

## Caleb Ball

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**From:** system@acelo.com on behalf of Megan Benson [REDACTED]  
**Sent:** Wednesday, 14 September 2016 3:41 PM  
**To:** Caleb Ball  
**Cc:** Felicity Greenway  
**Subject:** Submission Details for Megan Benson (comments)

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Confidentiality Requested: no

Submitted by a Planner: no

Disclosable Political Donation:

Name: Megan Benson  
Email: [REDACTED]

Address:  
[REDACTED]

Bundeena, NSW  
2230

Content:

New Wind Energy Planning Framework

It is clear that we urgently need improved action in NSW to transition away from fossil fuels and increase our investment in renewable energy.

Presently, NSW has the lowest percentage usage of renewable energy of all states so it is hoped that the new Framework ensures the "eright settings" to attract investment in wind energy.

The Department advises "The new framework has been developed to help balance investment in wind energy with the needs of the community." This is to be commended. The opportunity to promote and facilitate the provision of 100% renewable energy as soon as possible is supported by the majority of people in the state and seen to be in everyone's best interests.

The New Planning Framework is a clear improvement on the 2011 current draft guidelines, providing greater certainty and guidance for the assessment of wind energy projects in NSW.

Most notably, the Framework references the positions of the National Health and Medical Research Council and NSW Health Department acknowledging that there is no evidence of wind turbines causing adverse impacts on health.

However, the Framework guidelines for visual impact are seen to be unfairly onerous and biased " especially when one considers that similar visual setbacks do not apply to coal mines, where we also know adverse health impacts result. The Framework identifies noise and visual impacts that are unique to wind farm developments as the reasons for stricter guidelines.

I do not agree that the visual impacts of wind energy projects are more significant than other major projects, such as open cut coal mines or other types of infrastructure such as Port facilities and coal loaders. Clearly, windfarms stand out on a landscape " but are generally considered as a pleasing sight as opposed to, say, coal mining infrastructure.

The Renewable Energy Target is highly competitive as projects from all states compete against each other on cost. Tighter visual impact requirements could reduce the number of projects that proceed to construction that are already in the \$7 billion NSW wind farm development pipeline.

A biased and unnecessarily strict assessment of "visual impact" should not be used as a deterrent for windfarm development when the same assessment framework is not applied to other State Significant Developments.

Yours faithfully,

Megan Benson, 56 Brighton Street, Bundeena 2230  
14th September 2016

IP Address: - [REDACTED]  
Submission: Online Submission from Megan Benson (comments)  
[https://majorprojects.affinitylive.com/?action=view\\_activity&id=162657](https://majorprojects.affinitylive.com/?action=view_activity&id=162657)

Submission for Job: #7859  
[https://majorprojects.affinitylive.com/?action=view\\_job&id=7859](https://majorprojects.affinitylive.com/?action=view_job&id=7859)

Site: #0  
[https://majorprojects.affinitylive.com/?action=view\\_site&id=0](https://majorprojects.affinitylive.com/?action=view_site&id=0)

# **Comments on “New Wind Energy Planning Framework”**

Dr Kristy Hansen

Flinders University of South Australia

September 14<sup>th</sup>, 2016

## **Qualifications of the author**

I am a lecturer at The Flinders University of South Australia. I hold a degree in Mechanical Engineering with first class honours and completed my PhD in 2012. I worked as a Research Associate from March 2012 until the beginning of my current appointment in February 2015. In this role, I was working full-time on a Discovery grant for the Australian Research Council entitled, “Quantifying the impact of wind farm noise on rural communities.” I was involved in the collection of an extensive data set which resulted from simultaneous measurements of noise, vibration and meteorological conditions near wind farms. Results from the analysis of these data have been summarised in 11 peer-reviewed publications. I have also presented papers at 8 national and international conferences and have a number of international collaborators. Since I started my appointment as a lecturer, I have continued research into wind farm noise and have therefore kept up-to-date with the latest research in this area. I hope that the above summary adds credibility to my comments to follow on the “Noise Assessment Bulletin” which is an important part of the “New Wind Energy Planning Framework.”

## **Summary**

The objective of the Noise Assessment Bulletin is “to ensure that the noise impacts of wind energy developments are appropriately identified, avoided, mitigated and managed.” This submission aims to highlight potential issues that could result in unacceptable noise impacts that would have a negative effect on the amenity of rural areas. The main areas of concern are the assessment methodologies chosen to evaluate the existence or otherwise of tonality, low frequency noise, amplitude modulation and infrasound. Amplitude modulation is not discussed at all in the Noise Assessment Bulletin despite the fact that extensive research in this area has been carried out, particularly during the last few years.

## **Introduction**

The Noise Assessment Bulletin claims that it has “adopted some of the strictest noise limits in the world” but this statement is not really put into context. It is important to consider that many rural areas in Australia have much lower background noise levels than more densely populated countries such as Europe. Ambient noise levels in rural Australia are particularly low during the night time when wind farm noise can be most problematic. Therefore, the introduction of an industrial noise source such as a wind farm can create a significant change to the ambient conditions. The overall noise limit of 35 dBA is certainly a step in the right direction and is an improvement on the SA EPA guidelines (SA EPA, 2009) (currently under review) but it is not such a conservative limit as is implied.

It is stated that wind farm noise “is not likely to be the dominant source” and this may be true during the daytime when farming machinery is in use. However, at night time, it is highly likely that wind farm noise will be the dominant noise source. This is precisely the time when people are trying to sleep and this is the reason that the noise is so problematic. To exacerbate the situation further, stable atmospheric conditions often occur at night and under such conditions, the amount of low-frequency noise arriving at a residence downwind from the wind farm will increase.

## **Issues to be addressed**

The main issue with the Noise Assessment Bulletin in its current form is the treatment of special audible characteristics. These include:

1. Tonality
2. Low frequency noise
3. Amplitude modulation
4. Infrasound

These characteristics will be discussed sequentially below.

### **Tonality**

An over-simplified procedure has been chosen for the assessment of tonality. The procedure involves comparing the 1/3-octave band containing the potential tone with the adjacent 1/3-octave bands. If the noise level in the 1/3-octave band containing the potential tone is sufficiently higher than its neighbours then the noise is described as tonal.

There are two potential problems with this methodology:

1. If the tone is amplitude modulated then the associated side-bands will contaminate the adjacent 1/3-octave bands.
2. If the frequency of the tone lies at the boundary between adjacent 1/3 octave bands then the tone will leak into both 1/3-octave bands. The result may be that neither is sufficiently high above the 1/3-octave band level in the neighbouring 1/3-octave band to result in identification of a tone.

By way of an example, Figures 1 and 2 show data averaged over 10 minutes, which were measured at a residence located 3.3 km from the Waterloo wind farm. These data were measured during both shutdown and operational conditions as indicated in the figure legends. Figure 1 shows the narrowband spectra, which gives detailed information about the frequency content of the signal. In this case, it can be seen that the blade-pass frequency (0.8 Hz) and harmonics of the wind farm signal are clearly evident when the wind farm is operating. A blade-pass frequency of 0.8 Hz is expected for Vestas V90-3MW wind turbines, which have a nominal speed of 16.1 rpm (Vestas, 2006).

Figure 1 also indicates the presence of tones that are amplitude modulated by the blade-pass frequency of 0.8 Hz. This is shown by the sidebands of the main tones at 23 Hz, 28 Hz, 46 Hz, 56 Hz and 69 Hz that are spaced at 0.8 Hz.

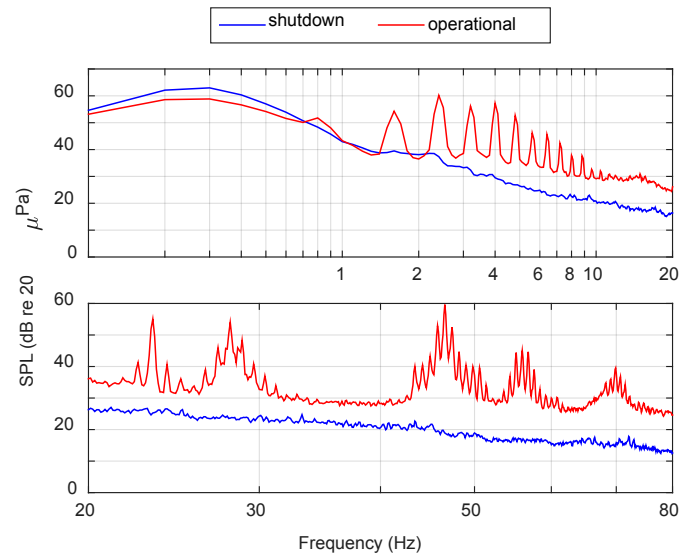


Figure 1 – Narrowband plot using data measured at a residence located 3.3 km from the Waterloo wind farm. The frequency resolution is 0.1 Hz.

The tone which has the highest sound pressure level relative to the ambient noise has a frequency of 46 Hz and thus is contained within the 50 Hz 1/3-octave band. As shown in Figure 2, the noise level in the 50 Hz 1/3-octave band is more than 20 dB above the ambient level and is audible for a person with normal hearing (ISO 389-7, 2005). However, this noise would not be classified as tonal according to the proposed methodology. According to the methodology, tonality would only be defined in the frequency range from 25 Hz to 125 Hz if the level in both adjacent 1/3-octave bands (40 Hz and 63 Hz) was greater than 15 dB above the level in the 50 Hz band.

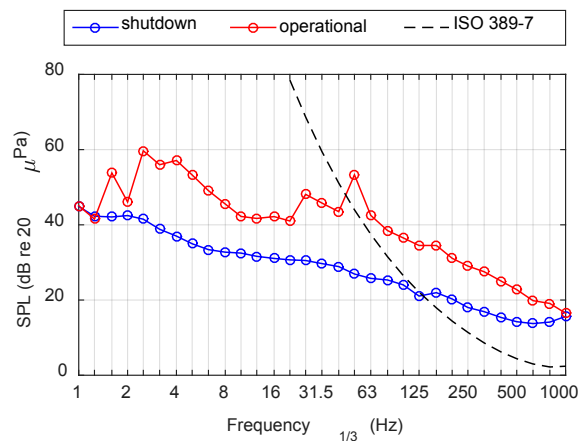


Figure 2 – 1/3-octave data measured at a residence located 3.3 km from the Waterloo wind farm.

In the above example, both the presence of amplitude modulation and the frequency of the tone would result in no identified tonality in this signal. Since the lower and upper limits of the 50 Hz 1/3-octave band are 44 Hz and 57 Hz, respectively, the tone at 46 Hz is close to the lower bound of this 1/3-octave band. To emphasis the effect of this situation, a MATLAB simulation was carried out. In this simulation, a sine wave is added to white Gaussian noise. The frequency of the sine wave is varied to investigate the effect on the 1/3 octave plot. The chosen frequencies correspond to the centre of the 50 Hz 1/3-octave band and the lower and



upper limits of this 1/3 octave band. Arrows indicate the relatively high levels that occur in adjacent 1/3-octave bands. Therefore, if the tone occurred at 50 Hz, then tonality would be defined but if it occurred at 44 Hz or 57 Hz (at the same level) then tonality would not be defined. This very point is highlighted in the DIN 45680 (2013) standard which proposes a variation in the method when the tone lies within the transition band between two third-octave bands. This standard also specifies that a tone is deemed to be present if the levels in adjacent 1/3-octave bands are greater than 5 dB, which is significantly different to the proposed methodology.

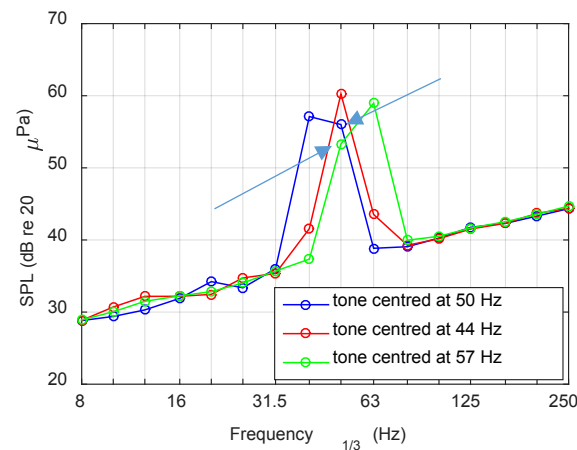


Figure 3 – MATLAB simulation where a sine wave is added to white Gaussian noise. The frequency of the sine wave is varied to investigate the effect on the 1/3 octave plot. The chosen frequencies correspond to the centre of the 50 Hz 1/3-octave band and the lower and upper limits of this 1/3 octave band. Arrows indicate relatively high levels in adjacent 1/3-octave bands.

Therefore, it is recommended that the tonality assessment method be upgraded to either the IEC 61-400 (2012) methodology, modified to suit measurements at a residence or the ISO 1996 Annex C (2007) methodology, modified to suit measurements of wind farm noise.

### Low-frequency noise

The Noise Assessment Bulletin proposes that low-frequency wind farm noise can be identified by measuring the C-weighted level. Low frequency noise is only considered problematic if it is above 60 dBC for more than 10% of the time. The problem with this approach is that an overall level gives no information about the spectral content of the signal. Thus, it is possible that noise levels in specific third-octave bands may exceed the audibility threshold defined in ISO 389-7(2005) while the overall C-weighted level is below 60 dBC. This is indeed true for the data shown in Figure 2, where the overall C-weighted level for the operational case was 54 dBC and noise levels in 1/3-octave bands above 50 Hz exceed the audibility threshold. It can also be seen in Figure 2 that the operational noise levels are significantly higher than the shutdown noise levels at low frequencies, particularly in the 50 Hz 1/3-octave band where the difference is as much as 30 dB. It is important to note that a change in noise level at low frequencies is much more noticeable than an equivalent change at mid and high frequencies due to the way in which our hearing mechanism works. Therefore the noise level at low

frequencies only needs to be a few dB above the threshold of hearing before it becomes annoying to most people.

Based on the concerns outlined above, it is recommended that low frequency noise be assessed in third-octave bands by comparison with the threshold of audibility for a person with normal hearing (ISO 389-7, 2005). If the difference between the operational and shutdown noise levels in a given 1/3-octave band is more than 10 dB, then the noise level in that 1/3-octave band should not be allowed to exceed the threshold of audibility by more than 5 dB. Another alternative would be to use the DEFRA guidelines (Moorhouse, 2005) which specify allowable levels in 1/3-octave bands from 10 Hz to 160 Hz. For an unsteady noise source such as wind turbine noise, these guidelines are even more stringent than the audibility thresholds provided in ISO 389-7 (2005). The Noise Assessment Bulletin does prescribe use of the DEFRA guidelines but only when the overall C-weighted noise levels are repeatedly greater than 60 dBC. As has been shown above, there is a risk that problematic low-frequency noise will not be identified in the first stage of assessment and thus the DEFRA guidelines may not ever be applied.

### **Amplitude modulation**

In Figures 1 and 2 above, it is evident that wind farm noise is audible in 1/3-octave bands centred at 50 Hz and above. Observing the sidebands spaced at the blade-pass frequency of 0.8 Hz, it can also be seen that amplitude modulation of a tone occurs at three frequencies in this audible range. According to residents living near the Waterloo wind farm, where this noise was measured, the wind farm noise that they hear can be described as “rumbling” (SA EPA, 2013) and this is consistent with amplitude modulated low frequency noise. According to listening tests conducted by Lee *et al.* (2011), amplitude modulation of wind turbine noise significantly contributes to noise annoyance.

A considerable amount of research has been carried out over the past few years on wind farm amplitude modulation and an excellent summary has been provided by the Institute of Acoustics (2015) and Large (2015). A number of metrics are available for quantifying amplitude modulation and these are described in the above references. Consideration of amplitude modulation has been included in recent standards and guidelines, including the New Zealand standard (NZS 6808, 2010) and the Renewable UK guidelines (2013). The New Zealand standard (NZS 6808, 2010) specifies a penalty of 5 dB to be applied to noise levels that are measured for the wind conditions under which amplitude modulation occurs. The Renewable UK guidelines (2013) determine applicable penalties for amplitude modulation based on the wind speed. RUK specifies that a penalty is to be applied when the AM is greater than 3 dBA. The penalty increases linearly from a value of 3 dBA when the AM is equal to 3 dBA up to a value of 5 dBA when the AM is greater than or equal to 10 dBA. Thus, there is a reasonable expectation that the Noise Assessment Bulletin would include an assessment of amplitude modulation and corresponding allowable limits.

## Infrasound

The Noise Assessment Bulletin states the following in relation to infrasound:

*“Proponents of wind energy developments are not required to conduct a health impact assessment in relation to wind energy development and infrasound based on the current NHMRC position that there is no evidence supporting a link between wind energy developments and adverse health outcomes in humans.”*

Although the NHMRC position is that there is no evidence supporting a link between wind energy developments and adverse health outcomes in humans, there is no evidence either that such a link does not exist. In fact there is a considerable evidence in numerous case studies that wind farms do adversely impact the health of some people and it is reasonable that any regulation would require a health assessment.

## References

1. AMWG 2015 Discussion document: Methods for rating amplitude modulation in wind turbine noise. Technical report, IOA Noise Working Group (Wind Turbine Noise): Amplitude Modulation Working Group.
2. DIN 45680 2013 Measurement and assessment of low-frequency noise immissions.
3. IEC 61400-11 Ed.3.0 2012 Wind turbines - part 11: Acoustic noise measurement techniques.
4. Institute of Acoustics 2015 Amplitude modulation application <http://www.ioa.org.uk/news/amplitude-modulation-application-released>.
5. ISO389-7 2005 Acoustics: Reference zero for the calibration of audiometric equipment – part 7: Reference threshold of hearing under free-field and diffuse-field listening conditions.
6. ISO1996-2 2007 Acoustics: Description, measurement and assessment of environmental noise–part 1:Determination of environmental noise levels.
7. Large S 2015 Wind turbine amplitude modulation & planning control study, work package 5 - towards a draft AM condition. Technical report, Independent Noise Working Group, MAS Environmental.
8. Lee S, Kim K, Choi W and Lee S 2011 Annoyance caused by amplitude modulation of wind turbine noise. Noise Control Engineering Journal 59(1), 38–46.
9. Moorhouse A, Hayes M, Von Hunerbein S, Piper B and Adams M 2007 Research into aerodynamic modulation of wind turbine noise: final report. Technical report, Department for Business, Enterprise and Regulatory Reform.
10. NZS 6808 2010 Acoustics - wind farm noise.
11. Renewable UK 2013 The development of a penalty scheme for amplitude modulated wind farm noise: description and justification. Technical report, Renewable UK.
12. SA Environmental Protection Authority 2009 Wind farms: environmental noise guidelines.
13. SA Environmental Protection Authority 2013 Waterloo wind farm environmental noise study.
14. Vestas 2006 General specification v90 3.0 MW. Technical Report 950010.R5, Vestas.



13 September 2016

Director, Industry and Infrastructure Policy  
Department of Planning and Environment  
GPO Box 39  
SYDNEY NSW 2001

Dear Sir/Madam

**Draft Wind Energy Framework**

Bathurst Regional Council welcomes the opportunity to make a submission to the Department of Planning and Environment's draft Wind Energy Planning Framework.

Council supports the development of the draft framework and the replacement of the draft Wind Farm Planning Guidelines which have remained in place since December 2011. An updated framework which provides clarity and certainty for communities, landowners, developers, operators and regulators is critical. The Bathurst 2036 Community Strategic Plan supports sustainable renewable energy projects within the Bathurst Region (Objective 13.5).

Council supports the standardisation of assessment requirements with other industries, the reduced assessment timeframes, and the decision to adopt the proven South Australian EPA 2009 noise guidelines. Using a proven and effective guideline is a positive step for NSW and demonstrates the evolution of wind farm planning in the state since the draft guidelines from 2011. Council also supports a framework that encourages early, meaningful and ongoing community engagement by developers.

Council notes that throughout the visual assessment bulletin there is emphasis on the need to 'avoid' or 'mitigate' the visual impact of an inherently tall structure. The need to mitigate the impact of the turbines needs to be balanced with reference to potential local benefits, and the broader public good that renewable energy can bring.

If you have any queries please contact Mr Nicholas Murphy of Council's Environmental Planning & Building Services Department on 02 6333 6514.

Yours faithfully

R Denyer  
**ACTING DIRECTOR**  
**ENVIRONMENTAL, PLANNING & BUILDING SERVICES**  
Per:

## **Submission to DPE on Wind Energy Assessment Policy**

### **(Draft for Consultation - August 2016)**

In opening, I note that the new *Wind Energy Assessment Policy* (the Policy) applies only to developments which are lodged with the Department after the publication of the Policy and so will not apply to the Jupiter proposal which is the one which impacts on my community (unless the developer reapplies). I provide these comments in the hope that they will see an improvement to the assessment procedures of the Department of Planning and the Environment (DPE) such that other communities will be saved from inappropriate wind energy proposals.

As a member of the community consulted by DPE in the preparation of the revised Policy I am concerned that the Department has not met any of the serious concerns raised by the community in relation to wind farm developments. By this I mean:

- The Department has left itself no policy grounds for rejecting an inappropriate wind farm development.
- The long period of uncertainty for local communities as wind farm proposals are developed, assessed and constructed is not addressed. The trend is for this to take longer and longer and the new Policy has the potential to add to this timeline because of the increased requirements placed on the developer.
- The new Policy increases the complexity of the assessment process but provides no greater clarity.
- A visual impact assessment process set out in the Policy is a pseudo-scientifically objective veneer over what are in fact a long series of subjective judgements.
- The visual assessment requirements will be a boon to practitioners in the field and provide an almost certainty that wind energy developments will be approved.
- The issue of creeping approvals by developers is not addressed.
- While the Policy envisages engagement of the community by the developer, there is no commitment on the part of the DPE to provide early advice to the potentially affected community of a wind energy proposal. The Department should advise relevant local government authorities, put out a media release and place a notification on its website as soon as a proposal is lodged with the Department.
- The Policy refers to voluntary acquisition rights but these are not codified. They should be specified as the Department has previously in its recommendations to PACs.
- The revised Policy contradicts the Department's draft South East and Tablelands Regional Plan which seeks to encourage residential development in the regions surrounding the ACT.

- The Policy is not consistent with the precedents set by the Department's recommendations on visual impact to the PAC in respect of the Yass Valley and Crudine Ridge wind farms which were accepted by the PAC.
- There are no sanctions on a developer who fails to meet the Policy's requirements, which reflects the rather powerless position of the Department has left itself in when assessing wind energy developments.
- The Department has abdicated from its 'role' as the defender of the community's rights and values. The Policy provides a process a developer must notionally go through to receive approval with a clear implication that if the steps are carried out approval will be granted. The community now has almost no grounds on which to object to a proposal.

To expand.

The Policy contains no overall policy position of the Department. The Policy leaves the Department purely as a body which monitors the observance of the Policy by developers and makes a recommendation at the end of that process. If observed by a developer, the Policy leave no room for independent assessment by the Department. (A cynical view would see this as a continuation of the current process under which every wind farm proposal has been approved.) The Policy contains no sanctions for developers who fail to meet the requirements in full or in part. There is an implication that poor compliance will see a proposal rejected but this is never stated.

The Policy should begin with a policy position along the lines of:

"No wind farm development will be approved if in the opinion of the local community it imposes a significant visual impact on a significant number of residential properties unless:

- the developer has reached a voluntary agreement with all affected landowners or
- the developer agrees to voluntary acquisition rights to those affected property owners with whom they are unable to reach agreement."

Such a statement would replace the endless subjective decisions inherent in the Visual Impact Assessment Bulletin (VIAB) of the revised Policy leaving only one, ie what is a significant number of impacted properties. The DPE has already provided guidance on these issues in its assessment of the Yass Valley and Crudine Ridge proposals.

Such a statement would also:

- significantly simplify and speed up the Department's assessment process by eliminating the need for the cumbersome and scientifically unsubstantiated visual assessment process set out in the revised Policy;
- make it clear to proponents what they need to do to receive approval and allow them to assess whether their proposal is likely to succeed; and

- ensure that the community is made aware of the proposal at an early stage and, in large part, agrees to the development, which is one of the apparent aims of the revised Policy.

If the community has already reached agreement with the developer on the proposal that part of the Department's role has largely been met. An assessment of the natural environmental and other impacts of a proposal would still be required.

There should also be a statement that wind energy developments which would provide energy over and above that required to meet the Renewable Energy Target (RET) (or a NSW Government target should it decide to set one) will not be approved. This would remove the current incentive for thinly capitalized companies who have no intention of building and operating a wind farm to seek approvals which they then sell off. It would also partially address the community concern with the uncertainty over whether an approved wind farm will ever be constructed. The long term uncertainty through the assessment and pre-construction phase freezes out all other development in a community.

The Policy lists consideration of whether the project is consistent with the objectives of the *Renewable Energy Action Plan* as a key issue but does not state that consistency is a requirement for approval. The Commonwealth Wind Farm Commissioner has advised that there are already three times as many approved wind energy developments as are required to meet the RET.

#### *Community Consultation*

The Policy attempts to ensure the community is made aware of wind farm developments at an early stage by requiring the developer to liaise with the community through a survey which can be carried out on line. This requirement could easily be subverted by developers by liaising with and surveying only prospective hosts, local businesses which think they will see a short term benefit from a development and nearby properties which will not be impacted by the proposal. The Policy contain no sanction for poor observance of this requirement.

#### *Decommissioning*

The Policy states that 'consideration will be given as to whether suitable arrangements for decommissioning and rehabilitation of the site are in place'. In a policy document there should be guidance on what constitutes 'suitable', or the Department should be upfront and admit that it cannot ensure suitable arrangements for decommissioning can be required under current legislation.

The requirement in section 4.3.4 that an EIS will include a commitment that the operator will be responsible for decommissioning would not be enforceable.

#### **Role of the Department**

The new Policy leaves the Department with purely an administrative role. Why is the Department not meeting its core role of planning? The Department knows where the wind energy assets are, it knows where the electricity network connections are, it knows where people live, it knows (or can find out) how much wind energy NSW requires to meet the RET

(or its target), why is it not planning what wind energy developments are required to meet the need and where they can be best placed in relation to the wind assets and concentrations of rural residences?.

This issue is too important to be left to manipulation by developers seeking a quick return to the detriment of local communities.

### **Wind Energy: Visual Impact Assessment Bulletin**

In summary, the Wind Energy Visual Impact Assessment Bulletin (VIAB) provides for a long series of subjective judgements which effectively recreate the matrix model commonly used in NSW wind farm EIS visual assessments to ensure that visual impact is never rated higher than moderate for any proposed wind farm.

The current approach to visual impact assessment used in NSW wind farm EISs is not scientifically rigorous. Each consultant has a different methodology and even the same consultant has been known to change their methodology according to the circumstances to meet the objective of getting the development approved.

Not only is the current methodology not scientific, there are no recognised standards or qualifications for practitioners in this field. The Department calls for 'professional assessment skills' but lists four professions and 'other visual resource specialists' as potentially suitable to carry out this task. I am surprised that a government agency would mandate the use of such a vague range of 'specialists'.

#### *Visual Impact Assessment*

There are multiple subjective decisions required in a VIA in a confusing array of phases, factors and appendices.

There are 8 factors to be considered in doing the Baseline Study, at least five of which require subjective decisions, some more than one. However Appendix 1 lists further Baseline Study inputs which involve at least another 7 subjective decisions.

The Visual Influence Zones are defined according to arbitrary distances from the turbines. However the effect of 'landscape scenic quality' is dependent on which Visual Influence Zone a residence happens to be in. The determination of the 'landscape scenic quality' is also a subjective decision.

There are 6 Visual Performance Objectives (VPO). Appendix 2 contains further performance objectives, each of which require subjective assessments.

The complexity of the process and the interaction between factors is likely to lead to unforeseen results. In fact developers are sure to try and engineer the process to their advantage.

I support the submission by Dr Michael Crawford disputing the basis for much of the VIAB.



## **Conclusion**

Not only is the assessment process purely subjective and a gold mine for practitioners, by setting out such a detailed and prescriptive process the Department has effectively robbed itself of any meaningful assessment role. This also means that communities with valid objections to wind energy developments have had the most important ground for these objections taken away from them.

In our particular situation at Tarago, which is familiar to some DPE officers, the impact on our visual amenity from the Jupiter wind farm proposal is, in our view and that of our visitors, catastrophic. Under the VIAB, because the turbines do not stretch over more than 180 degrees of our view, they are just over 2500 metres away and the turbines do not obscure a 'key landscape feature' the impact would be rated by a developer as moderate and the recommendation of the VIAB is to 'consider screening'.

Barry O'Neill

On behalf of Barry and Denise O'Neill

Tarago NSW

## COMMENTS ON THE FINAL DRAFT WIND TURBINE GUIDELINES

The Department of Planning and Environment:

Claims to:

- Work in partnership with local government, other NSW government agencies and the community to develop and deliver strategies and policies for local environment plans, land use planning, infrastructure projects and major developments, and assessments and approvals,
- Increase the involvement and consultation of local communities and stakeholders in local and regional decision making.
- Continue to improve the planning system so that it is:
  - clear – easier to understand
  - transparent – open to scrutiny
  - rigorous – all relevant issues are considered and decisions are merit-based
  - efficient – decisions are made in a timely manner
  - accountable – the community can have confidence in the planning system.

Claims to have objectives that:

- are sustainable growth in the right locations
- have improved investor and community confidence
- have efficient and effective management of natural and cultural resources
- have diverse, equitable and pleasant neighbourhoods that reflect community needs and aspirations
- have integrated delivery of regional infrastructure and government activities.
- build livable centers by encouraging jobs growth in centres close to where people live
- restore confidence and integrity in the planning system, including by developing a new planning system for introduction to parliament by November 2012.

My concerns in relation to the Department's proposed wind turbine guidelines are:

- What are the credentials of the consultancy firm Urbis Australia Asia Middle East who promulgated these guidelines?
- Was Urbis Australia Asia Middle East required to complete a "Pecuniary/Non-Pecuniary Interest Declarations" to ensure they were free from bias in the assessment and their argument for it?
- Urbis Australia Asia Middle East have made certain assumptions which are contrary to published research and on that basis alone, their proposal is without legitimate foundation.
- It would appear that Urbis Australia Asia Middle East and the Department have found strong research evidence that refutes known research results. That is not evident in the proposed guidelines.
- The Department's approach to VI assessment and VI management should be research-based and closely guided by published research.

- In relation to the review of the impact of wind farms on property values, my only comment here is that I would suggest that the argument put forward by Urbis Australia Asia Middle East is flawed, particularly Appendix C (Case Studies) which do not include interests of others with vested interests.
- Has the Department of Planning challenged any of the recommendations made by Urbis Australia Asia Middle East in relation to visual impact, impact on property values and noise assessment?
- Do the public servants involved with this proposed policy document have any idea what impact these guidelines, if implemented, will have on the community? I suspect not.
- Have you (really) listened to the concerns raised by members of the community?
- Have you considered the papers provided by Dr Michael Crawford (and RAJwt members) which are logical and supported by referenced research papers?

The Department must take on board the comments/concerns provided by Dr Crawford, the wider RAJwt group, and other affected communities/groups in NSW to ensure the protection of legitimate interests of rural residents. The Department must ensure that a level playing field is adhered to and true consultation occurs for proposed wind turbine development.

The draft guidelines, as they stand now offer no protection to residents in NSW who will be impacted should they be implemented. As they stand now:

- They do not provide the reasonable degree of protection for rural residents which the VI Bulletin suggests and which members of the community were led to expect. That is because thresholds in the guidelines are made subject to a complex, arbitrary and irrelevant set of conditions which ensure real protection applies to people living on Sydney Harbour but **not** in rural localities.
- They make multiple assumptions which are **contrary** to published research.
- Very importantly, the distance thresholds proposed in the guidelines are dramatically reduced from what is indicated by the key research (US Bureau of Lands Management [BLM] study) upon which the draft guidelines claim to be based.
- They purport to consider the visual values of residents, they instead apply an arbitrary and irrelevant set of **tourists'** views of rural landscapes while excluding from consideration most of what rural residents value about the landscapes within which they live.

