



# Warradarge Wind Farm

Planning Compliance Report

May 2012

urbis

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# 1 Introduction

This purpose of this Planning Compliance Report is to assess the compliance of the proposed Warradarge Wind Farm Proposal against key federal, state and local planning and environment frameworks. Specifically, this Report addressing the following key elements:

- § Understanding of the Warradarge Wind Farm Proposal.
- § Site Analysis –
  - Significant Features.
  - Sites of Cultural Significance.
  - Characteristics.
  - Contours.
  - Existing Land Uses.
  - Land Ownership.
- § Current Planning Framework and Compliance –
  - Federal Planning and Environmental Framework considerations.
  - State Planning Framework considerations (including noise and landscape and visual assessment considerations).
  - Regional Planning Framework considerations.
  - Local Planning Framework considerations.
- § Relevant Studies.
- § Planning and Environmental Processes.

## 2 Understanding of the Warradarge Wind Farm Proposal

Urbis understands Verve Energy is seeking development approval to construct the Warradarge Wind Farm on rural land between Rose Thomson Road and Garibaldi Willis Road. The proposed wind farm is located predominately within the Shire of Coorow, however a transmission line crosses into the Shire of Carnamah. The proposed Wind Farm is approximately 15 kilometres north-east of Warradarge, 15 kilometres south-east of Eneabba and 40 kilometres south-west of Carnamah. The Warradarge farm will have an overall electrical capacity of up to 250 MW and may contain up to 100 individual wind turbines. The location of the proposed wind farm is shown in Figure 1, overleaf.

We understand the construction of the wind farm will be progressed over 3 stages, with the first stage expected to be commenced in 2014 and the final Stage to be completed by 2020.

Furthermore, we understand that Verve Energy is seeking flexibility in their development approval as the final number, location and make/model of each turbine is not yet determined due to the fact the capacity of a proposed new 330.kV transmission line proposed to be utilised by the Warradarge proposal is not yet known and the make/model of the individual turbines will not be determined until a post Development Approval tender process. Accordingly, in seeking flexibility in the first place, Verve intend on seeking approval for the largest number of wind turbines with the greatest impact specifications (i.e. largest and noisiest turbines possible). In this way if smaller turbines with a lesser impact are provided, they should be deemed to comply with the requirements and standards of the state and local authority, without the need for re-approval. Our report has been prepared on this basis.

Specifically the proposal comprises:

- § 100 wind turbines with an overall tip height of 152m. The turbines are located on Lots 10850, 10851 and 10853.
- § 5 wind monitoring masts.
- § Underground cabling between turbines and substation
- § A substation compound including a metering building, site office and workshop and communication mast,.
- § A 10km transmission line connection the onsite substation to the Eneabba to Karara line. This line would comprise 22 pylons, up to 63m in height, spaced every 500m.
- § 40 x 25 metre hard-stand areas adjacent to each of the 100 wind turbine pylons, as well as 5 masts, totalling 105,000m<sup>2</sup>.
- § 8.5km of new and upgraded tracks.
- § A construction compound containing site offices and welfare facilities.

Overall the proposal will have a development footprint of approximately 82.5 hectares. A wind farm layout is shown in Figures 3 and Figure 4 of the Development Application Report. The development application is for a 100 turbine wind farm and all associated infrastructure to be located within the wind farm envelope, as shown in Figure 5 and Figure 6 of the Development Application Report. Within the wind farm envelope are a number of excluded areas where no turbines or associated infrastructure will be located. These are vegetated areas and have been intentionally avoided to minimise the environmental disturbance of the Proposal.

The exact route of the transmission line is not finalised but a likely route through the transmission line corridor has been selected. Depending on the type and number of towers used, the line route may vary within the transmission line corridor as shown in Figure 5 and Figure 6 of the Development Application Report.



FIGURE 1 – LOCATION PLAN (SOURCE: URBIS)



 Wind Farm Subject Site

## 3 Site Analysis

### 3.1 SIGNIFICANT FEATURES

The subject site is predominately cleared agricultural land and does not comprise any significant features. There is a fault line which is located within the southern portion of the subject site, however preliminary investigations indicates that that the earth quake potential is lower that the Perth metropolitan area.

Significant areas of remnant native vegetation exist directly north, east and south of the study area, as well as several national parks and nature reserves within 10 kilometre radius of the study area, including:

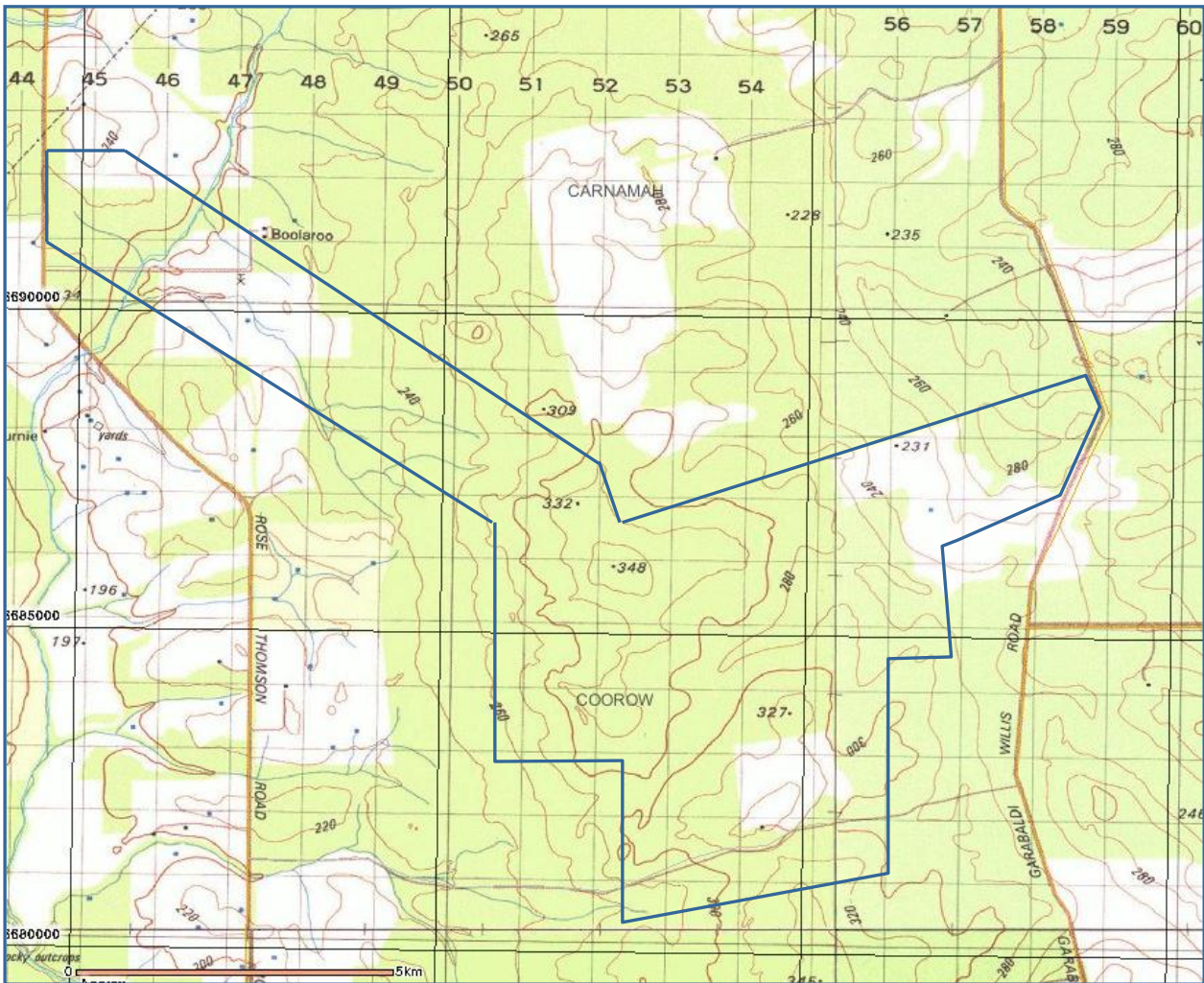
- § Alexander Morrison National Park (South, South East).
- § Tathra National Park (North).
- § Wotto Nature Reserve (North).
- § Eneabba Nature Reserve (East).
- § Coomallo Nature Reserve (South).


### 3.2 SITES OF CULTURAL SIGNIFICANCE

There are no registered sites of Aboriginal heritage within the proposed Warradarge Wind Farm area, as shown on Figure 2, below:



FIGURE 2 – REGISTERED SITES OF ABORIGINAL HERITAGE (SOURCE: DEPARTMENT OF INDIGENOUS AFFAIRS)



 Indicative Wind Farm Subject Site

### 3.3 KEY CHARACTERISTICS

The study area is predominantly cleared farm land with pockets of remnant native vegetation. Several small creeks/drainage channels also traverse the subject site, as well as several dwellings, which are located around the subject site.

### 3.4 CONTOURS

The subject site is characterised by gentle undulating plains with areas of complex table-top topography. This topography of the site is shown previously in Figure 2.

### 3.5 EXISTING LAND USES

The subject site is currently used for predominately rural agricultural purposes.

