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Senate Community Affairs Committee  
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## **Union Fenosa Wind Australia Submission to the Senate Community Affairs Committee Inquiry into The Social and Economic Impact of Rural Wind Farms**

### ***About Union Fenosa Wind Australia***

Union Fenosa Wind Australia (UFWA) is a windfarm developer with interests in windfarm projects in rural areas of New South Wales and Victoria. We would like the Senate Community Affairs Committee to consider this submission to the inquiry into the social and economic impacts of rural wind farms.

UFWA is an Australian subsidiary of Gas Natural Fenosa (GNF). GNF is a leading multinational company in the gas and electricity sector, with operations in 25 countries and more than 20 million customers. GNF is headquartered in Spain, and Spain has taken a leading role in developing the wind-power industry in Europe.

### ***UFWA's investment in Australia***

UFWA has several wind farm projects in NSW and Victoria which are well progressed, and several other sites in Australia that are in earlier stages of development. Our advanced projects are located at:

1. Hawkesdale (Victoria): (Development Approval for 62MW)
2. Ryan Corner (Victoria): (Development Approval for 136MW)
3. Darlington (Victoria): (Proposed Development for 450MW)
4. Berrybank (Victoria): (Development Approval for 178-247MW)
5. Tarrone (Victoria): (Proposed Development for 40-60MW)
6. Crookwell II (New South Wales): (Development Approval for 92MW)
7. Crookwell III (New South Wales): (Proposed Development for 54-102MW)
8. Paling Yards (New South Wales): (Proposed Development for 90-180MW)

UFWA's projects are middle-sized in terms of their generating capacity, and we have a large portfolio of projects under development (compared with other proponents projects and portfolios).

### ***The challenge of investing in wind power in Australia***

In the absence of a price on carbon pollution, large-scale wind-powered renewable energy generators need the assistance of combined factors to viably compete with fossil-fueled power generators. These factors are:

1. appropriate federal targets for the mandatory purchase of renewable energy by energy retailers as part of the Mandatory Renewable Energy Target (MRET) scheme.
2. technological improvements in wind turbines that permit greater efficiencies in generation of electricity, and which lower purchase costs per turbine.
3. economies of scale derived from larger wind farm projects, in areas with a good wind regime, that are close to the transmission grid.



4. stable regulatory environments in relation to planning and development approval processes, so as to enable early recognition of viable projects.
5. A concise network connection agreement process that is designed and accommodating for the needs of to wind farm generation projects.

At the time of writing the outlook for a price on carbon pollution is not encouraging, and the MRET scheme is not providing a well-functioning market for Renewable Energy Certificates (RECs). This carries obvious ramifications for project profitability. Technological improvements continue apace, and turbine prices (the major capital cost of a project, alongside construction of a substation) are decreasing while generating capacity increases. Finally, the planning regimes have been inconsistent, especially in relation to environmental decision-making, and major and disruptive changes are anticipated in Victoria and NSW.

### *The scope of the Committee's Inquiry*

The broad scope of the Committee's inquiry invites a range of comment, and we have encouraged our landowner stakeholders to make their own submissions to the Committee. Anecdotally, our landowner stakeholders support the development of UFWA's windfarm projects for diverse reasons. Some are altruistically motivated – they want to support the development of renewable energy, or they want to do something to address the changing climate that will challenge their children and grandchildren. Others see the wind as another resource that can be a useful source of income to make their farm more profitable. Others see turbine rental payments as an addition to family income, or as a steady income stream that can underpin a bank loan at a time when banks will not loan against unreliable farm income derived from primary production. Furthermore, others recognise the economic stimulus and infrastructure that the projects will bring to their district – short- and long-term jobs, construction, improved roads, and better fire access trails.

On previous occasions UFWA has been impressed by the number and quality of submissions that our landowner stakeholders have provided in support of our development applications to State governments, and we hope they might make the same effort now by making submissions to the Committee.

### *UFWA's comment on the specific terms of reference for the Senate Inquiry*

Regarding the specific terms of reference for the inquiry into the impacts of rural wind farms, UFWA submits that:

#### **(a) Adverse health effects for people living in close proximity to wind farms**

In July 2010, Australia's National Health and Medical Research Council reported that "there is no published scientific evidence to support adverse effects of wind turbines on health".<sup>1</sup>

A 2009 expert panel review in Canada, described as being the most comprehensive to date, delved into the possible adverse health effects of those living close to wind turbines. Their report findings concluded that wind turbines do not directly make people ill. The 85-page study was sponsored by the Canadian Wind Energy Association and American Wind Energy Association<sup>2</sup>. The academic and

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<sup>1</sup>[http://www.parliament.nsw.gov.au/Prod/parlment/committee.nsf/0/ea247659081d31fdca25768e001a2e2a/\\$FILE/091216%20Report%20-%20Rural%20wind%20farms.pdf](http://www.parliament.nsw.gov.au/Prod/parlment/committee.nsf/0/ea247659081d31fdca25768e001a2e2a/$FILE/091216%20Report%20-%20Rural%20wind%20farms.pdf)

