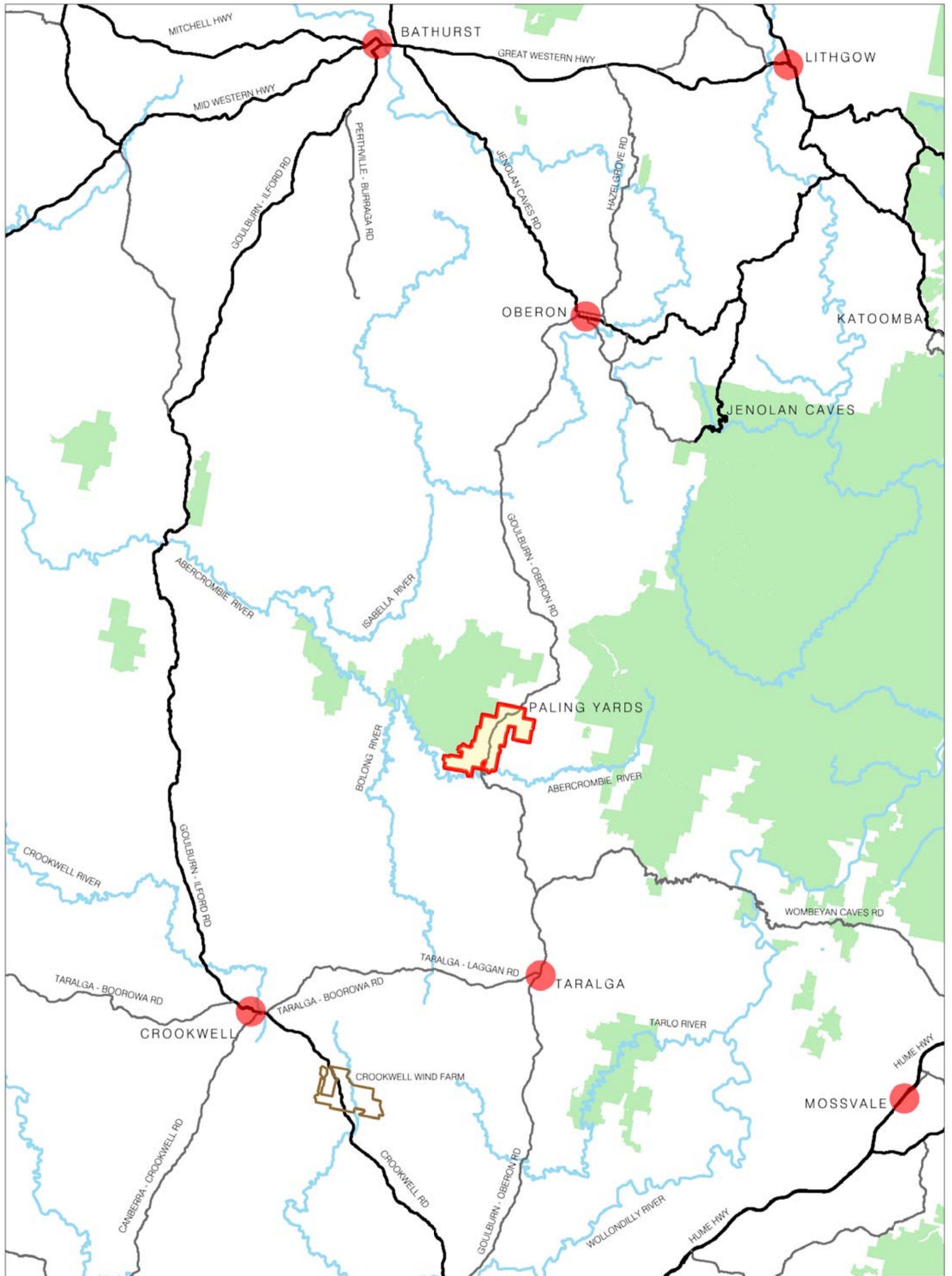
The site is approximately 40km to the north-east of the existing Crookwell 1 wind farm and the approved Crookwell 2 Wind Farm. Work has recently commenced on the 46 turbine Crookwell 2 project (A UFWA Project) and the project is likely to be commissioned in mid 2012.

2.2 The Site

The site includes two separate land holdings over approximately 3,900 Hectares referred to as 'Mingary Park' and 'Paling Yards' and the site incorporates two homestead areas. Please refer to **Figure 2 – Site Analysis Plan**. The majority of the site has been cleared of native vegetation although scattered trees are common within the site and thicker vegetation exists near the sites boundary. The site is bordered by National Parks and uncleared land to the south-east all of which are heavily vegetated.

The site ranges from between 900m and 1065m above sea level with significant slopes in many areas. A number of ephemeral creeks and drainage lines cross the site which drains into the Abercrombie River. The site is currently used for agricultural purposes (predominantly sheep and cattle grazing). Access to the site is achieved by Taralga Road which is a Council maintained road.

The site also includes three options for a transmission line connection to the approved Crookwell 2 Wind Farm substation approximately 40km south of the Paling Yards site. Please refer to **Figure 3 – Transmission Line Plan**.