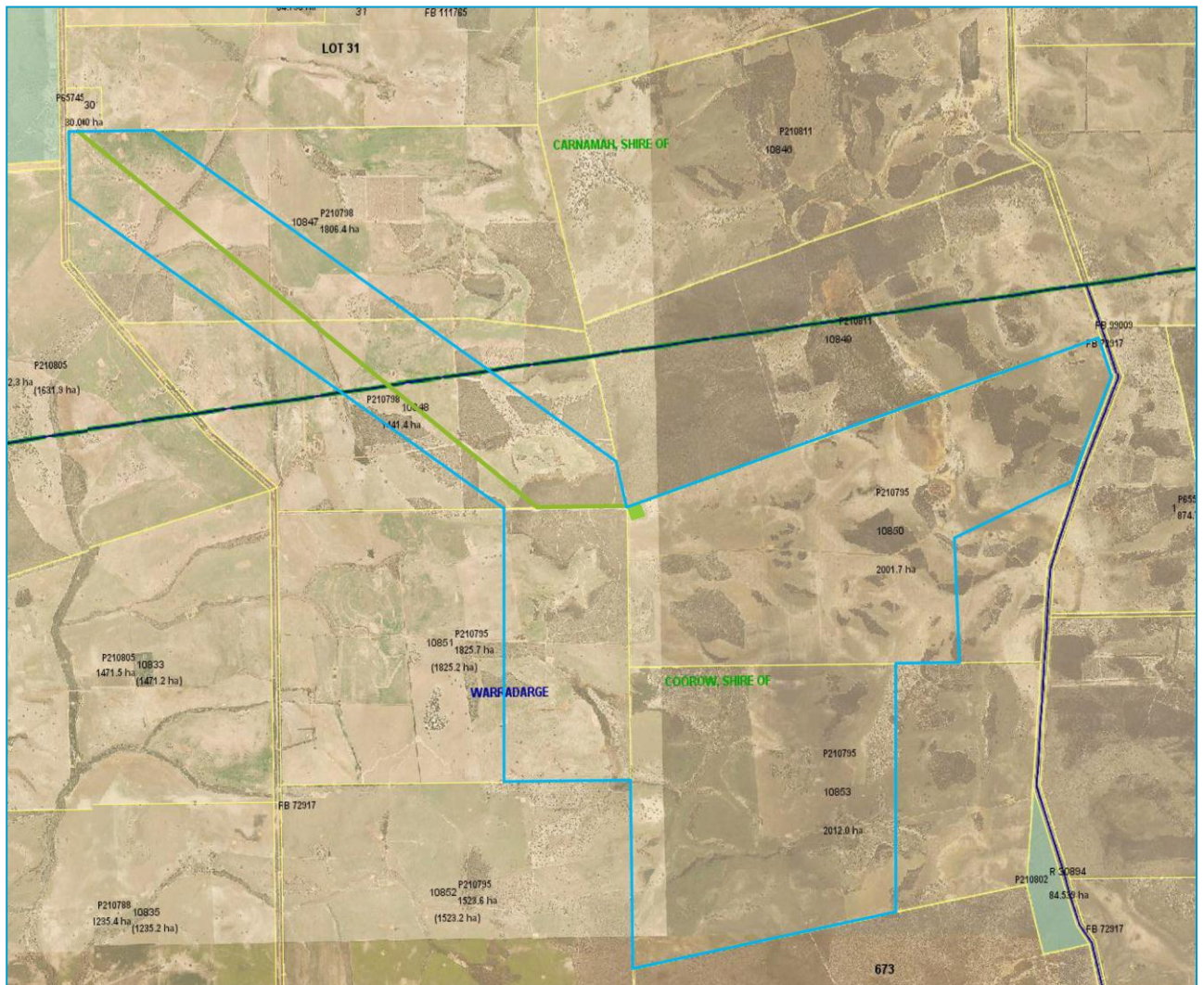
### 3.6 LAND OWNERSHIP

The proposed Warradarge Wind Farm is contained within Part Lot 10847, Part Lot 10848, Part Lot 10850, Part Lot 10851 and Part Lot 10853 as shown in Table 1 and Figure 3, below:

TABLE 1 – LAND TENURE (SOURCE: LANDGATE)

LOT NO.	PLAN/DIAGRAM	TOTAL LOT AREA (HA)	REGISTERED PROPIETER
Part Lot 10848	P210798	1441.4ha	Judeen Nominees Pty Ltd
Part Lot 10850	P210795	2001.7ha	Judeen Nominees Pty Ltd
Part Lot 10851	P210795	1825.7ha	Judeen Nominees Pty Ltd
Part Lot 10853	P210795	2012.0ha	Gary Marshall Chivers
Part Lot 10847	P210798	1806.4ha	Judeen Nominees Pty Ltd

FIGURE 3 – SHIRE BOUNDARY (SOURCE: LANDGATE)



- Proposed Transmission Line
- Indicative Wind Farm Subject Site
- Shire Boundary



## 4 Federal Planning and Environmental Framework

### 4.1 RENEWABLE ENERGY (ELECTRICITY) ACT 2000

The Mandatory Renewable Energy Target Scheme (MRET) is a market based scheme designed to encourage investment in renewable energy generation capacity, contributing to development of an Australian renewable energy industry and to cut greenhouse gas emissions from electricity generation. The MRET commenced on 1 April 2001 by means of the *Renewable Energy (Electricity) Act 2000* (the Act).

They key objectives of the Act are to:

- § Encourage the additional generation of electricity from renewable sources;
- § Reduce emissions of greenhouse gases in the electricity sector; and
- § Ensure that renewable energy sources are ecologically sustainable.

The MRET operates by placing a responsibility on wholesale electricity purchasers to source specific proportions of total electricity sales from renewable energy sources according to a fixed timeframe, with the scheme running until at least 2020. The Western Australian Government has been active in supporting the national target and in attracting renewable energy investors to provide the renewable energy certificates necessary to satisfy Western Australia's

Renewable energy proposals such as the Warradarge Wind Farm are critical in achieving this renewable energy target. The proposed 100-turbine facility is estimated to produce, on average, a total of 875 million Kilowatt-hours (kWh) of electricity annually, which is equivalent to the average annual electricity needs of 140,000 West Australian homes, and will prevent at least 700,000 tonnes of carbon dioxide from entering the atmosphere annually.

#### COMPLIANCE STATEMENT

§ ***Highly detailed KYU [YK] bX : Ufa X] f YWh` m` f Ygdcb Renewable Energy Target (RET) Scheme and the Act as it will contribute to the development of the States renewable energy industry and aim to cut greenhouse gas emissions from electricity generation. The construction, operation and rehabilitation of the proposed Warradarge Wind Farm will also be undertaken in an ecologically sustainable manner, to respect and retain and rural integrity of the locality.***

### 4.2 ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999 – POLICY STATEMENT 2.3 – WIND FARM INDUSTRY

Policy Statement 2.3 is one of a series of *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) policy statements aimed at providing more detailed guidance on how the EPBC Act may apply to specific places, species, ecological communities or industry sectors and activities. Importantly, this Policy Statement intends to assist Applicants in deciding whether or not a wind farm application should be referred for Federal Environmental Approval under the EPBC Act.

Policy Statement 2.3 indicates that federal environmental approval will be required if a wind farm proposal has or is likely to have a significant impact on one or more matters of national environmental significance, including:

- § World Heritage properties.
- § National Heritage properties.
- § Ramsar Wetlands of international importance.
- § Listed threatened species and communities.

- § Migratory species protected under international agreements.
- § The Commonwealth Marine environment.

Policy Statement 2.3 provides specific guidance in relation to matters of national environmental significance which may be particularly relevant to wind farms. The Policy Statement indicates that, to date, the primary environmental concern arising from wind farm developments in Australia and overseas is the mortality of bird and bat species from collision with turbines. The groups which are most at risk include the following:

- § Waterbirds that are listed threatened species, listed migratory species and/or part of the ecological character of a Ramsar wetland.
- § Seabirds that are listed threatened species.
- § Listed migratory species and listed threatened species that migrate within Australia.
- § Species that are at risk of extinction.

Other major issues which should be considered are as follows:

- § The disturbance or alienation of important sites, on or off the wind farm, such as those where listed threatened animals concentrate when roosting, feeding, breeding or on migration,
- § The clearance or disturbance of native vegetation for turbines and other infrastructure.
- § Impacts on World Heritage properties and/or National Heritage properties.

Policy Statement 2.3 also provides guidance on practices that may assist in avoiding or mitigation impacts or matters of national environmental significance. The Policy Statement identifies that whilst a wind farm proposal may potentially impact on a matter of national environmental significance, demonstration that carefully researched mitigation procedures will be followed could favourably affect the decision. This could potentially include the location of the wind farm itself, placement of turbines, roads and infrastructure and turbine design.

#### **COMPLIANCE STATEMENT**

- § ***The Flora, Vegetation and Fauna Assessment identified 12 fauna species of conservation significance in the study area. The Assessment, however, states that no roost sites (or potential roost sites) were observed during a site visit, and that if clearing of foraging habitat is kept to a minimum, the local and regional conservation status of the species is unlikely to be affected. Accordingly, the proposed wind farm proposes only 0.7 hectares of clearing to accommodate the transmission line, and avoids any Threatened Ecological Communities and Priority species.***
- § ***The Flora, Vegetation and Fauna Assessment identifies that a large portion of the study area (76%) comprises cleared land which has no conservation value as vegetation.***
- § ***The Assessment however identifies 2 vegetation types which appear similar to the description of the Lesueur-Coomallo Floristic Community, which is listed as a Threatened Ecological Community and are considered to be of high conservation significance. Again however, the wind farm proposes only 0.7ha of clearing to accommodate the proposed transmission line, and will avoid all Threatened Ecological Communities of high conservation significance and Priority species.***
- § ***All significant vegetated areas, Threatened Ecological Communities and Priority species, protected by federal and state environmental legislations have been intentionally avoided. No impact on matters of national environmental significance are anticipated and therefore EPBC referral should not be necessary.***

# 5 State Planning Framework

## 5.1 STATE PLANNING STRATEGY

The State Planning Strategy is a land use planning strategy for Western Australia's development up to the year 2029.

The Strategy prepares for significant population growth, an expanding economy, a changing and vibrant community and a sustainable future. It provides a vision to assist strategic decision-making and a set of principles by which coordinated, sustainable development will be implemented. It is a plan to meet community needs and aspirations, and facilitate wealth creation, the provision of public infrastructure and the protection and improvement of the environment.

A key principal of the Strategy, relevant to the Warradarge Wind Farm proposal is to:

*Australians a high quality of life which is based on environmentally sustainable ] ; ã } & ã ] | ^ • q È*

The Strategy aims to increase use of energy sources which have minimal impact on the environment, prevent further loss in biodiversity, ensure that air, water and soil quality are protected and where necessary improved, reduce consumption of materials and promote recycling, promote management and protection of resources, protect landscape, open space and public access, enhance the quality of life for all Western Australians and protect the State's culture.

The development of the Warradarge Wind Farm is closely aligned with this strategic environmental aim of the State.

### COMPLIANCE STATEMENT

§ ***The development of the Warradarge Wind Farm is closely aligned with the strategic intent of the State from an environmental perspective, in that it is based on environmentally sustainable principles and aims to protect and improve the States environment through improving the sustainable production of energy in Western Australia.***

## 5.2 STATE SUSTAINABILITY STRATEGY

The State Sustainability Strategy (the Strategy) provides a framework for the State Government to respond to its sustainability agenda. The Strategy proposes a set of sustainability principles that guide how government, industry and communities think about and approach the management of resources. These principles are aimed at facilitating change that has net social, environmental and economic benefit for current and future generations.

