UNION FENOSA
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PALING YARDS WIND FARM

ENVIRONMENTAL ASSESSMENT

January 2014

Prepared by:
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on behalf of
Union Fenosa Wind Australia Pty Ltd

In conjunction with:
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Nevan Wadeson, Adam Terrill and Rebecca Wardle of Tract Consultants are the primary authors of this document. The report draws on the work of a number of specialists engaged as part of the project team. The information contained in this document is neither false nor misleading.

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Contents

List of Figures

List of Tables

Appendices

Abbreviations

ABS	Australian Bureau of Statistics
AC	Advisory Circular
ACMA	Australian Communications and Media Authority
BOM	Bureau of Meteorology
BVTs	Biometric Vegetation Types
CAP	Catchment Action Plan
CASA	Civil Aviation Safety Authority
CEMP	Construction Environmental Management Plan
CFA	Country Fire Authority
Council	Oberon Shire Council
CSR	Corporate Social Responsibility
DCP	Development Control Plan
DECCW	NSW Department of Environment, Climate Change and Water
DSEWPC	Department of Sustainability, Environment, Water, Population and Communities
DoPI	Department of Planning & Infrastructure
EA	Environmental Assessment
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	Environment Protection Authority
EPHC	Environment Protection and Heritage Council
EPL	Environment Protection Licence
GWEC	Global Wind Energy Council
LEP	Local Environmental Plan
LRET	Large-scale Renewable Energy Target
MRET	Mandatory Renewable Energy Target
NHMRC	National Health and Medical Research Council
NPW Act	National Parks and Wildlife Act 1974
NRET	NSW Renewable Energy Target
OD	Over Dimensional
POE Act	Protection of the Environment Operations Act 1997
RAAF AIS	Royal Australian Air Force - Aeronautical Information Service
REP	Regional Environmental Plan
RET	Renewable Energy Target
RFS	NSW Rural Fire Service
RTA	Road Traffic Authority
SEPP	State Environmental Planning Police
SRET	Small-scale Renewable Energy Scheme

SWMP	Soil and Water Management Plan
TSC Act	Threatened Species Conservation Act 1995
GNF	Gas Natural Fenosa
UFWA	Union Fenosa Wind Australia Pty Ltd
WHO	World Health Organisation
WMA	Water Management Act 2000
WMO	World Meteorological Organisation
WTG	Wind Turbine Generator
WWEA	World Wind Energy Association
ZVI	Zone of Visual Influence

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CHAPTER 1

EXECUTIVE SUMMARY

1 Executive Summary

1.1 Introduction

Union Fenosa Wind Australia (UWFA) (the 'proponent') and its successors and assigns, is seeking project approval for the construction and operation of a wind energy facility known as the Paling Yards Wind Farm (the 'project').

The project is proposed to be located on two land holdings known as 'Mingary Park' and 'Paling Yards' comprising a total of approximately 3,900 hectares (the 'site'). It also includes a transmission line corridor of approximately 9km in length and 70 metres in width across nine land parcels to the north-east of the site. Significantly, there are no non-involved dwellings within 2km of the turbines.

The site is situated approximately 60km south of the township of Oberon and 60km north of the township of Goulburn, in the Central Tablelands of NSW.

This chapter provides a brief overview of the environmental assessment, including the details of the project, the community and stakeholder engagement undertaken, the findings of the specialist assessments, and the impact mitigation measures proposed.

1.2 The Proposal

The Paling Yards Wind Farm project involves the construction, operation and maintenance of up to 55 wind turbines, together with the ancillary infrastructure.

The project comprises a number of elements, including:

- Up to 55 individual wind turbines with a capacity of up to 4.5MW;
- Up to 55 individual kiosks for the housing of transformers and switchgears and associated control systems, to be located in the vicinity of the wind turbine towers (in some turbine models the equipment is integrated within the tower or nacelle);
- Upgrades to local road infrastructure including up to six access points from Abercrombie Road;
- Internal unsealed tracks for vehicle access to turbines and infrastructure;
- An underground electrical and communication cable network linking turbines to each other and the proposed on-site substation;
- Up to three wind monitoring masts fitted with various instruments such as anemometers, wind vanes, temperature gauges and potentially other electrical equipment;
- A temporary batching plant to supply concrete for the foundations of the turbines and other associated structures;
- Obstacle lighting to selected turbines (if deemed necessary);
- Removal of native vegetation (if required);
- Vegetation planting to provide screening;
- Wind farm and substation control room and facilities buildings;
- An on-site electrical substation and approximately 9km of overhead powerline of up to 500kV;
- Grid connection achieved via an off-site 500kV electrical Terminal Station (including control room and other associated facilities) for the grid cut-in to the Mt Piper to Bannaby 500kV transmission line; and

- All associated and ancillary uses and activities.