A3

LOCATION PLAN

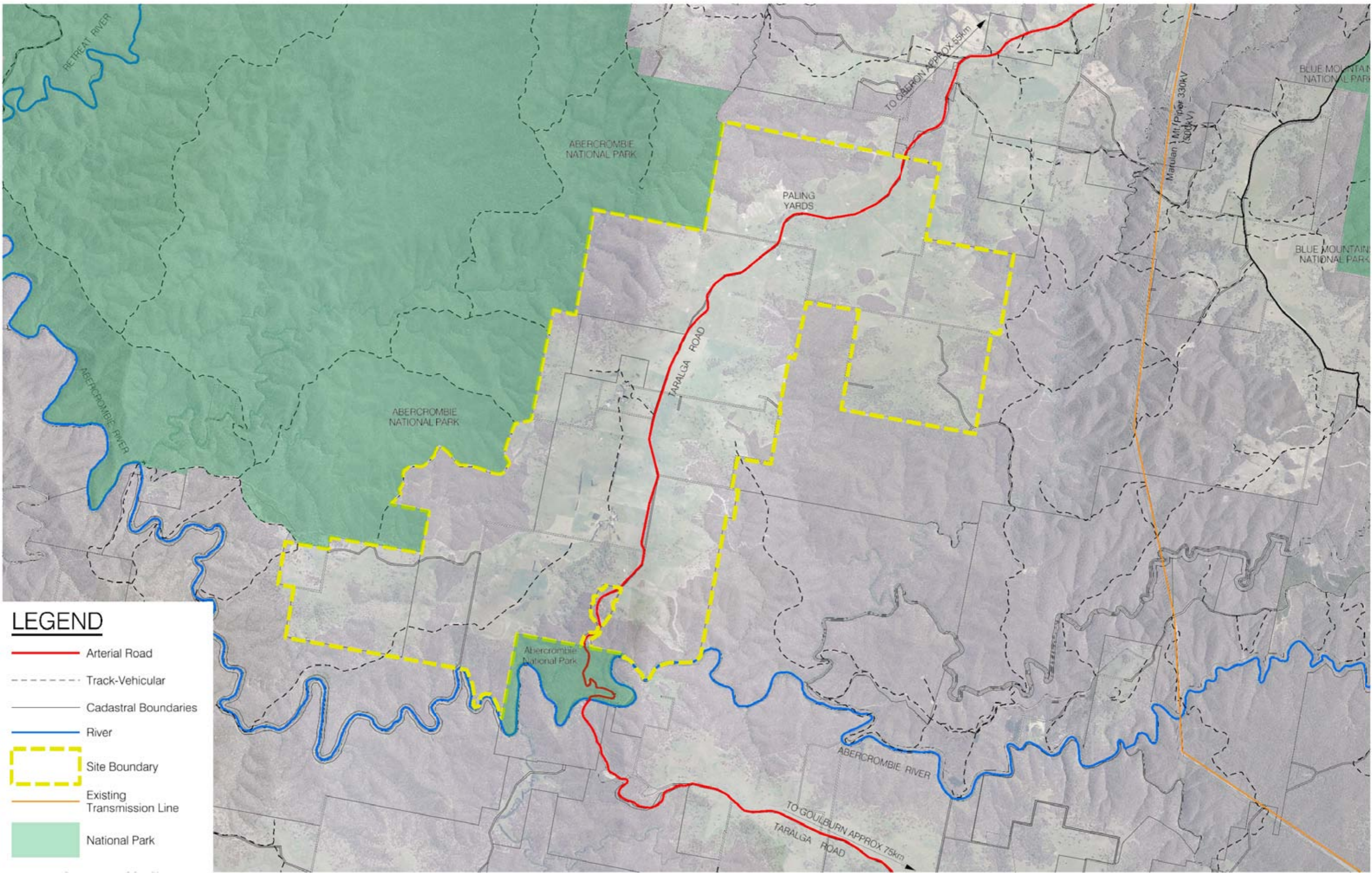
PALING YARDS WIND FARM

PROJ/DRG.NO. 309254 LP-00

REV. 00 DRAWN J.D.

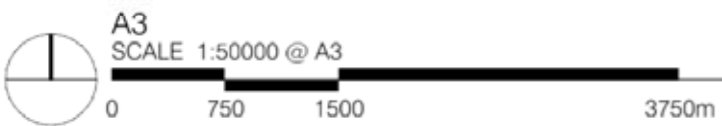
APPD. A.T.

DATE 24.11.2009



LEGEND

- Arterial Road
- - - Track-Vehicular
- Cadastral Boundaries
- River
- Site Boundary
- Existing Transmission Line
- National Park