# REQUIREMENT TO PROTECT NSW GOVERNMENT, COUNCILS AND TAXPAYERS

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## Response to Draft Wind Farm Assessment Guidelines

Dr Michael Crawford

14<sup>th</sup> September 2016

*Wind farm approvals create particular, major but avoidable risks for the NSW Government, for councils and taxpayers, specifically in relation to (1) decommissioning funding; (2) potential harm to health and ISDS penalties for protective Government action; (3) complicity in dishonest and unconscionable contracting and breaches of the NSW WH&S Act for wind farm contracts with hosts and other residents. It is incumbent on the current NSW Government to ensure wind farm approvals happen under conditions which protect the current and future Governments, local councils, taxpayers and the broader community. This can be done with simple, non arbitrary policy provisions.*

Wind farm approvals create particular, major but avoidable risks for the NSW Government, for councils and taxpayers. It is incumbent on the current NSW Government to ensure wind farm approvals happen under conditions which protect the current and future Governments, local councils, taxpayers and the broader community.

This does not require the prohibition of wind farms, nor expensive planning actions by the Government. It can be accomplished through some assessment and consent conditions which should be standard for wind farms.

The risks for the Government relate to:

1. decommissioning funding;
2. potential harm to health and ISDS penalties for Government action;
3. complicity in dishonest and unconscionable contracting and breaches of the *NSW Work Health and Safety Act 2011 No 10* (WHS Act) for wind farm contracts with hosts and other residents.

### **Decommissioning Funding**

Under current arrangements, it is highly likely that the owners of wind farms at the end of operating life will be insolvent and therefore unable to fund the large costs of dismantling and removing turbines and site remediation. It is in the interests of the beneficial owners to ensure that the corporate entity then owning the wind farm has no assets. Unlike most types of development, because wind farms do not own the land on which they are built, there will be no remaining operator assets to be used to fund decommissioning.

Financial responsibility for decommissioning will then fall on the landowners. This has recently been admitted<sup>1</sup> by the Department of Planning and Environment (DPE) which, for some reason, refuses to state this openly, for instance in the draft wind farm guidelines.

The cost of decommissioning wind turbines is very large. Epuron, an experienced wind farm developer, estimated it as approximately **\$380,000 per turbine** and stated “This estimate is on par with other wind farm developments that have recently been approved in New South Wales.”<sup>2</sup> It is possible the cost of decommissioning will exceed the value of a host’s land and certainly will be a huge cost for then owners of the land.

It is therefore likely that many hosts will be unable to fund decommissioning. Unless the turbines are to be left there in perpetuity, scarring the landscape and outraging neighbours, that will put pressure on the NSW Government (which, after all had allowed them to be built) and/or local councils to pay for the decommissioning.

Even if it is unambiguous that the legal obligation is on the then landowners to fund decommissioning, the likely political outcry about forcing farmers off their land to pay for decommissioning may well force the Government of the time, or the local council, to meet the costs. In many cases, hosts are likely to engage their own legal defence to try to avoid paying the huge decommissioning costs and to insist it is a Government responsibility.

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<sup>1</sup> Letter from DPE Secretary to Dr Michael Crawford, Ref 15/17886 dated 12/2/16; and also in reply by DPE to the Jupiter CCC in response to a question on the matter.

<sup>2</sup> *Liverpool Range Wind Farm: Decommissioning & Rehabilitation Plan*, Epuron Pty Ltd, February 2014, p. 7.

### *The Simple Solution*

There is a simple solution. It is to forbid the construction of any turbine unless there is an unavoidable contract, with either the Government (preferable) or the landowner, **by an investment grade Australian corporation**, guaranteeing decommissioning funds when required.

Such contracts have to be structured such that the investment grade corporation cannot pass responsibility to a non-investment grade entity and so that in the event the obligor loses investment grade status, or becomes foreign owned, it must immediately transfer its obligation to another Australian investment grade corporation.

It is essential that the guaranteeing corporations be Australian, so that they are always within the ready reach of Australian law to ensure compliance not only at the end point but in maintaining the Australian investment grade status throughout the life of the wind farm.

For this purpose, investment grade corporations are of two sorts:

- large, financially strong companies that may choose to directly invest in wind farms; and
- banks and some other large financial institutions which may, for a fee, contract to provide the guarantee.

With the first type, there would be no transaction costs. The large, financially sound Australian company which chooses to invest in a wind farm is its own guarantor.

Wind farm companies without investment grade ratings would need to obtain a large bank or comparable entity as guarantor. Once a bank took on the obligation, it would need to be under a contract which prevented the bank subsequently shedding the obligation except to another investment grade Australian corporation.

Banks taking on such obligations would naturally charge fees but they would typically require the wind farm operator to provide collateral, and possibly directors' guarantees, and they would continuously supervise the collateral and other relevant matters throughout the life of the project to ensure the combination of fee paid, end of life recoveries, and collateral covered the bank's potential costs for decommissioning.

This is day-to-day activity for commercial banks. It is also an activity for which the DPE, or indeed other departments, have no skills – and certainly no capacity to do it consistently over about 30 years for a wind farm.

Under this proposed requirement, the only thing the relevant NSW Government agency would have to do is ensure there is a legally binding decommissioning funding contract with an investment grade corporation, and regularly check the rating agencies' ratings of the obligor. The agency does not have to do any internal financial analysis of either wind farm economics, the financial status of the wind farm operator, or that of the obligor.

If, under current law, there is an impediment to the NSW Government imposing such terms, then the Government needs to introduce legislation that enables it to do so.

## Potential Harm to Health and ISDS Risk

The NHMRC<sup>3</sup> has made clear that there are currently unresolved questions about the potential harm to health from wind farms and the conditions under which that might arise. That harm can potentially occur either from direct impact of noise on health or through sleep deprivation. Both of these means of harming health are recognised in the NSW Industrial Noise Policy.

Current knowledge may be insufficient for the NSW Government to set explicit noise or other wind farm conditions which it is certain will prevent harm to health. Nor can it rule out the possibility that current and future research will identify conditions and situations, currently allowed, which do harm to human or animal health.

The NSW Government therefore needs to protect itself in two respects. It needs to:

- ensure the capacity of a future NSW Government to impose post-approval conditions, on an informed basis, to protect health from wind farms is not subject to constraints or penalties under either Australian law or through Investor-State Dispute Settlement (ISDS) provisions.
- ensure it cannot be made a party to legal action for harm to health caused by an approved wind farm.

The NSW Government can protect its position by including as standard in all wind farm consents:

- The requirement that irrespective of other terms in the consent, the wind farm has an unavoidable obligation to not cause material harm to health and sleep, and is required to fully comply with the WH&S Act requirements in relation to avoiding risk of harm to persons other than employees; and
- The government reserves the right to alter, post approval, noise or other conditions for the wind farm should it receive advice from authoritative sources that such changes should be made to protect health.

Advice from DPE indicates it has been assumed that governments always had the right to freely make post approval regulatory changes to protect health. However, as the Australian Government has discovered in relation to mandatory plain paper packaging of tobacco products, the existence of ISDS in Australian trade agreements has invalidated that assumption. The NSW Government needs to set explicit conditions in wind farm consents such that its power to take subsequent protective action, if deemed necessary, is fully preserved and without penalty.

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<sup>3</sup> NHMRC stated “NHMRC considers that further, higher quality, research is warranted” and “NHMRC urges authorities with responsibility for regulating wind farms to undertake appropriate planning, in consultation with communities, and be cognisant of evidence emerging from research.”, *NHMRC Statement: Evidence on Wind Farms and Human Health*, Media Release, NHMRC ref # EH57, February 2015.

There should be an overriding statement standard in all wind farm consents that:

1. *The wind farm, in construction, operation and decommissioning, must cause no material harm to the health of any resident and no recurrent sleep disruption for any resident, nor any material distress and, consistent with the NSW Work Health and Safety Act 2011 No 10, this provision cannot be avoided by any contract; and*
2. *The operation also will be bound by any revised noise or other conditions the NSW or Australian Governments may subsequently impose to protect the health, sleep and wellbeing of residents, without penalty to those Governments.*

This would establish a comprehensive requirement for the protection of health comparable to what the NSW Government currently imposes for the natural environment. The first paragraph of wind farm consents normally says:

In addition to meeting the specific environmental performance criteria established under this consent, the Applicant shall implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation or decommissioning of the development.<sup>4</sup>

It is indefensible for the NSW Government to give more importance to the welfare of frogs, bats and grasses than it does to the welfare of its citizens. It is also dangerous, because of the ISDS risk that now exists, for the State to not provide this overall requirement to protect health and sleep (which impacts health).

ISDS exists to protect the interests of foreign investors, not that of a national or state government and not that of the citizens of those governments. As Appendix A explains in more detail, there are now a large number of Australian trade agreements under which ISDS applies and even assets initially Australian owned can be brought under ISDS coverage by sale of those assets to an appropriately domiciled foreign entity.

***It is highly significant that Chief Justice French AC of the Australian High Court has expressed serious concerns about the impact of ISDS, including the fact that “their decisions may include awards which significantly impact on national economies and on regulatory systems within nation states.”<sup>5</sup>***

Wind farm owners routinely claim that their operations cause no harm to health or sleep. So, assuming they believe their assertions, they should have no objection to a blanket requirement to not harm health or sleep.

Whilst the Government may hope those claims are valid, it must also remember the example of other industries. The tobacco products industry and the asbestos products industry also once claimed they did no harm to people exposed to their products, as have many other industries whose claims have since proved unfounded. The NSW Government should be mindful of the costly consequences of the asbestos industry, both for those exposed and for the governments and taxpayers who have had to cope with the cleanup and its costs.

***It would be the gravest dereliction of its responsibilities for the Cabinet of the NSW Government to deliberately choose to not institute terms in wind farm consents which***

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<sup>4</sup> *Crudine Ridge Wind Farm Development Consent*, 10<sup>th</sup> May 2016.

<sup>5</sup> “Investor-State Dispute Settlement — A Cut Above the Courts?”, Chief Justice RS French AC, *Supreme and Federal Courts Judges' Conference*, 9 July 2014, Darwin



*preserved the freedom of itself and successor Governments to freely impose whatever conditions they thought necessary at the time to protect the health and wellbeing of citizens.*

### **Complicity in Dishonest and Unconscionable Contracts**

Wind farms enter into contracts with hosting properties and with some neighbouring residents. The contracts and the circumstances of the contracting are frequently dishonest and misleading. The contracts also often include terms prohibited by the *NSW Work Health and Safety Act 2011 No 10*.

#### ***Unconscionable Contracts***

“Unconscionable conduct deals with transactions between dominant and weaker parties; it therefore overlaps with duress and undue influence. Unconscionable conduct is prohibited both in equity and, more recently, by statute.

Equity intervenes where one party has taken advantage of a 'special disability' (most commonly age, illiteracy, lack of education or a combination of factors) held by the other. The resulting transaction must normally also be harsh and oppressive to the weaker party.”<sup>6</sup>

This description quite often applies to the conduct associated with wind farm developers procuring hosting agreements and what are quaintly and misleadingly called “Benefit Sharing” agreements (a.k.a. BS agreements) with neighbouring residents.

The contracts and associated conduct are frequently unconscionable because they:

- agree to the imposition on residents of adverse effects vastly greater than those residents are led to expect;
- impose conditions which, because of those effects, make affected properties virtually unsaleable – something frequently not understood by contracting residents;
- forbid complaints to government about harm caused to the resident and their family by the wind farm;
- forbid conversations with neighbours or others which contracting individuals would normally have to better understand their situation and to understand whether harm they are experiencing is from the wind farm and to seek advice;
- are preceded by dishonest representations which the contracts purport cannot be subsequently relied upon – something many signatories may not understand at the time of signing;
- take advantage of people who certainly lack knowledge about the potential massive impact on them from a wind farm and who often are vulnerable due to age, illness and other factors;
- use the action of the Government in approving wind farms as effectively an ally of the developer and a misleading “guarantor” of the safety of the project for contracting residents, adding to the imbalance of power in creating the transaction.

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<sup>6</sup> <http://www.australiancontractlaw.com/law/avoidance-unconscionable.html>

### ***NSW Government Complicity***

The NSW Government, through the DPE, makes itself complicit in this dishonesty and illegality and therefore creates potential future legal liability.

It makes itself complicit in two ways.

- The DPE actively encourages the use of BS agreements between wind farm developers and local residents, despite the Department knowing:
  - there is an enormous disparity in relevant knowledge between the wind farm developer and residents; and most residents and their rural legal advisors do not realise the extent of their ignorance;
  - these agreements commonly include terms that purport to forbid contracting residents from complaining to government about harm they may experience from wind farm operations;
  - with the Government's encouragement (including in the guidelines) giving residents a false assurance that such agreements are not to their detriment; and
  - the fact that the NSW Government keeps approving wind farms conveys a false belief that there can be no harm to nearby residents.
- The DPE then relies on the existence of those agreements to ignore potential noise and health effects on the signatories without examining each such agreement to ensure:
  - it contains no terms that are illegal and/or would mislead signatories as to their rights under NSW law, despite the DPE knowing that some such agreements include terms that purport to expunge non-voidable rights under the NSW WH&S Act; and that while legally those rights cannot be expunged, residents misled by the contract will, in ignorance, act as though those rights have been expunged.
  - that individuals who have signed the contracts have done so with genuinely full knowledge of the risks and were not misled by the combination of the asymmetry of knowledge between the wind farm developer and them, and the apparent endorsement of the process by the NSW Government through the active efforts of the DPE, the encouragement in the wind farm guidelines and the failure of the guidelines to make explicit the full extent of potential risks that may exist.

Wind farm developers attempt to enter into BS agreements particularly with residents closest to a proposed wind farm, because those are the residents DPE considers most exposed to harm and the ones to whom DPE would be obliged to give most attention in considering possible adverse effects of the wind farm.

DPE encourages BS agreements with those residents apparently because it removes difficult explicit choices for the Department when making a merit assessment of the proposal. These agreements are actually integral to the way DPE evaluates and approves wind farms.

This is a morally indefensible position for the NSW Government – a Government which on moral grounds has recently banned the greyhound industry and destroyed the livelihood and lifestyle of many NSW citizens.

It is also legally risky for the Government – at least if it is concerned about longer term legal consequences for the NSW Government. If future legal action, either individual or class, is brought over unconscionable contracts by wind farm operators, and it is clear that despite having a good knowledge of the nature of those contracts and how they were induced, the Government deliberately chose to ignore those facts while relying on the existence of the contracts in making its decisions, then it will be difficult to avoid claims based on complicity.

It is also likely that once such legal action occurs, all assets of the culpable wind farm operators will immediately disappear, leaving the NSW Government as the only culpable party with tangible assets to target through legal action.

To protect the NSW Government, its officials cannot rely just on how they think the law would be interpreted today. They must consider possible changes in institutions, attitudes and interpretations over 30 – 40 years.

There are a number of instances where Australian society and its legal system have repudiated prior actions by public officials which seem to have been done in good faith at the time.

Twenty years ago the possible impact of ISDS was not on anyone's radar. Yet now the Australian Government is entangled in a case before an ISDS tribunal occasioned by a government action taken on the grounds of protecting public health. The legal environment has changed and likely will continue to do so.

There is a reasonable argument that harm to health by wind farms sanctioned by governments constitutes a breach of human rights under international treaties. Currently human rights tribunals in Australia are not interested in pursuing this since those tribunals are presently dominated by parties for whom renewable energy and wind farms are an act of faith. But can the NSW Government be certain that will continue to be the case for the next 30 – 40 years, and that human rights treaties will not become an accepted means for levying financial and other penalties on governments and officials who have been involved in what is then interpreted as a breach of those treaties and the relevant Australian law?

Are its Ministers and senior public servants willing to take the personal risk that within that period the prevailing social and legal climate may change so as to judge them guilty of human rights breaches – when there was a straightforward and simple precaution (not requiring the banning of wind farms) which they could have taken to ensure no culpability?

### ***Protecting Residents and Protecting the Government***

To avoid being culpable in the use of misleading, unconscionable and illegal contracts, the Government should have a clear policy that, in relation to wind farm proposals:

- a complete copy of every hosting and BS agreement for the project must be provided to DPE, together with all associated communications between the parties; and
- in the process of assessing the proposal, it will wholly ignore all hosting and BS contracts, and associated communications (i.e. act as if those contracts and communications do not exist), where:
  - the contract or associated material includes any term in contravention of the WH&S Act;
  - the contract or associated material includes any term that precludes the landowner from discussing the contract or the wind farm with anyone they wish, whenever they wish;

- the contract does not explicitly give the landowner the unfettered right to withdraw from the contract with no penalty until 6 weeks after the wind farm developer has provided the landowner with a full electronic or printed copy (the mode at the landowner's discretion) of all submissions made during the public exhibition of the DA and EIS.
- and that the Department will directly check with each contracting landowner before the end of the 6 weeks that they had received all the required information and know that they have a right to withdraw from the contract up to the end of the 6 weeks.

This arrangement would provide a strong mechanism to ensure landowners were not locked into a contract until they had the opportunity to become fully aware of any potential pitfalls for them in the contract and to obtain informed support to help them make their decision.

The policy would achieve this in two ways:

- ensuring contracting landowners had the ability to discuss with and get advice from whomever they wished in relation to the contract and the wind farm, both before they became locked in and thereafter; and
- particularly through access to all the submissions made during the exhibition period, which are likely to provide fuller information about not only the potential impact on themselves but also on their neighbours.

In so doing, by allowing open communication between various contracting landowners and between them and other residents, it would reduce the imbalance in knowledge and power between the wind farm developer and individual landowners.

This policy would not require DPE to make any judgement about individual contracts other than that they each conform to the simple requirements stated, something that should be well within the capability of a first year law student.

In terms of the timing of assessment of a wind farm proposal, the exhibition period is followed by a period during which the developer considers submissions, prepares a response to submissions (RTS) for the Department, and decides on any consequent changes it wants to make to its proposal. That normally takes quite a few months. So the contract exit period for landowners would finish well before the normal conclusion of the RTS period. Therefore the final response to the Department by the developer would be with finalised contracts, by well informed landowners, upon which the Department could then reasonably rely in making its assessment.

Provided the developer had ensured contracting landowners were fully informed at the time of contracting, and that it had offered them a genuinely fair deal, there should be little drop out under this policy. It would, however, lead to a substantial number of withdrawals had the developer seriously misled contracting landowners or made offers that did not adequately compensate for the actual disbenefits they would experience.

***The policy would thus provide a powerful incentive for developers to ensure contracting landowners were thoroughly well informed and offered fair deals up front. It would not involve the Department in subjective judgements about contract terms and it would ensure the Government was in no way complicit in misleading, unconscionable or illegal contracts.***

## **Appendix A. Investor-State Dispute Settlement (ISDS)**

Investor-State Dispute Settlement (ISDS) creates uncertainty about the effective sovereignty of national and state governments, and their courts, wherever they make decisions that affect existing, foreign-owned, investments within their jurisdiction. This uncertainty has been highlighted by the Chief Justice of the Australian High Court and is likely to grow over time.

The Australian Department of Foreign Affairs and Trade (DFAT) describes ISDS as:

ISDS is a mechanism that is included in a Free Trade Agreement (FTA) or an investment treaty to provide foreign investors, including Australian investors overseas, with the right to access an international tribunal if they believe actions taken by a host government breach its investment obligations.<sup>7</sup>

and

An investor can have their claim determined by an independent arbitral tribunal without having to rely on domestic legal remedies. ISDS cases are usually decided by three arbitrators who are independent of both the government and the investor.<sup>8</sup>

So the rulings are outside the legal framework of the countries involved, with no appeal to their legal systems, and not bound by their laws.

According to DFAT:

Australia has ISDS provisions in six FTAs: China-Australia Free Trade Agreement (not yet in force), Korea-Australia Free Trade Agreement, Australia-Chile Free Trade Agreement, Singapore-Australia Free Trade Agreement, Thailand-Australia Free Trade Agreement, and ASEAN-Australia-New Zealand Free Trade Agreement.<sup>9</sup>

It also has “ISDS provisions in its 21 Investment Protection and Promotion Agreements (IPPs)”<sup>10</sup>

and ISDS is part of the Trans Pacific Partnership to which the Australian Government has now agreed.

DFAT claims this imposes little policy constraints on governments, asserting:

ISDS does not prevent the Government from changing its policies or regulating in the public interest. It does not freeze existing policy settings. It is not enough that an investor does not agree with a new policy or that a policy adversely affects its profits.<sup>11</sup>

and

The Australian Government is opposed to signing up to international agreements that would restrict Australia’s capacity to govern in the public interest —

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<sup>7</sup> <http://dfat.gov.au/trade/topics/pages/isds.aspx>

<sup>8</sup> <http://dfat.gov.au/trade/topics/pages/isds.aspx>

<sup>9</sup> <http://dfat.gov.au/trade/topics/pages/isds.aspx>

<sup>10</sup> <http://dfat.gov.au/trade/topics/pages/isds.aspx>

<sup>11</sup> <http://dfat.gov.au/trade/topics/pages/isds.aspx>

including in areas such as public health, the environment or any other area of the economy.<sup>12</sup>

While DFAT under the current Government believes ISDS “does not prevent the Government from changing its policies or regulating in the public interest”, the Gillard Government apparently took a different view, at least of the risks ISDS poses to the ability to regulate in the public interest. The “Gillard government declared it would never enter into another ISDS provision after the Philip Morris case”.<sup>13</sup>

While DFAT, under the current Government, is sanguine about the legal consequences of ISDS, in assessments of legal implications it is more appropriate to rely on the views of Chief Justice RS French AC of the Australian High Court, who in a recent paper commented:

- “Arbitral tribunals set up under ISDS provisions are not courts. Nor are they required to act like courts. Yet their decisions may include awards which significantly impact on national economies and on regulatory systems within nation states.”<sup>14</sup>
- “It has not been unusual for investors to claim that decisions of courts in a Respondent State constitute a breach of a provision of the investment treaty to which the State is a party.”<sup>15</sup>
- “However, the significance of ISDS arbitral processes is global. They have general implications for national sovereignty, democratic governance and the rule of law within domestic legal systems. *Their long-term consequences for national judiciaries cannot be stated with confidence* (emphasis added).”<sup>16</sup>

DFAT points to the fact that, to date, Australia has been subject to only one instance of ISDS, i.e. the as yet unresolved case brought by Philip Morris. However, the existing FTA with the United States does not provide for ISDS while the TPP does. As ANU Law Professor Thomas Faunce has pointed out, “America is not just Australia’s largest source of foreign investment, it’s also the nation whose corporations are the most frequent users of ISDS.”<sup>17</sup>

Faunce has drawn attention to the situation of Canada following its signing of NAFTA, which includes ISDS, and that under NAFTA, “Canada has been sued nearly 20 times and has lost or settled seven times, paying American corporations at least \$US158 million in compensation.”<sup>18</sup> and now “There are eight cases pending against Canada, with damages claims totalling almost \$6 billion.”<sup>19</sup> Simply defending the cases is expensive.

There is a further important factor, which is the opportunity for “treaty shopping”. After the Australian Government announced it would introduce tobacco plain packaging laws, Philip Morris Australia Ltd was acquired by Philip Morris Asia Ltd, a company incorporated in Hong Kong. That meant the matter affected an overseas investor (Philip Morris Asia Ltd), which was domiciled in Hong Kong, and because Hong Kong has an Investment Protection

<sup>12</sup> <http://dfat.gov.au/trade/topics/pages/isds.aspx>

<sup>13</sup> <http://www.smh.com.au/business/trade-treaties-expose-australia-to-costly-litigation-experts-warn-20140828-109ht7.html>

<sup>14</sup> “Investor-State Dispute Settlement — A Cut Above the Courts?”, Chief Justice RS French AC, *Supreme and Federal Courts Judges’ Conference*, 9 July 2014, Darwin

<sup>15</sup> Chief Justice French, *op cit*, p. 3.

<sup>16</sup> Chief Justice French, *op cit*, pp. 3-4.

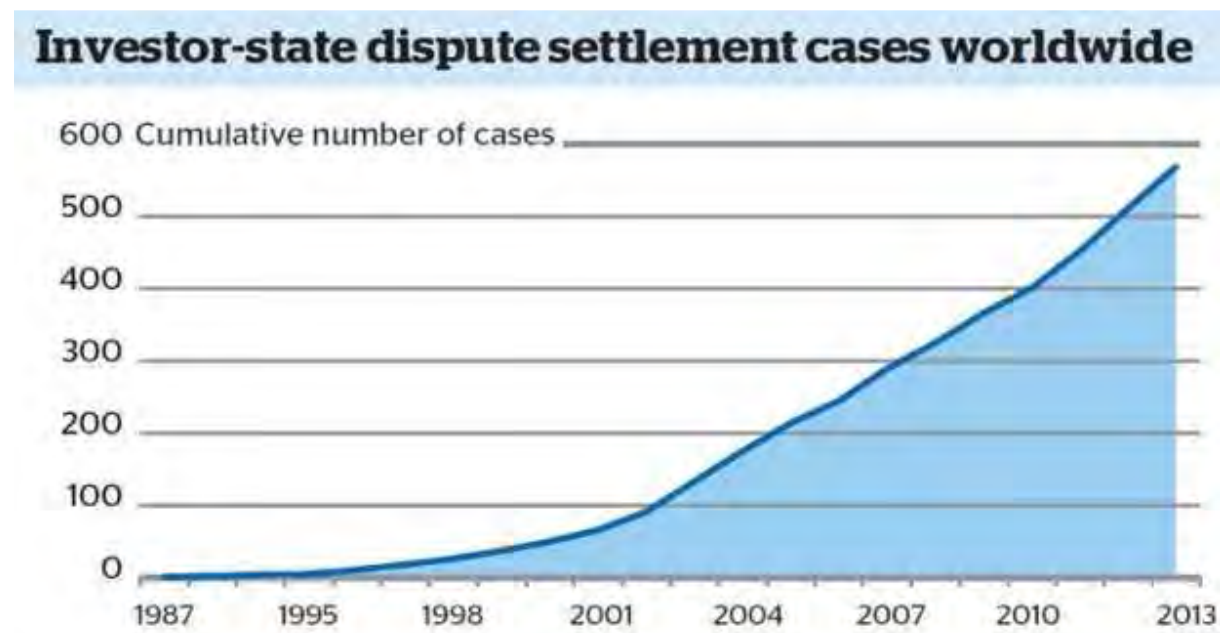
<sup>17</sup> <http://www.abc.net.au/radionational/programs/backgroundbriefing/isds-the-devil-in-the-trade-deal/5734490>

<sup>18</sup> <http://www.abc.net.au/radionational/programs/backgroundbriefing/isds-the-devil-in-the-trade-deal/5734490>

<sup>19</sup> <http://www.abc.net.au/radionational/programs/backgroundbriefing/isds-the-devil-in-the-trade-deal/5734490>

and Promotion Agreement with Australia, including ISDS, the new owner of Philip Morris Australia Ltd could pursue the matter against the Australian Government through ISDS.

The issue here is not whether ISDS as part of trade agreements is a good thing or not. What is relevant is the potential for ISDS to be used to challenge legal and regulatory changes that governments may make, and for that challenge to occur outside the Australian legal system through tribunals established to protect investors, not governments, and certainly not the public.



Source: “Trade treaties expose Australia to costly litigation, experts warn”, *Sydney Morning Herald*, August 30, 2014.

As the graphic above shows, the number of ISDS cases being brought worldwide is escalating. Even if Australia chose not to enter into any more agreements including ISDS, the existing 27, and now TPP, together with “treaty shopping”, leave a high level of exposure for government decisions that adversely affect foreign investors, particularly given a range of issues in the way ISDS operates that were identified by the European Parliamentary Research Service in January 2014:

- “vague formulation of major treaty provisions leaving a wide range of interpretations open to arbitrators;
- loopholes which enable abuses such as nationality shopping by companies which create subsidiaries abroad specifically to take advantage of the agreements;
- lack of transparency with varying degrees of secrecy attaching to arbitral processes depending upon the institutions or rules which are applied;
- a relatively small pool of arbitrators — arbitrators appointed to ISDS arbitrations are said to be mostly male (95%) and from Europe and North America;
- role-swapping by arbitrators who appear from time to time as counsel in ISDS cases;
- the high cost of ISDS arbitrations — estimated by OECD as averaging about \$8 million each;

- associated with the high cost and potentially high awards, a growing phenomenon of third party funding of claims by banks, hedge funds and insurance companies in exchange for a share of the proceeds ranging from 20% to 50%;
- absence of effective review or appeal processes;
- inconsistency in decisions on similar provisions.”<sup>20</sup>

So, even if the Australian Government never signs another trade agreement that includes ISDS:

- “treaty shopping” by investors from countries not directly covered by an ISDS agreement with Australia allows them to not only attain that status but do so with the benefit of the treaty most advantageous to them.
- Whether a dispute falls under ISDS and a particular treaty is up to the arbitration tribunal assigned the dispute. It is not under the control of governments impacted by such claims. And there is no appeal from these decisions.
- Thus it is quite possible that ISDS tribunals will evolve the scope of what they consider a legitimate claim under ISDS, to become more encompassing. Given the financial interests of those involved as ISDS arbitrators and/or counsel, it is highly unlikely they will choose to limit the scope of ISDS cases and thereby their income.

So, if in the words of Australian High Court Chief Justice French, “Their long-term consequences for national judiciaries cannot be stated with confidence”<sup>21</sup>, that is equally true of the long-term consequences for state and national governments and regulations they impose.

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<sup>20</sup> Chief Justice French, *op cit*, pp. 1-2.

<sup>21</sup> Chief Justice French, *op cit*, pp. 3-4.



# Massive Scientific Invalidity of Draft Visual Impact Bulletin

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## Response to Draft Wind Farm Assessment Guidelines

Dr Michael Crawford

15<sup>th</sup> September 2016

*The draft VI Bulletin is contrary to most, and perhaps all, relevant published research, including all of the actual research publications which appear as references in the VI Bulletin. It is also contrary to important aspects of the Department's previous approach to VI assessment. Unless the Department is able to divulge scientific research publications which support the framework and approach of the VI Bulletin, and explain how they do so, that framework is clearly wholly arbitrary and subjective and without legitimacy. There are also grounds for suspecting the Department may be attempting to construct a methodology which validates previous faulty decisions made by the Department, even though that methodology is actually invalidated by research upon which the Department claims to rely. Doing so would be a serious breach of public trust and responsibility and would place the NSW Government in an untenable and disreputable position.*

## Executive Summary

The draft VI Bulletin is contrary to most, and perhaps all, relevant published research, including all of the actual research publications which appear as references in the VI Bulletin. It is also contrary to important aspects of the Department's previous approach to VI assessment.

Unless the Department is able to divulge scientific research publications which support the framework and approach of the VI Bulletin, and explain how they do so, that framework is clearly wholly arbitrary and subjective and without legitimacy.

Since the Department provided a set of references in the VI Bulletin, one might reasonably have expected the Department would have included in it all the research publications which support its position. However, strangely, ***none of those cited in the references actually support the Department's proposed framework and approach to VI assessment.***

Since the VI Bulletin generally supports the interests of wind farm developers<sup>1</sup>, including where it has departed from previous DPE VI assessment requirements, we are left with the disturbing conclusion that the Department has consciously chosen to go against published research to produce a new VI assessment methodology whose whole consequence is to advantage wind farm developers and harm the interests of residents in the vicinity of proposed wind farms.

The only way the Department can counter this reasonable conclusion is by publishing the research evidence upon which it has relied and publishing an explanation of how that evidence supports its methodology despite the other contrary research.

Just in case there is any confusion about this within the Department, the opinions of landscape architects and the like are not research evidence. If those parties can point to actual research publications, using the scientific method, or reviews of research papers, which support their opinions, fine, though in such cases it is the publications not the opinions which constitute the research evidence.