The Strategy identifies six broad goals and forty-two strategy areas which are intended to guide Government action towards achieving its vision for a sustainable Western Australia. The six broad goals are:

- § Sustainability and Governance,
- § Contribution to Global Sustainability,
- § Sustainable Natural Resource Management,
- § Sustainability and Settlements,
- § Sustainability and Community, and
- § Sustainability and Business.



In relation to sustainable and renewable energy sources, the Strategy identifies the need to facilitate renewable energy generation in the electricity market by removing impediments and ensuring the new electricity market provides opportunities for effective participation. The development of wind farm operations is closely aligned with this objective.

This Strategy reflects on the imperative of ensuring land use and development is consistent with the efficient use of energy and the minimisation of greenhouse gas emissions. Energy produced by wind farms is considered as a clean and sustainable energy which thereby embodies the principles of this Strategy and the broader international and national agenda to reduce greenhouse gas emissions.

Specifically, the Warradarge Wind Farm strategy of the State Sustainability Strategy as it encourages and facilitates movement away from the current reliance on fossil fuels to practices that conserve energy and encourage the use of more benign alternative forms of renewable energy. The vision of this sub-strategy is as follows:

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The proposed Warradarge Wind Farm is also directly aligned with the key objectives and initiatives of the 'Sustainable Strategy', as outlined below

- § The proposal adopts best practice energy management in the WA community. The Strategy also specifically highlights Verve Energy's Albany Wind 'best practice turbine technology (which) demonstrates turbine performance'. The project is designed and constructed to meet the same high standard.
- § The proposal demonstrates a greater awareness of the environmental, economic and social benefits of energy efficiency and renewable energy as it will:
  - Providing a clean source of energy which has a much lower environmental impact than conventional energy technologies.
  - Bring economic benefits to the local regional community as the development and installation of wind farms creates new jobs, regional development and long term economic growth.
- § The proposal facilitates the replacement of old electricity generators in the State with new, cleaner and more efficient technologies.
- § The proposal is aligned with the State Government actions and Federal Government initiatives, including the Mandatory Renewable Energy Target (MRET). The MRET aims to increase the amount of energy generated from renewable sources and recognises the benefits of demand-side initiatives for energy conservation.

The desire by Verve Energy to construct a wind farm at Warradarge is driven by this sustainability agenda while being cognisant of the importance of minimising the potential impacts (including visual and environmental) of the proposal on the site and its surrounds. These potential impacts are addressed in detail throughout this report.

Once constructed, the Warradarge Wind Farm has the potential to produce up to 875 Million Kilowatt-hours of electricity, on average every year, equivalent to the annual electricity demand of 140,000 households. This represents a significant project for the region that will assist in achieving one of the principal intents of the State Sustainability Strategy.

## COMPLIANCE STATEMENT

- § *The desire by Verve Energy to construct a wind farm at Warradarge is consistent with the State Sustainability Strategy while being cognisant of the importance of minimising the potential impacts (including visual and environmental) of the proposal on the site and its surrounds.*
- § *G d Y W J Z J W U ` ` m ž ` h \ Y ` K U f f U X U f [ Y ` K ] b X ` : U f a ` d f c d c ğ Ů ĩ Đ } strategy outlined in the State Sustainability Strategy, as it encourages and facilitates movement away from the current reliance on fossil fuels to practices that conserve energy and encourage the use of more benign alternative forms of renewable energy*

### 5.3 ENVIRONMENTAL PROTECTION AUTHORITY – POSITION STATEMENT NO.2 – ENVIRONMENTAL PROTECTION OF NATIVE VEGETATION IN WESTERN AUSTRALIA

This Position Statement provides an overview of the EPA Western Australia with particular reference to clearing within agricultural areas. Where a proposed wind farm involves clearing of remnant vegetation, the proposal should be assessed against the EPA Position Statement No.2.

In assessing a proposal, the EPA will consider supporting clearing in an agricultural area where:

- § The proposed land use addresses alternative mechanisms for protecting biodiversity. Opportunities for addressing biodiversity could include rehabilitation of disturbed areas and/or acquisition of areas containing remnant native vegetation. The EPA would like to see an overall environmental benefit as a result of the proposal, such as ensuring protection and management of higher quality remnant native vegetation in the general area (not necessarily on the same property).
- § The area proposed for clearing is relatively small, depending on the scale over which significant biodiversity changes occur in the particular area, including the extent of vegetation in the surrounding area, and recognising that the values will vary for different ecosystems.
- § The proponent demonstrates that the elements set out in the Position Statement are being met (eg. biodiversity values, Indigenous plants and animals, on and off-site impacts managed appropriately, etc). This will require extensive local and regional biodiversity work.

A large proportion of the study area in **Annex 3** (76%) comprises cleared land, predominately for pasture, which has no conservation value as vegetation. The remainder of the site comprises the following:

- § Twenty five intact vegetation units in Very Good to Excellent condition.
- § Two vegetation types are similar to the description available in the Floristic 'Less than 1000 Years Old' Community', which is listed as a Threatened Ecological Community to be of Very High Conservation Significance.
- § The remainder of the vegetation is of High Conservation significance.

The Warradarge Wind Farm proposal does not require further clearing of vegetated areas, with the exception of 0.7 hectares, to accommodate the proposed transmission line. All significant vegetated areas that contain Threatened Ecological Communities and Priority species have been avoided in this area.

Refer Section 4.3.12 of the Development Application Report and Annex 3 in relation to the proposed vegetation clearing.

#### COMPLIANCE STATEMENT

- § **25 intact vegetation units (and 406 plant species) were identified within the study area and were found to be in very good to excellent condition. 4 species are listed as Threatened and 22 are listed as Priority flora under the WA Wildlife Conservation Act. The proposed wind farm however has been designed to avoid a significant amount of clearing, with only 0.7ha of clearing required to accommodate the proposed transmission line. This clearing is less than 1% of the total 82.5 hectare footprints and will avoid all significant Threatened Ecological Communities, Priority Ecological Communities and Priority flora that were identified.**
- § **A desktop review identified 12 fauna species of conservation significance. The species most believed to be the most relevant, given foraging habitat is present within the proposed wind farm area. No roost sites, or potential roost sites, were observed during the field visit. If clearing of foraging habitat is kept to a minimum, the local and regional conservation status of this species is unlikely to be affected.**
- § **The Flora and Fauna Assessment concludes that individual avifauna mortalities as a result of bird strikes with wind turbine blades is unlikely to affect population numbers at a local or regional scale. In addition the risk to bats was considered not significant.**
- § **All important vegetated areas, Threatened Ecological Communities and Priority species, protected by federal and state environmental legislations have been intentionally avoided.**
- § **It is acknowledged that a clearing permit would be applied for in advance of any clearing.**

#### 5.4 ENVIRONMENTAL PROTECTION AUTHORITY (SOUTH AUSTRALIA) - WIND FARM ENVIRONMENTAL NOISE GUIDELINES

Until such time as a formal policy is adopted in Western Australia, the Department of Environment and Conservation (DEC) endorses the criteria and approach of assessing wind farms based on background noise levels, as described in the South Australian guidelines – *Environmental Protection Authority . Wind Farms Environmental Noise Guidelines (South Australia)* (Noise Guidelines).

In accordance with the Noise Guidelines, the predicted equivalent noise level (LAeq,10), adjusted for tonality should not exceed:

- § **35dB(A) at relevant receivers in localities which are primarily intended for rural living\*, or**
- § **40dB(A) at relevant receivers in localities in other zones; or**
- § **Background noise (LA90, 10) by more than 5dB(A),**

whichever is the greater, at all relevant receivers for wind speed from cut-in to rated power of the Wind Turbine Generator (WTG) and each integer wind speed in between. The background noise should be determined by the data collection and regression analysis procedure recommended under Section 3 of these Guidelines.

Section 4.4.1 outlines the information and documentation requirements of the *Noise Guidelines*.

#### COMPLIANCE STATEMENT

- § **Based on a detailed Noise Impact Assessment in relation to the proposed Warradarge Wind Farm, noise emissions at domestic receiver points have been calculated to comply with the background noise criteria under all wind conditions.**

## COMPLIANCE STATEMENT

§ *Noise levels at one non-domestic receiver point has been calculated to exceed the background noise criteria, however it is noted that the criteria is not applicable at this location. Verve Energy has negotiated secure tenure through lease agreements in relation to Lots 10847, 10848, 10850, 10851 and 10853. These leases contain a noise buffer clause to allow wind turbine noise to exceed the greater of either 35dB(A) or 5dB(AB) above background noise, in areas of land away from noise sensitive premises. This will ensure no future noise sensitive premises will be constructed throughout the life of the wind farm in areas of each lot where the wind farm may exceed permissible limits.*

### 5.4.1 COMPLIANCE CHECKLIST

Table 2 below, provides a checklist of the information and documentation required to undertake noise modelling for the Warradarge Wind Farm proposal against the South Australian Noise Guidelines, in the absence of WA specific noise guidelines for wind farms:

TABLE 2 –WIND FARM ENVIRONMENTAL NOISE GUIDELINES COMPLIANCE CHECKLIST (SOUTH AUSTRALIA) (SOURCE: EPA SA 2012)

COMPLIANCE CHECKLIST EXTRACT	COMPLIANCE	DISCUSSION
<b>PREDICTED NOISE FROM THE WIND FARM</b>		
Make and model of WTGs to be used	J	Siemens SWT-3.0-101, at the highest hub height under construction (100m). This represents the noisiest turbine possible for the proposed wind farm.
Octave one-third octave band sound power levels and associated wind speed of WTGs to be used	J	The one-third octave and data sound power levels for Vestas 112 3MW Turbines, at a hub height of 84m has been utilised for a low frequency assessment. One-third octave band data was not used, as low frequency data was not available for Siemens SWT-3.0-101 turbine.
Positions of all WTGs shown on a map	J	Refer Annex 4 – Noise Impact Assessment (Appendix A of 14014-8-11250).
Table of WTGs and relevant receivers coordinates	J	Refer Annex 4 – Noise Impact Assessment (Appendix A of 14014-8-11250).
Description of zone category, zone maps for all receivers.	J	All areas assumed to be Rural Living.
Predicted noise levels for those premises in worst-case wind direction for wind speeds from cut-in speed to the speed of WTG rated power	J	
Model used and method for deriving noise levels	J	
Indication of accuracy of wind farm noise prediction	J	
Amount of noise reduction	J	Noisiest operating condition utilised for modelling hence no noise reduction (other than distance).
Topographic map of wind farm and affected premises showing labelled noise contour lines	J	See Annex 4 – Noise Impact Statement (Appendix A of 14014-8-11250).
Location of wind measuring position(s) used for noise assessment and compliance purposes.	J	Refer Annex 4 – Noise Impact Assessment and Annex 5 – Background Noise Monitoring (Appendix A of Background Noise Monitoring Report – ref. 14290-4-11250-01).