<sup>2</sup>[http://www.canwea.ca/pdf/talkwind/Wind\\_Turbine\\_Sound\\_and\\_Health\\_Effects.pdf](http://www.canwea.ca/pdf/talkwind/Wind_Turbine_Sound_and_Health_Effects.pdf)



medical experts who conducted the study stated that they reached their conclusions independent of their sponsors.<sup>3</sup>

The study did allow that some people could be stressed out by the swishing sounds wind turbines produce. "A small minority of those exposed report annoyance and stress associated with noise perception" while observing that "annoyance is not a disease." The study group pointed out that similar irritation is produced by local and highway vehicles, as well as from industrial operations and aircraft.

Some claims are regularly reported in the media that noise can have adverse health effects on residents whose homes are located close to wind turbines. The controversy around these claims (for example the claims of South Australia-based Pierpont's work centers around her claims made in a self-published, non-peer-reviewed book that ultra-low frequency sounds affect human health.

The wind-industry report found, amongst other things, that:

- "Wind Turbine Syndrome" symptoms are the same as those seen in the general population due to stresses of daily life. They include headaches, insomnia, anxiety, dizziness, etc.
- low frequency and very low-frequency "infrasound" produced by wind turbines are the same as those produced by vehicular traffic and home appliances, even by the beating of people's hearts. Such 'infrasounds' are not special and convey no risk factors.

### **(b) Concerns over the excessive noise and vibrations emitted by wind farms, which are in close proximity to people's homes**

The evolution of wind farm technology over the past decade has rendered mechanical noise from turbines almost undetectable. This evolution has been prompted by strict guidelines on wind turbine noise emissions that maintain residential amenity. Subsequently, the most audible noise from a turbine is the sound of the wind interacting with the rotor blade.

Noise levels at nearby residences are managed through the siting of turbines, the State government planning approvals process for wind farms, and operational management of the wind farm. The various State planning schemes, for instance the approvals process for windfarms described by the NSW Department of Environment under its Renewable Energy Precinct planning concept, is already well-balanced between the needs to the environment, individuals, the broader community, and wind energy project proponents.<sup>4</sup>

Renewable UK, a wind energy trade organization, has said that the noise measured 350m from a wind farm is less than that from normal road traffic, or in a busy office.<sup>5</sup>

### **(c) The impact of rural wind farms on property values, employment opportunities and farm income**

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<sup>3</sup><http://www.thestar.com/business/article/738734--wind-gets-clean-bill-of-health>

<sup>4</sup><http://www.environment.nsw.gov.au/resources/climatechange/10923windfacts.pdf>

<sup>5</sup><http://www.bwea.com/pdf/noise.pdf>



A purported complaint against wind farm projects is that they harm property values. However, the NSW Valuer General and the NSW Department of Lands have conducted and published research showing that there is no evidence that the presence of a commercial wind farm within sight of a property systematically decreases that property's value.<sup>6</sup> Further studies in the USA and Denmark have found that there is little to suggest that wind farms impact negatively on the value of neighbouring properties.

#### **(d) The interface between Commonwealth, state and local planning laws as they pertain to wind farms**

The National Wind Farm Guidelines (the Guidelines) are a non-mandatory Federal Government planning overlay that each State and Territory may elect to adopt as a planning requirement. The Guidelines are the Federal Government's response to rural community concerns in relation to wind farms.

These Guidelines are an additional burden on Australia's renewable energy industry. The Guidelines place additional planning hurdles before wind farm developers, whereas other major infrastructure developments in urban settings are not burdened with similar prescriptive guidelines. The State planning schemes – where all developers are treated equally – already demand processes that are comprehensive and lengthy, but these are recognised as a reasonable and necessary part (if expensive and delay-ridden) of our planning system. The Guidelines are only an overlay of planning controls of uncertain means to reach uncertain ends, and they impose additional costs and delays upon proponents and consent authorities.

The greatest drawbacks of the Guidelines include that:

- they adopt stringent measures to govern noise impacts (eg. testing of special audible characteristics, separate day/night monitoring and measurement of windspeeds at hub height) which are meant to provide a more accurate and conservative noise assessment. But because the Guidelines fail to recommend uniform noise limits (which arguably should be more relaxed in light of the stringent testing conditions) the States and Territories are free to adopt their own noise limits, and often adopt conservative limits as a precautionary approach despite the quality of the stringent test data provided under the Guidelines. The noise limits applied to wind farm developments across Australia differ significantly, which adds to uncertainty of the planning system. Despite the Guidelines' attempt to provide greater consistency between jurisdictions, proponents are now faced with more stringent noise limits in some States notwithstanding the application of more stringent uniform testing measures.
- they refer to concerns raised in the media concerning the impact of infrasound (ie noise at frequencies below the normal range of human hearing <20Hz). It is stated in the Guidelines that infrasound "can be perceived by feel or in the form of headaches", but this fact is made redundant by the further statement that "there is no verifiable evidence for infrasound production by modern turbines" and "there are very few, if any, confirmed reported cases of infrasound noise emission problems from wind farms". It must be asked: if infrasound can be perceived as a headache, but turbines do not produce infrasound, and there are no confirmed reports of infrasound-induced headaches relating to turbines, then why do the Guidelines even address the demonstrably-redundant issue of infrasound? The mere mention of infrasound in the Guidelines lends legitimacy to unverified claims of infrasound-induced sickness. Such claims are routinely invoked by anti-