The specialist consultants' assessments were based on a layout of up to 59 turbines, which was the number of turbines previously under consideration. However, the results of the final flora and fauna assessment have prompted the removal of three turbines (P2, P6 and P7) due to the Conservation Agreement in place for the Box Gum Grassy Woodland project as part of the Commonwealth government's Environmental Stewardship program.

As part of the adequacy review of this EA, discussions between DoPI and the flora and fauna specialist have prompted the removal of another turbine (P11). The proponent has agreed to the removal of this turbine in order to reduce vegetation clearing for the project.

Therefore, the proponent seeks approval for up to 55 turbines.

As the specialist assessments of the project have been based on a layout of 59 turbines, the findings present 'worst-case' scenario impacts and can be considered conservative in nature.

1.3 Project Justification

The primary objective of the Paling Yards Wind Farm is to produce renewable energy. This form of energy meets Federal, State and Local Government objectives of reducing greenhouse emissions and the adverse impacts of climate change.

The project would bring environmental, social and economic benefits to the Paling Yards locality, the wider region, and the State of NSW.

Environmentally, the wind farm would displace up to approximately 535,961 tonnes of greenhouse gases and in doing so assist in attempts to reduce the impacts of climate change. It would provide up to 550,833 Megawatt hours (MWh) of renewable energy per year and power the equivalent of up to 85,344 households per year and supply the equivalent of up to 221,895 people. This equates to approximately two-thirds of Canberra's population (350,000) or more than ten times the size of Goulburn (20,127).

Economically, the wind farm would invest approximately $287 million into the economy and create 65 full-time equivalent jobs in construction and 11 full-time equivalent jobs during operation. In addition, up to 10 additional contractors could be working on the site once every 10 to 15 years as part of scheduled major site overhauls.

Socially, the wind farm would fund upgrades to local roads, assist in addressing the population decline of the region, and position the area as a leader in renewable energy industries. Furthermore, UFWA is exploring options to support the local community surrounding the site, including through the establishment of the Oberon Community Enhancement Fund for community groups and organisations.

1.4 Project Background

The project is a transitional Part 3A project under the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) and, as such Part 3A continues to apply to the project despite its repeal. The project is also a Critical Infrastructure Project under Part 3A of the EP&A Act as it is a renewable energy project with a peak generating capacity of between 112 to 200 Megawatts (MW).

A Preliminary Environmental Assessment was lodged by Tract Consultants on behalf of the proponent with the NSW Department of Planning and Infrastructure (DoPI) (formerly the Department of Planning) on 12 April 2010. DGRs were subsequently issued for the project on 6 May 2010 and the supplementary DGRs were issued on 16

August 2011. This Environmental Assessment (EA) has been prepared to address the DGRs.

The NSW Government released the *Draft NSW Wind Farm Planning Guidelines* (Draft Guidelines) for exhibition on 23 December 2011. DoPI wrote to all proponents of wind farms in NSW on 18 April 2012 regarding the Draft Guidelines and enclosed a checklist highlighting the key provisions of the guidelines which should be adopted for all applications yet to be exhibited.

Whilst the Draft Guidelines are yet to be finalised and further supplementary DGRs have not been issued requiring consideration of the Draft Guidelines in this EA, this EA considers the Draft Guidelines and demonstrates that the project is generally in accordance with the Draft Guidelines. A checklist for the Draft Guidelines is provided in **Appendix 1**.

1.5 Community engagement and support

The proponent understands the need to effectively communicate with local residents and all relevant stakeholders through a program of community consultation. UFWA has developed a community consultation and engagement program aimed at providing the community and stakeholders with factual information about the project and gathering feedback about their concerns and interests, which can be subsequently addressed in the approvals process and influence the project design.

In order to meet the information needs of the community, a range of consultation strategies were adopted and undertaken, including:

- Consultation with government departments and agencies, non-government agencies, community groups and individuals.
- Direct contact with identified community groups.
- Door-knock consultations undertaken within 5km of the site and along the corridor of the proposed transmission line routes.
- Community newsletter distributed to the local area and to anyone registering interest in the project.