SITE ANALYSIS

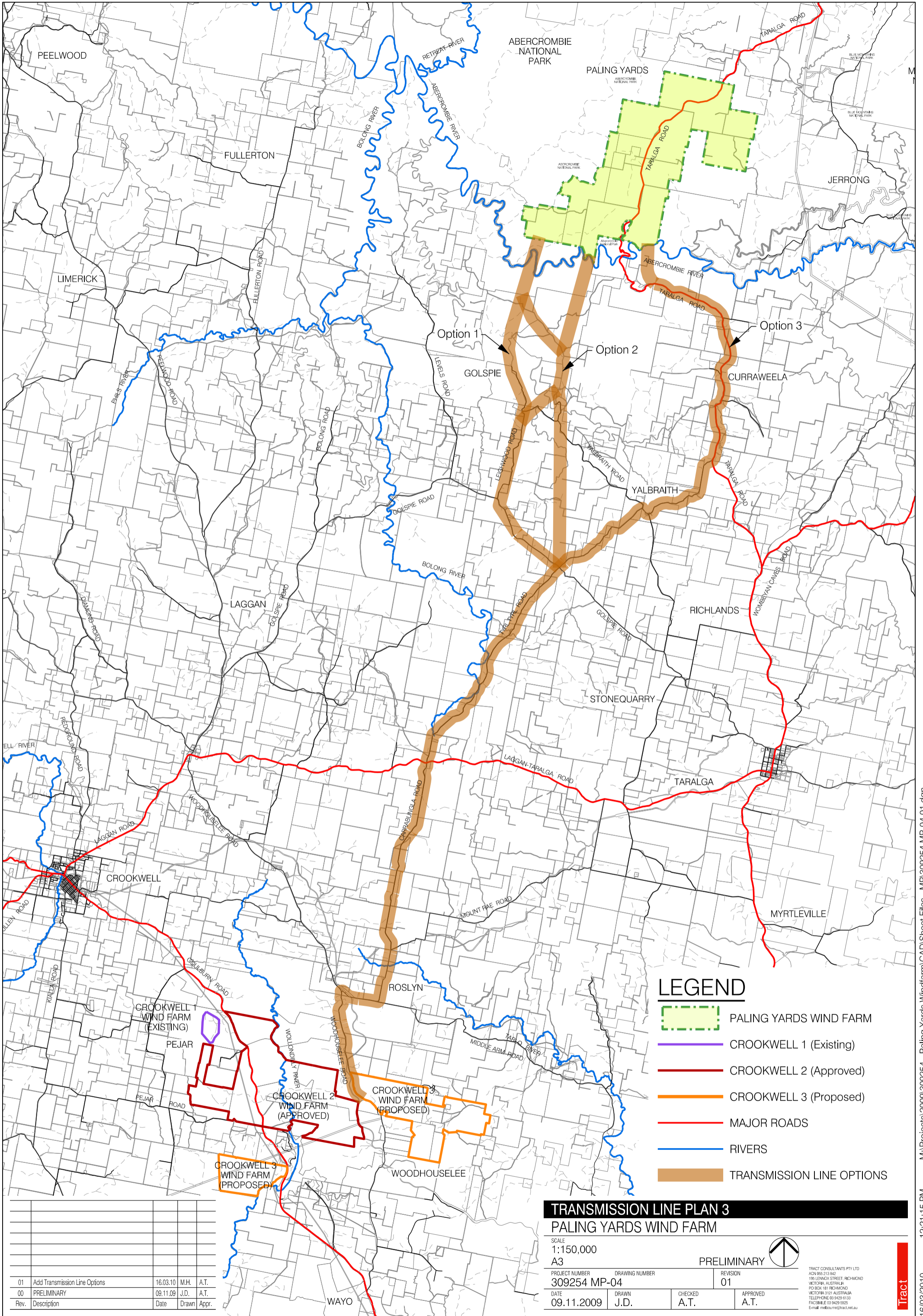
PALING YARDS WIND FARM

PROJ./DRG NO. 309254 SA-01

REV. 00 DRAWN J.D.

APPD. A.T.

DATE 27.11.2009



LEGEND

- PALING YARDS WIND FARM
- CROOKWELL 1 (Existing)
- CROOKWELL 2 (Approved)
- CROOKWELL 3 (Proposed)
- MAJOR ROADS
- RIVERS
- TRANSMISSION LINE OPTIONS

**TRANSMISSION LINE PLAN 3
PALING YARDS WIND FARM**

SCALE 1:150,000 A3		PRELIMINARY	
PROJECT NUMBER 309254 MP-04	DRAWING NUMBER	REVISION 01	TRACT CONSULTANTS PTY LTD ACN 055 213 842 188 LENINGA STREET, RICHMOND VICTORIA, AUSTRALIA PO BOX 181, RICHMOND VICTORIA 3121 AUSTRALIA TELEPHONE 03 9429 6133 FACSIMILE 03 9429 5925 Email: info@tract.com.au
DATE 09.11.2009	DRAWN J.D.	CHECKED A.T.	
		APPROVED A.T.	

Rev.	Description	Date	Drawn	Appr.
01	Add Transmission Line Options	16.03.10	M.H.	A.T.
00	PRELIMINARY	09.11.09	J.D.	A.T.



3 Project Description

3.1 Purpose

The PEA has been prepared to support a future EA for the proposed Paling Yards Wind Farm located 60km south of Oberon.

The purpose of this chapter is to provide an overview of the preliminary specifications of the proposal. Whilst the approximate number of turbines that the site can accommodate is expected to be between 50 and 60 turbines, the location of the individual turbines is not resolved at this stage and will be informed by the next phase of investigations. The next stage of the process will also provide greater clarity of the preliminary details of the project, as detailed below.

3.2 Project Overview

The proposal comprises a number of elements, including:

- 50 to 60 individual wind turbines standing up to 175m at top of blade tip with up to 3.3 MW capacity each;
- Internal unsealed tracks for turbine access;
- Upgrades to local road infrastructure;
- An electrical substation and overland connection to the transmission line;
- An underground electrical and communication cable network linking turbines to each other and the proposed substation;
- A temporary concrete batching plant to supply concrete for the foundations of the turbines and other associated structures;
- Potential for obstacle lighting to selected turbines;
- A wind farm and substation control room and facilities building co located with the substation;
- Potential for native vegetation removal in some areas;
- Options for a 55km of 132kv overhead transmission line connection to the approved Crookwell 2 Wind Farm

3.3 Landowners

The site consists of two landowners which have entered into an Agreement for Lease with UFWA. The project is almost entirely surrounded by vegetation and therefore there is a significant buffer to neighbouring non-participating land owners.

Depending on which option for the transmission line is chosen, the site also includes a number of road reserves and potentially additional areas of private land.

3.4 Turbines

The following table represents the turbines currently under consideration by UFWA for the project. At this early stage in the planning process, flexibility is needed for the turbine selection as the turbine industry is rapidly changes and models can become obsolete is a small space of time.