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<sup>6</sup>[http://www.lpma.nsw.gov.au/\\_data/assets/pdf\\_file/0018/117621/t0L51WT8.pdf](http://www.lpma.nsw.gov.au/_data/assets/pdf_file/0018/117621/t0L51WT8.pdf)



wind farm lobbies, despite the so-called scientific basis of infrasound-induced sickness having been regularly discounted by reputable and peer-reviewed scientific organizations such as Australia's National Health and Medical Research Council (see above).

Further, in addition to the Guidelines, some State governments designate (or intend to designate) local government as the consenting authority for wind farm projects despite this tier of government routinely lacking the resources or expertise to process applications for these billion-dollar projects. Poor government decision-making hampers project advancement and significant funds are wasted as a consequence – taxpayer funds are wasted on employee hours lost due to inexperienced employees exercising consent authority, and developer funds are wasted on delays.

### **(e) Other relevant matters**

#### *Aesthetics*

Aesthetic issues are obviously subjective, and whereas some people may find wind farms pleasant and optimistic, or symbolic of energy independence and local prosperity, still others describe them as an eyesore.

While it is difficult to make an objective judgment of aesthetics, it is true that newer wind farms have larger, widely spaced turbines and a less cluttered appearance than older installations. A better judgment of aesthetics may view the turbine towers in their context. For example, wind farms are often built on land that has already been impacted by land clearing, and they coexist easily with commercial land uses (eg grazing, cropping).

Wind farms have a smaller footprint than other forms of energy generation, such as coal and gas plants, and are more aesthetically pleasing than these polluting energy sources.

Finally, where wind farms may be proposed close to scenic or otherwise undeveloped areas, or where aesthetic issues are important at onshore and near-shore locations, there are already strict State planning laws that restrict development in these sensitive areas, and the Environmental Protection and Biodiversity Conservation Act affords significant planning protections to coastal natural environments.

#### *Lifestyle Properties v Real Farmers*

Many people may enjoy a bucolic setting for lifestyle properties, but this lifestyle amenity needs to be balanced against the needs of real primary producers whose business is the sustainable utilisation of good farming country.

The wind is another resource that can coexist alongside a commercial farming operation. Turbine rental payments are a steady income stream in an industry that suffers from unreliable cashflow and environmental catastrophe. Many farmers regard turbine income as a form of drought-proofing their property, or as income to service loans needed to upgrade infrastructure or equipment. The wind farm infrastructure occupied only about 1.5-2% of the land area across the project site, and this land includes the farm tracks that have been converted to access tracks that may be used by the landowner.

#### *Fire Hazard*

The fire risk at wind farms is very low, as there are very few flammable components or materials located in the turbine nacelle high above ground, medium-voltage connections are predominantly



underground and there is normally no vegetation around the base of the turbine towers. In fact, the risk of fire is considered to be minimised by wind farm developments and their associated permit conditions because of compulsory fire planning, such as access tracks and fire breaks.

It is true that if a turbine's brake fails the turbine can spin freely until it disintegrates or catches fire. Further, turbine fires cannot be extinguished because of the height of the tower, and are left to burn themselves out. However, multiple electronic controllers and safety sub-systems monitor many different aspects of the turbine, generator, tower, and the environment to determine if the turbine is operating in a safe manner within prescribed limits. These systems can temporarily shut down the turbine due to high wind, electrical load imbalance, vibration, and other problems. Recurring or significant problems cause a system lockout, and notify an engineer for inspection and repair. Finally, most systems include multiple passive safety systems that stop operation even if the electronic controller fails.

In the event of fire, modern turbines are fitted with advanced fire protection solutions that address the specific areas in the nacelle which are prone to fire (electronic control boxes, generators, braking systems). These are small enclosures within the larger nacelle, and small amounts of fire suppression agent are needed to combat a fire. These systems utilize proprietary detection technology that reacts only to the heat and radiant energy of a fire. Advanced fire protection solutions are augmented with air-sampling smoke detection systems, which provide the earliest possible warning of a potential fire event by detecting smoke particles at the incipient stage of fire.

### *Shadow Flicker*

Residents near turbines may complain of "shadow flicker" on nearby residences caused by rotating turbine blades, when the sun passes behind the turbine. However, shadow flicker issues are already addressed and avoided by locating the wind farm to avoid unacceptable shadow flicker exposure to the nearby dwellings.

### **Conclusion**

Kind Regards,

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