<b>MEASUREMENT AND ASSESSMENT OF BACKGROUND NOISE</b>		
Description of noise measuring equipment used (make, model, type)	J	Sound Level Meter – Black Box 1 S/N: Logger 69, Class 1.  Model: RTA02, S/N: 052, Class 2
Noise measurement position including height above ground, wind speed and distance to nearest building structure.	J	Refer Annex 4 – Noise Impact Statement (Appendix A – Residential and Wind Turbine Locations) and Annex 5 – Background Noise Monitoring (Table 3.2 – Monitoring Location Details).
Description and photograph of measurement position showing nearby trees and building structures.	J	Refer Annex 5 – Background Noise Monitoring Report (Appendix B of Background Noise Monitoring Report – ref. 14290-4-11250-01).
Angle direction between the line connecting the noise measurement point and nearest WTG	J	Information not needed for this area as background noise levels do not change with wind direction.
Atmospheric conditions	J	Refer Annex 4 – Noise Impact Statement (Table 4.2)  Temperature - 15°C  Relative Humidity – 70%  Atmospheric Pressure – 101.325 kPa
Wind speed data at noise measurement site	J	
Time and duration of monitoring	J	
Sampling time for wind and noise measurements	J	
Total number of data pairs measured and number of data pairs measured at worst wind conditions between cut-in speed to the speed of WTG rated power	J	
Description of regression analysis method	J	
Graphical plot of data in Section 3.4 of Guidelines	J	Refer Annex 4 – Noise Impact Statement (Appendix B – Predicted Noise Level Contours)
Correlation coefficient and equation for the regression curve	J	

## 5.5 PLANNING BULLETIN NO.67 - GUIDELINES FOR WIND FARM DEVELOPMENT (WAPC 2004)

Planning Bulletin No.67 (PB67) was prepared to provide local government, other relevant approval authorities and wind farm developers with a guide to the planning framework for the balanced assessment of land-based wind farm developments throughout Western Australia. PB67 identifies key planning issues relevant to wind farm developments, and provides guidance in the design and siting of wind farms, as well as assisting local governments in their assessment process. The key objectives of PB67 are as follows:

- § Facilitate the development of wind farms in an efficient, cost-effective and environmentally responsible manner that meets community needs, while taking into account the needs of developers, and State and national imperatives.
- § Promote community understanding of the issues involved in the design and installation of wind farm infrastructure and provide opportunities for community input into decision-making.
- § Promote a consistent approach in the preparation, assessment and determination of applications for planning approval for wind farm developments.
- § Minimise disturbance to the environment (including landscape) and loss of public amenity in the establishment, operation, maintenance and decommissioning of wind farms.

**PB67 is the principal tool for the assessment of planning applications relating to wind farms in Western Australia.**

### 5.5.1 PLANNING AND ENVIRONMENTAL ISSUES

The following provides a summary of the key planning and environmental issues cited in PB67 that will be considered in the decision-making process.

- § Land Use and Planning Controls – PB67 indicates that the Model Scheme Text does not include a definition of wind farms, hence wind farm applications listed. In this instance it is the case of the Warradarge Wind Farm in the Shire of Coorow Town Planning Scheme No.2 and the Shire of Carnamah Town Planning Scheme No.1, and will be required to be advertised for public comment. The proposal will be determined on its merits, having regard to the overall context of the area and its ability to accommodate the wind farm development.
- § Public Health and Aircraft Safety – PB67 indicates that wind farm developments must be highlighted on all navigational maps and equipped with tower safety lighting or marking to minimise any impact upon the safety of aircraft and the operation of airfields. An Aviation Assessment has been undertaken to determine any impacts on flight paths in the area (see Annex 7 of the Development Application Report).
- § Socio-economic Benefits – wind farm developments may have direct and indirect benefits for the community and its economy. The assessment and consultation process should allow for any potential negative impacts to be considered. PB67 indicates that a Management Plan for visitors should be considered if the wind farm is to be accessible or visible to the public. Given the proposed Warradarge Wind Farm is located in a General Rural area, away from the built up areas of Leeman, Greenhead, Coorow, Eneabba and Carnamah, and will not be open to the general public, it is considered such a Management Plan is not required. The Proponent has set up a supplier database for the local businesses who think they may be able to assist during the wind farm construction. This database will be supplied to the principal contractor who will build the wind farm, so they are aware of local businesses that are available to supply services.
- § Construction, Infrastructure and Utilities – the transport of equipment and freight to the site should be carefully managed in consultation with local government.

- § Landscape and Visual Impact – the degree to which a wind farm development will impact on the landscape will depend on:
  - Siting, layout and design of the turbines, infrastructure, signage and ancillary facilities.
  - Number, colour, shape, height and surface reflectivity of the towers and blades.
  - Visibility of the development, having regard to the location, distance from which the development is visible, skyline and view-sheds.
  - Significance and sensitivity of the landscape, having regard to topography, the extent and type of vegetation, natural features, land use patterns, built form character and community values.

This is discussed in Section 4.2 of the Development Application Report and is supported by a comprehensive Landscape and Visual Assessment has been undertaken and is included within **Annex 2**.

- § Noise – a wind energy facility can create noise from the turbine gearbox or generator, movement of the blades, and construction noise, however, the noise characteristics vary according to the make and model. As a guide, in order to achieve acceptable noise levels, the minimum separation distance between a wind turbine and noise sensitive land use not associated with the wind farm is likely to be 1 kilometre. Section 4.4 of the Development Application Report broadly considers Noise, with a formal noise assessment attached as **Annex 4 and 5**.

- § Other Possible Amenity Effects – other potential amenity effects include shadow flicker and glint. These elements are considered in further detail as part of Section 4.9 of the Development Application Report.

- § Vegetation and Fauna – the types, location and significance of flora and fauna should be mapped. Where a proposed wind farm involves clearing of remnant vegetation, the proposal should be assessed against the ~~Environmental Protection of~~ Native Vegetation in WA. The impact of wind farms against birds and bats should also be considered. Vegetation and Fauna are considered earlier in this report and in the formal Flora, Vegetation and Fauna Study included as **Annex 3** of the Development Application Report.

Electromagnetic Interference – based on a detailed Investigation of Possible Impacts on Broadcasting and Radiocommunication Services, there are currently no potential conflicts between any point to point radio system paths and the proposed wind turbines. Whilst this is based on current wind turbine locations, if any turbines are repositioned within the Wind Farm Envelope, no conflict with current radio link ray lines or radio sites is predicted. This is considered in a formal assessment in **Annex 6**.

#### COMPLIANCE STATEMENT

- § **Refer to the compliance matrix overleaf.**

## 5.5.2 COMPLIANCE MATRIX

Table 3, below, provides a checklist of the key information requirements outlined in PB67:

TABLE 3 – PLANNING BULLETIN 67 – GUIDELINES FOR WIND FARM DEVELOPMENT – COMPLIANCE CHECKLIST

PLANNING BULLETIN REQUIREMENT EXTRACT	COMPLIANCE	REFERENCE IN DEVELOPMENT APPLICATION REPORT
<p><b>7.1 Site Analysis –</b></p> <p>§ Context Statement (planning framework, site detail/characteristics, contours, land uses, ownership etc).</p>	J	Refer Annex 1
<p>§ Technical Assessment (wind information, landscape significance, ground conditions, erosion factors, surface and groundwater conditions)</p>	J	Section 1 of Development Application Report.
<p>§ Access to the electricity network.</p>	J	Section 3.7 of Development Application Report.
<p><b>7.2 Wind Farm Design Statement –</b> including detail regarding turbine design, layout, siting &amp; orientation, road design, plans and cross-sections, top soil, vegetation clearing and rehabilitation areas, electrical specifications, operational and maintenance arrangements.</p>	J	Section 3.1 – 3.3 and 4.2 of Development Application Report.
<p><b>7.3 Impact Assessment and Mitigation Measures</b> addressing:</p> <p>§ Landscape and Visual Impact Statement.</p> <p>§ Noise Impacts.</p> <p>§ Environmental Impacts.</p> <p>§ Amenity Impacts.</p> <p>§ Construction Impacts.</p> <p>§ Power network connection and transmission line infrastructure.</p> <p>§ Decommissioning and reinstatement proposals.</p> <p>§ Social and economic benefits, tourism benefits, relationship to other land uses, design life span etc.</p>	J	Section 3 and 4 of Development Application Report, and various Annexures.
<p><b>7.4 Consultation</b> including proposals for consultation with Government agencies, stakeholder meeting details and community consultation details.</p>	J	Section 2 and Annex 12 – Stakeholder Consultation.

## 5.6 VISUAL LANDSCAPE PLANNING IN WESTERN AUSTRALIA – A MANUAL FOR EVALUATION, ASSESSMENT, SITING AND DESIGN WAPC 2007

The Visual Landscape Planning Manual has been developed to help public and private sector planners to address visual landscape matters in the planning process. The Manual explains the fundamental planning tools of visual landscape evaluation and visual impact assessment and provides guidelines for siting and design in relation to a range of landscape types and land uses.

A detailed landscape and visual impact assessment has been undertaken in accordance with this Manual to determine the potential impact of the Warradarge Wind Farm proposal on the landscape. The assessment is based on the maximum potential impact of the proposed wind farm development (100 turbines) which consists of 100 turbines at a tip height of 152 metres. A complete copy of this assessment is provided in Annex 2 of the Development Application Report.

The Manual acknowledges that wind farms have a context that is broader than other utility towers. Although wind farms involve planning issues at local level (as with other utility services) they also

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The Manual establishes a series of state, regional, local and site level principles and guidelines with respect to wind farms. This includes addressing factors with respect to avoiding significant landscapes, minimising impact through the layout, size, number and colour of turbines and associated infrastructure, minimising earthworks and implementing a program of rehabilitation.