Turbine Option	Option 1 N100	Option 2 V100	Option 3 SWT-101	Option 4 V-112
No of Turbines	50-60	50-60	50-60	50-60
Tower Hub Heights	80-100m	80-95m	80-90m	84-95-119m
Rotor Blade Length	48.7m	49.0m	49.0m	54.65m
Rotor Diameter	100m	100m	101m	112m
Total Height (To Tip)	130-150m	130-145m	131-141m	140-150- 175m
Turbine Capacity	2.5 MW	1.8 MW	2.3 MW	3.0 MW
Total Capacity	125-150MW	90-108MW	115-138MW	150-180MW

Wind turbines are automated to face into the wind. The turbines selected for consideration have a cut-in speed of between 3m/s and 4m/s in response to the particular conditions at the site.

There are some slight differences in the electrical construction of the turbines under consideration. Some of these options have a transformer in the nacelle, and a switchgear either in the base of the tower or next to the tower. Other turbines have the transformer and the switchgear on the ground in a kiosk next to the tower.

3.5 Electrical Works

The electrical works proposed comprise;

- Electrical cables linking the turbines to the sub-station, installed underground;
- Control cables linking the turbines to the control room, also installed underground;
- A transformer substation, including main transformer and switchgear; and control and communications equipment installed within the control room.

Grid connection will be achieved by one of two options;

- Connection to the recently upgraded 500kv transmission line which bypasses to the East of the site; or,
- Connection via the Crookwell 2 Wind Farm approximately 55km to the south west of the site.

3.6 Transmission Line Route

Substations and associated buildings are a significant component of a wind farm project, and the viability of projects is increased when such facilitates can be shared. As a result, it is proposed to share the substation approved as part of Crookwell II Wind Farm with the Paling Yards Wind Farm and link the projects through an overhead transmission line. It comprises a 132KV line hung from single concrete poles, not dissimilar from the standard single pole powerline that is very common across rural Australia.

The transmission line route is currently under investigation. Three potential options for the transmission line route have been developed (as shown in **Figure 3 – Transmission Line Plan**) to link with the approved substation at Crookwell 2 Wind Farm.

Options 1 and 2 involve crossings of the Abercrombie River and private lands which contain some native vegetation. These routes are very direct and therefore reduce potential impacts by being the shortest routes in this area. Option 3 involves a

connection from the south east of the property through a generally well cleared patch of vegetation linking with and then following the Taralga Road reserve.

3.7 Access

Within the site unsealed access tracks would be created to connect the turbines to the main road. Some of these may use existing farm tracks. During construction these would be widened to approximately 10m in width to support the extra load of equipment. They would then reduce to 4m during the operation phase of the project.

Access to the site would be achieved via Taralga Road with Port Kembla the preliminary preferred port for delivery of wind farm components.

Access points would be selected taking into account traffic engineering principles, wind farm construction and operation requirements, and the avoidance of native vegetation.

3.8 Vegetation Removal

The project may require some vegetation removal to facilitate the development. The exact extent of proposed vegetation removal will be detailed in the EA. Whilst the area surrounding the site is well vegetated, the site itself is largely devoid of vegetation especially in the centre of the site where the bulk of wind turbines would be located.

There is also the potential for vegetation loss arising from the transmission line route. These routes are likely to contain endangered ecological communities. The condition of each of these areas to be potentially disturbed would require assessment and mapping, recognising that the transmission line will generally have minor impacts and can be routed to avoid certain areas.

Impact assessment would involve limiting the impact and assessing if compensatory habitat is required. The route selected for the transmission line will involve a number of factors including the need to avoid significant areas of native vegetation.

3.9 Construction and Operation Stages

The full construction phase would likely take 12 months subject to delays due to weather and unforeseen circumstances. The construction phase of the project (subject to planning approval) would likely commence in the mid to late of 2011.

At the peak of construction, the project is likely to be employing approximately 120 people, across the tasks detailed in the table below.

Construction Program

Activity	Works Involved
Site Establishment	Clearing of work areas, levelling and compaction, installation of portable buildings and installation / connection of utility services. Site Survey.
Internal Road Works	Removal of topsoil, levelling, sub-base compaction, gravel, drainage.
External Road Works	Upgrade existing roads where required. Provide new access roads to the site.
Foundations	Removal of topsoil, excavation, screed concrete, reinforcement steel bottom, installation of foundation ring, reinforcement steel top, concreting, concrete ring and conduits, backfilling.
Crane Pad Establishment	Removal of topsoil, base compaction, rock / gravel compaction.
Trenches and Cable Laying	Excavation, sand infill, cable laying with protective covering, backfilling and compacting, installation of cable route markers.
Substation Civil Works	Site survey, site clearing, levelling/compaction. Building foundations including excavation, formwork and concrete. Installation of columns, walls, roof, gutters, doors, floors. Installation of building services including plumbing, electrical, fire protection, security.
Control Buildings	Foundation works including excavation, formwork, reinforcement, concreting. Installation of columns, walls, carpentry, roof, floors, doors. Installation of services including plumbing, electrical, fire protection, air conditioning, security.
Switchyard Works	Site survey, site clearing, levelling/compaction. Equipment foundations including excavation, formwork, reinforcement steel, concrete, grouting. Oil containment and separation system including excavation, formwork, concrete, ladders, hatches, pipes and bund walls. Security Fencing.
Electrical Works	Control building switchboards, communications, Supervisory Control And Data Acquisition (SCADA) systems. Installation of cabling, switchgear, turbine control panels.
Turbine Supply	Transport of towers, nacelles, hubs and blades to site.
Turbine Erection	Erection of towers, nacelle, blades, installation of cabling.
Substation Electrical Works	Installation of steel structures, busbars, transformers, equipment, earthing system, metering system
Transmission Line works	Surveying, Site establishment, clearing, installation of foundations, poles / towers, conductors and fittings.
Wind Farm Commissioning	Pre-commissioning of turbines, SCADA, cables testing, optical fibre. Testing and commissioning of turbines, switchgear, SCADA.