A key step in the stakeholder identification process and community consultation was undertaken through the door-knock consultation and surveys carried out by UFWA representatives on 30 and 31 May and 1 June 2011 and again on 5 and 6 July 2011.

A community information session will be held during the public exhibition of the wind farm and advertised through a newsletter and local press.

The site is in a generally isolated location and there are no non-project involved, identified dwellings within 2km of any of the proposed wind turbines. Therefore, no neighbour agreements are required for the project. However, the consultation with surrounding residents and stakeholders to date has revealed a diversity of views on the project in the vicinity of the wind farm, which are addressed in this EA and the socio-economic impact assessment at **Appendix 5**.

The key issues identified relate to:

- the impacts of the transmission lines,
- the visual impact of the wind farm,
- reduction in land values,
- noise arising from the turbines,

- fire hazards,
- impacts to flora and fauna,
- impacts to the ability to carry out aerial agriculture,
- electromagnetic interference, and
- shadow flicker.

These issues and are discussed in **Chapter 22** as well as in the full socio-economic report found at **Appendix 5** and the other specialist reports.

UFWA's response and approach to all the issues raised through consultation includes a commitment to implement the impact mitigation measures recommended under each chapter of this EA.

The consultation activities commenced many years ago at the beginning of the project and are proposed to continue throughout the various phases of the project, including after construction. The consultation timeline will be dynamic and will be updated as required to suit the planning process and feedback from key stakeholders.

Since 2010, a number of revisions to the site plan and turbine layout have been specifically influenced by stakeholder input, as well as by the specialists studies completed, including:

- Selection of the northern transmission line as the least impact option;
- Removal of the southern substation;
- Removal of turbine P26 in response to the findings of the noise assessment to reduce potential noise impact for the project involved landowners;
- Removal of turbines P2, P6, and P7 in response to the findings of the flora and fauna assessment and the Conservation Agreement in place for the Box Gum Grassy Woodland project as part of the Commonwealth Government's Environmental Stewardship program;
- Removal of turbine P11;
    - removal of associated crane pad from the remnant area; and
    - removal of associated 1,184m of access track of which 353m were in the remnant area.
- Relocation of turbine P10 to 184m south of original location;
    - removal of 184m of access track from the remnant area.
- Relocation of turbine P13 to 70m south-east of original location;
    - removal of 77m of access track from the remnant area; and
    - turbine and crane pad will be located in a more cleared area, hence reducing the vegetation clearing by approximately 50% for this location.
- Relocation of turbine P14 to 86m south-east of original location;
    - removal of 101m of access track from the remnant area; and
    - turbine and crane pad will be located closer to the edge of the remnant area, hence reducing the vegetation clearing by approximately 20% for this location.

- Micrositing of the turbines to minimise local impacts;
- Changes to the location of:
    - several access tracks to further utilise the existing farm tracks and reduce the infrastructure footprint;
    - underground cabling to provide more efficient transfer of electricity and reduce the infrastructure footprint;
    - an access road to separate the wind farm construction vehicle traffic from the access used by the project involved landowners;
    - selecting a smaller wind turbine envelope size for specific locations to reduce potential noise and shadow flicker impact for the project involved landowners;
    - substations to reduce length of overhead powerlines; and
    - powerline poles for the northern transmission line route to minimise and avoid where possible the removal of native vegetation.

In relation to community attitudes to wind farms in Australia, in 2010, the NSW Government commissioned AMR Interactive to undertake a study of community perceptions towards wind farms in NSW. AMR Interactive surveyed over 2,000 residents and 300 businesses in regional NSW.

The results showed that a significant majority (85%) of surveyed respondents indicated that they would support wind farms being built both in NSW as well as in their local region (80%). Over three quarters of the respondents (79%) were supportive of wind farms being built within 10km from their residence, and more than half of the respondents (60%) supported them at 1-2km.

More recently, the CSIRO recently conducted an investigation, *Exploring Community Acceptance to Rural Wind Farms in Australia: a snapshot*, (2012) that sought to improve understanding of community acceptance of rural wind farms. The study found that *"community acceptance of wind farms could be increased by developers intentionally adopting frameworks for transparent and well structured community engagement"*.

In accordance with these findings and recommendations, a detailed and thorough community consultation program has been designed for direct community consultation and to have stakeholders' views heard and responded to. The proponent has already taken steps in the process to proactively engage the local community and stakeholders in the project.