The components of wind turbines that may have an impact on the surrounding landscape and visual character comprise:

- § Wind farm project area.
- § Layout of wind farm.
- § Turbine size (tower height and rotor size)
- § Turbine rotational speed.
- § Number of turbines.
- § Colour of turbines.
- § Reflectivity of rotating blades.
- § Access roads.
- § Ancillary features including associated buildings, signage, telecommunications infrastructure and transmission lines.
- § Extent of clearing required.
- § Construction procedures.
- § Rehabilitation measures.

The design of the Warradarge Wind Farm has sought to minimise visual impact from both a regional, local and site perspective. This includes:

- § Views of the proposed wind farm will occur from within a 25km radius of the study area.
- § There will be open views towards the site from numerous stretches of road. However, due to the low nature of the roadside and intervening vegetation and generally flat to undulating topography, views will be filtered in some locations.



- § Figures 5 and 6 in Annex 2 shows the turbines that are visible from the hub (100m) upwards and the tip height (152m). These figures show that beyond 10km from the wind farm the number of turbines visible to the west reduces to zero except on a few elevated areas. In areas to the south and north the turbines are theoretically visible out to 15km, beyond which they are only seen in isolated areas. To the west the tips of the turbines are theoretically visible to 25km except in lower areas of the landform but it can be seen that the hubs are not as visible beyond 15km, and this is due to the screening effect of the topography.
- § The proposed wind farm will however have a large impact upon landscape character within 5km of the site. From 5 km to 10 km and 10 km to 25 km in distance from the site, and beyond, due to the reducing visibility of the wind turbines, intervening vegetation and variation in topography the wind farm has a reduced impact on the landscape character. Generally, due to distance, local topography and intervening vegetation, the visual impact on areas further than 25km from the site will be negligible.
- § The dominant land use of the study area is agricultural grazing with scattered private housing. Wildflower tourist drives occur on all roads surrounding the site, with pockets of nature reserves. It is evident that human activities have shaped the local landscape. The land is used intensively and the proposed wind farm is considered to be an activity that does not conflict with the prominent land uses.
- § The strong vertical form of the turbines as well as the overhead power lines, will dominate the landscape when viewing from a close distance. However, the general site layout, in combination with the existing agricultural land use will result in a clear and cohesive image, which will be aesthetically acceptable. The only variation to this will be in the north-east corner where turbines are more spread out, less cohesive and appear as large, individual elements. This may create a larger impact when viewed from the eastern side of the study area in a north or south direction.

In the context of providing a sustainable energy resource for the Mid-West region of WA, the Warradarge Wind Farm has been designed in an effort to minimise its impact on the site as well as the local and broader regional context in which it is located.

#### COMPLIANCE STATEMENT

- § ***In designing the wind farm, Verve Energy has taken into consideration the Visual Landscape Planning Manual key principles. Table 8 (Section 4.2.27) of the Development Application Report provides an assessment of the proposed wind farm against these guidelines.***

## 5.7 RELEVANT STATE PLANNING POLICIES (SPPS)

### 5.7.1 STATE PLANNING POLICY NO.2 (SPP2) – ENVIRONMENT AND NATURAL RESOURCES POLICY

SPP2 is primarily concerned with the conservation and protection of environmental assets and biodiversity as well as sustainable management of natural resources across Western Australia. The key objectives of SPP 2 are as follows:

- § Integrate environment and natural resource management within broader land use planning and decision making.
- § Protect, conserve and enhance the natural environment.
- § Promote and assist in the wise and sustainable use and management of natural resources.

Specifically, SPP 2 recognises there is widespread awareness of the need to increase the efficiency with which energy is used in Western Australia, including the need to reduce reliance on energy produced from non-renewable resources such as fossil fuels. SPP 2 indicates that planning decision-making should:

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Based on the above review, the Warradarge Wind Farm proposal is considered to be closely aligned with the strategic intent of SPP 2, in that it will contribute to national and international efforts to reduce emissions of greenhouse gases and other air pollutants and improve sustainable production of electricity in Western Australia. Wind energy is a renewable energy technology, which fits closely with the ideals of this Policy.

#### COMPLIANCE STATEMENT

- § ***The Warradarge Wind Farm proposal will contribute to national and international efforts to reduce emissions of greenhouse gases and other air pollutants and improve sustainable production of electricity in Western Australia.***

### 5.7.2 STATE PLANNING POLICY NO.2.5 (SPP 2.5) – AGRICULTURAL AND RURAL LAND USE PLANNING

SPP 2.5 focuses on the identification and appropriate zoning of highly productive agricultural land throughout Western Australia.

A summary of the key objectives of SPP 2.5 is provided below:

- § Protect agricultural land resources wherever possible by—
  - a) discouraging land uses unrelated to agriculture from locating on agricultural land;
  - b) minimising the ad hoc fragmentation of rural land; and
  - c) improving resource and investment security for agricultural and allied industry production.
- § Minimise the potential for land use conflict by—
  - a) providing adequate separation distance between potential conflicting land uses;
  - b) introducing management requirements that protect existing agricultural land uses;
  - c) identify areas that are suitable and capable for intensive agricultural pursuits as agricultural priority areas; and
  - d) avoid locating new rural settlements in areas that are likely to create conflict with established or proposed agricultural priority areas.

- § Carefully manage natural resources by—
  - a) discouraging development and/or subdivision that may result in land or environmental degradation;
  - b) integrating land, catchment and water resource management requirements with land use planning controls;
  - c) assisting in the wise use of resources including energy, minerals and basic raw materials;
  - d) preventing land and environmental degradation during the extraction of minerals and basic raw materials; and
  - e) incorporating land management standards and sequential land use change in the land use planning and development process.

Given the proposed Warradarge Wind Farm is I Towra Planning Scheme No.2 and the Shire of Carnamah Town Planning Scheme No.1, it will be important to consider the key objectives and elements of SPP 2.5. Importantly, the proposal will need to consider the following:

- § Potential for land use conflict –an adequate separation distance has been provided between the proposed wind farm and potential conflicting/sensitive land uses. As part of the Development Application process, sensitive land uses in proximity to the wind farm have been identified and an assessment of potential impacts undertaken (eg. Visual, noise, amenity, shadow flicker)
- § Site Selection – a comprehensive site selection process has been undertaken, in relation to key technical, environmental, statutory planning and community aspects. The proposed location of the Warradarge Wind Farm is not considered to have the potential to diminish the agricultural and rural integrity of the area.

#### **COMPLIANCE STATEMENT**

- § ***The Warradarge Wind Farm is considered to be consistent with the rural/agricultural setting and the subject land has low agricultural value. The wind farm footprint only removes less than 1% of the agricultural land from production across the subject Lots.***
- § ***In relation to potential noise impacts, based on a detailed Noise Impact Assessment in relation to the proposed Warradarge Wind Farm, noise emissions at domestic receiver points have been calculated to comply with the background noise criteria under all wind conditions.***
- § ***Verve Energy has negotiated secure tenure option agreements to all subject Lots with respect to a noise buffer clause. This allows noise to exceed the required level in areas away from noise sensitive premises. With such management procedure in place, the potential for land use conflict with sensitive uses is therefore considered to be minimal. Various restrictions will also be placed on construction hours to maintain the rural/agricultural amenity of the area.***
- § ***Verve Energy is negotiating noise buffer agreements with neighbouring lots and this allows noise to exceed the required level in areas away from noise sensitive premises. With such management procedure in place, the potential for land use conflict with sensitive uses is therefore considered to be minimal. In the event an agreement cannot be reached with neighbouring Lot owners the turbines can be sited to avoid causing excessive noise over third party land.***
- § ***The location of the proposed wind farm within a Rural area is considered appropriate as it is located a considerable distance from the townships of Leeman, Coorow, Greenhead, Eneabba and Carnamah, and will therefore have a minimal effect on the locality.***

## 5.8 ENERGY 2031 - STRATEGIC ENERGY INITIATIVE – OFFICE OF ENERGY

The WA State Government Office of Energy released *Energy 2031 . Strategic Energy Initiative* in March 2011, which proposes a vision for the next 20 years. The initiative proposes to develop plans, strategies, policies and regulatory frameworks to ensure a range of energy supply options is available for future needs under various scenarios. The Strategic Energy Initiative process aims to develop:

- § An energy vision for 2031, including a range of demand scenarios and potential supply options;
- § A set of clear goals to guide decisions by policy makers and investors;
- § A range of flexible strategies to allow industry and the community to adapt to emerging opportunities and challenges; and
- § Policy and regulatory frameworks to promote investment and competitiveness in the energy value chain and remove impediments to technological change.

This Strategic Initiative highlights that the introduction of the Commonwealth Government's Renewable Energy Target (RET) Scheme and the introduction of the carbon pricing system will drive low emission generation technology (for example, renewable energy) and carbon offset technology (for example, carbon capture and storage).

### COMPLIANCE STATEMENT

- § ***The proposed Warradarge Wind Farm is closely aligned with the overall intent of this initiative, as it will drive a clean and renewable source of energy have the potential to reduce reliance on fossil fuels and the emission of greenhouse gases into the Western Australian environment.***
- § ***The 100 turbine wind farm would produce on average every year, 875 million Kilowatt-hours (kWh) of electricity which is equivalent to the average annual electricity needs of 140,000 west Australian homes. The wind farm would also prevent at least 700,000 tonnes of CO<sub>2</sub> from entering the atmosphere annually.***

## 6 Regional Planning Framework

### 6.1 MID WEST REGIONAL PLANNING AND INFRASTRUCTURE FRAMEWORK – THE WAY FORWARD (DRAFT)

The Warradarge Wind Farm proposal is situated within the Mid-West region of Western Australia. Once finalised, the Mid-West Regional Planning and Infrastructure Framework (the Framework), released in November 2011, will become a second tier document preceded by the WA State Planning Strategy (1997) and will be recognised as a regional strategy under the State Planning Framework. The key objectives of the Draft Framework are to:

- § Provide the regional context for land-use planning in the Mid-West.
- § Provide an overview of the major regional economic, social, cultural and environmental issues.
- § Identify the priority actions required to enable the comprehensive regional and sub-regional planning, and
- § Identify the priority regional infrastructure projects to facilitate the economic and population growth in the Mid-West.

The Framework identifies several key themes to assist in achieving the above objectives. The themes which are considered to be directly relevant to the Warradarge Wind Farm proposal are as follows:

- § A green region that should grow within the constraints of its diverse and unique natural assets and that seeks to utilise its renewable assets.
- § A responsible region that ensures that future growth is sustainable, responsible and in keeping with the natural landscape.
- § An innovative region that embraces technology to add value to its industries, support the delivery of services and stimulate new technology-based enterprises.