The methodology of the VI Bulletin is contrary to published research in a couple of fundamental respects:

- its inherent reliance on the values and views of landscape architects<sup>2</sup> both in structuring the methodology and in application of the methodology; and
- its explicit assertions about thresholds at which wind farms have significant visual impact.

Evidence of the extensive conflicts with published research is provided below.

There are also grounds for suspecting the Department may be attempting to construct a methodology which validates previous faulty decisions made by the Department, even though

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<sup>1</sup> The ways in which it supports developer interests and harms those of residents are explained in some detail in *Fundamental Defects in Draft VI Bulletin*, 11<sup>th</sup> September 2016, submitted to the Department by Residents Against Jupiter wind turbines, as well as in submissions by other parties.

<sup>2</sup> For simplicity the term "landscape architects" is used in this submission to cover what the VI Bulletin refers to as "relevant natural resource management and design professions (e.g. environmental planners, geographers, landscape architects, architects, or other visual resource specialists)", VI Bulletin, p. 3.

that methodology is actually invalidated by research upon which the Department claims to rely. Doing so would be a serious breach of public trust and responsibility and would place the NSW Government in an untenable and disreputable position.

If the totally flawed methodology presented in the draft VI Bulletin has relied heavily on consultants, then those consultants and others of like inclination and interests should have no part in evaluation of submissions and review of the proposed policy because of what would be an obvious conflict of interest.

### **Multitude of Fallacious Assumptions Underlying the Methodology**

The Department's proposed VI assessment methodology appears to have been designed by consultants who are landscape architects, and it is supposed to be applied using the values and judgement of other people who also are landscape architects<sup>3</sup>.

Whatever the commercial merits of landscape architects in selecting sites for tourist destinations or designing someone's estate, it is irrelevant to the experience of people who live in a particular natural<sup>4</sup> environment and are not day tourists there.

There are two pertinent observations from the US Government's NCHRP research-based review *Evaluation of Methodologies for Visual Impact Assessments*<sup>5</sup>:

"Existing visual quality is the value placed on the existing landscape by those people who currently have views of the environment." (p. 142) and

"The difference between what professionals value and what the public values is profound." (p. 139)

If visual quality is "the value placed on the existing landscape by those people who currently have views of the environment" and there is a **profound** difference between what the public values and what professionals (landscape architects in this context) value, then logically the views of landscape architects **cannot** be a valid statement of visual quality for the purposes of a VI assessment.

Yet the VI Bulletin is built on the assumption that landscape architects, both those who designed its methodology and those who will apply it, are appropriate to determine visual quality and wind farm impact on visual quality.

### ***The Fatal Assumptions Underlying the VI Assessment Methodology***

When you peel back all the complex verbiage in the proposed VI Bulletin and examine the structure of the tables, the methodology relies on a number of identifiable beliefs or propositions, so its validity depends on the validity of those propositions. They include:

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<sup>3</sup> The VI Bulletin (p. 3) says "The proponent is expected to engage suitably qualified and experienced visual impact assessment professionals from relevant natural resource management and design professions (e.g. environmental planners, geographers, landscape architects, architects, or other visual resource specialists), to carry out a wind energy development VIA."

<sup>4</sup> *Natural* including both agricultural growing areas and bush.

<sup>5</sup> *Evaluation of Methodologies for Visual Impact Assessments, NCHRP Report 741*, Transportation Research Board of the National Academies, Washington DC, 2013.

1. It is possible to produce an objective assessment of VI and it can be done using the methodology proposed.
2. VI judgements made by individual professionals have high reliability and accuracy.
3. VI judgements and analysis by hired consultants are not affected by the interests of their employers or by their personal views about, in this case, renewable energy.
4. VI assessments should **NOT** be based on the values of residents who are the normal consumers of the relevant landscape but on those of hired consultants.
5. The values of hired VI consultants either do not differ substantially from those of the public or their values have some inherent superiority.
6. The visual values of people who live in a rural locality give much more importance to a small number of commonly recognised discrete features of the local landscape than to the landscape as an integrated whole and its general character as experienced by each landowner and as each person moves around the locality <sup>6</sup>.
7. The aspects of turbines incorporated into the methodology (size and distance away) are the only ones with a significant VI (thus excluding, for instance, rotor swept area, vertical position relative to viewer, number of turbines, complexity of layout and of blade movement where blades overlap).
8. There is no point at which turbines are so close that the VI is prohibitive<sup>7</sup>.
9. Given VIZ scores defined in the guidelines, the lines drawn in Figure 5 accurately depict the boundaries between where some (mainly insignificant) mitigation is warranted and where none is warranted.

Most of those assumptions appear either contrary to published research or at the very least without any research substantiation.

### ***Evidence the Department Must Provide to Substantiate its Methodology***

Given how critical those underlying propositions are to the validity of the proposed VI assessment methodology, it is essential that the Department publicly release the **research-based evidence** and analysis which:

1. demonstrates that the methodology produces an objective assessment rather than an amalgam of subjective assessments<sup>8</sup> of those who formulated the methodology and those who apply it.

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<sup>6</sup> For what the VI Bulletin deems important, see the description of “attitudes on key landscape values” on p. 4 of the Bulletin.

<sup>7</sup> The most severe requirement in Table 8, p.26 of the guidelines, related to closeness, is “Avoid turbines OR provide detailed justification of turbines”. No blanket prohibition is provided and for the VIZ categories likely to be applied to rural and rural residential dwellings the toughest requirement is “apply impact mitigation” or “consider screening”, both incredibly vague.

<sup>8</sup> There is a widespread view that visual impact judgements are subjective. Modern VI research literature says it is subjective [“different people value different attributes about their environment and have different levels of exposure and sensitivity.” *Evaluation of Methodologies for Visual Impact Assessments, NCHRP Report 741*, Transportation Research Board of the National Academies, Washington DC, 2013, p.141]. Wind farm developers say it is subjective [Ed Mounsey, Chief Operating Officer for CWP Renewables is reported saying “the visual impact is subjective” *The Land*. August 2, 2016. <http://www.theland.com.au/story/4070148/nsw-wind-farmer-developer-warns-over-visual-impact-rules/>]. Members of your own department have agreed it is subjective.

2. refutes previously published research findings that VI assessments by individual professionals have very low reliability<sup>9</sup>.
3. refutes previously published research findings that the visual values of professionals typically used to do VI assessments differ substantially from those of the public<sup>10</sup>.
4. refutes previously published research findings that the beliefs of professionals about renewable energy affect their assessments of the visual impact of wind turbines<sup>11</sup>.
5. supports departing from previous research-based findings that best practice VI assessments should be based on the values of those who are the normal consumers of the relevant landscape<sup>12</sup>.
6. demonstrates that the visual values of people who live in a rural locality give much more importance to specific discrete features of the landscape than to the landscape as an integrated whole and its general character as experienced by each landowner and as each person moves around the locality.
7. demonstrates that the aspects of turbines omitted from the methodology are insignificant in their contribution to visual impact<sup>13</sup>.
8. demonstrates that there is no level of closeness to a dwelling at which the visual impact should be unacceptable, irrespective of turbine size.
9. demonstrates the boundaries denoted by the lines in Figure 5 are the most appropriate rather than boundaries substantially higher or lower.

By **research-based evidence** I mean not a list of references but actual statements and quantification taken from research papers, with specific page citations, and coherent arguments which **show how the cited evidence robustly supports each of the propositions** listed above which are integral to the validity of the proposed assessment process.

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<sup>9</sup> The inter-rater reliability of professionals (i.e. the consistency between different individuals) when assessing the various factors commonly used to rate visual character is **low**, and the reliability of assessments about the difference between before and after a development are **even lower**. [See detailed discussion *Evaluation of Methodologies for Visual Impact Assessments*, NCHRP Report 741, Transportation Research Board of the National Academies, Washington DC, 2013, pp. 34-37 and 39-40.] Published evaluations of single rater reliability of landscape quality do not meet professional standards and normally fall below minimally acceptable levels. [See detailed discussion James F. Palmer, "Reliability of Rating Visible Landscape Characteristics", *Landscape Journal*, 19, 2000, 166-178, also Nickolaus R. Feimer, Kenneth H. Craik, Richard C. Smardon, Stephen R. J. Sheppard, "Appraising the Reliability of Visual Impact Assessment Methods", *National Conference on Applied Techniques for Analysis and Management of the Visual Resource*, Incline Village, Nevada, April 23-25, 1979; James F. Palmer, Robin E. Hoffman, "Rating reliability and representation validity in scenic landscape assessments", *Landscape and Urban Planning* 54, 2001, 149-161.]

<sup>10</sup> "The difference between what professionals value and what the public values is profound." [*Evaluation of Methodologies for Visual Impact Assessments*, NCHRP Report 741, Transportation Research Board of the National Academies, Washington DC, 2013, p. 139]

<sup>11</sup> Molnarova and colleagues showed that people who are pro wind energy consider the impact of wind turbines on a landscape as less negative than do people who are tolerant of wind power or simply indifferent to it, and that these differences in perception are substantial and highly statistically significant. They also found this is the case irrespective of whether the rater is what might be called a landscape expert or anyone else, and irrespective of whether they live with wind turbines in their locality or not. [Molnarova, et al, "Visual Preferences for Wind Turbines: location, numbers and respondent characteristics", *Applied Energy* 92, 2012, 269-278, Figure 6]

<sup>12</sup> "Existing visual quality is the value placed on the existing landscape by those people who currently have views of the environment." [*Evaluation of Methodologies for Visual Impact Assessments*, NCHRP Report 741, Transportation Research Board of the National Academies, Washington DC, 2013, p. 142]

<sup>13</sup> It is only months since the Department was supporting the proposed RAM for assessing VI. That methodology included dimensions omitted from this methodology.

A number of the citations mentioned here, which provide research evidence contrary to the Department's assumptions in the VI Bulletin, have been previously advised to the Department. While it is possible the Department has found other research contrary to that cited above and which supports the Department's proposed methodology, none of it has been identified in the list of references in the VI Bulletin.

In the absence of the Department providing the *research-based evidence* and analysis to support its assumptions, the inevitable conclusion is that such evidence does not exist and that the Department, for whatever reason, has simply decided to establish an arbitrary and subjective methodology knowing it is contrary to existing research.

### Low-balling VI Thresholds Compared to Research Evidence

Figure 5 of the VI Bulletin is a graph showing (for VIZ1) a threshold relationship (green line) between turbine height and distance. Within that threshold the developer is supposed to "avoid turbines or provide detailed justification of turbines" and outside it there is no requirement, even for explanation.

This threshold applies, in full, only to what the VI Bulletin describes as the most sensitive situations (Level 1 viewpoints and high scenic quality class). The threshold *enormously* understates the distances that published research indicates are appropriate.

Among its references, the draft VI Bulletin includes what is known as the BLM study<sup>14</sup>, one of the few scientifically researched studies of the visual impact of actual wind farms. The study involved a number of wind farms and multiple viewers at various distances under a variety of viewing conditions. For wind farms with 120m high turbines, it concluded that wind farms dominated the view up to 6.4 kms<sup>15</sup> and that the *limit of visual pre-eminence* extended to 16 kms, which it described as:

"At this distance, the wind facility is a major focus of visual attention, drawing and holding visual attention. . . . The facility as a whole is likely to be perceived by some viewers as having a large visual impact."<sup>16</sup>

But in Figure 5 we find that the proposed threshold for a 120m wind turbine is 2.4 kms, i.e. *only 37.5%* of the distance at which the BLM study found wind farms with turbines of that height are likely to dominate the view; and *only 15%* of the distance at which the BLM study found the wind farms could be *visually pre-eminent* and having a large visual impact for some viewers.

Turbines now are typically higher than 120 m and the threshold line in Figure 5 scales up for turbine height, but so also do the limits of *visual pre-eminence* and the point at which wind farms would dominate the view according to the BLM study.

So, for basically all turbine heights, *the VI Bulletin threshold is only 37.5% of the distance at which the BLM study indicates wind farms will dominate the view and 15% of the*

<sup>14</sup> Sullivan, Robert G., et. al., 2012. *Wind Turbine Visibility and Visual Impact Threshold Distances in Western Landscapes*. Argonne National Laboratory and the U.S. Department of the Interior, Bureau of Land Management. USA.

<sup>15</sup> Sullivan, Robert G., et. al., *op cit*, p. 40.

<sup>16</sup> Sullivan, Robert G., et. al., *op cit*, p. 41.

*distance at which they are visually pre-eminent and have a large visual impact for some viewers.*

Note that the VI Bulletin Figure 5 threshold does not prohibit wind turbines under the threshold, just requires the developer provide a justification for placing them there, and with no justification required beyond the threshold.

Any reasonable interpretation of the BLM study would certainly require strong justification for turbines within the *visually dominant* distance and probably within the range of *visual pre-eminence*, or perhaps some point between the two. That means raising the threshold line by a factor of at least 2.67 or as much as 8.3.

Note again, the threshold line does not prohibit turbines closer than the line, just requires they be justified. Obviously if terrain hides the turbines that would be a justification. Even if turbines are visible, depending on the circumstances it might be argued that only one or two is visible, not most of the wind farm, or only the tips, etc. So in each particular situation there might be grounds that provide a reasonable justification for placing turbines.

But ruling out any need for justification, as the VI Bulletin does, in a huge area where published research says they can be *visually pre-eminent* or even *dominate* the view, is simply arbitrary and frankly absurd.

Turbines in Australian wind farms are typically placed about 500m apart, sometimes more, sometimes less. So if there is one turbine, say, 2.5 kms from you there will normally be many more less than 5 kms away from you. You may well have a huge part of the wind farm within that distance. So giving a pass to the wind farm developer to ignore all turbines beyond the threshold in Figure 5, as the VI Bulletin does, is totally arbitrary and wholly in conflict with the BLM study results.

The BLM study is not unique in its conclusions. A study of the visual impact of offshore wind farms produced virtually identical conclusions, stating:

“The observed wind facilities were judged to be a major focus of visual attention at distances up to 16 km (10 mi).”<sup>17</sup>

These distances are very similar to those previously developed with the long established Sinclair-Thomas matrix. The Sinclair-Thomas matrix recommended a Zone of Visual Influence (ZVI) of 30 kms for 100m high turbines<sup>18</sup>, the ZVI being the zone within which a significant visual impact was possible and ought to be examined.

A study by the University of Newcastle (UK), based on an ex-post review of 14 UK wind farms, recommended a height related ZVI of 15 kms for 50m high turbines and 30 kms for 100m high turbines<sup>19</sup>. Scottish Natural Heritage has recommended a ZVI of 45 kms for turbines of 150m to tip height<sup>20</sup>. Once adjusted for turbine height, all these studies and

<sup>17</sup> Sullivan, Robert G., et. al., “Offshore Wind Turbine Visibility and Visual Impact Threshold Distances”, *Environmental Practice* 15(01):33-49, March 2013, p. 33.

<sup>18</sup> University of Newcastle (2002) *Visual Assessment of Windfarms Best Practice*. Scottish Natural Heritage Commissioned Report F01AA303A, p. 21.

<sup>19</sup> University of Newcastle (2002) *Visual Assessment of Windfarms Best Practice*. Scottish Natural Heritage Commissioned Report F01AA303A, p. 58.

<sup>20</sup> *Visual Representation of Wind Farms, Version 2*, Scottish Natural Heritage, July 2014.

reports produce very similar proposed ZVIs and they are likewise similar to the BLM study recommendations.

Indeed, until now, the Department has required developers to evaluate visual impact within a ZVI of ***no less than 10 kms***<sup>21</sup>, which is certainly less than research indicates is appropriate but far more than would be covered under the draft VI Bulletin requirements.

Shrinking the area to be examined for VI, as the VI Bulletin does, is not necessary in order to avoid examining properties which will, in practice, be shielded from the wind farm by terrain. Once the placement of turbines is determined, identifying properties that will be shielded can be done in a few hours with standard GIS software and would thereby eliminate them from VI consideration as a matter of course. So the only effect is to eliminate from consideration properties which ***will*** have a view of the wind farm. Precisely the ones for which a detailed justification should be provided. ***This is extraordinarily developer friendly.***

In reality, the situation is even worse than indicated above. The green threshold line in Figure 5, which as explained is woefully inadequate according to real world research, applies only for what the VI Bulletin regards as the most “sensitive” viewing situations. For rural residents, whose location will always be classified as either *low* or *moderate* “scenic quality” (landscape architects’ view of the world), the threshold within which the developer is supposed to either avoid placing turbines or provide justification is shrunk to a flat line threshold at 1 km and 2 kms respectively. This holds whatever the turbine height. So for a rural residence, the threshold becomes a smaller and smaller proportion of the BLM indicated threshold as turbine height increases. This is again simply arbitrary and massively slanted against the interests of rural residents.

The VI Bulletin claims to base its methodology on:

“extensive research undertaken by the US Bureau of Land Management and others, and modified as suitable for practical application to the wind energy industry in NSW.”<sup>22</sup>

As we have seen, it is in no way consistent with the BLM studies except by applying an ***absolutely enormous*** modification. Any such modification needs to be transparently explained and justified. There is no such explanation provided in the Bulletin, which leads to the reasonable conclusion that where the document says modified “as suitable for practical application to the wind energy industry in NSW” it actually means “ignored, so as to produce a result which will allow wind farms in what are wholly unsuitable locations given the actual VI on neighbours”.

At one point the VI Bulletin mentions the BLM study in conjunction with two other research papers by Bishop<sup>23</sup> and Shang and Bishop<sup>24</sup>. If the authors of the VI Bulletin imagine those two studies provide any justification for an enormous shrinkage of the threshold distances indicated by the BLM and offshore turbine research and other reports, they are sadly mistaken.

<sup>21</sup> *NSW Planning Guidelines: Wind Farms*, Draft for Consultation, Department of Planning & Infrastructure, December 2011, p. 4.

<sup>22</sup> VI Bulletin, p. 11.

<sup>23</sup> Bishop, Ian D, 2002. “Determination of Thresholds of Visual Impact: The Case of Wind Turbines”, *Environment and Planning B: Planning and Design* Vol. 29: p. 718.

<sup>24</sup> Shang, Haidong and Bishop, Ian D, 2000. “Visual Thresholds for Detection, Recognition, and Visual Impact in Landscape Settings”, *Journal of Environmental Psychology* Vol. 20: pp. 125-140.



First, neither the Bishop (2002) nor the Shang and Bishop (2000) research involve actual wind turbines, let alone wind farms. They were both laboratory studies of perception using photographs. The Bishop study involved a simulation of a single wind turbine (not multiple wind turbines) whereas the Shang and Bishop (2000) research did not even have that connection with wind farms and it used only grey scale images, not real world colour.

The Bishop (2002) study found an (unsurprising) drop-off in visual detection of objects with simulated distance and that there was a range in which the drop-off was rapid past certain thresholds. Unfortunately for anyone trying to apply that result to wind farms, the real world studies of visual impact of wind farms have found that ***photographs consistently under-represent the degree of visibility observed in the field and this effect is stronger for longer distances.***

#### The BLM study reports

In the authors' judgment, based on the many observations for this study, and comparison of the corresponding photographs and narrative records from the observations, the photographs consistently under-represent the degree of visibility observed in the field. While true to some degree for all of the photographs, this is particularly true for photographs of the facilities taken from longer distances. This is not simply an issue of viewing the photographs from the wrong viewing distance, a common and important problem when viewing visual impact simulations (Benson 2005). The photos are less sharp and show less contrast than was observed in the field, and of course, the photographs do not show blade motion, which clearly was a factor in visibility for many of the observations. For some of the long-distance photographs, the turbines are barely visible, but the narrative records for multiple observers describe them as plainly visible. Scottish Natural Heritage (2006) suggests that the camera's inability to replicate the full contrast range visible to the human eye is a "key limitation of photographs in replicating the human experience."<sup>25</sup>

The same phenomenon was reported in relation to the offshore wind farm study:

"Our informal, qualitative opinion is that the photographs taken in the field generally show lower visual contrast levels than were actually observed during the visibility ratings. The photographs show lower contrast and less detail than was actually apparent in the naked-eye observations, and they do not capture the blade motion that attracted the visual attention of observers in the field."<sup>26</sup>

It is also consistent with observations in the University of Newcastle (UK) research which examined, on the ground, 14 UK wind farms and the EIS that had been prepared in seeking approval of those wind farms. On this point the study noted:

"We found that there was a general tendency to underestimate the magnitude of visibility in the ES descriptions compared to our judgements on site. This may be related to the frequent under-representation seen in photomontages (paragraphs 6.1.16 – 6.1.17). No doubt consultants use these for evaluation as much as other parties. If this tendency to underestimate magnitude is widespread, for whatever reasons, it does suggest that much of the published guidance and some of the implied judgements on significance in relation to distance will tend to be conservative. Many anecdotal and derivative distance-significance judgements may therefore

<sup>25</sup> Sullivan, Robert G., et. al., 2012. *Wind Turbine Visibility and Visual Impact Threshold Distances in Western Landscapes*. Argonne National Laboratory and the U.S. Department of the Interior, Bureau of Land Management. USA, p. 43.

<sup>26</sup> Sullivan, Robert G., et. al., "Offshore Wind Turbine Visibility and Visual Impact Threshold Distances", *Environmental Practice* 15(01):33-49, March 2013, p. 45.

need to be lengthened to compensate for underestimation caused by reliance on photomontage.”<sup>27</sup>

Thus three studies of the visibility of actual wind farms (and there are few, if any others, of comparable size and scope) have explicitly found that photographs tend to under-represent the extent of visibility of wind farms. Consequently, studies based on photographs, such as those of Shang and Bishop (2000) and Bishop (2002), can be expected to likewise under-represent the effects and it is certainly incumbent on anyone drawing on them, to present evidence to show they do not.

In any case, even with that shortcoming, the Bishop (2002) study, which simulated the equivalent of 70m turbines, concluded:

“In areas with completely transparent skies, visibility modelling out to 20 km – 30 km is justified, but effects beyond 20 km may be rare and depend on exceptional viewing conditions.”<sup>28</sup>

Thus the distance threshold conclusions of the Bishop (2002) study are very similar to those of all the other studies and reports mentioned above, most of which happen to be listed in the VI Bulletin references despite being strongly contrary to the thresholds proposed in the VI Bulletin.

### ***Conclusion re Thresholds***

Given that the thresholds proposed in the VI Bulletin are so massively inconsistent with all of the research that appears publicly available, and all that the VI Bulletin has mentioned, the Department has no choice other than to publicly produce alternative research upon which it claims to rely, or junk its proposed threshold in favour of one entirely consistent with the BLM and other studies. That would mean raising the threshold line in Figure 5 of the VI Bulletin by a factor of between 2.67 and 8.3.

### **Potential Departmental Conflict of Interest**

In a recent letter from the Secretary of the Department of Planning & Environment, there is a statement:

“One of the key objectives of the VIA Bulletin is to bring some consistency and transparency to the way wind energy proposals are assessed and evaluated.”<sup>29</sup>

We can all agree that should occur. Yet there is no transparency if the whole structure of the Bulletin and the thresholds it proposes are quite obviously invalidated by publicly available research.

The Secretary’s letter also said:

“the graph that forms part of the visual magnitude screening tool is a result of calculations including the range of visibility distance zones, and is based on research done by the US Bureau of Land Management along with outcomes of NSW assessed wind farm project applications.”

<sup>27</sup> University of Newcastle (2002) *Visual Assessment of Windfarms Best Practice*. Scottish Natural Heritage Commissioned Report F01AA303A, p. 55.

<sup>28</sup> Bishop, Ian D, 2002. “Determination of Thresholds of Visual Impact: The Case of Wind Turbines”, *Environment and Planning B: Planning and Design* Vol. 29: p. 718.

<sup>29</sup> Letter from DPE Secretary to Dr Michael Crawford, Ref 16/10673 dated 30/8/16.

As has been shown above, the tool is actually completely contrary to the results of the US Bureau of Land Management research. So the claim that the tool is based on that research is simply false. That then highlights the second part of the claim that it is related to “outcomes of NSW assessed wind farm project applications”.

This sounds awfully as though the Department is attempting to retrofit a supposedly scientifically based methodology to validate previous decisions made by the Department and the PAC – even though those decisions were inconsistent with published research, including research available at the time those decisions were made.

If that is the thrust of the above comment in the Secretary’s letter, it is totally bad public policy. It is a statement that:

“We screwed up but cannot admit we did so, therefore we are now going to apply the same errors in perpetuity to cover ourselves – and the hell with the citizens who are thereby harmed.”

Is cabinet going to knowingly sign off on a totally flawed wind farm VI assessment methodology constructed on that basis? We should at least have some public honesty about this.

### **Consultants and Conflict of Interest**

It appears that in preparing its VI assessment methodology the Department has relied heavily on advice from consultants. If that is the case, and if the methodology which is in almost complete contradiction of a wide range of relevant scientific research has depended on the consultants’ advice, it would be wholly inappropriate for the Department to allow those consultants, or others of like inclination, any further role in reviewing and shaping wind farm VI assessment methodology.

In that situation, those consultants would now have a very vested interest in defending fatally flawed advice already given to the Department and thus in preventing a wholly objective consideration of the submissions being made to the Department. If the Department does not internally have staff fully capable of reviewing the submissions and criticism and absorbing the relevant research, and understanding its complete implications for VI assessment and particular proposed methodologies, then the Department needs some other staff.

Simply turning for advice to other consultants from the same professional groups that stand to benefit commercially from the sort of methodology and approach proposed in the draft VI Bulletin will not produce an objective evaluation. As Upton Sinclair said: “It is difficult to get a man to understand something, when his salary depends on his not understanding it.” Asking landscape architects to agree that they are not appropriate to determine wind farm VI is a fool’s errand, despite the powerful evidence they are not.

# A NOISE POLICY DEVOTED TO NOT PROTECTING RESIDENTS FROM WIND FARMS

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## Response to Draft Wind Farm Assessment Guidelines

Dr Michael Crawford

16<sup>th</sup> September 2016

*The Noise Assessment Bulletin is not directed at protecting residents and looks for excuses to avoid doing so, including grossly misinterpreting and misstating the advice from the NHMRC and ignoring that institution's cautious advice. The Bulletin makes many unsubstantiated assertions and proposes policy whose effect is to conceal the level of noise from a wind farm while making it easy for developers to present modeling and other claims that are potentially fraudulent. The policy's proposals for noise monitoring of wind farms is guaranteed to ensure no effective control over those emissions and to allow wind farms to run amok at the expense of affected communities.*

The Noise Assessment Bulletin (NAB) is not directed at protecting residents and looks for excuses to avoid doing so, including grossly misinterpreting and misstating the advice from the NHMRC and ignoring that institution's cautious advice.

The Bulletin makes many unsubstantiated assertions and proposes policy whose effect is to conceal the level of noise from a wind farm while accepting modelling and other claims by developers that are potentially fraudulent. The policy is careful to **not** build in checks to detect such behaviour.

Its proposals for noise monitoring of wind farms are guaranteed to ensure no effective control over the noise emissions from wind farms and to allow them to run amok at the expense of affected communities.

### **Disinterest in Protecting People**

It is noticeable that the Noise Assessment Bulletin does not provide as references any primary research on wind farm noise and health or sleep, or on noise and amenity. The closest it comes is to refer to the defective NHMRC review and even from that it cherry picks and distorts statements to support a casual disregard for impact on people while ignoring NHMRC statements that indicate the need for more caution.

The Noise Assessment Bulletin opens with the statement

The NSW Government is seeking to promote a planning and assessment framework which is consistent with the standards that apply nationwide. (p. 1)

Nowhere is there a statement that the policy is to protect people from adverse effects of noise. It does say that

The objective is to ensure that the noise impacts of wind energy developments are appropriately identified, avoided, mitigated and managed. (p. 1)

But obviously the tricky bit is in that word “appropriately”, since it does not anywhere refer to protecting people but claims it wants to be nationally consistent, irrespective of whether the national standards are protective of people. Past experience indicates practices used in SA, Vic and NSW at least are not.

The document does claim that NSW Government policy is intended:

To ensure acceptable noise levels for people living in the area surrounding a proposed wind energy development (p. 2)

However, it fails to indicate to whom the noise levels are to be deemed “acceptable”. It is quite clear that the noise levels allowed in NSW and other states are “acceptable” to wind farm operators, and apparently to the bureaucrats and politicians safely removed from exposure to that noise. The ongoing complaints from affected citizens, in all states, demonstrate it is not “acceptable” to them.

The proposed policy illustrates the persistence of a policy of willingness by the “elite” in Macquarie Street to harm the citizens they think subject to them.

Unless the NAB is very explicit that the purpose of the policy is to protect health and amenity the clear implication, given all that follows, is that it is simply to enable development without concern for harm.

It would actually be very simple for the policy to include the statement:

The overriding purpose of the noise assessment policy is to ensure protection for the health, sleep and amenity of people from wind farms.

To refuse to include such an explicit statement is a clear admission that the Cabinet of the NSW Government is not concerned should wind farms harm the health, sleep and amenity of rural residents, though it has been so concerned about the welfare of greyhounds and rabbits as to ban a whole industry, destroying the livelihood and lifestyle of large numbers of NSW citizens.

### **Vague, Imprecise, Misleading and Unsubstantiated Policy**

The NAB contains a number of important unsubstantiated assertions and a frequent use of words that hide and ignore the extremes of noise effects which may occur. Many of its statements are partial and misleading. A number of them are discussed below. Unless the Department can actually provide public substantiation where it is currently lacking, the proposals are simply arbitrary and frequently dangerous.

Reliance on what other jurisdictions are doing is the same approach that allowed the asbestos industry to flourish for many decades while inflicting terrible harm on those exposed to its products. Is the current NSW Government setting the State up for the same culpability as those who presided over the use of asbestos? At least those forbears had less systematic knowledge about the possibility of adverse unintended consequences than do modern politicians and bureaucrats.

Instances of vague, imprecise, misleading and unsubstantiated policy elements follow.

The NAB states:

However, an increase in wind speed typically results in an equal or greater increase in the background noise at receiver locations due to aerodynamic and foliage noise which may mask the turbine noise. (p. 2)

The important words in this statement are “typically” and “may mask”. Use of the word “typically” clearly indicates that there are situations where there will **not** be a “greater increase in the background noise at receiver locations due to aerodynamic and foliage noise” to mask the turbine noise.

Where is the research evidence to show that the noise modelling typically used by wind farm developers properly shows those cases where turbine noise is **not** well masked by background noise?

Where is the research evidence to show that wind farm developers will provide honest information about these case when it is in their interest not to do so? Where is the evidence that DPE has itself the capacity to determine whether such situations are present for a particular wind farm and has actually done so to protect residents?

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The NAB says:

In rural areas, farming and agricultural activities can generate significant noise from sources such as road traffic and farm machinery. (p. 2)

It has apparently escaped the authors of this gem that farm machinery is rarely used at night or in the early hours of the morning, precisely when people are trying to sleep and noise is most harmful, and likewise that road traffic is also lowest at those times **but** that wind farms operate and create noise at those sensitive times. This statement is simply a gratuitous red herring thrown in for the benefit of the wind industry at the detriment of residents.

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The NAB does rightly acknowledge:

Preliminary studies of the relationship between wind energy development noise and annoyance levels indicate a greater level of annoyance than for most other environmental noise sources at the same noise level. (p. 2)

Where is the research evidence to show that these effects are correctly modelled in the software typically used by wind farm developers, or that it is correctly reported? What evidence is there that it is regularly monitored by either wind farms or the NSW Government and that corrective action is actually taken?

Studies to which the NAB refers normally suggest some *average* equivalent effect of other forms of noise at a higher decibel level. But again this is on an *average* basis which, by definition, means that in some cases the actual equivalent of other noise will be either a lot less or a lot more than the average. Where is the policy that protects people who are subject to wind farm noise characteristics which are *more severe than the average*?