Community input has influenced the design of the wind farm and any concerns will continue to be addressed.

The proponent seeks to minimise or eliminate where possible any potential adverse impact from the construction, operation and decommission of the project upon the community and the environment.

1.6 Assessment findings and impact mitigation measures

The EA has found that the project would have a range of positive and negative impacts on the site and region. However, it was found that the benefits of the wind farm would outweigh the undesirable impacts, and with appropriate conditions and mitigation measures detailed, the impacts can be minimised.

Most notably, the project would make a small but important contribution to reducing the adverse impacts of anthropogenic climate change, such as droughts, floods, extreme weather events and sea level rise.

The project is rare in that it is located in an isolated location that is further than 2km from a non–project involved, identified dwelling. As a result, the typical impacts associated with wind farms in proximity to dwellings, such as noise, visual impact, and shadow flicker, are less for this project than most comparable Australian wind farms.

The key matters assessed in this EA in relation to the potential positive and negative impacts of the project include:

- Economic and social impacts,
- Landscape and visual impacts,
- Noise impacts,
- Health impacts,
- Flora and fauna impacts,
- Aeronautical impacts,
- Transport impacts,
- Electromagnetic interference impacts,
- Fire hazard impacts,
- Shadow flicker impacts,
- Heritage impacts,
- Geotechnical impacts,
- Hydrological impacts,
- Cumulative impacts, and
- Community consultation.

The above matters are addressed in this EA under individual chapters.

The assessment of potential negative impacts arising from the project found that the wind farm has the potential to have a low to moderate impact on landscape values, a limited impact on local communications facilities, an increase in noise for some residents, and result in the clearing of non-significant vegetation. Mitigation strategies have been developed and incorporated in the planning and design of the project and in the draft Statement of Commitments made by the proponent and outlined in this EA.

The impacts of the project would be minimised by the extensive range of management plans that would be prepared before construction and ongoing monitoring of the compliance of the wind farm post-construction with the established standards. These commitments are detailed in this report in **Chapter 24**.

No impacts were identified which, after these mitigation strategies have been implemented, are considered unacceptable. The environmental, social and economic benefits of the project are considered to outweigh the mitigated impacts identified.

In relation to noise impacts, the assessment found that all non-project involved residential receivers were found to be below the relevant noise criteria. Some project involved receivers are predicted to slightly exceed the WHO noise criteria, however it is noted that these conservative assumptions would potentially overestimate noise levels as the noise standards may not reflect the circumstances of the project. The noise impact assessment made important recommendations such as the verification of noise levels at commissioning and extensive monitoring throughout the project, in order for standards to be met.

The NSW Government has recognised the wind energy potential of the region by identifying Paling Yards one of six designated renewable energy precincts, called the NSW/ACT Border Region. The renewable energy precincts have been established as locations for the State's future wind power investment due to their suitability for the technology. The precincts are a community partnership initiative in areas where significant future renewable energy development is expected (especially wind farms), designed to give local communities a voice and a stake in renewable energy development.

Associated with this designation is the presence of a number of wind farms in the wider region, with six other wind farms approved or existing within a 50km radius of the site. The cumulative impact of the project was assessed in relation to surrounding projects, and found that there is unlikely to be a significant increase in visual impact. The closest wind farm is the proposed Golspie Wind Farm, which is located approximately 25km to the south/south-west.

1.7 Conclusion

The EA found that in relation to the positive impacts, the EA found that if approved the wind farm would:

- generate 65 full time positions during construction, and 11 full time ongoing positions during the operation;
- invest $287 million in the economy;
- generate up to 550,833 Megawatt hours (MWh) of clean, renewable energy per year, enough to power up to 85,344 households;
- displace 535,961 tonnes of greenhouse gases or the equivalent of taking 123,778 cars off the road; and
- make a small but important contribution to reducing the dangerous impacts of climate change.

In relation to the negative impacts, the EA found that the wind farm has the potential to have a low to moderate impact on landscape values, have a limited impact on local communications facilities, increase noise for some receivers, and result in the clearing of non-significant vegetation. These risks are proposed to be minimised by the extensive range of mitigation measures and management plans detailed in **Chapter 24 – Statement of Commitments**.

The EA found that the project is compatible with the existing land uses of the area and complies with relevant planning and environmental controls applicable to the site.

As a result, it is regarded that the project is in the public interest.