The Draft Framework identifies that the Mid-West region has abundant renewable energy resources, such as solar, wind and geothermal, and specifically highlights the Greenough River Solar Farm proposal by Verve Energy, in an effort to showcase the strong renewable energy push in the Mid-West region. The Framework also identifies that a key challenge in future energy production in the region will be the increasing transmission capability for the Mid-West region including support for renewable energy production and supply.

The Framework indicates that a Mid-West Energy Strategy will be prepared, and will be guided by the State Energy Strategy, to focus on the delivery of regional energy infrastructure necessary to meet anticipated demand and support regional development. The Strategy will identify opportunities to further diversify regional power generation, including potential renewable energy projects (including wind) and also the viability of towns to support alternative energy sources. This Strategy is identified as a flagship priority project.

#### COMPLIANCE STATEMENT

- § ***The Warradarge Wind Farm proposal represents a significant renewable energy project in the Mid-West region, and will actively assist in achieving the above objectives and themes of the Draft Framework. Specifically, the proposal demonstrates a commitment to achieving sustainable and responsible future growth, whilst respecting and retaining the natural rural landscape. The proposal also represents a significant innovative project which will add value to the local community and wider Mid-West region.***



# 7 Local Planning Framework

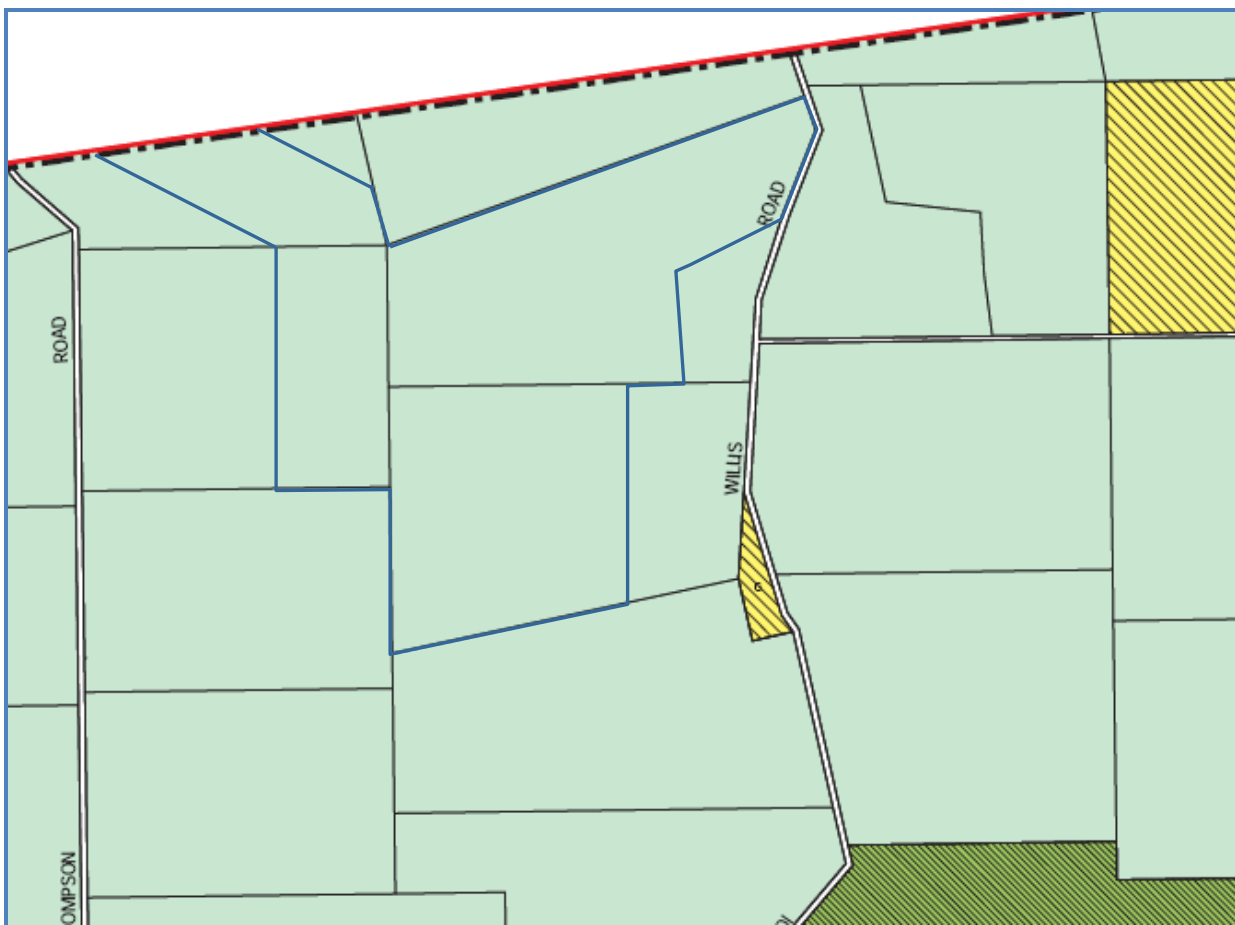
## 7.1 SHIRE OF COOROW TOWN PLANNING SCHEME NO.2

The Shire of Coorow Town Planning Scheme No.2 (TPS2) provides the local statutory framework for land use and development control within the Warradarge locality. An assessment of the proposed Warradarge Wind Farm against relevant provisions of TPS2 is provided within the following sections.

### 7.1.1 ZONING

The proposed Warradarge Wind Farm is located within TPS2 as shown in Figure 4, below:

FIGURE 4 – SHIRE OF COOROW TPS2 – SCHEME EXTRACT (SOURCE: WAPC)



#### LOCAL SCHEME RESERVES



#### PUBLIC PURPOSES

DENOTED AS FOLLOWS:

- A AMBULANCE SUB CENTRE
- CO COUNCIL OFFICE
- CW CAMPING & WATER
- D DRAIN
- EX COUNTRY AUTOMATIC EXCHANGE
- FP FORESTRY PURPOSES
- G GRAVEL

#### ZONES



RURAL



RURAL RESIDENTIAL



Subject Site

The general objectives of each zone are set out in Clause 1.6 of the TPS2. The objectives for the Rural zone is as follows:

*be compatible with the capability of the land and retain the rural character and amenity of the area.*

In considering the Warradarge Wind Farm proposal's consistency with the Rural zone, consideration has been given to the proposal in the context of the site and its local and broader regional surrounds. In this regard, the following is considered relevant:

- § The construction of the Wind Farm will require minimal clearing of existing vegetation. Clearing will be limited to turbine sites, a substation (including buildings), transmission line and access roads between the turbines and to external roads. The site for each turbine has been carefully considered to minimise the disturbance of priority flora by siting within agricultural land.
- § Of the 82.5 hectare development footprint proposed, only 0.7 hectares of land will be cleared. This minimal amount of clearing will ensure the natural rural form of the site will be retained.
- § The proposal, whilst not a typical form of farming, is a diversified form of farming that has local, regional, and state benefits.
- § A detailed landscape and visual impact assessment of the proposal has been conducted (**Annex 2**) to assist in determining the visual impact of the proposal on the surrounding rural environment. The landscape and visual impact assessment has been prepared in accordance with State Planning guidelines and illustrates the visual impact of the wind farm on the rural landscape.

Overall, the proposed Warradarge Wind Farm will result in minimal onsite modification to the existing rural landform and minimal modification to vegetation in the Rural zone. Whilst it is acknowledged that the Wind Farm will be visible from surrounding local and regional locations, these views are limited as a consequence of the distance of the site from developed areas (i.e. Coorow, Leeman, Greenhead, Eneabba and Carnamah). Approval of this proposal will provide the opportunity to establish a Wind Farm that has the potential to generate enough power equivalent to the needs of over 140,000 homes annually and reduce the impact on the environment which would have otherwise resulted from the burning of fossil fuels to supply electricity to these homes.

### 7.1.2 SCHEME OBJECTIVES

Clause 1.6 of TPS2 sets out the general objectives of the Scheme. The key objectives for the Scheme, relevant to the proposed Warradarge Wind Farm are as follows:

- § To promote the sustainable use of rural land for agricultural purposes whilst accommodating other rural activities.
- § To protect and enhance the environmental values and natural resources of the Scheme area and to promote ecologically sustainable land use and development.
- § To safeguard and enhance the character and amenity of the built and natural environment of the Scheme area.

The Warradarge Wind Farm proposal is generally aligned with the above aims of the Scheme as it demonstrates the sustainable use of rural land for other rural activities such as wind farming. The proposal also aims to protect and enhance the environmental values of the rural locality and safeguards amenity of the Shire through locating in an area which is away from major towns in the Shire and involves minimal clearing of vegetation. The proposal also ensures the natural rural form of the site is retained.

### 7.1.3 LAND USE DEFINITION

As outlined in Planning Bulletin 67, the Model Scheme Text does not include a definition for wind farms or wind energy facilities, hence wind farm developments are typically classified as a use class in planning schemes. A 'wind farm' as a use class is not listed in TPS2 and therefore it is classified as a 'PS2 meaning that is listed' in the Zoning Table.

Table and cannot reasonably be determined as falling within the type, class or genus of activity of any other use category, the local government may:

- (a) determine that the use is consistent with the objectives of the particular zone and is therefore permitted;
- (b) determine that the use may be consistent with the objectives of the particular zone and thereafter follow the advertising procedures of clause 9.4 in considering an application for planning approval; or
- (c) determine that the use is not consistent with the objectives of the particular zone and is therefore not permitted.

It is expected that the Shire will determine that either the use is or may be consistent with the objectives of the Rural zone (Items (a) and (b) above). The application is unlikely to be inconsistent with the objectives of the Rural zone.

### 7.1.4 ADVERTISING REQUIREMENTS

Notwithstanding Clause 4.4.2, Clause 9.4.1 of TPS2 states that:

Da use not listed in the Zoning Table is a use which is:

Da use not listed in the Zoning Table.

the local government is not to grant approval to that application unless notice is given in accordance with clause 9.4.3 of TPS2.

Clause 9.4.3 of TPS2 identifies that for an application for planning approval, the Shire will require advertising in one or more of the following ways:

- § Notification of surrounding landowners and occupiers;
- § A notice to be placed in the newspaper circulating in the Scheme area; and
- § A sign to be erected on the subject site.