Activity	Works Involved
Substation Commissioning	Testing and commissioning of transformers, equipment, earthing, cabling and wiring checks, protection relays, SCADA, communications and security systems.
Electricity Grid Cut in	Site establishment, clearing, levelling / compaction. Installation of foundations, poles / towers, connections to the High voltage transmission line.
Construction Closure	Site cleanup, revegetation, landscaping.

3.10 Operation

The operation phase of the project reflects the leasing arrangement with landowners. During the operation all infrastructure associated with the wind farm would remain the responsibility of the proponent, although control of the switchyard of the substation could be transferred to the transmission infrastructure owner. All access tracks used by UFWA would be maintained by UFWA as part of the operation of the wind farm, and are available for host landowner's use.

The wind farm would be controlled by a computerised system. The system would be linked to each turbine by fibre-optic cables laid in the same trench as the electrical cables. The computerised system would log all relevant operating parameters and initiate the most efficient functionality of the turbines according to the atmospheric characteristics. The computerised system would also enable the controller to stop the turbine through an automated response.

The computerised system would ensure that rotational speed and the wind turbine angle operate automatically within the wind speed design envelope. Turbines would be disconnected from the grid at low wind and very high wind speeds. Maintenance will be conducted throughout the operation phase and includes a number of activities over differing time periods.

3.11 Project Background

The project was originally proposed by TME Australia in 2002, at which time wind monitoring masts were placed on site to determine the suitability of the wind resource.

Once the suitability of the wind resource was determined, through a joint venture with Gamesa Energy Australia a consultant team was established in 2004 to prepare an Environmental Impact Statement (EIS) and EPBC referral for a project of approximately 46 turbines of 67 – 78m to hub height. The rapid changes in technology in the wind farm industry has now allowed for consideration of an increased number of turbines of increased size.

An EPBC referral was lodged with the Department of Environment and Heritage (now DEWHA) in early 2005 and was deemed **not** to be a controlled action. Subsequent referral will be made based on the time since passed and other changes in the project.

A planning focus meeting was held in February 2005 to provide the Department of Planning with a formal brief of the project and to inform the preparation of the Director Generals requirements. No development application has been made for the project although some investigations have been undertaken and background reports commenced to support an application. Where relevant this existing data will supplement new investigations.

The project was placed on hold in mid-2005 due to an uncertain business environment in regard to investment in renewable energy projects. The recent passing of the expanded renewable energy target has provided confidence that the project can proceed.

The Department of Planning on the 3rd November 2009 advised that the application has been declared a Major Project and will therefore be assessed under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

3.12 Project Timeframe

Following receipt of the Director General's requirements early next year the applicant is then likely to be in a position to lodge a *Planning and Environment Assessment* in late 2010.

The following timeframe is envisaged.

Phase	Duration	Completion
Preparation of Environmental Assessment	6-8 months	February 2011
Assessment by DoP	4 months	June 2011
Detailed Design	4-6 months	November 2011
Construction Tender Process	3 months	February 2012
Wind Farm Construction and Grid Connection	12 months	February 2013
Commissioning	1-2 months	April 2013

3.13 The Applicant

Union Fenosa is an international energy group with a presence in 14 countries worldwide and with over 12,000 employees. Union Fenosa has a long history of successful renewable energy projects around the world, building more than 2,000 MW of green energy capacity across wind, solar, hydro, biomass and other renewable energy sources. Union Fenosa has entered into a partnership with TME Australia Pty Ltd, an Australian company and the original proponent of the wind farm, to develop a portfolio of (currently) 1,000 MW of wind farm projects across Australia including the Paling Yards Wind Farm. Union Fenosa is the majority stakeholder in the partnership, holding an 80 percent share in UFWA. UFWA now has eight projects across NSW and Victoria.

This portfolio represents an investment of approximately \$2 billion in renewable wind generation. Once complete, the portfolio will increase Australia's present wind generation capacity of approximately 1,800 MW by nearly 50%. In addition, the portfolio will result in the creation of several hundred jobs in the construction and operational phases.

Union Fenosa Group has now been acquired by Gas Natural and together they have created a leading vertically integrated gas and electricity group that has a presence in 23 countries and employs over 20,000 staff with 17,000 MW of installed electricity generation and has more than 20 million customers worldwide.

4 Planning Instruments and Context

4.1 Introduction

A range of Federal, State, Regional and Local planning and environmental instruments apply to the proposed Paling Yards Wind Farm, including State Environmental Planning Policies (SEPPs), Regional Environmental Plans (REPs), and Local Environmental Plans (LEPs).

This chapter outlines the key environmental instruments and planning controls which apply to the project application. The EA, which will be submitted as part of the future stage of the planning process, will contain a comprehensive assessment of the proposed project against all relevant planning and environmental instruments.

4.2 Commonwealth Instruments

Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act regulates actions that impact on matters of national environmental significance.

An action that:

- has, will have or is likely to have a significant impact on a matter of national environmental significance; or
- is a nuclear action;
- may not be undertaken without prior approval from the Commonwealth Minister for the Environment and Heritage. Such approval is provided for under Part 9 of the EPBC Act.

Matters of national environmental significance under the EPBC Act include:

- World Heritage properties and National Heritage places;
- Wetlands of International Significance (i.e. RAMSAR wetlands);
- Listed threatened species and communities;
- Listed Migratory Species protected under international agreements (CAMBA and JAMBA);
- Commonwealth Marine Areas.