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The NAB claims

The NSW Government has adopted the 2009 South Australian document Wind Farms – Environmental Noise Guidelines (SA 2009). SA 2009 will form the basis of the regulatory noise standard and assessment methodology that will apply when SSD wind energy applications are assessed and determined in NSW. (p. 2)

and claims, as though this is socially beneficial, that

Adopting SA 2009 will facilitate increased regulatory consistency between states and result in consistent standards applying to significant areas of Australia with high quality accessible wind resources. (p. 2)

Has it escaped the notice of the authors of the NAB, and the responsible Minister, that South Australia is not short of people complaining about the harm to them from wind farm noise allowed under those vaunted SA guidelines? What scientific research evidence does the NSW Government have to demonstrate that the SA Guidelines do actually protect health and sleep?

Has it also escaped the attention of the Department and Minister that South Australia, which once was a strong industrial state, has turned itself into an economic basket case through its ideological pursuit of wind farms, irrespective of the harm caused to its communities?

If there is anything NSW can learn from SA, it is what to not do in relation to wind farms. The notion that SA sets any sort of standards which NSW ought to follow is simply bizarre and irresponsible.

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Figure 1 in the NAB presents a graphic that purports to compare noise emissions at particular distances under various guidelines, including NSW guidelines, for “3 typical turbines directly upwind of receivers” (p. 3).

- Where is the comparable data for positions **downwind** (surely more important) and crosswind from the turbines?
  - What is the power of the 3 allegedly “typical turbines” and specifically what is the data for turbines of the power now being approved?
- 

The NAB says

the applicant’s EIS should clearly identify the expected noise levels at all receiver (residence) locations (p. 3)

Modelling and prediction, of any matter, is always inaccurate. So knowledge of the actual precision of effects is critical. The “expected” noise level is at best a prediction of the central point in the range of **possible** noise levels for a receiver. It is therefore essential that developers be required to provide for each receiver not just the “expected” noise levels but also the 95% confidence interval for noise levels at that point **and the 95% confidence interval for the main understood characteristics of wind farm noise (e.g. amplitude modulation) which make wind farm noise particularly disturbing and/or harmful.**

People are not affected simply by the average level of noise and noise characteristics but by the stronger extremes that contribute to the average. **It is the extremes that regulators should be evaluating, since they are where harm usually lies.**

---

The NAB says

The EPL will typically include noise performance requirements. (p. 3)

The EPL should also include explicit health and sleep performance requirements. Those are what particularly matter to people. Noise performance requirements without health and sleep requirements are simply window dressing.

Under the heading “Environmental Impact Statement” it is stated the noise assessment report must include:

**predicted** (emphasis added) noise levels at the **closest** (emphasis added) non-associated residences to the wind energy development at each integer wind speed (p. 4)

As earlier noted, “predicted” noise levels are wholly inadequate. It is **essential** that the information provided includes the **95% confidence interval range both in relation to the statistical variability of single receiver predictions from the model, and the variability of conditions (wind speed, direction, gusts, atmospheric conditions) which will affect each receiver.**

Using just the **closest** is wholly inadequate. It implies a simplistic model of noise propagation from what are extremely complex noise emission arrays. It assumes noise declines consistently with distance from the wind farm. The Department surely understands that is not true.



The strength and characteristics of wind farm noise at various surrounding locations are affected by terrain, atmospheric conditions, wind direction, interference (reinforcement and cancellation) of sound from different parts of the array, and many other factors. Noise effects can be worse for some receivers than for other receivers closer to the wind farm. The EIS noise modelling requirements need to provide full cover of all residents who may be affected by the wind farm.

It should be mandatory that all background data collected for the wind farm, in its raw form (i.e. without deletions from what was collected) is made available to the Department and, from the Department, to any resident who believes they may be affected by noise from the wind farm, for their own analysis.

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### **Determination and post approval regulation**

The proposals for post approval regulation are wholly inadequate.

***All wind farms should be subject to 24/7, full spectrum, and fully recorded, noise monitoring.*** This should not be under the control of the wind farm operator but a wholly independent party, though the wind farm operator should have full, real time access to the data.

Without that requirement, wind farms are not in a position to control their noise emissions; the Government is not in a position to monitor and regulate what is actually happening; and the community is not well informed about what is actually affecting them.

Stringent noise monitoring is applied in some other industries. It should be absolutely mandatory for an industry which produces noise with particularly disturbing effects (spectrum, volume, amplitude modulation, tonality, etc) and in unusual circumstances (noise sources high above the ground, and a physically widespread array of emitters), including at night and early hours of the morning when many other industries are shut down.

***Wind farms which regularly breach noise conditions should simply be shut down.*** The failure is the fault of the operator, either in design or operation. If there are repeated exceedances the cost should fall wholly on the operator and not on the surrounding community.

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### **Tonality**

The NAB states:

Audible tonal sounds from wind turbines are generally related to rotational equipment in the turbine nacelle and can have a specific pitch dependent on the speed of rotation. This can cause the noise to be more annoying or noticeable. These tonal characteristics (as defined below) typically do not occur in well designed and well maintained wind turbines. If present, they are usually caused by a turbine maintenance issue (p. 5)

The NAB provides no research backing for this wind industry friendly statement. Unless the NSW Government has actual scientific research to substantiate it, the statement should be eliminated.

Please note, assertions by the wind industry, wind turbine manufacturers, acousticians serving the industry, or by other government agencies (whether Australian or overseas) do not constitute scientific research evidence.

Unless the NSW Government can actually cite such scientific research then it should eliminate this gratuitous statement which does not in any case affect specified conditions but seems to be included to give an unwarranted implication that tonality will not generally be a problem.

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### **Low frequency noise**

The NAB states:

Analysis of wind turbine spectra shows that low frequency noise is typically not a significant feature of modern wind turbine noise when it complies with the A-weighted criteria applied by this Bulletin. (p. 6)

Where is the scientific research evidence that demonstrates this statement is actually true?

The statement refers to whether low frequency noise is “a significant feature”? What does that phrase actually mean to the authors of the NAB? The only meaningful grounds for whether any aspect of noise is “significant” is the actual, real world effect on people. Whether it is hidden or masked in weighted measurements (such as A-weighted) is wholly irrelevant. The only thing that matters is the actual effect of the various noise characteristics (including low frequency noise) on people.

What scientific research does the NSW Government have showing that the impact of low frequency wind farm noise on people is not significant? Please note, an absence of evidence showing that low frequency noise harms people is not evidence of the NAB assertion, unless there has been a lot of good quality research attempting to find such a relationship.

The NAB proposes that a 5db(A) penalty should be applied “if excessive low frequency noise is found to be a repeated characteristic of the wind turbine noise”.

What scientific research evidence does the NSW Government have that the proposed penalty is sufficient to protect human health and amenity, or that the measure it proposes is a relevant one for “excessive low frequency noise”?

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### **Noise and Health**

Under this heading, the NAB produces a distortion of NHMRC advice about the possible health effects of wind farm noise. The NAB claims the proposed policy is based on:

“the current NHMRC position that there is no evidence supporting a link between wind energy developments and adverse health outcomes in humans” (p. 9)

***This is a gross distortion of what the NHMRC has presented as its position. It is unclear whether this distortion in the NAB is produced maliciously or out of ignorance.***

There are aspects of the NHMRC review that can be criticised on scientific grounds, as I have done elsewhere. But if you are going to cite it, and claim to rely on it (as the NAB does), then get it right. The NHMRC made 3 high level statements summarising its conclusions <sup>1</sup>:

- Examining whether wind farm emissions may affect human health is complex, as both the character of the emissions and individual perceptions of them are highly variable.
- After careful consideration and deliberation of the body of evidence, NHMRC concludes that there is currently no consistent evidence that wind farms cause adverse health effects in humans.
- Given the poor quality of current direct evidence and the concern expressed by some members of the community, high quality research into possible health effects of wind farms, particularly within 1,500 metres (m), is warranted.

The NHMRC was very careful with its words and those words need to be read accurately. Also, the words were those of researchers and have precise meaning to researchers. If DPE does not understand the terminology used by researchers it needs to consult someone who does.

In the second point above, the NHMRC says “there is currently no consistent evidence . . .”. The critical word in that sentence is “**consistent**”. To a scientist, that word means there are some studies which found an apparent relationship between wind farm noise and health, at a statistical level commonly accepted as supportive **and** there were other studies which did not (which could be because there is actually no such relationship, or the sample sizes were too small, or the measures too weak, or many other reasons – and these possible reasons are detailed in the body of the NHMRC review papers).

If the NHMRC had meant to say “there is **no** evidence that wind farms cause adverse health effects in humans”, it would have said just that. It would not have interposed that critical word “**consistent**”. Anyone who drops out that word and attributes it to the NHMRC, as the NAB does, is falsifying what the NHMRC said. The only question is whether they doing it because they do not understand scientific terminology or they are deliberately trying to mislead. Which is it NAB authors?

By saying there is no “**consistent**” evidence, the NHMRC was admitting there actually is some evidence “that wind farms cause adverse health effects in humans”. Whether that evidence will be supported by future studies with adequate sample sizes and measures is obviously yet to be determined – which is why the NHMRC called for and is funding such research. But the existence of some evidence, which the NHMRC acknowledges, provides good reason for the NSW Government to follow a genuine precautionary approach in the noise and other policies it sets for wind farm assessment.

The NHMRC also stated <sup>2</sup>:

There is consistent but poor quality direct evidence that wind farm noise is associated with annoyance. While the parallel evidence suggests that prolonged noise-related annoyance may result in stress, which may be a risk factor for cardiovascular disease, annoyance was not consistently defined in the studies and a range of other factors are possible explanations for the association observed.

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<sup>1</sup> NHMRC Statement: Evidence on Wind Farms and Human Health, NHMRC ref # EH57, February 2015.

<sup>2</sup> NHMRC Statement: Evidence on Wind Farms and Human Health, NHMRC ref # EH57, February 2015.

Note that word “**consistent**” again. In this case the NHMRC was saying there are studies that support the existence of a relationship between wind farm noise and “annoyance” **and** that it did **not** find contrary studies. So there is a strong likelihood that such a relationship exists.

The NHMRC then went on to say that studies not directly involving wind turbines (what in the review the NHMRC called “parallel evidence”) show that “prolonged noise-related annoyance may result in stress, which may be a risk factor for cardiovascular disease”, i.e. that it may cause harm to health. The NHMRC then added a caveat to the effect that “annoyance” as defined in the wind farm studies it examined might or might not be the same as “annoyance” used in the “parallel evidence”, thus acknowledging that there may be an adverse effect on health from wind farm noise via the intermediary of “annoyance” but there are some uncertainties across the sets of research involved. Again, this is enough to evoke a precautionary approach to policy involving wind farm noise.

The NHMRC also stated <sup>3</sup>:

There is less consistent, poor quality direct evidence of an association between sleep disturbance and wind farm noise.

So it admitted there is direct evidence of wind farm noise causing sleep disturbance. The term “direct evidence” (as opposed to “parallel evidence”) as the NHMRC defined it in its review means studies which involved in-field wind farm noise and measurement of the outcome (in this case sleep disturbance) on people exposed to that wind farm noise.

The NHMRC went on to say:

While chronic sleep disturbance is known to affect health, the parallel evidence suggests that wind farm noise is unlikely to disturb sleep at distances of more than 1,500 m from wind farms.

Thus it admitted the well established fact that sleep disturbance adversely affects health and any sleep disturbance due to wind farm noise would likely adversely affect health. It tried to limit the consequences of that admission with the statement “the parallel evidence suggests that wind farm noise is unlikely to disturb sleep at distances of more than 1,500 m from wind farms”.

There are a few important things to note about that statement.

- First, to the extent it suggested wind farm noise might not cause sleep disturbance, it was only prepared to suggest that would be beyond 1,500 m. So the NHMRC admitted it was likely that sleep disturbance due to wind farm noise would occur within 1,500 m of a wind farm.
- The second thing is the very cautious words it used in conveying the view of no harm beyond 1,500 m. The NHMRC did **NOT** say, for instance, “wind farm noise will not disturb sleep” Or “wind farm noise will not disturb sleep at distances of more than 1,500 m from wind farms”. Instead it qualified its words by saying the parallel evidence “suggests” that conclusion.

“Suggests” is a very weak word in a scientific context. It means there is a possibility but there is not strong evidence to support that possibility. Even with that caveat, it did not say wind farm noise “will not disturb sleep”. Instead the NHMRC said there is a suggestion that it is “unlikely” to disturb sleep beyond 1,500 m.

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<sup>3</sup> NHMRC Statement: Evidence on Wind Farms and Human Health, NHMRC ref # EH57, February 2015.

Whenever anyone uses the words “likely” or “unlikely”, they are admitting the counter outcome is possible. And those words are remarkably imprecise. Does “unlikely” mean a 1 in 3 chance, a 1 in 5 chance, a 1 in 10 chance, a 1 in 1000 chance? All of them could be consistent with “unlikely”. And remember that “unlikely” was already subject to the vague word “suggests”.

Thus the NHMRC clearly stated that there are good grounds for accepting that wind farm noise can cause sleep deprivation and it is well known that sleep deprivation frequently leads to harm to health (as well as being terrible in its own right – which is why it is used as part of torture regimes). The NHMRC then suggested, but did not claim as certain, that there may be a distance limit of 1,500 m (though the NHMRC did not indicate for what power of turbines, which is surely relevant).

The net result is that on sleep grounds the NHMRC admitted another reason to be very cautious about the extent to which wind farm noise is allowed to be imposed on people.

The NHMRC also gave this advice <sup>4</sup>:

NHMRC urges authorities with responsibility for regulating wind farms to undertake appropriate planning, in consultation with communities, and be cognisant of evidence emerging from research.

This statement is a clear warning that stronger evidence of harm from wind farm noise may emerge and that regulatory authorities should therefore act cautiously in the level of exposure they allow.

Instead of heeding that advice, the NAB authors chose to proceed as though the NHMRC has said there are definitely no problems and no risk. Which public servant and which Minister is actually signing off on that position? Who is going to be personally accountable for approving a policy that disregards the warning given in that last statement from the NHMRC?

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<sup>4</sup> NHMRC Statement: Evidence on Wind Farms and Human Health, NHMRC ref # EH57, February 2015.

## Caleb Ball

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**To:** Meagan Kanaley  
**Subject:** RE: Exhibition of Draft Wind Farm Guidelines - Additional Matter - Unwarranted Time Extensions

**From:** Michael Crawford [REDACTED]  
**Sent:** Monday, 19 September 2016 4:08 PM  
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**Subject:** Exhibition of Draft Wind Farm Guidelines - Additional Matter - Unwarranted Time Extensions

Secretary McNally

Thank you for the opportunity to comment on the Department's draft wind farm guidelines.

With so much to comment on, it was inevitable that some important things would be missed.

In particular I raise the issue of unwarranted time extensions for the construction of wind farms (such as we have seen at Silverton and Capital 2 is now requesting), as well as consent conditions written in a way that allow trivial site works to be construed as commencement of development of a wind farm within the time specified in the consent.

Either the Department imposes construction time frames that are binding or the whole planning process for wind farms is an elaborate farce.

As you are aware, in a planning sense wind farms are dramatically different from virtually all other developments.

Firstly they sanitise a huge geographic area from future alternative development. That sanitised area is not just the site of the wind farm itself but large tracts surrounding it. No other developments have this sort of geographic impact.

Secondly, the developer does not own that affected land. They own neither the site of the wind farm nor the huge surrounding area affected.

Consequently there are no holding costs for the developer able to gain surreptitious or formalised extensions of time to build. All the costs of their delay fall on the host landowners and landowners over a huge surrounding area and on councils.

Councils are affected because the prevention of alternative developments of affected areas mean councils miss out on income other developments would provide and, in many cases, they end up with expensive assets being used suboptimally. In the locality affected by Jupiter, for instance, that means further subdivision is aborted and, with it, the council fees and rates that would follow such subdivision. Council roads have the same maintenance costs but fewer people using them. Absence of such subdivisions also means absence of work for local tradesmen who would otherwise be involved in the subdivisions, in building dwellings in those subdivisions and providing multiple services over many years. Likewise retailers and others in the community suffer, schools have fewer pupils, etc. The costs cascade through the community.

Planning is meant to ensure optimal use of resources. Arrangements which allow wind farm developers to sit on approvals and thereby tie up huge areas from further development for many years are not good planning.

A wind farm proposal is supposed to have a strategic justification. The Department surely only accepts proposals for which the strategic justification is sound (if not, why ask for one?). If a wind farm is not genuinely built within the 5 years (and it ought to be less), then clearly the purported strategic justification was false, whether intentionally or otherwise, and the Department was misled by the applicant.

If the Department/PAC approves extensions or allows illusory development, then the Department rewards bad behaviour and guarantees many other developers will engage in the same sort of misrepresentation and then the same practice of uselessly tying up huge tracts for many years more than explicitly stated in the consent.

**Government policy should be to impose a fixed time frame for the construction of a wind farm (ideally 3 years) and allow no extension unless any delay can be legitimately attributed to actions on the part of the Government itself.**

I trust your Department will give consideration to this matter important to people affected by proposed wind farms.

Dr Michael Crawford

## CLIMATE CHANGE AUSTRALIA

Hastings Branch

Port Macquarie 2444



5 September 2016

### SUBMISSION ON THE WIND ENERGY PLANNING FRAMEWORK

Climate Change Australia (CCA) is a non party-political, safe climate and clean energy group based on the mid north coast of NSW. Our charter requires that we respond to climate change policy issues, we raise community awareness about climate impacts, we encourage everyone to conserve energy and water, we promote the rapid transition from fossil fuels to renewable energy, and we lobby all levels of government to implement genuine and effective mitigation and adaptation measures to address climate change.

#### Comments on the Assessment Policy

We appreciate the opportunity to comment on the *Wind Energy: Assessment Policy – Draft for Consultation - August 2016* (the draft policy), prepared by the NSW Department of Planning and Environment. Our comments generally follow the structure set out in the draft policy.

#### Section 1 Introduction

**Comment 1** - Section 1.1 para 3 states that:

*While the assessment process for SSD wind energy development projects is generally the same as it is for other types of SSD projects, there are certain aspects that are unique for wind energy development and warrant special consideration.*

It is not clear why a wind energy development SSD requires special treatment. Other SSDs, such as for coal mining, petroleum production, geo-sequestration and electricity generating works or co-generation, are assessed under the standard requirements or SEARs. It is even conceded in the last para of Section 3 (referring to these 'unique' aspects):

*The Department has developed standard requirements (SEARs) which contain guidance on assessing these issues. The standard SEARs may be supplemented by project-specific SEARs to incorporate additional assessment requirements, if required.*

It seems that wind energy development has been identified as 'unique', but the reasons are not made clear. The effect of this will reinforce a bias against wind farms compared to other forms of power generation, thereby complicating the consultation process. A conscious effort is needed in the draft policy to counter previous negativity towards wind power. For example, statements by the former NSW Premier, the former Prime Minister, the former federal Treasurer, and other government ministers over the past few years that wind turbines are visually objectionable and somehow unhealthy. The creation of a National Wind Farm



Commissioner and the Independent Scientific Committee reinforces the perception that wind farms are so problematic they require a level of investigation and supervision which is not justified by the scientific findings of the National Health and Medical Research Council and NSW Health. Any rational approach to planning in NSW would conclude that it is the coal mines, coal power stations and CSG developments that require an extra level of approvals, supervision and health monitoring.

The current proposals will only heighten the community's sensitivity to wind farms. This is compounded by the statement in the Wind Energy: Noise Assessment Bulletin that, *'the NSW Government has adopted some of the strictest noise limits in the world'*. We are unconvinced of the need for some of the strictest noise limits in the world in NSW (is there something wrong with our hearing we should know about?), and we think this will be a deterrent to investors. We talk more about noise later in this submission.

**Comment 2** – Add to the last sentence of para 2 of Section 1.3 to read, 'The NSW Government recognises the importance of reducing greenhouse gas emissions in energy generation, and the opportunities which the renewable energy industry, and wind energy in particular, offers for the State **to rapidly transition away from fossil fuels.**' This will strengthen the claim to this policy being important in an emissions reduction context (also see Comment 4 below).

**Comment 3** - Modify the first sentence of para 3 of Section 1.3 to read, 'Yet this opportunity needs to be carefully managed to ensure that the impacts of wind energy development are ~~accurately~~**properly** identified and adverse outcomes are ~~avoided~~ **minimised**. (Note, there will be a wide range of outcomes to be managed, many of which would not require avoidance, nor can some things be completely avoided anyway).

**Comment 4** Para 5 of Section 1.3 states that the draft policy takes a risk-based approach to the assessment of impacts from wind energy development. In order to properly assess all the risks, the policy must also include reference to climate change risks. The narrow focus on noise and landscape impacts, with strict assessment criteria, may discourage investment in wind farms at a time when NSW needs to be aggressively cutting carbon emissions. Reference to climate change risks will provide context to this urgent task.

It is noted that although para 2 of Section 1.3 states that 'the NSW Government recognises the importance of reducing greenhouse gas emissions in energy generation', there is no other reference in the document to climate change or greenhouse gas emissions. The importance of supporting a major increase in renewable energy generation in NSW as the most effective response to climate change must be clearly stated so that it is beyond any doubt that the government understands and accepts this and is prepared to act on it.

The draft policy should be modified so that the guidelines provide a framework to balance the risks of noise and landscape impacts against the growing risks associated with climate change. The consultation phase should be promoted as an

opportunity for the government, the developer and the community to consider not just the immediate local impacts but the broader impacts of climate change and the solutions that lie in renewable energy. Here is an opportunity for the government to take an active role to promote the benefits of wind as a form of renewable energy, including increased diversity of power generation, transition from fossil fuels and job creation. Wind energy alone provides a direct to indirect job multiplier for employment of 3.3 at the local/regional, state and national levels (*Clean Energy Council, June 2012*).

## **Section 2 Planning Framework**

### **Comment 5**

Section 2.3.1 states that where the transmission lines are owned and operated by an electricity transmission operator or distributor, the transmission lines connecting a wind energy generating facility to the grid can be considered as a separate development. As this is likely to be the most common arrangement, what provision is made to coordinate the timing of the two different planning pathways to make sure there are minimum delays to the wind project? The policy must state how the two consultations are coordinated across potentially different time frames.

### **Visual Impact Assessment Bulletin (VIA)**

The following comments concern the issue of visual impact as detailed in Appendix 1 of the Visual Impact Assessment Bulletin:

**Comment 6** - modify the first objective of the VIA bulletin as follows:

Provide the community, industry and decision-makers with a framework for visual impact analysis and assessment that is focused on ~~avoiding~~, minimising and managing the highest impacts in the context of ~~considering~~ economic, social and environmental impacts **considerations, including climate change.**

**Comment 7** - Referring to Figure 1 – Preliminary screening tool – Part 1, it is unclear what the basis is for the location and slope of the line in the graph that defines the relationship between turbine height and distance from residences. There is no explanation given for how this is derived. Is it based on reasonable criteria? Is a similar approach used in other states and countries?

**Comment 8** - Referring to Figure 2 – Preliminary screening tool – Part 2 (page 7), why is a distance of 8km from residence to turbine adopted here, when Figure 1 indicates a maximum distance of approximately 3km for a 220m high turbine? There is no explanation given for why the distance is more than double in this graph, or to explain how this is derived. This is confusing and should be corrected by sticking with the Preliminary screening tool in Figure 1.

**Comment 9** - In Appendix 1, Steps 2, 3 and 4 (pp17-18) the discussion of landscape types, options and features is subjective and appears to be redundant to the process of assessing the visual impacts of a proposed wind farm when steps 5, 6, 7 and 8 by contrast, suggest scenic quality classifications and logically link these to levels of viewer sensitivity in a coherent way. Steps 2 to 8 should be made

simpler and presented more coherently so that proponents better understand how to assess a particular landscape.

**Comment 10** - Appendix 1, Step 6 (p21) - Table 5 defines rural residences as Level 2 Sensitivity (Moderate). The table footnote is ambiguous and should be modified to clarify that rural residences that are not part of a rural village can only be classified as Level 2.

We are also concerned that there is confusion in the definition of curtilage referred to in the footnote. Distances should be measured from residential housing and not from various out-buildings that may be within the same curtilage. The key point is where people live and sleep, not where they may spend an hour or two.

**Comment 11**

Appendix 1 Step 7 (pp21-22) – the requirement that, ‘full turbine, bottom of rotor up, nacelle up, and partial upper rotor blades’ can all be included in determining the extent of visibility of proposed turbines is excessive. The guidelines concede that this, together with the advice to undertake additional ‘reverse analysis using each turbine as a search point looking outward... will generate an enormous amount of information that requires careful and comprehensive summary in the EIS’. This is another example of unnecessary, costly and time-consuming requirements for the proponent to comply with and is a clear deterrent to any investor.

**Comment 12** Appendix 1 Step 8 (p22) – Table 7 is presented as a critical tool in determining Visual Influence Zones (VIZ). However, there is no rationale given to support the selection of boundaries for the combination of viewing distance and scenic quality class. This should be provided in the table if it is to be relied upon.

The following are comments on the issue of visual impact as detailed in Appendix 2 of the Visual Impact Assessment Bulletin:

**Comment 13** - In Figure 5, what is the basis for the location and slope of the upper line that defines the relationship between turbine height and distance from residence? How is it derived? Having two lines complicates the initially simple concept established in Figure 1 – Preliminary screening tool – Part 1.

The following are comments on the issue of visual impact as detailed in Appendix 3 of the Visual Impact Assessment Bulletin:

**Comment 14** (page 28)

The option of re-sizing is suggested for visual impact mitigation. Table 8 sets out the height requirements for turbines at a range of distances by defining three Visual Influence Zones. The suggestion that size of turbines, once categorized by this process, should be reviewed again and required to be re-sized is illogical and onerous. If a turbine of a certain size is acceptable in accordance with Table 8, the proponent should not be required to face higher costs by having to erect a larger number of smaller turbines and associated infrastructure.

The option of re-colouring would make sense if typical wind turbines are all brightly coloured - they are not. The guidelines even concede, 'it is difficult to achieve complete colour contrast reduction in practicality'. In fact, it is impossible to find a tone of colour that will not at some time in the day, contrast with the various landscape and sky hues, which change all the time. As the light changes due to daily changing sun angles and seasonal changes, there will never be a colour or a shade of that will satisfy all lighting and landscape conditions. This section should be removed.

There are more arguments against the use of vegetation screening given in this mitigation option than there are benefits. We recommend that vegetation screening not be seen as a key mitigation measure.

### **Noise Impact Assessment**

The following are comments on the issue of noise impact as detailed in the Noise Impact Assessment Bulletin.

**Background (Page 2)** - This section describes three ways that the assessment of wind energy development is unique:

The first is that wind turbines operate 'under very different conditions to other industrial noise sources'. This does not make wind noise assessment unique. The fact that it is different to, for example, the noise from explosives at a mining or CSG development simply makes it different. We see this as another attempt to claim a uniqueness about wind energy development that is not justified. In the case of wind energy, the noise levels are much lower than other development types and, as conceded in this sub-section, turbine noise is typically masked by foliage and other background wind noise that would occur even without noise from turbines.

The second sub-section refers to the height of the noise source at the nacelle. It suggests that the particular noise from the machinery at the nacelle is significant. In a well maintained turbine, this is not the case. Therefore the argument that noise from this elevated source cannot be as easily mitigated as other energy development types is not valid.

The third sub-section's claim for uniqueness is that the characteristics of 'wind energy development noise are generally perceived as being different to other noise sources'. Maybe, but the main difference is that wind energy development noise is markedly quieter than other sources. There is no reference given for the 'preliminary studies' that compare wind energy development noise with 'most other environmental noise sources at the same noise level'.

Therefore, the reasons put forward do not qualify as a warrant for 'specific guidance on the assessment of noise generated by wind energy'.

### **Framework for noise assessment (page 2):**

The South Australia Standard (SA2009) has been adopted by NSW. However this will not facilitate increased regulatory consistency between states. NSW itself

proposes changes to the Standard and other states are likely to do the same. Victoria's sound limits (the same as SA at 40dBA) are some of the strongest in the world and are more stringent than the World Health Organisation's recommended value of 45dBA for sleep disturbance effects (Sonus, 2010).

The proposal for 35dBA in the NSW policy draft is therefore considered too conservative and again, will discourage development with little or no benefit to the individual property owner or to the community. The standards proposed are tougher, by a multiple of 3.2 (i.e. by 5dB), than any other jurisdiction in Australia, Europe or the USA. Even the existing NSW Department of Planning acoustic amenity standard for rural areas allows 45dBA at night which is ten times (10dB) the acoustic power of the proposed standard.

In fact, the new outdoor standard would be quieter than the noise level that would be expected inside a library! The proposed standard is unrealistic and unnecessarily stringent, and will stop wind farms that will have almost no audible impact inside any dwellings. The much less stringent European noise standards have been proven to work well and should be adopted as the standard.

Further, we are concerned that the assumptions required to complete the indicative noise assessment at the Pre-lodgement stage include using the maximum sound power level of the likely turbine proposed and calculated under the worst-case noise propagation conditions. These preliminary and unnecessarily conservative predictions are very likely to exceed 35dB(A) and further complicate the planning process for investors, as well as creating concern in the community leading to opposition to the proposal.

### **Noise limits and objectives**

In adapting the SA 2009 to NSW conditions, 'the NSW Government recognises that rural land use zones in NSW are often more densely settled than those of South Australia and that there is a relatively high density of rural residential living in parts of regional NSW with high quality wind resources.' On the basis of this assertion, 'therefore only the lower base noise criteria in SA 2009 will be applied in NSW.'

This would exclude the application of the higher base noise criteria for areas in NSW where conditions may be similar to the SA land use zones associated with a low density of rural residential living (e.g most of the Western Division of NSW). The SA low and high base noise criteria should be applied to land uses in NSW that have similar attributes to the land use types referred to in SA 2009. Otherwise the lower base noise level would apply unfairly to all areas in NSW, effectively requiring more stringent conditions than necessary at many potential development sites.

### **Special noise characteristics**

The draft policy admits that 'tonal characteristics typically do not occur in well designed and well maintained wind turbines. If present, they are usually caused by a turbine maintenance issue'. Furthermore, the SA 2009 requires that development applications for wind energy proposals should refer to the IEC 61400-11 standard to test the presence of tonality. However the draft policy notes that the IEC 61400-11 standard does not adequately relate to tonality impacts at receiver locations.

Therefore the SA standard is not relevant in considering tonality in assessing new wind farms.

Another requirement for wind farm developers is to test for tonality, presumably after the turbine has been installed, and to incur a 5dbA penalty to compensate for any breach of the draft policy. This would be costly and inefficient. It would make more sense and be more attractive to investors in wind farms to adopt the QLD Wind Farm Guidelines (2016) with respect to tonality:

Wind farm developers should avoid installation of wind turbines which exhibit sound with tonal characteristics by specifying the supply of wind turbines from a manufacturer which guarantees that the supplied wind turbines will not exhibit tonal characteristics at residences.

### **Low Frequency Noise**

The draft policy states that the SA 2009 guideline does not identify excessive levels of low frequency noise as an issue and contains no requirements for low frequency noise. However the draft policy proposes a penalty of 5dbA 'where noise from the wind farm that is repeatedly greater than 60dB(C)'. This is excessive as indicated in the QLD guidelines where it is noted that '*the normal acoustic environment contains many other sources of low frequency sound which are commonly experienced, such as the sound of diesel engines, aircraft fly-overs, blasting, mechanical plant (including pumps, compressors, air-conditioners and gas turbines), surf waves breaking on a beach, waterfalls, thunder, wind blowing foliage of trees and shrubs, etc.*' (our emphasis).

### **Noise and Health**

The draft policy states that wind farm proponents are not required to conduct a health impact assessment in relation to wind energy development and infrasound. This is welcome and rational. However it also states that the government will ensure its position reflects robust evidence on any health effects, including advice released from the National Wind Farm Commissioner and the Independent Scientific Committee.