In all instances, a 14-day advertising period is identified, after which the Shire is required to make a recommendation to the Mid-West Joint Development Assessment Panel (JDAP). This application period may be extended, however, given the nature and scale of the development proposed.

### 7.1.5 ACCOMPANYING MATERIAL

Clause 9.2 of TPS2 outlines the information that is required to be submitted, where applicable, with an Application for Planning Approval. Table 4, provides a checklist of these requirements:

TABLE 4 – PLANNING APPLICATION REQUIREMENTS - CHECKLIST

APPLICATION REQUIREMENTS	COMPLIANCE	NOTE
Detailed Site Plan	J	<p>Included at Figure 4 of The Development Application Report.</p> <p>This site plan included as part of this Development Application Report presents one design outcome only, and therefore Development Approval is requested to encompass all potential wind turbine configurations of a 100 turbine wind farm within the site boundary.</p> <p>The final design and location of the turbines will be subject to a tender process once Development Approval is obtained</p>
Information regarding the existing and proposed use of the site, including buildings and structure proposed.	J	Refer Section 1.8, 1.9 and Figure 17 of Development Application Report
Existing and proposed access	J	Refer Section 3.8, 3.18 and Figure 14 of Development Application Report.
Details regarding proposed carparking	J	Refer Figure 12 and 13 (Construction and Administration carparking).
Plans/Elevations and Sections	J	Refer to all Figures in the Development Application Report.
Any specialist studies	J	<p>Landscape and Visual Impact Assessment (Annex 2)</p> <p>Flora, Vegetation and Fauna Assessment (Annex 3)</p> <p>Investigation on Possible Impacts on Broadcasting and Communication Services (Annex 6)</p> <p>Aviation Impact Statement (Annex 7)</p> <p>Noise Impact Assessment (Annex 4)</p> <p>Background Noise Monitoring (Annex 5)</p>
Any other information that the local government may require to enable the application to be determined	J	Refer Development Application Report.

This Development Application Report is accompanied by a comprehensive suite of technical and background information necessary in order to enable the Shire of Coorow to consider and make a recommendation to the Mid-West Joint Development Assessment Panel (JDAP).

**COMPLIANCE STATEMENT**

- § *H\ Y\ KUff UXUf [ Y\ K] bX\ : Uf a\ ] g\ [ Yb Yf U\ \ m\ USpecificallyXtheK ] h proposed Wind Farm will result in minimal onsite modification to the existing rural landform and a ] b] a U\ \ a c X] Z] WUh] c b\ hc\ j Y[ YhUh] c b\ ] b\ h\ Y\ Ĩ F i f U\ Ā a form of diversified farming, which the Rural zone provides for.*
- § *= h\ ] g\ UW\_ b c k\ YX[ YX\ h\ Uh\ h\ Uh\ h\ Y\ df c d c g U\ \ k] \ \ \ V Y to be advertised in accordance with the requirements of Clause 9.4.3 of TPS 2.*
- § *Whilst it is acknowledged the Wind Farm will be visible from surrounding local and regional locations, these views are limited as a consequence of the distance of the site from developed areas (Coorow, Leeman, Greenhead, Eneabba and Carnamah).*
- § *This application for Development Approval includes all relevant accompanying material.*

**7.2 SHIRE OF COOROW LOCAL PLANNING STRATEGY**

This Local Planning Strategy was prepared to provide strategic guidance for the future development of the Shire by providing an explanation of the content of the Scheme. The Strategy provides a detailed overview of state and regional context, a profile and key issues within the area, and a focus upon town site strategies.

The key objectives for development within the ‘ Rural ’

- § To ensure the continuation of the basic rural use within the zone, encouraging where appropriate, the retention and expansion of present agricultural activities.
- § To consider granting Planning Consent to non-rural uses where these can be demonstrated to be of benefit to the district and not detrimental to the area’s natural resources and environment generally.
- § To permit, subject to Planning Consent, development providing facilities for tourists, travellers and for recreational usage.

Of particular note is the second objective, which indicates the Shire will be supportive of permitting non-rural land uses (such as wind farms) in Rural zones where it can be demonstrated that the proposal will be of benefit to the district and not detrimental to the areas natural resources and environment generally. Given the proposed Warradarge Wind Farm has the potential to generate enough power equivalent to the needs of over 140,000 homes and reduce the impact on the environment which would have otherwise resulted from the burning of fossil fuels, the proposal is considered to be of significant benefit to the local community and district. The proposal will also have the secondary benefits of increased local employment (needed for construction) and tourism.

Verve Energy also propose to pay rent to the relevant landowner throughout the life of the Warradarge Wind Farm ensuring the landowner has a long term income stream from the land regardless of climate..

As has been outlined previously, the proposed wind farm will not be detrimental to the areas natural resources and rural environment.

**COMPLIANCE STATEMENT**

- § *The Warradarge Wind Farm is generally aligned with the Shire of Coorow Local Planning Strategy, the wind farm footprint only removes less than 1% of the agricultural land from production across the subject Lots so rural use can continue.*
- § *Whilst not a typical rural pursuit, the proposal is a form of diversified farming, however where the Wind Farm is considered a non-rural use, however will be of significant benefit to the local community and*

**7.3 SHIRE OF COOROW LOCAL STRATEGIC PLAN 2007**

This Shire of Coorow Strategic Plan provides a present and future blueprint for the future growth and development of the Shire. Goal 5 of the Local Strategic Plan deals specifically with the local environment, aiming to ± ^ } @æ} & ^ É Á ~ c ã | ã • ^ Á æ} á Á & The Strategic Plan indicates that this will be [ ~ / & ^ • achieved through:

- § Value adding.
- § Initiatives to maintain and improve the Shire' s e n v i r o n m e n t .
- § Developing initiatives for water.

The proposed Warradarge Wind Farm will demonstrate the initiatives to maintain and improve the Shire's environmental elements of this Plan.

**COMPLIANCE STATEMENT**

- § *H \ Y ` d f c d c g Y X ` K U f f U X U f [ Y ` K ] b X ` : U f a ` k ] ` ` ` X Y a c b g h f U h ] b ] h ] U h ] j Y g ` h c ` a U ] b h U ] b ` U b X ` ] a d f c j Y ` h \ Y ` G \ ] f Y Ð g ` Y key elements of this Plan.*

**7.4 SHIRE OF COOROW PLAN FOR THE FUTURE 2010-2015**

The Shire of Coorow ' Plan for the Future ' provides the 2014 / 15. The Vision Statement outlines: in the Shire's

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The proposed Warradarge Wind Farm is closely aligned with this vision statement, as it will provide an innovative and sustainable alternative energy source, reducing fossil fuels.

**COMPLIANCE STATEMENT**

- § *The proposed Warradarge Wind Farm is closely aligned with this vision statement, as it will provide an innovative and sustainable alternative energy source, reducing fossil fuels.*

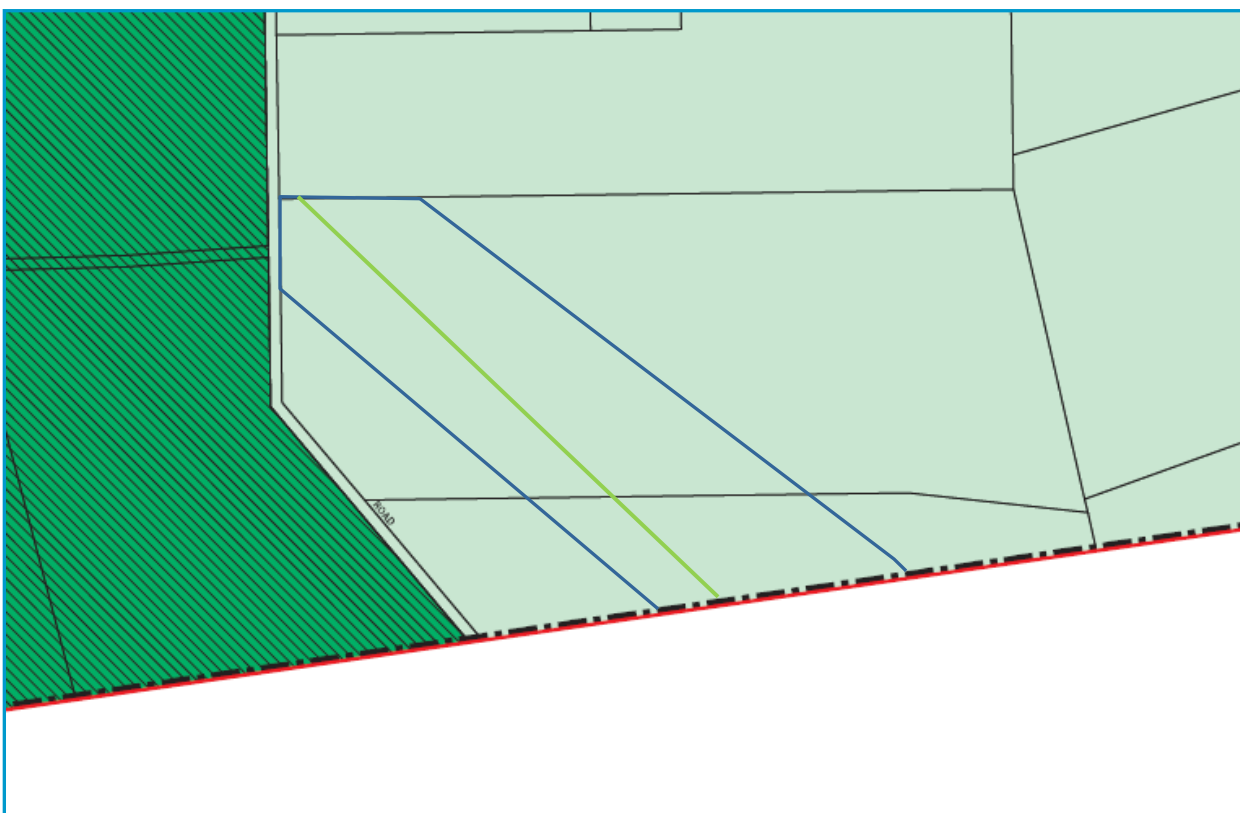
## 7.5 SHIRE OF CARNAMAH TOWN PLANNING SCHEME NO.1

The Warradarge Wind Farm proposes a transmission line which runs north-west of the proposed wind farm, crossing into the Shire of Carnamah. Accordingly, there is a requirement to obtain planning approval from the Shire of Carnamah for the development of the transmission line. Based on Verve Energy's understanding of Carnamah TPS1, it is understood an application will need to be made to the Shire of Carnamah for the portion of the transmission line only.