The proposed wind farm constitutes an action under section 523 of the EPBC Act.

The specialist assessments proposed to be completed to inform the EA will review the application of the EPBC Act to the proposed wind farm and in particular whether any matters of national environmental significance (as defined under the EPBC) are likely to be affected.

A referral to the Department of Environment and Heritage was made in February 2005 for a determination on whether the project was to be a controlled action. On 31st March 2005, advice was received from the Department indicating that the project was not to be a controlled action.

Given the amount of time passed since that decision, the matter will be referred again to the Department.

Civil Aviation Safety Regulations 1998

The *Civil Aviation Safety Regulations 1998* (made under the *Civil Aviation Act 1988*) require that CASA must be informed of proposals to build a structure greater than 110 metres above Australian Datum. This is required to allow assessment of whether the structure may represent a hazard to aircraft, and to provide any associated requirements including any requirements for markings or lighting.

A circular regarding hazard lighting of wind farm has been released by CASA that is of relevance to this proposal. The AC139-18(0) advises that proponents of wind farms where the turbines exceeds 110m above ground level should expect that CASA will require appropriate obstruction lighting and marking to reduce the hazard to aviation unless the circumstances at a particular wind farm are very unusual. AC139-18(0) has been withdrawn by CASA pending a review of the guideline material. Despite this, CASA has advised that the circular remains of relance to proponents wishing to assess aeronautical impacts.

Detailed discussions will be had with CASA during the next stage of the planning process and as part of the specialist investigations informing the EA.

4.3 NSW State Instruments

Environmental Planning and Assessment Act 1979 & Environmental Planning and Assessment Regulation 2000

On 22 September 2009, the proponent wrote to the Department of Planning requesting information on the approval process for the Paling Yards Wind Farm.

On 29 October 2009, the Deputy Director General, Development Assessment for the Department of Planning, under delegation for the Minister for Planning, formed an opinion under clause 6 of the State Environmental Planning Policy (Major Development SEPP) that the Paling Yards Wind Farm is development of a kind that is described in Schedule 1 of the Major Development SEPP.

The letter stated:

- *'The project is therefore declared to be a Major Project under Part 3A of the Environmental Planning and Assessment Act 1979 and will be subject to the determination by the Minister for Planning'.*

It is noted that in accordance with section 75U of the Environmental Planning and Assessment Act, certain approvals under other legislation are not required where the project is subject to Part 3A.

Further, Section 75C of the Environmental Planning and Assessment Act 1979 states that projects are afforded critical infrastructure status if they comply with the following;

“Development for the purpose of a facility for the generation of electricity derived from renewable fuel sources (that is, wind energy, solar energy, geothermal energy, hydro energy, wave energy and bio energy), being development that:

~ (a) is the subject of an application lodged pursuant to section 75E or section 75M of the Environmental Planning and Assessment Act 1979 lodged after the date of this declaration; and

~ (b) is the subject of an application that proposes a development with a capacity to generate at least 30 megawatts.”

As a renewable energy project greater than 30 megawatts, we understand Paling Yards Wind Farm to be a Critical Infrastructure Project.

State Environmental Planning Policy (Infrastructure) 2007

The aim of this Policy is to facilitate the effective delivery of infrastructure across the State by improving regulatory certainty and efficiency through a consistent planning regime for infrastructure and the provision of services, and providing greater flexibility in the location of infrastructure and service facilities.

Clause 40 allows for development for the purpose of an electricity transmission network to be carried out by or on behalf of an electricity supply authority without consent on any land, subject to conditions. The transmission line proposed as part of the Paling Yards Wind Farm may benefit from this clause, and its application to this matter is being investigated.

Other SEPP's may apply to the proposed wind farm which will be assessed as part of the EA.

National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act) governs the establishment, preservation and management of national parks, historic sites and certain other areas. The NPW Act also provides the basis for the legal protection and management of threatened native flora and fauna and Aboriginal sites within NSW.

Detailed flora and fauna studies along with cultural heritage investigations will be prepared as part of the EA which will inform compliance with this Act.

Threatened Species Conservation Act 1995

The *Threatened Species Conservation Act 1995* provides for the conservation of threatened species, populations and ecological communities of animals and plants. It provides a framework for the assessment of any action that may impact on threatened species.

The flora and fauna investigation carried out as part of the EA will assess the implications of this Act and in particular the need for targeted surveys for particular species.

Water Management Act 2000

The object of the Water Management Act 2000 (WMA) is the sustainable and integrated management of the State's water for the benefit of both present and future generations. A controlled activity approval under the WMA is required for certain types of developments and activities that are carried out in or near a river, lake or estuary.

An assessment of the implications of this act, and in particular whether controlled activity approval is needed, will be carried out as part of the EA.

Native Vegetation Act 2003

In accordance with the principles of ecologically sustainable development, the Native Vegetation Conservation Act 2003 provides for the conservation of native vegetation through the prevention of inappropriate clearing and promotion of rehabilitation practices.

As the proposed turbines are largely located on ridge tops, extensive vegetation clearance will not be required, and there is significant scope to avoid the need to remove vegetation for other infrastructure through careful placement of tracks and the substation and transmission lines. If vegetation clearing is unavoidable, the implication will be investigated (specifically the need for approval) under this Act.

Heritage Act 1977

The *Heritage Act 1977* aims to protect and preserve items of non-indigenous Heritage significance. The Act provides for the protection of items of local, regional and State heritage significance. The implications of this act on the proposed wind farm will be assessed as part of the EA.

Roads Act 1993

Section 138 of the *Roads Act 1993* prohibits a number of activities, such as conducting work in, on or over a public road, unless consent has been obtained from the appropriate roads authority.