NSW Health has advised the government that there is no scientific evidence of any physiological consequences of wind farms and yet, under the guise of the precautionary principle, the draft policy lends credibility to the myth that wind farms are detrimental to human health. Any reference to non-existent health impacts should be removed because it creates further uncertainty. We believe that health impacts should not be included in the policy unless there is conclusive evidence that any health impacts exist which has been published in the peer-reviewed literature. Otherwise people will become frightened of wind farms for no rational reason.

However if this reference to health is allowed to remain in the policy, it should be made absolutely clear that only major changes to findings on health impacts in the peer-reviewed literature will be considered in any future review of the guidelines, and clearly rule out retrospective action affecting the approval process for all existing development proposals.

Again, if this reference to health is allowed to remain, we recommend that the policy include a summary of the health studies conducted by medically-qualified and public health experts. The NH&MRC review of the evidence (Wind Turbines and Health, 2010), highlighted a number of studies which showed that the principle health effects of wind turbines are not physiological but subjective. There are several other studies that reach the same conclusions, notably the work of Professor Simon Chapman at the University of Sydney should be referenced.

### **In summary**

Climate Change Australia Hastings welcomes the chance to address the issues raised in the Wind Energy: Assessment Policy – Draft for Consultation, and is particularly pleased that at last there is an effort to finalise these planning policies to bring much-needed certainty to these vital investments in a clean energy future for NSW.

Wind energy will play an increasingly important role in powering the NSW economy, both in the electricity it generates as well as the jobs it creates in regional areas. Wind farms are the most cost-effective form of renewable energy and likely to remain so for many years, and we want to see current and future wind farm developments being strongly encouraged by the government.

As a group located in regional NSW we urge that the benefits of wind farms should be explicitly recognised – not just as part of the move to a low carbon economy but also to stimulate regional economies.

We also argue that this presents an opportunity to address numerous inconsistencies and contradictions in the various planning frameworks across the entire energy sector in NSW. Fossil fuel competitors to wind energy (in particular coal and CSG) do not face anywhere near the same requirements for community consultation, visual impacts, noise standards or health concerns from air or water pollution as are outlined in the proposals for wind energy.

The final wind policy should not unilaterally set higher standards than currently exist for other sectors. A level playing field and long-term certainty are required to promote investment in the renewable energy sector in NSW.

**ENDS**

Climate Change Australia – Hastings Branch  
 [REDACTED], Port Macquarie NSW 2444  
 (Authored by Mick Lyons and Harry Creamer)

The comments are provided in good faith to assist with finalising the wind energy policy and improving how it would work. CCA supports any party that will act seriously and effectively on climate change and renewable energy.

15/9/16

Felicity Greenway  
Director, Industry and Infrastructure Policy  
Department of Planning and Environment  
GPO Box 39  
Sydney NSW 2001

Dear Felicity

**Wind Energy Planning Framework**

Thank you for the opportunity to make a submission on the Wind Energy Planning Framework, and in particular the Wind Energy: Assessment Policy draft (the Policy), and the Standard Secretary's Environmental Assessment Requirements draft (SEARs).

**Background and Context**

TransGrid is the operator and manager of the NSW high voltage transmission network and is often involved with connecting large-scale electricity generating projects, such as wind farms, to the electricity grid to enable the distribution of generated electricity. Our objective is to promote and facilitate new developments with efficient and cost-effective connections.

TransGrid supports the development of the Policy and the objectives to provide the community, industry and consent authorities with guidance on the assessment of large-scale wind energy development proposals. Section 2.3 of the Policy relates to transmission line connections from wind farms to the electricity grid - comments related to this section are provided below.

**TransGrid's Current Advice to Proponents**

TransGrid frequently works with proponents who require a new transmission line to connect their proposed development to the electricity grid eg. wind farms, coal mines. TransGrid's current position is to advise proponents of these developments that any ancillary work, such as a new transmission line connection, should be incorporated into their broader project assessment, so the works are approved as part of the proponent's broader project approval.

We believe this has benefits to the proponent and community including:

- > Better assessment and consideration of the cumulative environmental impacts;
- > Reducing the number of environmental assessments and approvals required, thereby facilitating more efficient and cost-effective assessments and connections; and
- > Better wholistic community consultation that covers all relevant aspects of the project.

Further, TransGrid encourages proponents who require connections or changes to the transmission network to contact TransGrid early, prior to commencing any planning approval



process. Early consultation assists to clarify the scope of work affecting the transmission network, responsibilities, and contractual arrangements.

### **Recommendations for Amendments to the draft Policy and SEARs**

The draft Policy is not aligned with the advice TransGrid currently provides to proponents, and therefore has potential to cause confusion and delays for proponents. Section 2.3.1 of the draft policy states that:

- > The transmission lines connecting a wind energy facility to the grid can be considered as a separate development from the generating facility; and,
- > The Infrastructure SEPP provides for approval under Part 5 of the *Environmental Planning and Assessment Act 1979*.

For the Part 5 pathway to be applicable, TransGrid would need to nominate itself as the proponent of the activity. TransGrid reserves the right not to nominate itself as the proponent for all these activities and therefore a Part 5 assessment and determination might not be available for these projects.

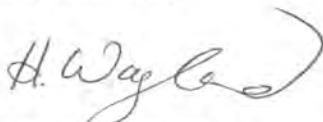
We suggest section 2.3.1 of the draft Policy be amended to place greater focus on the points in the third and fourth paragraphs. That is, if new transmission lines are required and related to a wind energy project, they should be included in the associated State Significant Development Environmental Impact Assessment, regardless of who will own or operate the transmission line. We suggest moving the third and fourth paragraphs to the beginning of the section. Further, we suggest that there is only minimal discussion and less focus on the use of possible alternate planning approval pathways.

In relation to the General Requirements section of the draft SEARs, we suggest removing the text '*...but the subject of a separate approvals process*'; this would ensure alignment with the recommended amendments described above.

Also, we would suggest that the Policy provide guidance to proponents to consult Network Operators (such as TransGrid) early in the planning phases of a project (and prior to commencing work on related planning approvals). Consultation would assist to clarify responsibilities and the applicable planning approval pathway to ensure that an efficient and cost effective connection to the electricity grid is possible.

Please don't hesitate to contact me on 9284 3815 if you have any questions on this submission. TransGrid appreciates ongoing consultation in relation to issues affecting the transmission network and we would welcome the opportunity to meet with the Department to discuss the draft Policy and this submission further.

Yours faithfully



Heather Wagland  
Property and Environment Asset Manager  
Asset Management

## COMMENTS ON THE NSW WIND FARM VI GUIDELINES

### “SMOKE & MIRRORS”

The Department of Planning and Environment has provided a document, NSW Wind Farm VI Guidelines which is a masterpiece in “Smoke and Mirrors”.

The Guidelines provide a number of ‘feel good’ claims, the purpose of which is to gain the reader’s confidence, such items as:

- Work in partnership with local government, other NSW government agencies and the community to develop and deliver strategies and policies for local environment plans, land use planning, infrastructure projects and major developments, and assessments and approvals,
- Increase the involvement and consultation of local communities and stakeholders in local and regional decision making.
- Continue to improve the planning system so that it is:
  - clear – easier to understand
  - transparent – open to scrutiny
  - rigorous – all relevant issues are considered and decisions are merit-based
  - efficient – decisions are made in a timely manner
  - accountable – the community can have confidence in the planning system.

Claims to have objectives that:

- are sustainable growth in the right locations
- have improved investor and community confidence
- have efficient and effective management of natural and cultural resources
- have diverse, equitable and pleasant neighbourhoods that reflect community needs and aspirations
- have integrated delivery of regional infrastructure and government activities.
- build liveable centres by encouraging jobs growth in centres close to where people live
- restore confidence and integrity in the planning system, including by developing a new planning system for introduction to parliament by November 2012.

This really is so much sugar coated verbiage which in fact seeks to disguise an otherwise poison chalice for rural communities and more isolated rural residents.

The first part of the Guidelines (Stage 1) when read in isolation of subsequent parts purports that the department has made some attempt at rigour and fairness in assessing wind farm proposals. Indeed it is garnished with flash pictures and authoritative looking graphs. In fact, the part belies the overriding (Stage 2) of the guidelines which are rigged in favour of the developer.

For the developer, Stage 1 is just a ‘tick n flick’ process which (may) involve utilising a few consultants to provide the results of studies (based on tenuous premise) and the appropriate words which support their purpose. Incredibly the outcomes of these will not necessarily have any effect on the ultimate VI assessment of what the proponent is proposing. So what is the point of this process apart from more verbiage to confuse and mislead the unwary?

The more technical content of Stage 2 continues to bely the overall intent of the Guidelines. Stage 2 uses a repeat graph from Stage 1 with an added line in the graph which on first glance would appear to be more acceptable to the affected rural residents. Unfortunately again it is purely smoke and mirrors, a trick for the unwary to believe that there will be no turbines closer than the line indicates. Sadly the guidelines have no such requirement.

Indeed the Department has omitted two lines in the graph because, it appears, the lines would reveal the truth which the guidelines are designed to hide.

Who decides what “Scenic Value” is? Is it the minister himself, the Planning department or some arbitrary consultant paid to report a favourable finding? Sydney Harbour and the Blue Mountains are indeed very scenic in their own category of landscape eg. “Harbours of the world” or “mountain ranges”. Equally however, rural landscapes and even deserts can be incredibly scenic in their own category. Indeed any landscape devoid of the visual pollution of windfarms is very scenic and appealing to the residents.

The Department’s offering of 4 mitigation possibilities to reduce the visual impact of a wind turbine is incredible. Who was the intellectual giant that came up with this proposal? If you have a wind turbine reminiscent of something out of “War of the Worlds” towering 170+ Metres over you at 1 kilometre distance, tell me what would be effective screening. How high do you think eucalypts can grow and how long will they take to grow? Even if it was painted an alternative colour do you really think I wouldn’t notice it?

Apart from being a completely farcical proposal the guidelines don’t even provide any enforcement upon the proponent to ensure that visual impact mitigation is employed. Indeed the guidelines only require that it is ‘considered’. Done, tick n flick, again. Any consultant worth anything can come up with the appropriate ‘weasel words’ to justify the turbine placement.

Further, like some magician’s sleight of hand, the guidelines manoeuvre the distances and heights so that the average person is overwhelmed by the moving targets. For the most part rural residents will be classified as VIZ1 (within 1km of a turbine) which accords with the “low” scenic value categorisation. By utilising ‘fudge factors’ built into the guidelines this is how the reasonable green line on the guidelines graph is actually a red line.

Indeed there are so many instances in the guidelines where statements are totally open to interpretation. The words can mean whatever the consultant or the Department wants them to be (depending on your bias). The quote “turbines can become a major element in the landscape” but “should not dominate the existing visual catchment” is totally subjective. Just whose subjectivity is going to apply? Nowhere in the guidelines does it suggest that the resident’s subjectivity shall be taken into account despite published research to the contrary.

Some additional concerns in relation to the Department’s proposed wind turbine Guidelines are:

In relation to the consultancy firm Urbis Australia Asia Middle East;

- What are the credentials of the consultancy firm who promulgated these guidelines?
- Was the consultancy required to complete a “Pecuniary/Non-Pecuniary Interest Declarations” to ensure they were free from bias in the assessment and their argument for it?
- The consultancy have made certain assumptions which are contrary to published research and on that basis alone, **their proposal is without legitimate foundation.**
- It would appear that the consultancy and the Department have found strong research evidence that refutes known research results. **That is not evident in the proposed guidelines.**
- Has the Department of Planning challenged any of the recommendations made by the consultancy in relation to visual impact, impact on property values and noise assessment? I suspect not.
- In relation to the review of the impact of wind farms on property values, I would suggest that the argument put forward by the consultancy is flawed, particularly Appendix C (Case Studies).

Other concerns are:

- The Department’s approach to VI assessment and VI management should be research-based and **closely guided by published research.**
- Do the public servants involved with this proposed policy document have any idea what impact these guidelines, if implemented, will have on the community? **I suspect not** after all the windfarm is not on their front doorstep.
- Have you (**really**) listened to the concerns raised by members of the community? (It appears not as these guidelines are worse than the 2011 edition).
- Have you considered the papers provided by Dr Michael Crawford (and RAJwt members) which are logical and **supported by referenced research papers**? The Department must take on board the comments/concerns provided by Dr Crawford, the wider RAJwt group, and other affected communities/groups in NSW to ensure the protection of legitimate interests of rural residents. The Department must ensure that a level playing field is adhered to and true and honest consultation occurs for proposed wind turbine development.

The draft guidelines, as they stand now offer no protection to residents in NSW who will be impacted should they be implemented. As they stand now:

- They do not provide the reasonable degree of protection for rural residents which the VI Bulletin suggests and which members of the community were led to expect. That is because thresholds in the guidelines are made subject to a complex, arbitrary and irrelevant set of conditions which ensure real protection applies to people living on Sydney Harbour but **not** in rural localities. (How unusual is this for NSW (Newcastle Sydney Wollongong) governments to have no idea or concern for locations beyond

the metropolitan areas of NSW, except when electioneering or applying taxes and levies).

- They make multiple assumptions which are **contrary** to published research.
- Very importantly, the distance thresholds proposed in the guidelines are dramatically reduced from what is indicated by the key research (US Bureau of Lands Management [BLM] study) upon which the draft guidelines claim to be based.
- They purport to consider the visual values of residents, While instead they apply an arbitrary and irrelevant set of **tourists'** views of rural landscapes while excluding from consideration most of what rural residents value about the landscapes within which they live.

In summary the Department has put forward guidelines which are fraudulent. The department pretends that these guidelines offer some protection to residents affected by windfarms when in fact the Department has constructed a 'stealth' document heavily weighted in favour of developers.

The guidelines are constructed of pages of complex verbiage, multiple assumptions not supported by any scientific evidence and a complex combination of loose rules all in favour of the developer.

Indeed the guidelines are very confusing and complicated for the lay person without a great deal of time to spend studying only to find that the developer, it appears, is in bed with the government. That will be the conclusion many will reach based on the close relationships developers and consultants have with successive governments. Relationships, many of which history has shown to be, dubious at best.



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Please address all mail to:  
The General Manager

S Loane

Please refer enquiries to:

14 September 2016

Department of Planning and Environment  
GPO Box 39  
SYDNEY NSW 2001

Attention: Ms Felicity Greenway, Director, Industry and Infrastructure Policy

Dear Ms Greenway

### **Submission in Response to the Draft Wind Energy Planning Framework Documents**

Warrumbungle Shire Council welcomes this opportunity to comment on the new draft Wind Energy Planning Framework, as it is a potential host council for the large Liverpool Range Wind Farm (330 turbines) proposed by Epuron Pty Ltd.

Council would share the hosting role with neighboring Upper Hunter Shire Council. Council has considered the following documents:

- Wind Energy: Assessment Policy, Draft for Consultation August 2016
- Wind Energy: Noise Assessment Bulletin, Draft for Consultation August 2016
- Wind Energy: Visual Impact Assessment Bulletin, Draft for Consultation August 2016
- Wind Energy Framework: Standard Secretary's Environmental Assessment Requirements, Draft for Consultation August 2016

Whilst addressing the draft Framework documents Council would also like to offer some comments regarding the Final Draft Community Consultative Committee Guidelines for State Significant Projects issued in February 2016.

#### **1. Community and Stakeholder Consultation**

Council warmly welcomes the attention the Department of Planning and Environment (DPE) has given to making the wind energy impact assessment process for this potentially contentious type of development more comprehensive, robust, open and transparent. The DPE is also to be commended for requiring proponents to engage with stakeholders earlier and in a more respectful and collaborative manner.

Hence Council strongly supports:

- a) the requirement that proponents must undertake a comprehensive, genuine and transparent community consultation process during the project assessment, including at the siting and pre-lodgment stage;

- b) that proponents should seek to address landowner issues even before SEARs are requested. This should include agreements in relation to land access and occupation and appropriate responses to the concerns and impacts on other potentially affected landowners;
- c) that proponents should engage with Council earlier and more meaningfully in the process; and
- d) the draft CCC Guidelines be referenced in the standard SEARs for wind energy development.

## **2. Benefit Sharing via a Voluntary Planning Agreement**

Council supports the objective of encouraging *benefit sharing* between wind energy operators and the communities in which they operate. It believes the most appropriate manner in which a proponent can provide a public benefit as a consequence of a monetary contribution is via a Voluntary Planning Agreement with the host council/s.

Council thus strongly concurs with the statement on page 13, Wind Energy Assessment Policy that ***‘the preferred means of administering community enhancement funds is under a Voluntary Planning Agreement (VPA) with the relevant local council/s, and proponents for SSD wind energy projects could consider similar initiatives in the context of their projects.’***

VPA funds can then be used to provide a public purpose (as defined in section 93F(2) of the EP&A Act) including:

- provision of, including recoupment of, the cost of public amenities or public services;
- transport or other infrastructure relating to land;
- funding of recurrent expenditure relating to the provision of public amenities or public services, affordable housing or transport or other infrastructure;
- monitoring of the planning impacts of development, and
- conservation or enhancement of the natural environment.

Funds provided by a proponent to a Council under a VPA would typically be allocated across three categories, namely:

- community enhancement: for instance sport, recreation, arts, entertainment and cultural facilities, environmental protection, streetscape works, community health, education and child care and affordable housing for seniors;
- road repairs and maintenance (relevant roads); and
- providing adaptive capacity to Council to allow for resourcing of planning and governance needs arising from the project.

Reasons why a proponent should negotiate a VPA with Council are outlined below:

- a) as the sphere of government directly responsible for day to day governance of the LGA it is best placed to understand the direct and indirect costs and benefits of the wind farm on a community, including impacts on the social fabric;
- b) the Local Government Act requires Council to be responsible for community leadership and in providing equitable services and facilities across the whole community. The Act also requires Council to assist in project planning and assessment;
- c) Council has the management skills to address accountability and financial and other probity requirements;
- d) Council has the capacity to establish an appropriate committee to make recommendations to it regarding the allocation of funds provided by the proponent. This approach optimises accountability and transparency of financial management and recognises the broad, community wide influence of project; and

- e) Council is best placed to understand the local government infrastructure and services needs generated as a consequence of the project that may require funding.

### **3. The Role of a Community Consultative Committee**

Council concurs with the DPE advice in the Community Consultative Committee (CCC) Guidelines that a CCC *'is not a decision-making body and performs an advisory role only'*. It is our view that a CCC should not manage financial contributions provided for the benefit of the general public.

We agree with the DPE that a CCC's primary purpose is to provide a forum for discussion between representatives of the proponent, the community, the local council and other key stakeholders on issues relating to a project and to keep the community informed on these matters.

### **4. Traffic and Transport**

Council wishes to see a robust requirement stipulating that a proponent must:

- a) undertake a Road Condition and Traffic Impact Study in accordance with Council's Scope of Work;
- b) upgrade roads, bridges, grids, intersections and other related road infrastructure that will be impacted by the project and which requires modification in the reasonable opinion of Council, in accordance with plans approved by Council, prior to any project construction work commencing; and
- c) if, during the life of the project, Council provides evidence of significant increases in traffic volumes or vehicle types on other roads in the locality not addressed in the abovementioned Road Condition and Traffic Impact Study that can be directly attributable to the project, the proponent agrees to reach a negotiated settlement with Council to provide additional funds for road repair, maintenance or upgrade works.

### **5. Noise Impacts**

Council supports the initiatives of the DPE to:

- a) issue a Noise Assessment Bulletin which sets the noise limits and methodology for assessing noise levels. We note the Bulletin includes a noise limit of 35dB(A) or the prevailing background noise plus 5dB(A), whichever is the greater for each wind speed of operation;
- b) adopt the South Australian EPA's 2009 Noise Guidelines, subject to the variations that include more strict base noise criteria and guidance on special noise characteristics such as tonality (audible tonal sounds from turbines generally related to the rotational machinery) and low frequency noise such as infrasound;
- c) require the proponent at the pre-lodgment stage, to undertake an indicative noise impact assessment of noise levels expected at relevant receivers and that the indicative noise assessment will form part of the PEA to be submitted when making a request for SEARs;
- d) validate the noise predictions and adequacy of safeguards after the turbines become operational; and
- e) require the proponent to identify noise mitigation and management measures if noise compliance monitoring indicates that noise from turbines exceeds the approved noise limits

We also note that the assessment framework does not include arbitrary buffers. In the absence of buffers the DPE and the EPA will need to adopt higher levels of scrutiny of proponents to ensure absolutely that residents are not going to be adversely impacted. The burden of proof must remain with the proponent to demonstrate unequivocally that noise and visual impacts are most reasonable or have been adequately compensated. The landholder should also have equal right of reply, funded by the proponent.



## **6. Visual Impacts**

Council supports the initiatives of the DPE to:

- a) issue a Visual Impact Assessment Bulletin which is designed to bring greater transparency, consistency and objectivity in visual impact assessments;
- b) require at the request for SEARs stage a PEA consisting of substantive and meaningful community consultation and specialist documentation regarding key landscape values and application of preliminary screening tools where residences may be impacted; and
- c) require in the EIS more scientific and rigorous visual assessment, including analysis of the landscape character, scenic quality and visibility from viewpoints of different sensitivity levels, a map of the project area classified into three zones of visual influence, assessment of the proposed layout against visual performance objectives and justification for the final proposed layout and identification of mitigation and management measures.

## **7. Landholders Negotiating with Wind Energy Companies**

For many landholders, negotiating with a wind energy company is an unfamiliar assignment. Thus landholders are likely to come from a position of disadvantage compared to a proponent.

Landholders commonly find that major project proposals such as a wind farm cause disruption and distress in their personal lives and uncertainty regarding the planning of their agribusiness (for instance, should they commit to capital improvements or the next phase of the farm plan or will this be a waste of money?).

The DPE is encouraged to be very mindful that impacts on a landholder from a major industrial project are not of their making; essentially it is a situation foisted upon them. Often it is not a negotiation where they are willing participants with an eye to mutual benefits being achieved from the outcome.

It is therefore recommended a detailed guidance note (tips, dos and don'ts) be developed by DPE to assist landholders when they have to negotiate with a wind farm proponent (or even a miner).

Council also recommends that the DPE be more explicit in stipulating the requirements of the wind farm proponent to ensure that landholders rights are protected.

For instance, the DPE should require that the proponent:

- a) must advise when a landholder has confirmed that they have been properly informed, have a good understanding of the scale and nature of the predicted impacts through the provision of relevant noise and visual impact predictions and of the likely health risks;
- b) bears all reasonable costs, including the landowner's costs for independent noise and visual impact advice and land valuation, to enable the landholder to be able to make informed choices about the likely impacts on their quality of life and to help decide on their future, especially if additional mitigation measures (e.g. acoustic treatment of houses) need to be implemented, or 'voluntary acquisition' is necessary because of unacceptable visual or noise impacts; and
- c) be able to demonstrate that the landholder is not worse off because of the wind farm. Appropriate financial compensation may be needed to offset the impacts.

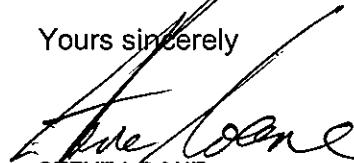
#### **8. Enforcement**

Council welcomes the commitment by the DPE to undertake periodic audits of wind farms and enforce conditions of consent. This step in the planning, approval and operation of major projects has been inadequate for many years and will help rebuild community trust and confidence in the assessment and determination process.

We thank you for the opportunity to provide feedback on these important matters.

If you have any queries regarding the above please don't hesitate to contact the undersigned on telephone (02) 68492000.

Yours sincerely



STEVE LOANE  
GENERAL MANAGER

## **Landscape: my quality of life**

Jane Keany  
Mt Fairy NSW

I am commenting on the Wind Energy: Visual Assessment Bulletin draft document. I compliment the Department on its commitment to clarify the 2011 draft Guidelines which had been skewed to favour the developer. Unfortunately the Bulletin does not hugely improve the position of the rural lifestyle holder.

Overall, the Visual Assessment Bulletin continues to invest the developer with power that minimises the role of the affected community and maximises the benefit to the developer. The Bulletin also takes a literal and circumscribed position on what constitutes value in a landscape, again ignoring the lived reality of the community within that landscape.

The first worrying point in the Bulletin concerns the developer analysing the 'landscape character, scenic quality and visibility from viewpoints of different sensitivity levels'. Analysis of the landscape character and scenic quality must be done by the affected community, not by the developer. Developers typically minimise the quality of the landscape. They may use terms including 'featureless' to convince the decision makers that any alteration to the landscape is not going to affect neighbours. To expect the developer to accurately assess the landscape character and scenic quality is a fundamental error in the Bulletin. It will establish a hostile context between developer and wind turbine neighbours, which I suspect is not the Department's intention.

I realise this analysis would also involve 'a survey (online survey or mail) of a representative sample of the population and must involve people from the visual catchment'. I disagree with the notion of a 'representative sample'. This approach puts a huge responsibility on those 'chosen' (and if the developer does the choosing, they are unlikely to even try to be representative), to come up with a response that reflects the broader neighbours' perspective of our landscape values. If the sample opinions differ to others' opinions, this process potentially pits neighbour against neighbour. I do not think the Department would want to establish such a toxic atmosphere so early in the process. A way forward would be to invite all people from the visual catchment.

Descriptions of landscape is the next worrying point in the Bulletin. 'Key landscape features can include natural features of the landscape (for example, a distinctive mountain peak) .... Consideration of areas of scenic quality involves the identification of areas of the landscape that are of high scenic quality and those that are moderate or low. Finally, it is important to establish which viewpoints are important to the community.'

This is an interesting paragraph from the point of view of the community, as the community comes last! And yet, the imposition of the wind turbines is all about the community. When the Bulletin refers to 'key landscape features' it makes an example of a distinctive mountain peak. How does one describe a key landscape feature when there is no 'distinctive' peak, but a lovely, undulating series of hills? Is this what some developers have termed 'featureless'? Yet, this view is what I wake to each morning and love. It is my 'key landscape feature' but I suspect it would not count as that by the developer or their consultants. I do not think it's possible to place a high, medium or low value on a landscape of people living in the country. Our landscape is our context.

Landscaping ie screening is mentioned several times in the Bulletin. I am yet to be convinced that it is possible to screen a 150m+ turbine so that it is not seen from multiple angles from the property. Any screen alters the landscape substantially which adversely affects the quality of life of people living in close proximity to wind turbines. I did not move to my rural property to look out towards a screen, above which are numerous turbines that interrupt my view of the sunrise.

A landscape in its broadest sense is a combination of the surrounding physical elements and its living components. To many of us who live on 100 acres and a typical rural view, the latter features are the most important. The Department, its expert advisers (and landscape professionals in general) don't appear to understand this. They advise in the Bulletin, that the first mentioned purpose of early community consultation is to 'establish the key landscape features, areas of scenic quality and key viewpoints' and then to rank their significance. This restriction to the permanent material features of the landscape flows throughout the document from "designing a wind turbine layout that seeks to avoid high impacts on key landscape features" to "Key Feature Disruption" and perhaps explains why the Department finds it so hard to comprehend our opposition to the destruction of the landscape we value.

They describe the water forms in a physical sense: streams, lakes, rivers, swamps and reservoirs (and only natural landscape water structures, overlooking built forms such as farm dams), but ignore the changing nature of droughts and floods, the waterbirds that find water forms vital for life and the domestic and native fauna that interact with them. This is part of our landscape.

They describe the vegetation as a lifeless object with 'extensive areas of similar vegetation' or 'very limited variation in colour and texture, whereas we see the animation; the freshness of the lucerne, the vibrant yellow canola crop in late summer (and the flurry of activity on the days it is harvested) or the life of spring, the cycle of the deciduous trees, the gamboling lambs, the ducklings on the pond and the sly old fox. This is part of our landscape

They describe the 'rounded hills' and the 'broad shallow valleys' of the landforms. We see the activity of our distant neighbours from the time the fire in the hearth is stoked on a cold and frosty winter morning. We see the ongoing development typical of a rural residential area, new neighbours in the distance and the benefits they bring. We also see the start of a bushfire, don our PPE and head off to the fire station, to control the fire and hope our aerial colleagues have unrestricted aerial access.

As a daily reminder of what we are fighting against, we also see the existing industrial intrusions, the turbines of Capital and Woodlawn and the high voltage transmission lines as they scar their way to Sydney. Unfortunately, this is part of our view, but is not consistent with a rural landscape. You can guarantee we will not be asked our opinion of these incursions in any community survey.

The Department and its consultants ignore the seasons which bring snow, a parched countryside, the greens and browns; the yellows of the wattle and the migratory birds as they arrive and later depart. This is part of my landscape

They completely ignore the sky. Where do they insist that developers survey community attitudes to the spectacular rural sunrises and sunsets, or the dramatic vista of an approaching thunderstorm, or a panorama of weather with rain to the west, sunlight to the east and the mixture of shafts of light through dark clouds in between or the soaring majesty of a wedgetail eagle? This is part of my landscape.

The Department and its advisors would have you believe that landscapes can only be seen. Not only do we see our landscape, we hear it and feel it. (If you live in Tarago near the Woodlawn bioreactor [rubbish dump], you also get to smell it). We hear an intermittent, variable, unpredictable and pleasant array of sounds and at night we often hear the silence. A wind farm will introduce a regular, pulsing annoying noise that for days does not sleep when we do. And for those sounds outside our audible range, some of us will feel them in a very negative way. We sense our rural landscape and of course, to sense a landscape, you have to be near it continuously, as we are.

The Department and its advisors ignore the natural noises, the quietness, the calmness and the bracing. These are parts of my landscape. They describe a landscape that city folk see at weekends. Perhaps a wind farm is suitable in that environment. Not in ours. If the politicians insist on wind farms, then they must be sited to destroy the view of as few people as possible, because, destroy the view they will.

What does this mean for the Visual Impact Bulletin?

- **early consultation must include all those who could potentially be affected by the wind turbines**

- the Department should provide the developer with expanded guidance on what information the developer should elicit from the community
- the Department should consider broadening its definition of 'landscapes'
- the Department should provide the developer with expanded guidance on soliciting information from the affected community, on landscapes surrounding the wind farm
- the Department might consider a process independent of the developer, to involve the affected community's own interpretation of 'landscape' and its significance

**Parkesbourne/Mummel Landscape Guardians Inc.**

**Submission to the Department of Planning and Environment  
concerning the Wind Energy Assessment Policy and associated  
documents of August 2016**

**September 2016**

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15 September 2016

Department of Planning and Environment  
Sydney  
NSW 2000

**Submission concerning the Wind Energy Assessment Policy and associated documents of August 2016**

On behalf of Parkesbourne/Mummel Landscape Guardians Inc., I object to the above Wind Energy Assessment Policy and associated documents. I urge that the Policy be withdrawn, and that there be a moratorium on further wind energy development in NSW. I shall explain my reasons below.

There is very little that is new in the Policy with regard to noise assessment, visual assessment, and property value. This policy is liable to the same or similar criticisms as have been made for previous sets of wind farm guidelines promulgated by the Department. As the Department has never taken any notice of previous criticisms, I do not expect it to take any notice this time. Consequently, I shall restrict myself to general remarks in this submission, and relegate detailed criticisms to the appendices below.

Although the Department has not taken any notice of criticisms in the past, I think it would be unwise of the Department to take no notice this time. I shall explain why below.

I shall first deal briefly with the matters of noise, visual assessment, property value, and decommissioning. Then I shall give my reasons for urging that these new guidelines be withdrawn, and that there should be a moratorium on further wind energy development. It will then become clear why the Department would be unwise to ignore criticisms at the present time.

Noise: I can only find one detail in the 'new' noise guidelines that is actually new: the rule that noise measurements be averaged over a 24 hour period. So far as I can remember, the Department has never before specified the time period over which noise measurements are to be calculated. This new rule has been relegated to the 'Frequently Asked Questions' document. It is not mentioned in any of the main documents. This is improper and disgraceful. The rule itself is inappropriate and irrational, as it will enable wind turbine noise to exceed the noise limit at night, provided the exceedences can be averaged away by the lower levels of daytime noise.