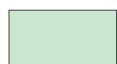
The transmission line is 10 kilometres in length, however only a portion of the transmission line will be located within the Shire of Carnamah. The transmission line will connect the onsite substation to the recently constructed Eneabba to Karara line. This is proposed to compose of 22 pylons, 63 m in height, with a space between pylons of around 500m. It is understood the proposed transmission line will traverse through Lots 10847 and 10848 to the grid connection point.

The proposed transmission line is located within a 'Rural' Scheme No.1 (TPS1), as shown in Figure 5:

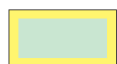
FIGURE 5 – SHIRE OF CARNAMAH TPS1 – SCHEME EXTRACT (SOURCE: WAPC)



### ZONES



RURAL



SPECIAL RURAL



PARKS/RECREATION/CONSERVATION



Proposed Subject Site



Proposed Transmission Line



The key objectives of the 'Rural' zone in TPS1 is as follows:  
 a) To provide for and monitor mining activities and associated works; and

b) To provide for and monitor mining activities and associated works; and

c) Without necessarily limiting the activities at (a) and (b), to conserve and preserve national bushland, waterways, and Indigenous flora and fauna so that the viability of any natural resource values is maintained;

### 7.5.1 DEVELOPMENT REQUIREMENTS

In considering development within the 'Rural' zone, the following (in accordance with Clause 5.7 of TPS1):

- (a) To provide for and monitor mining activities and associated works; and
- (b) To provide for and monitor mining activities and associated works; and
- (c) Without necessarily limiting the activities at (a) and (b), to conserve and preserve national bushland, waterways, and Indigenous flora and fauna so that the viability of any natural resource values is maintained;
- (d) The State Planning Commission Policy DC3.4. To provide for and monitor mining activities and associated works; and

Similarly to the Shire of Coorow TPS2, a wind farm in the Shire of Carnamah TPS1, therefore it will be classified as a wind farm and advertised for a minimum period of 14 days.

The proposed transmission line (for the purpose of transmitting power from the proposed wind farm to the existing Eneabba to Karara line) will result in minimal onsite modification to the existing rural landform of and minimal modification to vegetation in the 'Rural' zone.

#### COMPLIANCE STATEMENT

- § **Typical Rural activity, the transmission line will assist in transmitting power from the proposed Warradarge Wind Farm to the existing Eneabba to Karara power line to contribute to the development of the States renewable energy industry and aim to cut greenhouse gas emissions from electricity generation.**
- § **Specifically, the proposed transmission line will result in minimal onsite modification to the existing rural landform and minimal modification to vegetation in the 'Rural' zone.**

### 7.6 SHIRE OF CARNAMAH PLAN FOR THE FUTURE 2009-2011

The Shire of Carnamah's Plan for the Future 2009-2011 provides a general overview of the key strategies of the Shire's Strategic Plan and the current status of the implementation of these strategies. The Shire's Strategic Plan is publicly available. Whilst the Plan is now out-dated (2011), an assessment of the report has been undertaken in the absence of an updated and current Plan.

The key strategies relevant to the Warradarge Wind Farm proposal are as follows;

- § Economic Development – to retain existing industries and encourage the establishment of new industries to broaden the districts economic base.
- § Environmental Management – to provide sustainable management of resources and the protection and enhancement of biodiversity, land water and air.

In accordance with the above strategies, the Warradarge Wind Farm and associated portion of the transmission line (for the purposes of transmitting power from the proposed wind farm to the existing Eneabba to Karara line) will encourage investment in sustainable processes using innovative technology, which is in line with the Plan.

#### **COMPLIANCE STATEMENT**

- § ***The Proponent has set up a supplier database for the local businesses who think they may be able to assist during the wind farm construction. This may retain existing industries and encourage the establishment of new industries, consistent with the strategy.***
- § ***The proposed Wind farm and transmission line will promote natural resources management that improves productivity and safeguards the welfare of future generations by reducing regional dependence on fossil fuels" H \ ] g ` ] g ` W ` c g Y ` m ` U ` ] [ b Y X ` k ] h \ ` h \ Y ` G \***

## 8 Relevant Studies

### 8.1 BEST PRACTICE GUIDELINES FOR IMPLEMENTATION OF WIND ENERGY PROJECTS IN AUSTRALIA (DECEMBER 2006)

These Best Practice Guidelines, prepared by Auswind in December 2006, aim to provide detailed best practice guidelines for the planning and operation of wind farms in Australia, including key project processes and other technical considerations. The Guidelines also place an emphasis on the environmental, amenity and stakeholder consultation aspects of the planning and operation of wind farms.

The Guidelines follow a chronological path through the following project development phases, including:

- § Site Selection – the Guidelines indicate that the key reference document in relation to wind farm site selection in Western Australia is *Planning Bulletin 67 . Wind Farm Development* (as discussed previously in this report). This Planning Bulletin aims to facilitate a high-level site selection process. According to the Guidelines, through the site selection process, sites must satisfy five (5) crucial technical criteria for successful development. These are:
  - Good potential wind resource.
  - Potential for reasonable size of generation facility.
  - Cost effective electrical connection access.
  - Suitable landownership and usage patterns.
  - Ease of construction.
- § Project Feasibility – community and consultation requirements, technical and environmental considerations.
- § Project Detailed Assessment – technical and environmental assessments.
- § Development Application – the need to obtain approval from the relevant planning authority.
- § Construction – legal , environmental and other considerations, consultation with landowners, the Civil Aviation Safety Authority
- § Wind Farm Operation.
- § Decommissioning – environmental assessment, legal requirements, preparation of a Decommissioning and Rehabilitation Plan, consultation with stakeholders as required.

#### COMPLIANCE STATEMENT

- § ***The Warradarge Wind Farm proposal is aligned with the Best Practice Guidelines for the planning and operation of wind farms in Western Australia. Specifically, the proposal site has been selected based on the crucial technical criteria (refer Section 1.8 of Development Application Report) and aims to protect the rural integrity of the locality by retaining, where possible, existing remnant vegetation and the natural rural landscape. Verve Energy have also undertaken all required consultation, environmental and technical assessments within the Project Feasibility and Detailed Assessment phases to determine the suitability of the site selected for the Warradarge Wind Farm.***
- § ***In relation to decommissioning, once the operational period is completed for each stage (1, 2 or 3), that stage of the wind farm will be decommissioned. This will involve the deconstruction and removal of the turbine, recycling the tower and relevant parts of the blades. The turbines may be refurbished and replacement towers nacelle and blades installed, and this would be dependent on land agreements with Lot owners and the market for the electricity. The decommissioning period for each stage is likely to be completed within two years. Further information regarding the decommissioning of the wind farm is***

**COMPLIANCE STATEMENT**

*provided in Section 3.21 of the Development Application Report.*

## 9 Conclusion

This Planning Compliance Report has considered the various frameworks (planning, environmental, social and political) in which the Warradarge Wind Farm proposal will be considered at both a local and state (JDAP) level.

The wind farm presented for assessment in the Development Application Report is one with the greatest likely footprint and the north-south/east-west extents are spaced across the greatest amount of overall land area within the wind farm envelope. Therefore if the final development results in smaller or fewer numbers of turbines within the wind farm envelope or the anticipated 100 wind turbines are located in different locations within the wind farm envelope this has also been covered by the Development Application Report.

The turbines assessed are the noisiest likely wind turbine to be installed and therefore if a quieter turbine was installed the noise impact would be lesser and therefore quieter turbines have also been covered by this Development Application Report.

Overall it is considered the proposal appears generally consistent with the relevant federal, state, regional and local requirements and should be granted development approval. Specifically, the proposal achieves the following:

- § The proposed Warradarge Wind Farm directly responds to the Commonwealth Renewable Energy Target (RET) Scheme and the Act as it will contribute to the development of the States renewable energy industry
- § The desire by Verve Energy to construct a wind farm at Warradarge is consistent with the State Sustainability Strategy while being cognisant of the importance of minimising the potential impacts (including visual and environmental) of the proposal on the site and its surrounds.
- § The Warradarge Wind farm is proposing the clearing of upto 0.7ha of existing vegetation to accommodate the proposed transmission line. This represents less than 1% of the overall wind farm footprint. All important vegetated areas, the Threatened Ecological Communities and Priority species, protected by federal and state environmental legislations have been intentionally avoided, therefore EPBC referral and EPA referral is not required.
- § The 100 turbine wind farm would produce on average every year, 875 million Kilowatt-hours (kWh) of electricity which is equivalent to the average annual electricity needs of 140,000 west Australian homes. The wind farm would also prevent at least 700,000 tonnes of CO<sub>2</sub> from entering the atmosphere annually.
- § Noise emissions at domestic receiver points have been calculated to comply with the background noise criteria under all wind condition, with secure tenure agreements with subject and adjoining lots in place to allow wind turbine noise to exceed prescribed levels.
- § Interference to broadcasting and radio communication networks, as well as impacts of blade glint and shadow flicker is not expected in this locality.
- § The Warradarge Wind Farm is considered to be consistent with the rural/agricultural setting, and is located a considerable distance from the townships of Leeman, Coorow, Greenhead, Eneabba and Carnamah, and will therefore have a minimal effect on the locality.
- § The proposal achieves the requirements of *Planning Bulletin 67 . Guidelines for Wind Farm Development*, with respect to environmental, planning, landscape and visual assessment, noise, public health, aircraft, consultation and socio-economic matters.
- § The Warradarge Wind Farm proposal represents a significant renewable energy project in the Mid-West region and demonstrates a commitment to achieving sustainable and responsible future growth, whilst respecting and retaining the natural rural landscape. The proposal also represents a significant innovative project which will add value to the local community and wider Mid-West region.
- § The Warradarge Wind Farm is generally aligned with the Shire of Coorow and Shire of Carnamah Town Planning Schemes as it will result in minimal onsite modification to the existing rural landform and minimal modification to vegetation in the respective 'Rural' Whistler notes

typical rural pursuit, the proposal is a form of diversified farming, which the Rural zone provides for.

- § The proposed Warradarge Wind Farm will demonstrate a willingness to introduce sustainable initiatives to maintain and improve the Shire's environment.
- § The wind farm is expected to provide opportunities to supply both services and labour during the construction phase of the Proposal and during decommissioning.

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