It is likely that consent will be needed under this act for the temporary closure of roads during construction, which will be further investigated as part of the EA.

Crown Lands Act 1989

Part 4 of the NSW *Crown Lands Act 1989* provides for circumstances where Crown Land may be leased or sold and where licenses over Crown Land may be granted.

There is a network of Crown public roads in the area, and the electrical cables may be installed under such roads to connect the turbines to the substation. In the event that the final cable network does require installation of cables under Crown public road(s), the Department of Lands would be consulted in order to determine the best means of gaining consent to install such underground cable crossings.

4.4 Additional Approvals

Additional approvals that may be required for the proposed development include:

- a requirement for occupiers to notify NSW Workcover of any dangerous goods stored and handled under the Occupational Health and Safety Act 2000;
- a licence to supply electricity under the Electricity Supply Act 1995 from the Department for Energy, Utilities and Sustainability; and,
- necessary Part 4A certificates under the EP&A Act, including a Construction Certificate and Occupation Certificate under the Act from a relevant certifying authority.

4.5 Regional Instruments

A number of Regional Environmental Plans may apply to the proposed wind farm. Any relevant REP's will be assessed as part of the EA.

4.6 Local Instruments

Oberon Local Environmental Plan 1998

The subject site is located within the Oberon Local Government Area, and the site is subject to the Oberon Local Environmental Plan 1998 (OLEP). The OLEP sets the provisions for land-use planning and development permissibility within the Oberon Local Government Area.

The site is zoned 1(a) Rural A Zone under the CLEP. The proposed wind farm is permissible within the zone subject to development consent.

The compliance of the proposed wind farm against the relevant objectives of zone 1(a) Rural A will be assessed as part of the EA.

Oberon Shire Council – Development Control Plan – Wind Power Generation 2005

The Wind Power Generation DCP has been prepared and adopted by Oberon Shire Council to give the community and developers guidelines for future wind farm developments. The DCP was adopted by Council in 13 September 2005 and amended on 11 September 2007. The DCP will be considered during the next stage of the planning process, and the EA will contain a full assessment of the compliance with this instrument.

Other Guidelines

In addition to the above instruments, the following list of relevant guidelines will be considered as part of the wind farm design and environment assessment:

- *Best Practice Guidelines for Wind Farm Developments (Clean Energy Council, formally AusWind 2003).*
- *National Wind Farm Development Guidelines' (Environment Protection and Heritage Standing Committee, 2009)*

5 Key Issues and Next Steps

5.1 Key Issues

There are a several issues that will be addressed as part of the EA. These include;

- Economic and Social Impacts
- Visual amenity
- Noise
- Flora and Fauna
- Aviation
- Transport
- Telecommunications
- Fire
- Shadow Flicker and Blade Glint
- Heritage
- Geotechnical

Consultants will be engaged to address these issues and prepare detailed reports that will inform the EA. It is envisaged that some issues will be of greater significance than others.

5.1.2 Economic and Social Impacts

A number of economic and social impacts are expected arising out of the construction and operation of the wind farm. These include impacts on;

- Employment;
- Tourism;
- Population;
- Investment;
- Community profile.

An assessment of these factors will undertaken in the preparation of socio-economic impact assessment to support the EA. The key objectives of the assessment will be to:

- Establish a demographic and economic profile of the area.
- Describe local and regional employment and economic impacts and opportunities.
- Identify relevant social policy objectives of the Council and broader region and identify how the proposed development complements these policy objectives.
- Review and recommend on community consultation activities.

5.1.3 Visual and Landscape amenity

As with any wind farm, the proposed will have an impact on the landscape of the area. However, given the low population density and the lack of immediate neighbours to the proposed site due to significant vegetated buffers, the impact to surrounding landholders is likely to be less than at other wind farm sites.

The affect of wind farms on the viewer can also be largely subjective. Some viewers consider they detract from the landscape and others feel that the wind turbines add to visual interest.

A landscape and visual assessment will be undertaken and will analyse any potential impacts that may arise out of the development, in particular;

- To identify any sensitive receivers that may be unacceptably impacted (according to relevant guidelines, policies, regulations and/or legislation) by visual amenity impacts from the operation of the proposed Paling Yards Wind Farms.
- To address all Wind Farm visual impact related issues.
- To satisfy the requirements of relevant authorities.

The assessment will also outline mitigation measures to reduce any detrimental visual impact.

5.1.4 Noise

When in operation turbines can create a noise impact to the immediately surrounding area. Buffers or setbacks are used to reduce noise levels to nearby houses. Due to the significant vegetation buffer which surrounds the site, noise impacts are unlikely to be a major issue for non-participating land holders for the Paling Yards Wind Farm.

A noise impact assessment will be undertaken to analyse the impacts arising out of a proposed layout of turbines at the site. It will assess all of the turbines under consideration in accordance with the South Australian EPA's Environmental Noise Guidelines (Interim Guidelines) (2007).

A noise management plan will be developed which will set in place standards to be met during the operational phase of the project.

5.1.5 Flora and Fauna

Flora and fauna impacts will be a key component of the EA. There are two elements of potential impact to flora and fauna. The construction phase may include some native vegetation removal to facilitate access to the site or siting of individual turbines and other associated infrastructure. A loss of habitat has the ability to affect fauna species.

The operational phase includes the potential for birds and bats to be affected by turbine blade strike and the deterrent effect of moving turbines.

UFWA is committed to a design process whereby impacts to flora and fauna are avoided and minimised. A flora and fauna assessment will be undertaken to address the potential impacts of the proposal. Particular attention will be given to any state or nationally threatened species. This will include thorough field assessment and discussion of;

- Impacts on the adjoining National Parks;
- Further studies required arising out of preliminary investigations;
- Identification of areas and values of required vegetation removal (if any);
- Implications of results; and,
- Mitigation measures.