For the rest, the ‘new’ noise guidelines consist of material identical to the already used *South Australian Noise Guidelines* (2003), with some bits and pieces added from the NSW draft *Wind Farm Guidelines* (2011). To call the 2016 guidelines ‘new’ is just bluff, if not deceit.

The material making up the ‘new’ noise guidelines has been criticized many times before, both by myself and others. In general, these guidelines do not provide for comprehensive and accurate measuring of all relevant aspects of wind turbine sound emissions, and therefore will be incapable of protecting neighbours from adverse impacts. For detailed criticisms, see Appendix A.

What is needed is full spectrum (i.e. frequency spectrum) monitoring, both inside and outside residences. Anything less substitutes conjecture for reality. The Department should consult the independent noise consultants Bob Thorne, Steven Cooper, Colin Hansen, Les Huson (all in Australia), Bruce Rapley (in New Zealand), or Stephen Ambrose, Robert Rand, Richard James (all in North America).

The Department should also consult the submissions and testimony of noise consultants to the 2015 Senate Select Committee, and the Committee’s recommendations with regard to noise and sound emissions.

Setting aside the still relevant American research conducted in the 1980’s for the US Department of Energy, contemporary research into wind turbine sound emissions begins with the work of Professor GP (Frits) van den Berg in 2004. It has been on-going ever since. It is negligent of the Department of Planning to ignore all this research, and to hide behind studies and policy documents of either the wind energy industry or of Australian or foreign governments that have a pro-wind energy development policy.

Visual assessment: as with the noise guidelines, there is very little that is new in the 2016 guidelines for visual assessment. The basic principles for assessing the impact on landscape values, and the impact on individual residences are much the same as those used to approve the Gullen Range Wind Farm in 2009. The key faults of these and previous guidelines are the arbitrary imposition of aesthetic character on categories that essentially relate to economic development, so that development approval can be given to projects in areas already marked down for such development; the arbitrary determination and weighing up of the factors of distance from turbines, scenic quality and viewer sensitivity, so that preconceived judgments can be arrived at; and the last resort of Departmental discretion regarding what is, and what is not an adverse visual impact.

It is impossible to take these procedures seriously. They are a sham. Verbal sleight of hand is substituted for genuine aesthetic judgment.

If it is futile to expect any serious consideration of landscape value from the Department of Planning, it would still be possible to have a reasonable procedure for dealing with the impacts on residences. This would combine a buffer zone at a fixed distance, corresponding to the height of the turbines, with a merit-based assessment for distances beyond the buffer zone. The buffer zone would be justified merely by the prominence of the turbines in the visual field. Given the size, and the increasing

size of wind turbines, the *minimum* buffer zone should be 2 kilometres, or 3 kilometres if the turbines stand on a ridge above the level of residences. The distances might be greater, depending on the height of the turbines. I put this forward on the basis of my experience of living 1.6 kilometres from the turbines of the Gullen Range Wind Farm. However, such a procedure would probably make it impossible for developers to locate turbines where they want them. So, we cannot expect the Department, acting as the agent of the developers, to adopt such a procedure.

Property value: the kinds of examination conducted this time by Urbis for the Department, and last time by Duponts for the Valuer-General are futile. The investigators acknowledge that there are insufficient data, and that they are using second-best procedures. But these procedures always lead to inconclusive results. The whole exercise is a waste of time and money. It ignores the experience of neighbours in trying and failing to sell their properties. It ignores the possibility that some properties may have become unsaleable. It ignores the implications of a developer being compelled to offer to purchase a badly impacted property, and of a developer coming to a financial arrangement with a neighbour to compensate for adverse impacts. It is absurd to suppose that such arrangements would have no effect on the market.

When the NSW Land & Environment Court grants “acquisition rights” to a property, the developer is obliged to remove offending turbines, or offer to purchase the property *at a market price as if there were no wind farm*. Such a court order presupposes that a valuer can distinguish between the market price for a property if a wind farm is present, and the market price if no wind farm is present. This in turn implies that the presence of the wind farm will make a difference to the price. This being so, a panel of valuers might be consulted as to the potential change in price for selected properties. If this estimation is good enough for the Land & Environment Court when acquisition rights are being exercised, then it should be good enough for the Department of Planning to acknowledge that wind farms tend to reduce the value of nearby properties. Then the NSW government would not have to waste money paying Duponts or Urbis to provide inconclusive reports based on inadequate data.

Given that there is no provision in NSW law for compensation for adverse impacts, one may ask, why are such property value surveys carried out? It cannot be for the developers, who know that they are safe from any legal obligation. It cannot be for the neighbours, who can see the futility of the exercise. It can only be for the sake of the media, so that the developers and the Department can present themselves to the media as considering the issues. These surveys are merely public relations exercises for the industry and the Department.

Decommissioning: for years the Department of Planning has declared that it will impose bonds on developers for decommissioning turbines. Recently, the Department has stated that it has no legal power to do so. How can this not be described as incompetence? It seems that in law the obligation to decommission is attached to the land on which the turbines stand, and therefore the obligation falls on the landowner-host, unless the developer contracts with the host to decommission the turbines. With a foreign multi-national on one side and a farmer on the other, one can only say, “Good luck with that!” There are almost certainly going to be derelict turbines on the Great Dividing Range, and a number of bankrupt farmers. Derelict

turbines will hardly enhance the value of adjacent properties. Another success for the Department of Planning.

Given the obvious deficiencies of the new guidelines, they should be withdrawn, merely because of the obvious deficiencies. However, there are further reasons why the guidelines should be withdrawn at the present time.

The first of these relates to sound emissions. The research of Steven Cooper at Cape Bridgewater in 2013-14 was a breakthrough in establishing a connection between wind turbine infrasound and low frequency noise (ILFN) and residents' adverse health effects (headache, nausea, ear pressure, etc, etc), because of Cooper's method of identifying the "wind turbine signature" (Cooper, 2014). This research needs to be extended, and will be extended over several years. It will be of interest to the National Wind Farm Commissioner, and to the Independent Scientific Committee. Since this area of research is by no means complete, it is premature of the NSW Department of Planning to issue new noise guidelines now, especially guidelines that are so glaringly deficient in the light of what is already known.

Secondly, new health research into the adverse health effects of wind turbines has recently (albeit belatedly) been commissioned by the National Health and Medical Research Council (NHMRC). This research will also take several years to complete. It is again premature of the NSW Department of Planning to issue new guidelines now, especially as the connection between wind turbine ILFN and adverse health effects has already been corroborated by Cooper's research.

For both these reasons, the new guidelines should be withdrawn, and there should be a moratorium on further wind farm development in NSW.

However, there is a third and overwhelmingly compelling reason why the new guidelines should be withdrawn, and why there should be a moratorium on further wind farm development in NSW: the power crisis in South Australia, and the implications of that crisis.

The power crisis has occurred in South Australia, for multiple related reasons, but at the basis of the explanation is the indisputable unreliability of the electricity generated by wind energy. Because wind is intermittent, so is the electricity generated by wind farms. Wind farms must be backed up by other, reliable sources of power, which in Australia will usually be fossil-fueled. As the penetration of wind farms into the power supply of a state increases, so the more back-up there must be, and the more unstable the power grid becomes. The cost of electricity increases, both because of the cost of the subsidies (in form of the Renewable Energy Certificates) and because of the cost of the back-up. If there is insufficient back-up, then there will tend to be power outages. But such outages become more likely as wind farms drive fossil-fueled plants out of the market.

In South Australia a fossil-fueled power plant was driven out of the market, leaving South Australia without sufficient back-up, at a time when the inter-connector with Victoria was not operational. It was not operational because of maintenance needed, owing to the overload occasioned by the 41% penetration of wind energy into South Australia's power supply.

Building more inter-connectors with Victoria and NSW will only exacerbate the problem, if increasing penetration of wind energy drives fossil-fueled generators out of the market in those states. Either we shall see power outages generalized across eastern and southern Australia, or fossil-fueled power plants will have to be subsidized to stay in the market, thus pushing up power prices even further (and we must take into account the cost of the new inter-connectors).

Wind energy is an economic disaster, and should be abandoned. For the NSW government to be facilitating the building of further wind farms is irresponsible. There should be a moratorium on further wind farm development immediately.

If a moratorium requires NSW to withdraw from agreements made through the Council of Australian Governments, and if that requires legislation, then legislation should be passed to terminate such agreements. The Parliament of NSW is sovereign in NSW.

There needs to be a Royal Commission into wind farm development in Australia, partly because of the dangers to the energy supply of the nation, and partly because of the incompetent and negligent planning that has resulted in adverse impacts on neighbours from the proximity of wind turbines.

It is not only the politicians who are to blame for creating bad policy. It is also the public servants. One of the principal tasks of the public service is to warn politicians if a policy is likely to have undesirable consequences. In this respect, the public service, at both state and federal levels, has manifestly failed to give their political superiors adequate advice. The potentiality for power crisis from unreliable wind energy has been known for years. The case was presented to the NSW Legislative Council inquiry in 2009, again to the federal Senate inquiry in 2011, and yet again to the federal Senate inquiry in 2015. On every occasion state and federal governments ignored the case.

Similarly, the inadequacy of wind turbine noise guidelines, and the potentiality for adverse health effects, in the light of ongoing research, have been known for years. The public service at both state and federal levels has consistently ignored the evidence.

Therefore, there must be a Royal Commission to examine the responsibility of both politicians and public servants, and to determine where the blame should lie.

A Royal Commission is necessary so that documents may be subpoenaed, and witnesses may be compelled to give evidence on oath.

In the meantime, the new NSW wind farm guidelines should be withdrawn, and there should be a moratorium on further wind farm development in NSW.

If wind farm development continues in NSW, then ministers and public servants will have to suffer the consequences, and probably in the not too distant future.

Yours sincerely

David Brooks  
Chairman  
Parkesbourne/Mummel Landscape Guardians Inc.

## Appendix A: Noise

As I have stated in the preceding submission, there is very little that is new in the 'new' noise guidelines. One cannot help wondering if giving these guidelines the new name of *Bulletin* is supposed to cover the lack of substantive novelty.

I will first list the major defects of these and former noise guidelines used or proposed by the NSW government. Then I will comment on the proposal to average measurements over 24 hours.

The major defects of NSW noise guidelines, both past and present, are as follows:

1. The official noise limit for wind farms in NSW is expressed by the formula: *35 dB(A), or background noise + 5 dB(A), whichever is greater*. The use of the units dB(A) is inappropriate because dB(A) only measures accurately sound levels above the frequency of about 800 Hz (cycles per second). Below 800 Hz dB(A) measurements are increasingly inaccurate, such that at the very lowest LFN and infrasound levels the sound is hardly being measured, or is not being measured at all. But the bulk of the sound energy produced by wind turbines is below 800 Hz. Consequently, the measurement of the bulk of the sound energy produced by wind turbines is grossly inadequate. It may be noted that even the audible noise of wind farms, which is around 500 Hz, is not measured accurately.
2. The concept that the noise limit may be either 35 dB(A) or background noise + 5 dB(A), *whichever is greater*, allows a wind farm to produce intrusive and offensive noise legally. This occurs when background noise at night falls to around 20 dB(A), as it may do in the country. In this situation background noise + 5 dB(A) will be around 25 dB(A). But because 35 dB(A) is higher than 25 dB(A), 35 dB(A) will be chosen as the limit. This means that the wind farm will be allowed to make noise at a residence that is 15 dB(A) above the level of background noise ( $35 - 20 = 15$ ). But it is commonly assumed that any noise level more than 5 dB(A) above background noise will be intrusive, offensive, and to be avoided. Thus, the official noise limit allows wind farms to produce intrusive and offensive noise *at night*, legally.

This situation is not just theoretical. It can really happen, owing to what is called the wind speed ratio. This is the ratio between the wind speed at the turbines and the wind speed at a residence. It can happen, partly due to terrain and partly due to temperature, that the wind speed at a residence is much less than the wind speed where the turbines are (e.g., if the turbines are on a ridge, and residences are down in the valley). In this situation the background noise level at the residence may be very low, while the wind speed at the turbines may be great enough to produce a high level of noise at the residence. The difference between the background noise and the turbine noise will be significantly more than 5 dB, and the noise will be perceived as very intrusive and offensive.

I and other wind farm neighbours can affirm that this situation really occurs. It is commonplace for turbine noise to seem very loud at night, much louder than during the day. When this happens, we can hear the turbines turning vigorously, while at our residence there seems to be little or no wind.

But the noise guidelines allow all this to happen quite legally.

3. The official noise limit is set in terms of the descriptor  $L_{eq}$ .  $L_{eq}$  is the logarithmic average of the varying sound levels. It is appropriate where the sound levels do not vary much from the mean. But, notoriously, wind turbine sound levels do vary very considerably from the mean, even within short periods of a few minutes. Consequently, the  $L_{eq}$  measurement misses out all the higher sound levels that neighbours actually experience. It would be more appropriate to use the descriptors  $L_{max}$  or  $L_{10}$ .

4. But, this is not all that is inappropriate with the descriptors used. For, when compliance monitoring is performed to check whether the wind farm is complying with the noise limit, the monitoring is not done in terms of  $L_{eq}$ . Rather, it is done in terms of  $L_{90}$ .  $L_{90}$  is a measurement of the quietest 10% of the noise. Therefore, most of the noise actually experienced by residents will not be measured. And not even the volume of noise registered by  $L_{eq}$  is measured. In other words, the compliance monitoring is worthless.

5. Most of a wind farm's noise is produced at night, but the noise guidelines in NSW do not require separate measurements for daytime and night-time noise. The higher night-time levels are averaged away by means of the lower daytime levels (see below).

6. The noise guidelines used to approve the Gullen Range Wind Farm in NSW do not require the measurement of LFN or infrasound. The draft NSW Wind Farm Guidelines (2011) do not require the measurement of infrasound, and their limits for LFN are too high, according to established knowledge. The new guidelines (2016) set a limit of 60 dB(C) before any further investigations are made. According to what is commonly accepted, 60 dB(C) is too high. It is commonly accepted that there may be problems with low frequency noise if the dB(C) level is more than 20 dB above the dB(A) level. According to some experts, a figure of 15 dB should be used. 15 dB above 35 dB(A) would give a figure of 50 dB(C). 20 dB above 35 dB(A) would give a figure of 55 dB(C). Therefore, to allow turbine LFN to reach a level of 60 dB(C) is manifestly inappropriate.

7. The new noise guidelines, like the SA Noise Guidelines (2003), do not require any measurement of amplitude modulation, even though this has been shown to be one of the most annoying characteristics of wind turbine noise (Lee et al, 2011; Schäffer et al, 2016).

8. Noise guidelines in NSW do not consider adequately the phenomenon of increased noise due to a stable atmosphere, caused by temperature inversion.

9. Noise guidelines in NSW do not consider the phenomenon of increased noise due to an array of multiple turbines, either when the line of turbines is at right angles to a residence's line of sight, or when the line of turbines is in line with the residence (Bakker and Rapley, 2010).

10. Noise guidelines in NSW do not require measurements inside a residence, even though LFN and infrasound can penetrate the fabric of a building much more easily



than higher frequency sound (Zajamšek et al, 2016).

11. According to all versions of NSW noise guidelines, wind turbine sound is to be measured in dB(A) by one third octave bands in measuring periods of 10 minutes. Steven Cooper's work has shown that these procedures will not register what is distinctive in wind turbine sound. In order to capture the *wind turbine signature* it is necessary to measure in dB(lin), to use narrow band analysis, and to use measuring periods of only a few seconds (Cooper, 2014). Without these procedures it is impossible to correlate neighbours' health effects with wind turbine ILFN. The NSW Department of Planning has consistently ignored Cooper's research.

12. The new guidelines, like past guidelines, impose 5 dB penalties for LFN exceedence and tonality. But they set the maximum penalty as 5 dB. This is irrational, as wind turbine sound may exhibit both LFN exceedence and tonality.

13. With regard to adverse health effects from noise impacts, the Department, as usual, hides behind the discredited reports of the NHMRC. The NHMRC has ignored the research conducted for the US Department of Energy in the 1980's (James, 2012), and the work of Professor Alex Salt, a specialist in the physiology of the inner ear (Salt, 2014).

The NSW Department of Health has been negligent in not conducting its own research into the matter of adverse health effects from wind turbines. NSW is a jurisdiction independent of the Commonwealth, and so is not obliged to wait on the actions of federal government agencies.

14. I will now add a comment on the new rule (new in the sense of not having been published before) that wind turbine noise measurements are to be averaged over a period of 24 hours. This rule takes no account of the reality that wind turbine noise is commonly louder at night than during the day. There are good reasons in physics and meteorology for this. In the first place, wind is commonly stronger at night than during the day. Hence, the turbines generate more noise. Second, temperature inversion and a stable atmosphere, usually occurring at night, produce a layer of cold air, close to the ground, which acts as a conduit for the turbine sound, with the result that more turbine sound reaches the residence than during the day. (During the day warm air rises, literally deflecting some of the turbine sound upwards so that it does not reach the residence.) In addition, the perception of greater noise is increased by the wind speed ratio (stronger wind at the turbines, weaker wind at the residence), and by lower background noise at night.

The new noise guidelines will allow a wind farm to exceed the noise limit at night, provided the higher night-time noise levels may be averaged away by the lower daytime levels.

If the Department of Planning were seriously concerned about impacts on neighbours, it would insist on separate daytime, evening, and night-time measurements. But the Department prefers to gratify the interests of wind farm developers.

The net result of all these deficiencies is that the noise compliance monitoring process is worthless. The problems that wind farm neighbours will experience (e.g., noise at

night, noise inside the house, LFN, infrasound, amplitude modulation) will fall outside the noise guidelines, and the monitoring process will take no account of them. The wind farm operator will take his stand on the conditions of consent (incorporating the noise guidelines), and will ignore the resident's complaints. The Department of Planning will accept this situation, and the resident will be left with no redress. Both the wind farm operator and the Department will state in public that the noise impacts have been "rigorously" examined, and that the wind farm is compliant. In reality, the resident's complaints will have been ignored.

Back in 2011 I and some others had a meeting with Brad Hazzard, then NSW Minister for Planning. We pointed out the deficiencies of the noise guidelines, and requested that the approval of the Gullen Range Wind Farm be reviewed. The Minister would not hear of it. He said that he would not burden the NSW taxpayer in this way. What he meant was that in the NSW planning legislation, there is a provision for developers to sue the NSW Government, if the Minister modifies or revokes an approval.

So, the situation is this: the Department of Planning uses inadequate noise guidelines to approve a wind farm; residents then suffer from the impacts of the wind farm; and the Government will do nothing to rectify the situation that the Government itself is responsible for.

If Department of Planning officials were doing their job, they would advise the Minister for Planning that the noise guidelines in NSW are worthless, that the conditions of consent relating to noise, for existing wind farms, are worthless, and that legislation is required to amend the planning legislation, so that existing approvals may be reviewed and revoked without cost to the NSW taxpayer.

These matters should fall within the terms of reference of a future Royal Commission into wind energy development in Australia.

## Appendix B: Visual Assessment

The *Visual Impact Assessment Bulletin* presents an elaborate set of procedures for the examination and assessment of visual impacts, both on the landscape and on individual residences, but the underlying principles are no different from those that have informed existing approvals, for example, that of the Gullen Range Wind Farm in 2009. Moreover, the current procedures are liable to the same criticisms as have been made repeatedly of past procedures.

I will deal here only with salient points rather than criticize every statement that is liable to objection.

In the case of impact on landscape value, there are two major criticisms to be made. The first of these is that the Department has now listed under *Landscape character options* (p. 18) a category designated ‘Wind energy’. This category denotes “dominant wind energy uses that exert a strong visual influence over the pre-existing character of the landscape”. The application of this category will allow the Department to cover agricultural and pastoral regions with as many wind farms as it pleases. The initial wind farms will serve as the excuse for subsequent approvals. The more wind farms that are approved, the more that can be subsequently approved. This renders the categories ‘pastoral’ and ‘agricultural’ meaningless. It also contradicts the expressed concern about cumulative impacts. How can the notion of cumulative impacts serve as a criterion for controlling the number of wind farms in a region, if that region has been designated ‘wind energy’? This is nonsensical.

Secondly, the connections made between land forms and features, and aesthetic quality is arbitrary, and clearly the effect of a (barely) hidden agenda. Table 4 (p. 20) offers to distinguish between areas of high scenic quality, areas of moderate scenic quality, and areas of low scenic quality. But the implicit justifications for these distinctions are ridiculous. We are told that mountains, eucalypt forests, and visually prominent lakes have high scenic quality; rounded hills, woodland and “intermittent” streams have moderate scenic quality; and large expanses of grassland without waterforms have low scenic quality. This is preposterous. Does anybody in the Department of Planning seriously believe that a landscape with a lake is *ipso facto* more beautiful than a landscape without a lake? Landscape beauty, like other beauty, is not the effect of individual features, but of a relation between elements. Beauty is a matter of proportion, harmony, unity in variety, fitness in context, and so on.

It is obvious that Table 4 has been constructed to suit a preconceived development policy. Development is to be encouraged in agricultural and pastoral areas, and discouraged in wilderness and semi-wilderness areas. To provide cover for this development policy the different kinds of area have been arbitrarily assigned an aesthetic character: wilderness is alleged to be more beautiful than semi-wilderness, and both are alleged to be more beautiful than agricultural and pastoral areas. This is just fraudulent.

In the case of impact on individual residences, the category of scenic quality is combined with the notions of viewer sensitivity and distance from turbines. This combination of criteria is no different from the schema used to approve the Gullen Range Wind Farm in 2009. All that has been added is a table that offers to combine

these criteria so as to arrive at a ‘Visual Influence Zone’, which in turn leads to a ‘Visual Performance Objective’ (Table 7, p. 23).

The fact that all this is set out in a table does not disguise the fact that all the connections are arbitrary.

I have already criticized the category of scenic quality. The category of ‘viewer sensitivity’ is left vague. Presumably, it does not refer to the actual sensitivity of individual human beings who live in the country. Presumably, it refers to the numbers of viewers, and implies that the smaller populations of rural areas do not count for as much as the larger populations of urban areas. This is blatantly inequitable. Why should where one lives affect how one is treated by government? Or, does the Department of Planning seriously believe that people who live in the country are aesthetically more obtuse than people who live in the town? If the Department believes this, it should say so honestly.

Table 7 combines scenic quality, viewer sensitivity and distance from turbines arbitrarily and dogmatically. There is no justification offered concerning how the distribution of Visual Influence Zones has been arrived at. Therefore, it can only be a preconceived schema to allow the Department to approve wind farms where the developers want them. Once again, this is fraudulent.

The *Visual Impact Assessment Bulletin* presents an elaborate set of procedures, with much new terminology expressed in words with initial capital letters. But all this verbiage cannot disguise the fact that the Department has the last word, and may do as it pleases. The results of the procedures may be ignored, under the cover of a “merit-based assessment”.

Thus, the graph plotting turbine distance against turbine height (Figure 1, p. 6, and Table 8, p. 26) may be ignored, as it has no prescriptive power. If a rural area is declared to fall into Visual Influence Zone 3, no Visual Performance Objective applies (p. 27). Even the Visual Performance Objectives “are not hard criteria that must be complied with, but rather provide guidance to the proponents ...” (p. 9). The aesthetic character of an individual area is predetermined by being placed under a general category, as merely an example of a type. No one is obliged to consider the actual aesthetic value of an individual landscape. The visual amenity of people who live in the country is assumed to be less important than that of people who live in a town. The category of Wind Energy area will allow the Department to cover an area with as many turbines as it wishes.

We are told that “it is important to ensure that the design and layout of wind energy developments prevent wind turbines appearing as the dominant characteristic of the area, seeming to define the character type of a particular region as a ‘wind farm landscape character area’” (p. 13). On the other hand, we are presented with the ‘Landscape character option’ category ‘Wind energy’, which is defined as “Landscape character expressing dominant wind energy uses that exert a strong visual influence over the pre-existing character of the landscape primarily in the form of tall wind turbines with moving blades, access roads, substations and supporting infrastructure. (p. 18).” It is obvious that the statement on p. 13 and the statement on p. 18 contradict each other. No doubt, the Department will take advantage of the

contradiction to apply whichever of the two statements it pleases, and ignore the other.

On page 13 we hear much of terms such as “dominant characteristic”, “significant modification”, “visually apparent”, “major element in the landscape”. Who is going to interpret the meaning of these terms? Well, the Department, of course. This means that the Department can do as it pleases.

If the Department were to affirm that the Gullen Range Wind Farm does not dominate its landscape, the Department would be either obtuse or lying.

If the Department were to affirm that the southern surrounds of Crookwell have not already become a “wind farm landscape character area”, the Department would be either obtuse or lying.

In the last resort the Department can appeal to large and vague principles: namely, “consideration of the objects of the EP & A Act and, in particular, the principles of ecologically sustainable development”, and “balancing these matters along with other environmental, social and economic considerations, including the public interest” (p. 15). These principles will allow the Department to do whatever it likes.

Thus, there is nothing in the *Visual Impact Assessment Bulletin* on which residents can depend. Like any absolute monarch, the Department can suspend its own rules, if it wishes to.

All these matters should also fall within the terms of reference of a future Royal Commission into wind energy development in Australia.

## **Appendix C: Property Value**

Here I only wish to offer a note on a particular point, and to illustrate the point by an episode in the history of the Gullen Range Wind Farm.

Urbis's report is based on a selection of case studies of sales and resales of properties within 2 kilometres of wind turbines in Australia. The validity of the conclusions drawn must depend on the sales/resales being independent of the purposes of the developers and hosts. In some cases Urbis has noted that a sale involved a developer's purchase of a property, and rightly minimizes the significance of the sale price. However, Urbis offers no assurance that it is certain that the remaining sales did not involve developers or developers' nominees. Therefore, the significance of all the case studies - few as they are - remains very uncertain.

In one particular case I know the circumstances of the sale, and they raise questions about the independence of the sale from the developer's intentions. The former owner of the property has given me permission to discuss this sale in public.

The property in question is 131 Storriers Lane, Bannister, NSW 2580. It is next to the Gullen Range Wind Farm. In the developer's documents it is designated PW34. Presumably, this is the property listed on p. 40 of Urbis's report. Urbis does not record any connection with the developer's purposes, although there certainly is such a connection.

The former owner of this property is a friend of mine. I will now describe the circumstances leading up to the sale of the property in 2014, and its resale in 2015.

On 13 March 2012 Ben Bateman, Project Manager for the Gullen Range Wind Farm at that time, wrote to my friend, inviting him to enter into an agreement with Gullen Range Wind Farm Pty Ltd (GRWF) to accept an increase in the noise limit at his residence PW34 from 35 dB(A) to 45 dB(A). Mr Bateman's reason for requesting this agreement was that the company wished to increase the length of the turbine blades of turbines adjacent to PW34 from 43 metres to 48 metres, and that with 48 metre blades the noise received at PW34 would exceed the existing limit of 35 dB(A).

My friend replied to Mr Bateman, refusing to accept the agreement.

Nonetheless, when Goldwind came to construct the wind farm in 2013-2014, the company used 48 metre blades, knowing that with these blades noise from turbines adjacent to PW34 would be likely to exceed the noise limit of 35 dB(A) at PW34. This was grossly irresponsible.

When the turbines of the wind farm began to operate, my friend found the noise impacts extremely intrusive and intolerable, such that he felt he could no longer live at the property. He advertised his property for sale.

He was approached by a purchaser on behalf of a company that, apparently, had only recently been incorporated.

My friend assures me that even before the sale was completed the new owner entered

into an agreement with Gullen Range Wind Farm Pty Ltd so that PW34 became an “associated property” of the project. At an “associated property” the usual noise limit of 35 dB(A) does not have to be met.

(GRWF was a subsidiary of the developer Goldwind, a Chinese multi-national. Goldwind recently sold a 75% share of the wind farm to another Chinese clean energy company, retaining a 25% share for itself.)

The website for the Gullen Solar Farm now states that the current owner of PW34 is Goulburn Land Pty Ltd, and that Goulburn Land Pty Ltd is owned by Goldwind. So, Goldwind itself now owns PW34.

Goldwind’s purpose in acquiring my friend’s property has become clear. Goldwind has proposed a solar farm to be located on the property, and has now obtained planning approval for the solar farm to be built.

Urbis notes that when my friend bought the property in 2001, the purchase price was \$200,000. When, forced to sell in 2014, because of the turbine noise, my friend received \$540,000 for the property. When the purchaser resold the property to Goldwind in 2015, the purchase price was \$644,721.

Part of the increase in price in 2014 can be attributed to the fact that my friend improved the property. Originally, it had no house. My friend built the house, and improved the land by planting trees, fencing, etc, so that it became an attractive rural residence, a hobby farm. However, given the purchaser’s noise agreement with GRWF, and the early resale to Goldwind, it seems unlikely that the 2014 sale was wholly independent of the developer’s intentions.

Moreover, it must be obvious that the sale price for 2015 must reflect Goldwind’s desire to acquire the property for the sake of the proposed solar farm.

These prices, therefore, both for 2014 and 2015, can have no significance whatever for market value.

This is a note on property value, otherwise I could say a great deal about the conduct of developers towards residents. I will merely state that my friend was forced to sell his property because of the irresponsible and callous behaviour of Goldwind in using turbine blades that were likely to exceed the noise limit.

Exactly what the relations were between the 2014 purchaser and Goldwind remains obscure, since the purchases were private commercial transactions, and therefore would be declared “commercial in confidence”.

So far as property value investigations are concerned, it must be apparent that desk-top investigations are of limited value, unless vendors and purchasers are identified.

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## **Review of the Visual Impact Assessment Bulletin**

If the Framework is allowed to stand, Visual Impact will be minimized and no future NSW wind farm application will be rejected on Visual Impact grounds.

At a time when other jurisdictions<sup>1</sup> are specifying minimum setback distances, NSW goes the other way and will judge all NSW wind farms, particularly the Visual Impact of individual turbines on a “merit based” approach. Communities have no faith that the Department of Planning is capable of a genuine merit based assessment as all previous wind farm applications and modifications have been meritoriously approved.

This VI Bulletin confirms that the approval culture for wind farms in the Department is unchanged.

The message these guidelines give to wind farm developers is clear:

Make the case that the area is of low scenic quality and don't put a turbine closer than one kilometre to a non-associated residence.

Approved but undeveloped wind farms with consent conditions that probably would not be imposed under these guidelines may well be challenged. eg Crudine Ridge voluntary acquisition. (the PAC determined that up to six properties should be offered acquisition rights due to high Visual Impacts. Under this Bulletin, for three of them CR18, CR24 and CR33, the suggested mitigation measure would be “**Consider Screening**”, the opposite end of the mitigation spectrum).

In summary, the VI Bulletin is just another attempt by “experts” commissioned by the Department to come up with an assessment matrix, which they have. Strangely, for this one, for any given wind farm, **the only variable in the assessment matrix is distance.** Only a few months ago, the Department was supporting the Refined Assessment Matrix (RAM) which was based on multiple variable factors.

Not surprisingly, even if unintentional, this assessment of Visual Impact (VI) on a non-associated rural residence has been written to strongly favour the developer.

Most developers should be pleased for VI to be assessed under the methods described in the Bulletin. (The Department will have great trouble excluding projects currently before them from being assessed under the new “guidelines”).

Have you wondered why, apart from a couple of initial knee-jerk reactions from the industry on day zero or before, overall there has been no criticism from the key players and their supporters. The message went round. Not a peep out of RenewEconomy. However, the Clean Energy Council (CEC) “will continue to work closely with the government on the framework during the public exhibition period.”<sup>2</sup> As they no doubt did before the exhibition period started.