The flora and fauna assessment will also assess the three transmission line options. All options would require careful consideration for the project as it is likely that impacts can be avoided if threatened species or Endangered Ecological Communities are encountered. Compensatory habitat in the form of offsets may be required depending on the quality and quantity of vegetation to be removed and how impacts can be avoided.

5.1.6 Water quality

An assessment of the likely impacts of the proposal on water quality will be undertaken in response to the proximity of the site to the Abercrombie River. It is considered that water quality standards can be maintained through sound environmental and construction management and the assessment will detail recommendations of mitigation options to ensure that values are protected.

5.1.7 Aviation

Due to the height of the proposed turbines consultation with key air agencies will be required to understand any potential impacts to the safety of aircraft in the vicinity. As the key agency, early discussions will take place with the Civil Aviation Safety Authority (CASA) and inform an overall assessment of air safety in relation to the wind farm.

This will inform whether obstacle lighting will be required for the proposed wind farm and highlight any other technical requirements that would need to be met.

5.1.8 Transport

The transportation of wind turbines and associated infrastructure to wind farm sites may have an impact on the surrounding road network.

An assessment will be undertaken to identify and consider the traffic impact both during the construction and operational phase of the project. It will also examine the likely upgrades required to improve conditions of the access routes to the site and any traffic related impacts arising out of the transmission line extension to Crookwell 2 Wind Farm.

Access points and internal access track layout will be informed by several factors, including the avoidance of native vegetation, engineering specifications and safety aspects.

5.1.9 Telecommunications

In some situations, wind farms have the ability to interrupt telecommunications signals. Interruptions to signals are rare and can be appropriately mitigated using a number of options. As part of the EA an analysis of potential interference will be undertaken and mitigation measures developed to comprehensively address any potential interruption.

5.1.10 Fire

A wind farm in a rural area, as with any large scale development, can increase the potential risk of fire to nearby people and property. This includes fire caused by the generators themselves, and also impacts on the generators caused by fire sparked elsewhere.

Whilst the fire risk is considered low, the applicant will conduct early consultation with the relevant fire authorities and is committed to maintaining fire fighting capability as part of permanent staffing of the proposed wind farm.

As part of an Operational Management Plan procedures related to fire (including prevention) would be agreed with the relevant fire authority.

5.1.11 Shadow Flicker

The occurrence of shadow flicker is a potential impact of wind farms particularly where dwellings are located to the east or west of individual turbines thereby causing shadow flicker in the early morning or evening. Due to the significant vegetated buffers between the wind farm site and neighbouring properties, shadow flicker is not considered a significant issue in this instance. None-the-less specialist consultants will assess the site against relevant standards and will propose mitigation measures.

5.1.12 Geotechnical

Investigations by specialist consultants will be undertaken as to the suitability of the soil structure to support wind turbine infrastructure. This work will raise any potential issues that can inform the detail design process.

5.1.13 Heritage

Wind Farms can impact on the heritage values of the land, insofar as excavation of land is required to support the turbine construction and access tracks as well as the placement of turbines near recognised heritage buildings.

The Aboriginal and cultural heritage of the site will be assessed in the context of the proposed development. One of the features of wind farms is the ability to 'micro-site' turbines and access tracks to avoid land deemed to be of archaeological significance.

The EA will include heritage investigation of the proposed wind farm in relation to Aboriginal and historic cultural heritage and the potential impact of the proposed activity on Aboriginal and historic cultural heritage values. The assessment will also outline recommendations for mitigation of potential impact to guide to development of the site.

5.2 Next steps

Following receipt of Director General's Requirements a consultant team will be engaged to carry out the various assessments in relation to the above disciplines. This body of work will feed into the EA proposed to be lodged in late 2010. Chapter 3.11 details the project timeframe.

A key part of the EA will be the finalisation of the turbine layout. This will be completed taking into account;

- Wind speed;
- Flora and fauna values;
- Visual and landscape character;
- Access and infrastructure;
- Noise buffers;
- Other results from the specialist investigations.

6 Conclusion

This report has detailed a request by Union Fenosa Wind Australia (UFWA), the proponent to provide preliminary details of the Paling Yards Wind Farm to the NSW Department of Planning.

The proposed wind farm site is located on the western extent of the Great Dividing Range in NSW, 60km south of Oberon, 60km north of Goulburn and approximately 140km west of Sydney. It is understood that this document will allow the drafting of Director Generals Requirements to be addressed by an Environmental Assessment (EA).

The proposal comprises a number of elements, including:

- 50 to 60 individual wind turbines standing up to 175m at top of blade tip with up to 3.3 MW capacity each;
- Internal unsealed tracks for turbine access;
- Upgrades to local road infrastructure;
- An electrical substation and overland connection to the transmission line;
- An underground electrical and communication cable network linking turbines to each other and the proposed substation;
- A temporary concrete batching plant to supply concrete for the foundations of the turbines and other associated structures;
- Potential for obstacle lighting to selected turbines;
- A wind farm and substation control room and facilities building co located with the substation;
- Potential for native vegetation removal in some areas;
- Options for a 55km 132kv transmission line connection to the approved Crookwell 2 Wind Farm.

The proposed wind farm will bring significant environmental, social and economic benefits to the locality, the wider region, and the State of New South Wales.

The proposed wind farm supports the NSW Government's renewable energy policies and directly implements the Federal Government's renewable energy target of 20% of Australia's energy sourced by renewable energy by 2020.