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<sup>1</sup> eg. Poland June 9, 2016. <https://www.wind-watch.org/alerts/2016/06/10/polish-parliament-adopts-mandatory-setback-10-times-turbine-height-for-industrial-wind-turbines/>

(Queensland tried to implement a minimum 1500 metre setback distance earlier this year, but the CEC and other industry players talked them out of it.)

<sup>2</sup> <https://www.cleanenergycouncil.org.au/news/2016/August/nsw-draft-wind-farm-guidelines-stokes.html>

A researched commentary dated August 1, 2016. The start date of the public exhibition period was August 3, 2016.

The Department has not provided VI Assessment guidelines, it has stipulated the methodology.

As the Department has now taken over responsibility for the measurement and assessment of Visual Impact, the attention of this community and others, whose expertise in this area grows by the day, will be directed towards the Department, its Secretary, our local parliamentary representatives, the Minister and the Premier instead of the developers, as is currently the case. In effect, the public comment period starts the day the PEA is released and never stops. We welcome the challenge.

The Minister said:

“We’ve consulted widely, including with key environmental groups, industry, other states and the Australian National Wind Farms Commissioner, to better understand the key issues in developing this framework,”<sup>3</sup>

**All except the affected communities.**<sup>4</sup>

This review and submission is from a rural residential perspective as, mostly, that is where the visual impact falls.

### **The Bulletin**

In a document entitled Visual Impact Assessment, there is far too much concentration on Landscape and not enough on Visual Impact. We all know why.

- it keeps the landscape architects gainfully employed,
- it clouds the analysis and
- it allows the overall assessment of Visual Impact to be lowered.

This Bulletin, in addition to its application to Modifications to turbine configuration and size, should also apply to Modifications seeking an extension of time in which to commence construction. This will pick up dormant approved projects such as Capital 2 which if commenced today would be built on the shores of a rapidly filling Lake George with a landscape that should therefore be defined per the Bulletin as having :”high scenic quality”.

Of course, any developer of a wind farm currently in the planning process who uses any part of the new guidelines to their advantage pre-determination, immediately becomes open to assessment on all matters in the new guidelines, as well as the 2011 guidelines.

### **Stage 1 – the design phase**

I welcome the attempt by the Department to require a more rigorous assessment at the scoping and design phase.

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<sup>3</sup> <http://www.planning.nsw.gov.au/~media/Files/DPE/Media-Releases/2016/August/01082016-new-wind-energy-framework-to-give-certainty.ashx>

<sup>4</sup> I was present at a hastily convened meeting with Department management on July 24, 2016 when the VI Bulletin was already set in stone. No information on, or even the existence of, Stage 2, the Assessment phase, was shared. It was if someone in the Department had asked whether the Framework had been bounced off that noisy Jupiter group.

The major flaw in the wind farm planning process is still there though; the Department can only advise on unsuitability. That advice, of course, should be clearly, uniquely and strongly stated in the covering document to the EARs. If the Department's view is that the project site is unsuitable, then it should say so, even if the developer's lawyers accuse you of pre-judging the project, as they have and will. Otherwise the whole early assessment process is pointless.

Communities will welcome the early knowledge of turbine positioning and their impacts on surrounding residences. Our prospective developer fought till the last minute on the release of this information, only supplying turbine coordinates over 20 months after the issuance of SEARs and only then in the mistaken belief that EIS version one would be accepted by the Department. The Preliminary Environmental Assessment (PEA) phase will not be onerous for those planning wind farms in the right place and genuinely planning to develop the wind farm (as opposed to those opportunists planning to on-sell the approval). They have to do it anyway. Why not early?

### Initial Community Consultation.

I don't anticipate strong opposition to the community consultation section of the PEA from the developers, apart from the moans about the expense because, as written, they know they can game it.

Re the "landscape survey", they choose and pay the "independent" consultant, they write the questions, they choose the sample, they will not publish the data and they will selectively analyse. It will be a survey of landscape physical features excluding our opinions of the living landscape. The history is there to see, as well as our demolition of some of the proffered surveys.<sup>5</sup> The first survey done under this Bulletin will be no better. In a study of community perceptions of landscape, the survey participants should be confined to those in (or regular visitors to) the viewshed. Appreciating that is not a point on which I will gain universal agreement, at a minimum, the survey must include a representative sample of viewshed residents allowing for a valid statistical analysis of that segment, statistical comparison to other segments and publication of that portion of the overall sample.

Also, if the developer is going to the trouble of doing a survey, include a few questions on the local community's support for the project (not on climate change or renewables in general)

Additionally:

The questionnaire, methodology and all data must be published as part of the PEA.

The survey can only be done after the community being sampled is well informed about the project.

Having gone through this survey process, we know what the answer will be, regardless of community input, because you have told us in table 4 on page 20.<sup>6</sup> Putting on my landscape architect's hat, the physical scenic quality attributes for a typical wind farm in our part of the South East Highlands will be:

- Rounded hills, ridges and peaks which are not visually dominant
- Broad shallow valleys

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<sup>5</sup> For example, see submission 110847, Liverpool Range wind farm "Fatal defects in Liverpool Range WF EA. [http://majorprojects.planning.nsw.gov.au/?action=view\\_submission&job\\_id=6696&submission\\_id=110847](http://majorprojects.planning.nsw.gov.au/?action=view_submission&job_id=6696&submission_id=110847)

<sup>6</sup> See Appendix B for Tables 4, 5, 6, 7 and 8

- Extensive areas of similar vegetation, such as grasslands with very limited variation in colour and texture
- Vegetative stands that exhibit a range of size, form, colour, texture and spacing
- Waterforms absent

### **Giving an overall rating for Scenic Quality from Table 4 of LOW/MODERATE.**

This rating comes in handy for the developers when we later proceed to Table 7.

Having given the developer a suggested scenic quality classification, do you think they will come up with anything more onerous when they develop the equivalent for their wind farm location? The more creative will manage to come up quite easily with a scenic quality of **LOW**, which the Department will have great trouble disputing, given their guidance in the Bulletin. Of course, the Department has published some supportive gems:

“Based on its assessment, the Department is satisfied the project is unlikely to have significant visual impacts at a broad landscape level. This primarily because the scenic value of the landscape is not considered to be of State or regional significance.”<sup>7</sup>

### Preliminary Screening

Don’t you love the hypocrisy of the wind industry? Having spent years trotting out their tame landscape architects with their various scientific matrices which prove that Visual Impact on rural residences is moderate or less, the minute the Department attempts to do something similar, we get with righteous indignation from Ed Mounsey, chief operating officer for CWP Renewables (Sapphire WF), that “the visual impact is subjective”<sup>8</sup> or from someone who for some reason wanted to remain anonymous: That person said the visual assessment plan was “trying to quantify the un-quantifiable”<sup>9</sup>

Members of the Jupiter community in meetings with Department senior management responsible for this Visual Impact Assessment Bulletin advised that in their opinion, attempts to develop an agreed quantitative method for assessing Visual Impact would be futile.

The developers finally agree with us.

Some already did:

“Qualitative and subjective components of a visual assessment, such as determining the existing landscape character and degree of visual modification, cannot be measured against a standardized process.”<sup>10</sup>

If you can’t do it for a solar farm which soars 3.5 metres into the air, what chance have you got for a wind farm?

The Australian Institute of Landscape Architects, in a recent submission on the Queensland “Draft Guidelines” said:

“We consider that demonstrating full ‘compliance’ with visual amenity codes and policies is likely to be impossible in the case of wind farms, due to the nature of visual impacts which cannot be empirically ‘measured’ but need assessment by a qualified professional”<sup>11</sup>

<sup>7</sup> Crudine Ridge Assessment, Page 3

<sup>8</sup> The Land. August 2, 2016. <http://www.theland.com.au/story/4070148/nsw-wind-farmer-developer-warns-over-visual-impact-rules/>

<sup>9</sup> Sydney Morning Herald, July 28, 2016. <http://www.smh.com.au/environment/climate-change/tilting-against-windmills-industry-doubts-nsw-support-for-wind-farms-20160728-gqfhmp.html>

<sup>10</sup> Riverina Solar Farm EIS. [http://majorprojects.planning.nsw.gov.au/index.pl?action=view\\_job&job\\_id=7482](http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7482)

It's a win/win for landscape architects. They try and measure quantitatively, but if that fails their expertise is required for a qualitative assessment.

It would be hard to argue with the concept of Preliminary screening tool 1.<sup>12</sup> Height is influential, distance moreso, but:

- The developers will argue that the line must be much lower.
- Conversely, every local community will be able to show you real examples of why the line should be much higher (see later).
- Should it be a line or a curve? Is the slope correct? Should it be a line or a range?

The scales suggest a degree of precision that may not be supportable.

Of course, you will be asked to justify and support, with referenced research, your choices by both sides. Can you?

The Multiple Wind Turbine Tool (Preliminary Screening Tool 2) will also highlight to prospective developers the suitability or otherwise of their planned wind farm

We have argued previously that the definition of cumulative impact should be as proposed in the Bulletin and apply intra-wind farm. (The proposed Jupiter wind farm is, in effect 3 wind farms, with some clusters further away from each other as Woodlawn is from Capital)

A badly sited wind farm, of course, will “fail” under both preliminary screening tools, with many residences suffering a severe Visual Impact due to distance and horizontal extent, but if some Spanish property developer is paying your salary, why would you give up. The Department can't stop you at any stage.

Unfortunately, when it comes to Visual Impact Assessment in Stage 2, the impact implied in screening tool 2 gets watered down (Page 27). All the developer has to do is to “provide detailed justification” (undefined).

“Public Interest”, “helping to meet the RET or the Paris Accord or the immediate Federal target (20% by 2020)” or “reduce greenhouse gasses” are not acceptable detailed justifications any more.

### GIS Analysis

What could we expect as part of the PEA out of this? We support the (hi-resolution) images showing all turbines and other infrastructure and every residence out to at least the far middleground (8 kms as intimated in Figure 4). The GPS coordinates for all turbines, residences, substation and site entrances must also be provided (UNSECURED) in the PEA. We appreciate that all this is preliminary. No doubt a developer truly interested in community consultation will keep the community updated as the project changes.

### SEARs

Communities will welcome the emphasis the Department applies to community consultation as part of the Request for SEARs, particularly:

“the **results** of community consultation undertaken” (emphasis added)

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<sup>11</sup> [http://www.aila.org.au/imis\\_prod/documents/AILA/QLD/Windfarm%20response%20FINAL.pdf](http://www.aila.org.au/imis_prod/documents/AILA/QLD/Windfarm%20response%20FINAL.pdf) Page 3.

November 19, 2015

<sup>12</sup> Please see Appendix A

Communities and the Department are too often told how many uninformative newsletters were produced or equally unenlightening meetings the developer held. Now you will learn what the local community really thinks of the wind farm, positive or negative.

The Department inadvertently shows its biases by choosing photographs that minimize the Visual Impact of wind farms or hide behind vegetation.

Should a residential viewpoint be at those locations shown in the former (pages 1 and 5) it would not be triggered by primary preliminary screening tool 1 and probably not by the second preliminary screening tool.

The latter photograph (page 8) would fail the Department's description of a representative viewpoint (point 4, page 25) especially as there are clearly adjacent viewpoints free from this screening vegetation

## **Stage 2 – Assessment and Determination**

(This whole stage was disappointingly not addressed by senior Department representatives at the Crookwell community meeting on September 1, 2016 nor at a private meeting I attended on July 24, 2016 when the exhibition version of the VI Bulletin was set in stone).

Having got to Stage 1, developers are unlikely to retire gracefully, despite what the Department says at that preliminary assessment stage.

### **Baseline study inputs**

It is not clear what much of this has to do with Visual Impact Assessment other than to enrich the coffers of fellow VI consultants. Reviewing the Baseline study inputs, Table 1, page 10, it would appear that the only factor that flows through to the assessment phase is "Scenic Quality" (wind turbine locations and maximum turbine height being a given for a particular wind farm)

What is the connection between "Wind resource categories" and Visual Impact Assessment?

Surely a developer would not propose a site with inadequate wind resources?

Then again.

### **Visual Influence Zones**

Table 7 is a key input to the assessment of Visual Impacts. It is unreasonable to therefore say: "This table is based on extensive research undertaken by the US Bureau of Land Management and others, and modified as suitable for practical application to the wind energy industry in NSW."

Surely you can be more specific.

Otherwise it just sounds like the usual subjective opinion of a different landscape architect.

We'll comment further on Tables 4, 5, 6 and 7 when we get to them.

Figure 3 doesn't contribute much to the Bulletin in my opinion. Figure 4 even less.

### **Visual Performance Evaluation**

Visual Performance Evaluation would appear to be a new term thought up for this Bulletin. The creativity of VI specialists.

Objectives 1 (Visual Magnitude) and 2 (Landscape Scenic Integrity) will be addressed later.  
Objective 3, Key Features Disruption.

What is a key feature to an urban based VI specialist is vastly different to that experienced by a rural residential viewer.

One man's Three Sisters is another man's canola crop as they say.

See later for further comments on Objective 4, Multiple wind turbine effects.

Objective 5, Shadow Flicker and Blade Glint. We have previously pointed out in detail<sup>13</sup> that the NSW standard for Shadow Flicker is approximately 3 times as lenient as in other jurisdictions eg Germany, Denmark and Queensland. (and in the draft National guidelines)

Objective 6, Aviation hazard lighting.

"The lights should be fully shielded from the view of any dwelling within"  
Within what?

### Assessment methodology

Re:

"The Department will assess and confirm an overall acceptability of landscape and visual impacts by reviewing the visual processes outlined above, and balancing these matters along with other environmental, social and economic considerations, including the public interest"

### **NO! The VI is the VI is the VI**

The above quotation belongs in the main part of the new Draft Guidelines instead of in the VI Bulletin. I can't find a similar paragraph in the Noise Bulletin.

And the rest of the paragraph:

"This would include the extent of the impacts, for example, the number of people impacted and the severity of the impact is also a relevant consideration."

This whole paragraph reads as if it was an afterthought in case the real Visual Impact was too severe and a fallback strategy was needed for approval. It reads like a suggested modification from the Clean Energy Council. No doubt, every EIS produced under this Framework will have an extensive section based on this paragraph explaining how, on balance, the overall VI is Moderate or less.

### **We go round in circles.**

### Mitigation

We welcome the recognition, buried deep in Appendix 3, that vegetative screening, especially for recently built residences that take advantage of the view is neither reasonable nor acceptable (or effective). You are supported by many landscape professionals and the PAC that, for example, wrote:

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<sup>13</sup> See Rye Park Submission 150973

[http://majorprojects.planning.nsw.gov.au/?action=view\\_submission&job\\_id=6693&submission\\_id=150973](http://majorprojects.planning.nsw.gov.au/?action=view_submission&job_id=6693&submission_id=150973)

“The proposed vegetation screening may in some instances be ultimately sufficient to reduce/block the view when it has achieved adequate height, but the vegetation screen itself will change the outlook and vista of the residence. In other cases, the screen will not be adequate to mitigate the imposing view of a close-by turbine”,<sup>14</sup>

Re turbine colour, surely it is now recognized how difficult it is to blend a turbine into a background that varies from dark to light and is in shadow or full sun. Just stipulate an acceptable range of turbine shades and let's move on. We appreciate that mitigation methods acceptable to developers are scarce and therefore understand why it remains on the list.

The VI Bulletin, however, misses out 2 key mitigation options.

Firstly, removal of not just individual or groups of turbines, but moving the whole wind farm  
Secondly, under the generalization:

“In some circumstances, it may be appropriate for proponents and landholders to negotiate agreements regarding the management of visual impacts”,

you need, in my opinion, to be specific and include:

- Realistic Benefit Sharing arrangements, and
- Property acquisition rights (we welcome the inclusion of “voluntary acquisition” further on in the Determination section. However, it is not just a PAC responsibility as part of the determination process, it is a recommendation that should be utilized in the Department's Assessment)

These are mitigation options available to the Department today, and should be documented in the mitigation section.

### Determination and conditions of consent

As well as considering the Department's recommendations and the developer's VIA, hopefully the PAC will also consider the input from the community, both at the PAC meeting and through written submissions to that meeting!

Also, I thought the PAC was an independent decision making body, so I am surprised to see in this section of the document what they **will** do and how they **will** do it.

### Appendix 1

Landscape, landscape, landscape and more landscape, most of which nothing is done with, once analysed.

I note that Wind Energy is one of eight landscape character options but rural-residential is not. And a waterfall is a key landscape feature. Not where most of us come from.

### Scenic quality class

We must look at Scenic Quality Class again as it is a key driver of Visual Impact under the proposed methodology.

As described earlier, Table 4 will come as a delight to developers who have to describe their broad area in terms of Landforms, Vegetation and Water Forms under three headings of scenic

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<sup>14</sup> NSW Planning Assessment Commission Determination Report, Gullen Range Wind Farm Project (MP07\_0118), Upper Lachlan Shire LGA, 2 October 2014 p. 6



quality (High, Medium and Low). The Bulletin uses the south east highlands, where many NSW wind farms are located, as the guide.

What strikes you is the description of the landscape that attracts a HIGH scenic quality rating:

**Isolated peaks, escarpments, large areas of distinct rock outcrops, steep sided valley gorges, eucalypt forest, visually prominent lakes, reservoirs, rivers, streams and swamps.**

Not exactly NSW wind farm country is it? No wind farm will be built in areas remotely resembling the above and therefore a Scenic quality class of HIGH is unattainable.

**Having stipulated in Stage 1, that the views of the local community on scenic quality are key and must be established, the Department ignores its own advice and take the views of a theoretician as a key part of the assessment matrix.**

With a HIGH scenic quality rating unattainable, you are left with descriptors that will result in a scenic quality somewhere between MODERATE and LOW.

In the words of your average wind farm developer or their legal team. "I know it's only guidance Madam Secretary, but I can't improve on what you have written"

A creative landscaper could do a lot with the following sentence as well.

"Low Scenic Quality LSUs would generally be those that display a lack of terrain, vegetative or waterform diversity, along with being relatively lacking in visually outstanding/significant or notable features."

The problem is that the evaluation of Scenic Quality is the subjective judgement of an urban landscaper which is at odds with the subjective judgement of the person looking at it every day. To repeat, this Bulletin started off with the necessity to get the opinions of the local community, but you have documented in the Bulletin what you believe they will say, and in the hands of a consultant wishing to please their client, that outcome is highly likely.

Scenic Quality is one of four equally weighted factors used in this Bulletin to assess Visual Magnitude and its impact along with Sensitivity, Distance Zone and Distance (again).

### Sensitivity

The authors of this Bulletin state in Table 5, without justification, that the sensitivity from Rural Residences is MODERATE.

They are at odds with many of their colleagues in the landscape industry. Green Bean Design, respected by developers and the Department, rates rural residences as HIGH without question. For example, see the recent Rye Park LVIA<sup>15</sup> where residential properties are rated "HIGHEST SENSITIVITY", above all other viewpoint categories.

Clouston Associates rate the sensitivity of a rural residential landscape character zone as HIGH<sup>16</sup> The VI Bulletin rates rural villages as having a high sensitivity, even though the major view of the residents may be of the wall of the house next door or the pub across the road.

Perhaps the Department and its consultants would like to share the research that is behind Table 5.

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<sup>15</sup> [http://majorprojects.planning.nsw.gov.au/index.pl?action=view\\_job&job\\_id=6693](http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6693) Page 51

<sup>16</sup> Biala wind farm LVIA. Page 31

So far, two (Scenic quality and Sensitivity) of the four matrix categories are MODERATE or less.

### **You can see where this is going.**

When I read the comments from Kane Thornton (CEO, Clean Energy Council), who, officially or unofficially, had the details of the Framework and specifically the VI Bulletin days earlier than we serfs, I knew the local communities were in trouble:

“He said that while the proposed guidelines placed "more rigour" around the visual amenity of projects, they seemed "quite workable"”<sup>17</sup>

### Visibilty Distance Zones

“Table 6 indicates nine distance zones based on visibility research conducted by Sullivan et al (2012), Bishop (2002), Shang and Bishop (1999) and others.”

Table 6 did not come from the first cited Sullivan et al. I did not check the other two as wind farm papers or articles 14 and 17 years old are rarely as relevant. By saying that the table is “based” on the referenced papers and others, the implication is that the authors took the bits from a number of papers and articles and came up with something that is just an opinion of another consultant. For instance, the choice of the distance boundary between Far Foreground and Near Middleground is crucial to the final VI Assessment outcome. The consultants and the Department must justify Table 6.

From Page 4 in the Abstract of the first cited Sullivan et al paper comes:

“A conservative interpretation suggests that for such [wind] facilities, an appropriate radius for visual impact analyses would be 48 km (30 mi), that the facilities would be unlikely to be missed by casual observers at up to 32 km (20 mi), and that **the facilities could be major sources of visual contrast at up to 16 km (10 mi)**” (emphasis added)

Keep this in mind when we review Table 8.

Table 7 assigns a code (called a Visual Influence Zone – VIZ) to combinations of the foregoing three impact factors (Scenic quality, Sensitivity and Visibility Distance Zones). Once again it is the subjective judgement of a landscaper that reflects their preexisting biases, or the perceived needs of their client, whether they mean to or not. This judgement is also critical to the ultimate Visual Impact Assessment.

Most of the page it takes up is irrelevant to the most affected rural residential viewpoints. As discussed previously, a High Scenic quality class is unattainable, so column 1 is superfluous. The Department has decided (incorrectly in my and the broader landscape industry’s opinion) that rural residential viewpoints are Level 2, so all the rectangles in Levels 1 and 3 viewpoints can be eliminated. Under this Bulletin, developers will avoid proposing sites with non-associated residences at 1km or less. Table 8, as we shall see, advises that any non-associated residence

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<sup>17</sup> Australian Financial Review. Creation Date: Sunday July 31, 2016 (prior to public release, but Kane Thornton had the details, had absorbed them and had discussed them with the journalist).  
<http://www.afr.com/business/energy/electricity/nsw-wind-farmer-developer-warns-over-visual-impact-rules-20160731-gqi01r>

further out than 4 km (for 200 metre turbines) can be ignored. That invalidates Rows 1,2,5,6,7 and 8 from Level 2 viewpoints.

So you are left with 4 rectangles out of the original 72 (please refer to Appendix B, Page 17), one coded VIZ1 and three coded VIZ2.

**(the same 4 rectangles, one coded VIZ1, the rest VIZ2, remain even if you raise the sensitivity level of a rural residence to High. Can't be right can it? Explain that without admitting bias, inadvertent or otherwise, towards developers)**

Whether a combination of factors is coded VIZ1 or VIZ2 is fundamentally important. Can the landscapers and the Department justify the logic behind their VIZ1-3 coding decisions in Table 7?

They need to.

(This is not a scientific evaluation, but in Table 7, ignoring the last row, there are 21 chances of landing on a High Impact VIZ1 rectangle and 33 chances of landing on a Moderate Impact VIZ2 rectangle.)

Finally, at the end we come to the:

#### Visual Impact Assessment

The preamble does contain some important explanations, eg, those defining a representative viewpoint (which would have invalidated most of the Biala representative photomontages), but developers will be drawn to Figure 5 in Table 8 which combines the previously described three impact factors together with distance.

Before we comment on Table 8, Figure 5, remember that at this stage the input into this figure is set in stone for a particular rural residence.

The Scenic Quality is moderate or less.

The Sensitivity is moderate

The Visual Influence Zone is decided, probably VIZ2 (there's that moderate descriptor again).

Note: As Scenic Quality and Sensitivity are set, the Visual Influence Zone is a proxy for distance.

#### Table 8, Figure 5.

What started off as a device to measure the potential visual impacts of a wind farm at PEA time (admirable) becomes the key determinant for VI measurement and assessment (brave).

As such the Department is **really** going to have to justify the placing of **the black line** and the **green line** to both sets of protagonists.

Having previously quoted from the Sullivan et al paper originally cited in the Bulletin by the Department, where turbines out to 16 kms "**could be major sources of visual contrast**", please justify how no Visual Impact of consequence will be experienced outside 2km for 150 metre turbines. Not long ago, Assessments and Determinations were made allowing residents out to 5 kms to request screening. In the absence of such justification, the green line is clearly in the wrong place.

As all other VI assessment factors are decided and for any particular wind farm the maximum turbine height is decided, the only variable is distance.

So what you are saying is that, apart from distance, all residences suffer the same Visual Impact (assuming the turbines, 1 or more, can be seen of course)

Being the author of the previously proffered Gardner VI matrix (can you see the bloody things and how close are they), I'm not arguing, but I'm not sure you meant to agree with me.

I will not attempt to give my detailed views in this summary. The key flaw is that you give the developer the equally weighted options of avoiding the positioning of turbines **OR** justifying that positioning. We know which choice the developer will take first up. Why would they not? Removing a few turbines in a later compromise is always a fallback strategy. We have no faith that the Department will take the correct merit based stance and even if they do, whether the arbitrary nature of most of this Bulletin allows them to defend it under pressure.

Let me assign some arbitrary descriptors to the three zones (below the black line, between the lines and above the green line), for arguments sake; HIGH VI, MODERATE VI and LOW VI. (If you prefer, we could use the Department's implied descriptors Justify, Screen or Ignore) Are you really saying that, for a 170 metre turbine (Jupiter), that the VI for a residence with panoramic views of the wind farm situated 3.5 kms from the nearest turbine in the cluster will suffer low VI, and is to be ignored as far as mitigation is concerned?

Table 8, Figure 5 evaluates VIZ (which is a proxy for distance) with distance. Interesting. The worst matrix so far and the Department owns it.

How many non-associated residences below the black line will it take before the Department finds a way to reject a DA? 30? 40? 50? 100?

What justification arguments would you accept for turbines below the black line to remain in the project?

What justification arguments would you accept for turbines 1000 metres from non-associated residences?

The Clean Energy Council in successfully watering down the proposed 1500 metre minimum setback in the Draft Queensland Guidelines argued that:

“Separation distances based on amenity and impacts should be assessed in a scientific manner.....”<sup>18</sup>

If the Department persists with a policy with no minimum setbacks, then it must agree with the peak industry body that justifications should be scientifically based.

Let us face it. This Bulletin has just postulated another Refined Assessment Matrix (RAM), albeit somewhat simpler. It suffers from all the issues previously highlighted with RAM Version 1 and all other variants thought up by landscape architects and similar consultants.

- matrix factors carry equal weight
- matrix factors range from 3 to 9 options
- It is subjective and unquantifiable

etc etc. We've documented it all before to the Department.

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<sup>18</sup> <https://www.cleanenergycouncil.org.au/dam/cec/policy-and-advocacy/submissions/wind/submission-qld-draft-wind-farm-state-code.pdf>

Let me offer another crumb of “ground truthing” (how I hate that phrase), a residence in Roseview Rd, Tarago

I choose this residence as Department senior management have been there, some on more than one occasion, but it equally applies to the other residences along the Roseview escarpment and elsewhere.

At the time of writing, the residence is 2549 metres from the nearest planned turbine. For turbines 170 metres tall as proposed, that is above the line on screening tool 1. There are no other wind farms visible. Woodlawn is on the other side of the range over 6 kms away, so screening tool 2 is not in play. So the first issue is that you won’t hear about this residence at PEA time as developers don’t volunteer information that is not requested.

Then we come to VI assessment.

Let us assume that the Scenic Quality Class is Low/Moderate as previously suggested. Let’s call it Moderate (the developer will give that latitude most reluctantly)

The Sensitivity Level from Table 5 is 2

The Distance of view from Table 6 is Near Middleground

Therefore the Visual Influence Zone from Table 7 is VIZ2

From Table 8, Figure 5, the recommended Objective for this residence is:

**Consider screening** between the green line and the black line.

Please ask those departmental staff who have been to this residence if they agree with the suitability of this assessment.

Please do not come back and say “It’s only a guide”. Developers don’t read that sentence.

The rest of Table 8 consists of “Objectives”, “shoulds”, “coulds”, “minimizes” and “ors” that creative developers will relish. Equally, the Department has the flexibility in all of Table 8 to come up with a merit assessment of any persuasion.

I’m sorry, but from the viewpoint of a community faced with a wind farm that should never have been proposed, this section of the new draft guidelines is, overall, much worse than the original one, and in defining what you have, you are backing the Department into a corner. The Minister and our local representatives will not like that. The developers and their legal advisors will.

The first issuance of SEARs for a wind farm will be the supreme test of the new process.

The key project going forward for some in the affected communities will be a review of all submissions and a comparison of the final VI Bulletin to this draft. What changed and why? What was strengthened, what was watered down or eliminated?

Thank you for the opportunity to comment on the VI Bulletin. As you know we were willing to comment in detail much earlier but were denied that opportunity.

#### UPDATE

To try and understand the evolution of Tables 4, 5, 6, 7 and 8, I submitted an informal request for information under GIPAA for the original versions of these tables. That request was denied.

## Appendix A – Screening Tools

Figure 1 - Preliminary Screening Tool Part 1 indicating potential visual impacts for further detailed consideration

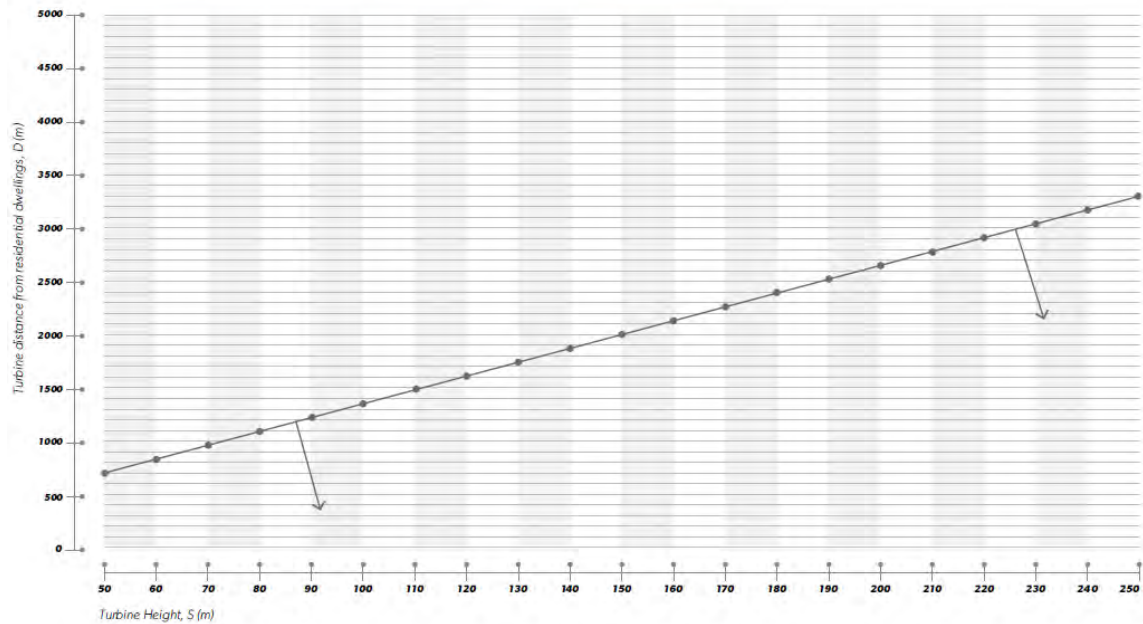
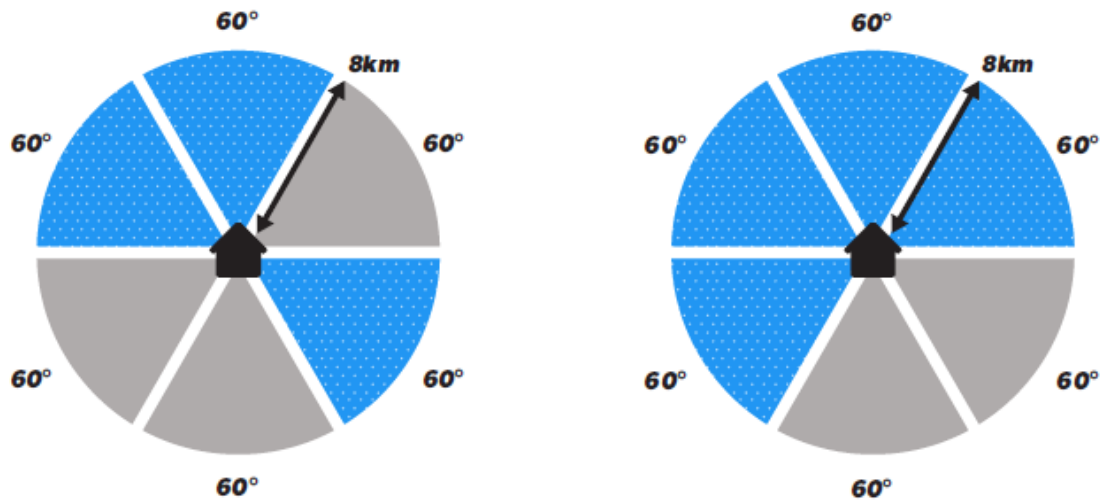


Figure 2: Preliminary Screening Tool Part 2 indicating multiple wind turbines



## Appendix B – Tables

Table 4: Suggested scenic quality classification south east highlands

| Description        | High scenic quality                                                                                                                                                                                                                                                                    | Moderate scenic quality                                                                                                                                                                                              | Low scenic quality                                                                                                                                         |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Landforms</b>   | <p>Isolated peaks, tabletop hills, cones or escarpments with distinctive form and/or colour contrast that become focal points</p> <p>Larger areas of distinctive rock outcrops or boulders</p> <p>Well defined, steep sided valley gorges</p>                                          | <p>Rounded hills, ridges and peaks which are not visually dominant</p> <p>Broad shallow valleys</p> <p>Moderately deep gorges or moderately steep valley walls</p> <p>Minor rock outcrops</p>                        | <p>Large expanses of indistinctly dissected or unbroken landforms that provide little illusion of spatial definition or landmarks with which to orient</p> |
| <b>Vegetation</b>  | <p>Strongly defined patterns with combinations of eucalypt forest, naturally appearing openings, streamside vegetation and/or scattered exotics</p> <p>Distinctive stands of vegetation that may create unusual forms, colours or textures in comparison to surrounding vegetation</p> | <p>Predominantly open forest or woodland combined with some natural openings in patterns that offer some visual relief;</p> <p>Vegetative stands that exhibit a range of size, form, colour, texture and spacing</p> | <p>Extensive areas of similar vegetation, such as grasslands with very limited variation in colour and texture</p>                                         |
| <b>Water forms</b> | <p>Visually prominent lakes, reservoirs, rivers, streams and swamps</p>                                                                                                                                                                                                                | <p>Intermittent streams, lakes, rivers, swamps and reservoirs</p>                                                                                                                                                    | <p>Waterforms absent</p>                                                                                                                                   |

Table 5: Viewer sensitivity level classification of travel routes and use areas

|                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Level 1 SENSITIVITY (High)</b>     | <ul style="list-style-type: none"> <li>Urban residential areas and rural villages (defined as land zoned R1, R2, R3, R4, R5 and RU5 in the Standard Instrument Local Environmental Plan)</li> <li>Recreation, cultural or scenic sites and viewpoints of national or state significance.</li> <li>Navigable Waterways of National or State Recreation Significance</li> <li>Any buildings, historic rural homesteads/residences on the State or Local Government Heritage List</li> <li>Tourist and Visitor Accommodation (definition in Standard Instrument Local Environmental Plan)</li> </ul> |
| <b>Level 2 SENSITIVITY (Moderate)</b> | <ul style="list-style-type: none"> <li>Rural Residences</li> <li>Recreation, Cultural or Scenic Sites and Viewpoints of Regional Significance</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Level 3 SENSITIVITY (Low)</b>      | <ul style="list-style-type: none"> <li>Interstate and State Passenger Rail Lines with Daily Daylight Service</li> <li>State Highways, Freeways and Classified Main Roads, Classified Tourist Roads</li> <li>Land Management Roads with Occasional Recreation Traffic</li> <li>Walking Tracks of Moderate Local Significance or Infrequent Recreation Usage</li> <li>Other Low use and Low Concern Viewpoints and Travel Routes</li> </ul>                                                                                                                                                         |



Table 6: Visibility Distance Zones

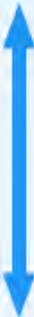
| Distance of view | Distance zone          | Relative visual magnitude and influence                                           |
|------------------|------------------------|-----------------------------------------------------------------------------------|
| 0 - 500 m        | Near Foreground (NF)   |  |
| 500 m – 1 km     | Mid Foreground (MF)    |                                                                                   |
| 1 - 2 km         | Far Foreground (FF)    |                                                                                   |
| 2 - 4 km         | Near Middleground (NM) |                                                                                   |
| 4 - 8 km         | Far Middleground (FM)  |                                                                                   |
| 8 - 12 km        | Near Background (NB)   |                                                                                   |
| 12 – 20km        | Mid Background (MB)    | Zone of Least Visual Influence                                                    |
| 20-32+km         | Far Background (FB)    |                                                                                   |



Table 7: Visual Influence Zones based on view sensitivity level – distance zones and scenic quality class combinations

| Viewer sensitivity level<br>- distance zone | Scenic quality class |          |      |
|---------------------------------------------|----------------------|----------|------|
|                                             | High                 | Moderate | Low  |
| <b>Level 1 Viewpoints</b>                   |                      |          |      |
| Near Foreground 0 – 500m                    | VIZ1                 | VIZ1     | VIZ1 |
| Mid Foreground 500m – 1km                   | VIZ1                 | VIZ1     | VIZ1 |
| Far Foreground 1 – 2km                      | VIZ1                 | VIZ1     | VIZ2 |
| Near Middleground 2 – 4km                   | VIZ1                 | VIZ2     | VIZ2 |
| Far Middleground 4 – 8 km                   | VIZ1                 | VIZ2     | VIZ2 |
| Near Background 8 – 12km                    | VIZ2                 | VIZ2     | VIZ2 |
| Mid Background 12 – 20km                    | VIZ2                 | VIZ2     | VIZ3 |
| Far Background 20 – 32+km                   | VIZ2                 | VIZ2     | VIZ3 |
| <b>Level 2 Viewpoints</b>                   |                      |          |      |
| Near Foreground 0 – 500m                    | VIZ1                 | VIZ1     | VIZ1 |
| Mid Foreground 500m – 1km                   | VIZ1                 | VIZ1     | VIZ1 |
| Far Foreground 1 – 2km                      | VIZ1                 | VIZ1     | VIZ2 |
| Near Middleground 2 – 4km                   | VIZ1                 | VIZ2     | VIZ2 |
| Far Middleground 4 – 8 km                   | VIZ2                 | VIZ2     | VIZ3 |
| Near Background 8 – 12km                    | VIZ2                 | VIZ2     | VIZ3 |
| Mid Background 12 – 20km                    | VIZ2                 | VIZ3     | VIZ3 |
| Far Background 20 – 32+km                   | VIZ2                 | VIZ3     | VIZ3 |
| <b>Level 3 Viewpoints</b>                   |                      |          |      |
| Near Foreground 0 – 500m                    | VIZ1                 | VIZ1     | VIZ2 |
| Mid Foreground 500m – 1km                   | VIZ2                 | VIZ2     | VIZ2 |
| Far Foreground 1 – 2km                      | VIZ2                 | VIZ2     | VIZ3 |
| Near Middleground 2 – 4km                   | VIZ2                 | VIZ3     | VIZ3 |
| Far Middleground 4 – 8 km                   | VIZ2                 | VIZ3     | VIZ3 |
| Near Background 8 – 12km                    | VIZ2                 | VIZ3     | VIZ3 |
| Mid Background 12 – 20km                    | VIZ2                 | VIZ3     | VIZ3 |
| Far Background 20 – 32+km                   | VIZ2                 | VIZ3     | VIZ3 |
| Areas Not Visible                           | VIZ2                 | VIZ3     | VIZ3 |

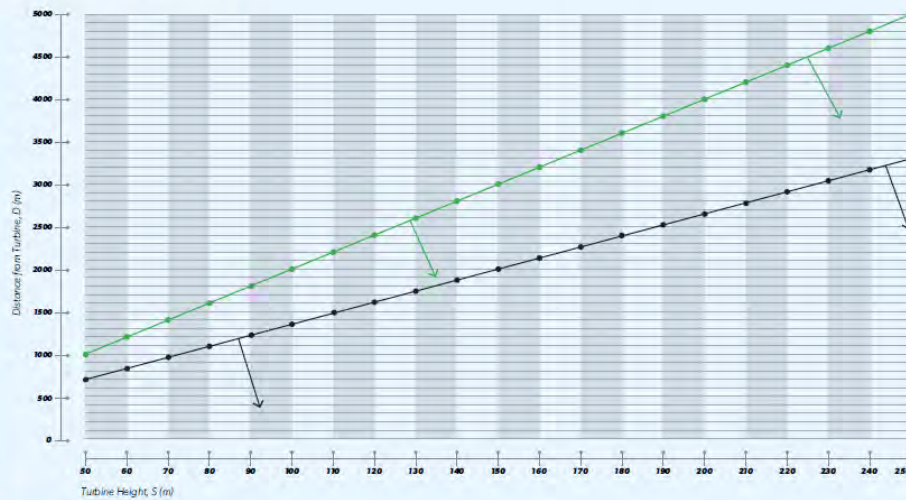
Note:

- Column 1 codes represent a combination of the Viewer Sensitivity Level (1-High, 2-Moderate, 3-Low) and the Distance Zones
- Columns 2 – 4 indicate Visual Influence Zones varying by row according to the combination of Viewer Sensitivity Level-Distance Zone and Scenic Quality Class.

Table 8: Visual Performance Objectives

| FVIA Factor                | Visual Influence Zone 1<br>(High Significance)                                                   | Visual Influence Zone 2<br>(Moderate Significance)                                                                                                                               | Visual Influence Zone 3<br>(Low Significance)          |
|----------------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| <b>1. Visual Magnitude</b> | Objective:<br>Avoid turbines or provide detailed justification of turbines below the green line. | Objective:<br>Apply impact mitigation and / or provide detailed justification of turbines below the black line.<br>Consider screening between the green line and the black line. | Objective:<br>Consider screening below the black line. |

Figure 5: Visual magnitude levels for VIA



Wind Energy Community Session: Comments on the proposed Wind Energy Framework.

I am a land owner in Walcha with high country which has some potential for wind turbines. There are a large number of potential hosts like me across the Walcha district who are supportive of renewable energy.

The Walcha area is more closely farmed than the wide open areas further west, therefore infrastructure for renewable energy sources such as wind farms, is more likely to be as close as 1000m from existing homes.

This means that if Noise Assessments are too restrictive, then potentially high performing renewable energy investment, could be abandoned. Visual Assessment must also be kept simple. Regulation that is subjective, can lead to prolonged disputes. A set back of 1000m for infrastructure in most cases appears to be sufficient.

Community consultation and an agreement that is structured to share the benefits of the wind farm with landholders, close neighbours and the wider community appears to be the way to go.

Yours Sincerely  
Peter Blomfield



W 2354

15<sup>th</sup> September, 2016.

## Caleb Ball

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**From:** system@accelo.com on behalf of Grant Winberg [REDACTED]  
**Sent:** Thursday, 15 September 2016 4:07 PM  
**To:** Caleb Ball  
**Cc:** Felicity Greenway  
**Subject:** Submission Details for Grant Winberg (comments)

Confidentiality Requested: no

Submitted by a Planner: no

Disclosable Political Donation:

Name: Grant Winberg

Email: [REDACTED]

Address:

[REDACTED]

ROSLYN, NSW  
2580

**Content:**

I respectfully suggest that the Framework is not formalised, nor the 2011 Draft Guidelines revoked, until a reasonable period after the federal Government belatedly tables its response to the Senate Wind Farm Enquiry.

This will allow all parties to submit comments in the light of the federal Government's response.

Given that the federal Government is likely to put forward national guidelines for the sake of consistency, it would be sensible to allow this to occur, particularly since the NSW Draft Guidelines have been in draft form for 5 years. What is another 6 to 12 months.

The proposed Framework will no doubt provide the wind turbine industry with more certainty of approval and it is clear that this is in line with NSW Government policy.

But some care is required. More turbines mean less baseload power as has been realised in South Australia. SA is urgently trying to ensure its electricity supply with an improved reliable interconnector with Victoria (and ultimately NSW). No baseload in Vic & NSW - no certainty of supply and very little need for an interconnector.

I understand that all State governments are now meeting with the Federal Government to better coordinate a national approach to renewable energy and minimise issues such as SA is suffering from.

Better planning requires waiting on the federal Government's response to the Senate Wind Farm Enquiry.

IP Address: - [REDACTED]

Submission: Online Submission from Grant Winberg (comments)

[https://majorprojects.affinitylive.com/?action=view\\_activity&id=162726](https://majorprojects.affinitylive.com/?action=view_activity&id=162726)

Submission for Job: #7859

[https://majorprojects.affinitylive.com/?action=view\\_job&id=7859](https://majorprojects.affinitylive.com/?action=view_job&id=7859)

Site: #0

[https://majorprojects.affinitylive.com/?action=view\\_site&id=0](https://majorprojects.affinitylive.com/?action=view_site&id=0)

RH BLOMFIELD

WALCHA NSW 2354

PHONE:

Email:

15<sup>th</sup> September, 2016

**SUBMISSION NSW WIND ENERGY FRAMEWORK**

I have lived in the Walcha district all my life as a wool and beef producer. I have been involved with developing a Lease Agreement and a Code of Conduct for a potential wind farm operator with a combined group of neighbouring farmers. After working on the Lease Agreement and the Code of Conduct for a couple of years, approximately 8 years ago we signed a Lease Agreement with Mirus Wind (Mr Mark Waring). It was hoped that our group (Winterbourne Wind) could capture the interest of a wind farm operator due to the very good wind resource available, the number of potential towers available (approximately 120) and the good cohesion of the group. This project also has the potential to significantly expand. There are very limited areas of good wind resources in NSW due to the cost of getting the power from the wind towers to the grid or the wind resource is not good enough.

Australia has currently committed to supplying 20% of its power from renewable sources by 2020, whereas the USA has committed to 50% renewables by 2025 and China is leading the world in the production and use of wind power.

In developing a Wind Energy Framework, it is extremely important that the wind energy industry and any potential proposals are provided with:

1. **National** consistency (for example National Australian standards for decibels regarding noise)
2. A Framework which creates community confidence in the sector. Visual impact and noise assessments need to involve the community but it is important that the framework is not too restrictive as this could have the impact of severely restricting the number of potential towers and so the viability of many potential projects. In the Winterbourne Wind group, the farmers involved have developed their own acceptable distances from houses which is approximately 1km. Noise decibels should include a range based on acceptable international standards, should be Australia-wide standards and the acceptable range should be based on the location, the terrain and local community consultation with those who may be impacted.

Every community where there is a good wind resource is different. Our community sees wind-farm developments as positive and our community needs to be able to develop their potential if the opportunity arises.

As Coal-fired power stations reach the end of their serviceable life, renewable energy will play an increasingly important role in providing power for the country so it is important to keep this in mind when developing a Framework for the future. The Framework should encourage innovation and development in the sector and not be too restrictive.

Sincerely

Rob Blomfield

15 September 2016

Felicity Greenway,  
Director, Industry and Infrastructure Policy,  
GPO Box 39,  
Sydney NSW 2001

Dear Felicity,

## **New Wind Energy Planning Framework**

Epuron welcomes the Department of Planning and Environment's focus on the challenges and inefficiencies of achieving planning consent for wind energy projects in NSW. Epuron applauds the intent of providing final workable guidelines for the industry and the community and commends the team which developed these guidelines for their thorough consultation across industry and community.

NSW stands to benefit significantly from wind farm developments from the jobs, regional development and lower electricity prices associated with wind farms. NSW, with its reliance on coal-fired power, is the state which currently has most to gain from adopting large scale renewable energy, particularly wind as this is the energy source with greatest potential for a step change towards a lower emissions, diverse and distributed generation fleet for the State that provides insulation from fuel price shocks, technology specific incidents, health and environmental concerns, water usage in times of drought and the likely introduction of a carbon price or emissions trading scheme. Wind energy is the least cost, lowest risk large-scale option for new build power generation.

The emergence of wind power capacity in NSW is affected by a combination of the Federal Renewable Energy Target legislation and the confidence, or otherwise in the future of the RET inspired by the words and actions of the Federal Government. Here in NSW, the great majority of the people and public policy are unequivocally supportive of wind, solar and other renewables. The approach to wind farm assessment adopted by the Department of Planning and Environment is a crucial step in the development of wind energy projects in NSW and the attraction of the investment required to construct them.

For wind companies, strategic justification of projects within Planning Applications refers to the Federal Renewable Energy Target with passing reference to the State's unambitious Plan for Renewable Energy. The NSW Renewable Energy Action Plan includes a minimal two paragraphs about wind energy and a key priority of implementing NSW wind energy planning guidelines. The currently exhibited suite of documents is the result of that 2013 Renewable Energy Action Plan target to transition the 2011 planning guidelines for wind farms out of 'draft' status.



## Relevance of guidelines

We appreciate the value in guidelines that explain how DPE will assess proposals for wind. A clear, transparent, predictable and robust set of planning guidelines would be valuable. Such guidelines would describe clear thresholds for the assessment and determination of projects providing greater understanding of the benefits and impacts and how public benefit is weighed against private amenity impacts for host communities and proponents alike.

The currently proposed Framework achieves none of this.

While Epuron has serious reservations about aspects of the new Wind Energy Planning Framework which aims to replace the 2011 draft Wind Farm Planning Guidelines, the Framework does have some positive features, in particular:

- The adoption of the cohesive South Australian EPA 2009 noise guidelines moves NSW towards a standardised assessment requirement;
- The encouragement of early meaningful community consultation and the standardisation of Community Consultative Committee guidelines across all State Significant Developments demonstrates the potential for consistency across the major projects assessment platform.

The key concerns about the new framework, however, are that it won't achieve its objectives.

For specific examples, we refer to 'Frequently Asked Questions' section on 'Why is a new framework needed for wind energy in NSW?' which has five dot points:

- 1. The new wind energy planning framework will ensure NSW has the right settings to attract investment in wind energy while balancing the needs of the community.***

Developers and investors will consider there is an increased risk to investing in NSW because the new framework adds considerable pre-lodgement work and uncertainty to the process and in particular adds significant risk to the modification of any existing approval. While it is supposed not to be applicable to projects currently in the assessment phase experience would indicate otherwise.

The needs of the community in understanding potential impacts are manifestly not met by imposing premature visual assessment on projects that are insufficiently well defined.

Wind farms are generally located on the tops of windy ridges. The introduction of the Visual Impact Assessment bulletin "focused on avoiding, minimising and managing the highest impacts" is akin to introducing a car-use reduction strategy as part of the guidelines Westconnex must consider. A wind farm will be inefficient if it is located anywhere other than where the wind resource is best – in NSW that is on ridges and elevated land. Planning policy in other States, for example SA, recognises this very clearly.

The strategic context in the Framework's Assessment Policy notes: "The NSW Renewable Energy Action Plan (2013) commits NSW to increasing the use of energy from renewable sources at least cost to the energy customer and with maximum benefits to the State." Least cost energy from wind farms means maximum energy yield from each chosen wind farm location. Relocating wind turbines off ridge tops may make them less visible but also less viable. It is part of the purported drive of the visual impact bulletin which aims "to drive good siting and design". Good siting and design is a

function of the purpose of each planning application. A wind farm farms wind. A coal mine mines coal. If a planning impact of either is reduced by moving the project away from the best resource this is an error of logic in planning and decision making which is at odds with the objectives<sup>1</sup> of the Act the Guidelines seek to serve.

**2. *This new policy framework has been developed in response to concerns from community and industry about uncertainty in the application of the draft 2011 wind farm guidelines, and the delays in assessing projects.***

The draft 2011 wind farm guidelines created uncertainty for a number of reasons including: difficulty lodging a new application with the ‘gateway process’; a mix and match noise policy which was neither evidence based nor cohesive, and the guidelines remaining in draft making it unclear to communities and proponents how projects would be assessed.

Frustratingly for communities, wind energy proponents and the wider population, the draft 2011 guidelines themselves replaced draft NSW Wind Energy Environmental Impact Assessment Guidelines 2002, but were less practical. Those draft 2002 Guidelines were the ones to be followed by the project which took over 2,500 days to approve (see p7 of the DGRs at: <https://majorprojects.affinitylive.com/public/efa33c7efee47f9c4e650471016045aa/Yass%20Valley%20Wind%20Farm%20-%20DGRs.pdf>) . Using the same metric for assessment delays as DPE, NSW has had draft planning guidelines for at least 5,170 days. This is a spectacularly long time for draft guidelines to be in place.

Uncertainty has been around for an extended period. Under the 2011 draft guidelines host landowners have advised Epuron that their residence lies *within the 2km exclusion zone*. There is no 2km ‘exclusion zone’ but there is a perception that there is.

Unfortunately these new bulletins within the framework, and the assessment policy itself, continue to create uncertainty for all parties. Queries from industry to the Department about the detail of how the visual impact bulletin would be implemented have elicited that each section provides guidance but not a determinative threshold.

The uncertainty created is in the understanding of how the guidelines will work in practice for all parties. Epuron has been told by an objecting neighbour to a project that “if only these new guidelines had been in place there would not be a wind turbine allowed within 3km (at the stated 150m wind turbine height) of homes”. This interpretation is inevitable from Figure 5 of Table 8 in Appendix 2 (see below) of the Visual Impact Bulletin where the Objective under Visual Influence Zone 1 is: Avoid turbines, and Visual Magnitude is described as ‘impacts based on their (wind turbine’s) relative height and their distance from viewpoints.

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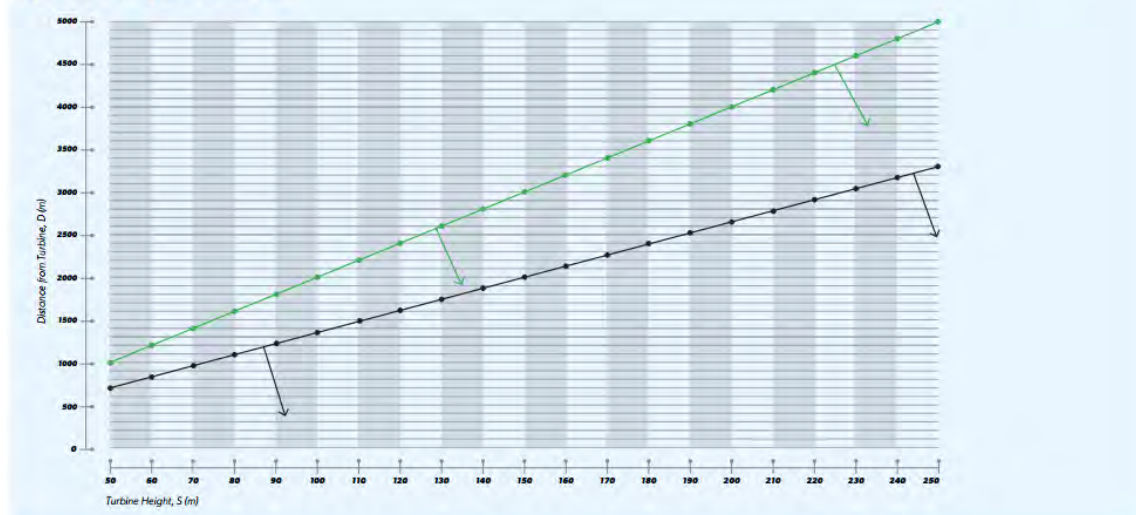
<sup>1</sup> [http://www.austlii.edu.au/au/legis/nsw/consol\\_act/epaaa1979389/](http://www.austlii.edu.au/au/legis/nsw/consol_act/epaaa1979389/)



Table 8: Visual Performance Objectives

| VFIA Factor         | Visual Influence Zone 1<br>(High Significance)                                                   | Visual Influence Zone 2<br>(Moderate Significance)                                                                                                                               | Visual Influence Zone 3<br>(Low Significance)          |
|---------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| 1. Visual Magnitude | Objective:<br>Avoid turbines or provide detailed justification of turbines below the green line. | Objective:<br>Apply impact mitigation and / or provide detailed justification of turbines below the black line.<br>Consider screening between the green line and the black line. | Objective:<br>Consider screening below the black line. |

Figure 5: Visual magnitude levels for VIA



The industry has taken the same message from the same table. The Department advises that it is only in Visual Influence Zone 1 that the objective is to avoid turbines but Visual Influence Zone 1 extends to 8km. By most readings of the bulletin a Bed and Breakfast at 3.5km from the nearest 180m turbine is in the Avoid Turbines zone. How else shall these guidelines be interpreted by communities? Will the Department assist wind farm companies to clarify to residents beneath the green line that they do not fit the description requiring avoidance of turbines?

We note further practical issues such as topography, vegetation and orientation of receivers are covered only in passing. Further confusion results.

This table alone is inconsistent with the Objectives at 1.2 of the Assessment policy – *to facilitate community understanding of the issues involved in the design and installation of wind energy development* - nor is it consistent with addressing uncertainty and delays, see Frequently Asked Question 3:

3. ***It will address delays in the assessment process that in one case required more than 2500 days for a project to be determined. The average determination times for wind projects in the past five years has been more than 1000 days.***

Under the new assessment framework, prior to lodgement of the application and the request for SEARS (Secretary's Environment Assessment Requirements) the proponent must significantly progress the development of the wind farm.

Currently biodiversity, archaeology, noise, shadow flicker, communications impacts, aviation constraints and other studies inform the location of wind turbines. Ongoing stakeholder and community consultation then refines the layout to a final version for lodgement.

Under this new proposed regime preliminary turbine locations are to be discussed with the community and residents along with alternative siting and even access routes prior to SEARS being issued and prior to informed turbine locations which consider a raft of constraints guided by expert studies.

This pre-lodgement work may reduce the assessment process timeframe for the Department but it extends the development time for the community and the proponent and it increases the risk of generating concern in the community because months of work must be done outside of any process and turbines which might theoretically be well positioned for wind and which form the basis of this early consultation may be deleted following the results of surveys such as biodiversity or archaeology or because of communications constraints.

Guidance that suggest the project does not need to be introduced to the community while gathering an understanding of the value of the landscape to the community fail to note that the purpose of the pre-lodgement community consultation on page 4 of the Visual Impact Assessment Bulletin includes: informing landholders about preliminary turbine locations and access routes and discussing visual impact, proposed siting and alternatives.

Had the department superimposed such an approach on the development of only one stage of Westconnex, for example, the result may have been a planning process that took much longer to approve than 395 days and that was even less popular than only half the councils opposing it and 13,000 people objecting.

***4. This robust and innovative new framework will position NSW to provide a smarter transition to renewable energy that captures its benefits and builds community confidence in the sector.***

The new framework is neither robust nor innovative. Epuron believes that very few wind farm developments will be able to navigate the dramatically lengthened process in time to properly participate in the RET, which ceases to provide Renewable Energy Certificates (RECs) in December 2030 leaving just over 13 years of REC value to repay the investment cost of these large infrastructure projects.

This may result in risk assessments of new projects indicating that given the proposed process, lack of government policy, likely timeframe and significant costs, it is not practical to commit to a new wind farm development in NSW.

Importantly any currently approved project is likely to be delayed as any modification will be subject to the new requirements, including the visual impact bulletin which requires each project to be assessed according to visual performance objectives. As the Department noted it has taken up to 2500 days (nearly 7 years) for projects to be approved. The technology has moved on since many projects began their epic voyage through the planning process and it is likely that many developments will need to seek a modification to increase the blade tip height. For example the often cited Taralga Wind Farm has had 8 modifications to date visible on the major project assessments website.

The application of these guidelines to modification applications will not result in NSW capturing the benefits of renewable energy. Investors seek certainty and the ability to build approved projects

and there will be few to be found in NSW, making other states significantly more attractive as has been the case for some years.

**5. *The proposed changes to the planning framework seeks to restore certainty for all stakeholders in the assessment of wind energy projects.***

There is even greater uncertainty about the threshold of acceptability for wind farms in general and visual impact in particular under these new guidelines. There is significantly greater process risk and the process for assessment and determination is unclear. The Assessment and determination section (4.4) of the Assessment Policy provides no certainty but loops back to visual impact being a key issue for wind farms.

There are lessons to be learned from other jurisdictions. In Victoria the introduction, a few years ago, of a 2km exclusion zone within which the consent of non-involved landowners was required caused the wind industry to stall.

The current Victorian wind energy guidelines<sup>2</sup> provide certainty directing:

- Exclusion of wind energy facilities in National Parks, State Parks and Coastal Parks and other high quality environmental and landscape locations in the state
- Exclusion of wind energy facilities in locations that are likely to be required for future population growth
- Consideration of strategic landscape studies which have been completed in a number of regions across Victoria
- Early, pre-lodgement consultation
- A process for agreement for turbines within 1km of a dwelling
- A site and context analysis
- Justification under the renewable energy policy statement in The State Planning Policy Framework (SPPF)

Importantly, in these Victorian Guidelines under Assessment at section 5.1 clear guidance is given to decision makers: *“A responsible authority should endeavour to balance environmental, social and economic matters in favour of net community benefit and sustainable development.”*

While it is true that there was little certainty in the planning process for wind farm projects and the communities in which they are planned under the previous draft guidelines, this current suite of documents does not provide any greater certainty. The Visual bulletin does however give individual residents a significantly greater opportunity to have their opinion heard. This is productive and useful as long as it is considered within a balanced view which favours (as all planning decisions must) net community benefit.

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<sup>2</sup> [http://www.dtpli.vic.gov.au/\\_data/assets/pdf\\_file/0011/231779/Policy-and-Planning-Guidelines-for-Development-of-Wind-Energy-Facilities-in-Victoria\\_January-2016.pdf](http://www.dtpli.vic.gov.au/_data/assets/pdf_file/0011/231779/Policy-and-Planning-Guidelines-for-Development-of-Wind-Energy-Facilities-in-Victoria_January-2016.pdf)

## Comments on documents within the Framework

### Assessment Policy

While it is useful to have an Assessment Policy this version appears to find only problems with wind farms and aims to be a safeguard mechanism to protect communities against wind energy projects..." *noting that there is a rigorous framework, including stringent noise criteria and a landscape visual impact assessment methodology to ensure there is sufficient protection for the community.*"

The Policy states that the request for SEARS should be accompanied by a Preliminary Environmental Assessment or PEA that:

- *describes the proposed wind energy project and its location in context (for example, it should identify the location of proposed turbines, residences and other key landscape features) - proponents should demonstrate the suitability of their chosen location and the viability of wind resources in that area;*
- *includes the results of the early consultation, including in relation to landscape values, and assesses the preliminary turbine layout against the preliminary screening tools contained in the Visual Impact Assessment Bulletin;*
- *identifies the key issues for that particular project;*
- *provides a high level assessment of the environmental impacts of the project (focusing on those key issues); and*
- *reports on the progress of community consultation (See section 5.2), including negotiations with landholders.*

By contrast, for mines the request for SEARS must also include a Preliminary Environmental Assessment or PEA –

*A PEA is to be presented in summary and predominantly qualitative form, avoiding lengthy and overly technical discussion. A PEA is not intended to involve a detailed analysis of a proposal. For this reason, the format and layout should be relatively simple.*

Unlike the Indicative SEARS for mining developments (October 2015) there is no stated requirement for a Strategic Context for wind farms or to consider the consistency of the development with the principles of ecologically sustainable development, as required by the objects of the environmental Planning and Assessment Act 1979.

Previously there was a requirement for strategic justification of the project and importantly to state the benefits the project brings. There is no longer a requirement to explain the wind farm in the energy context of the state which has huge exposure to carbon reduction risk. Equally there is no need to mention sustainable development, climate change or the policy context within which the Renewable Energy Target was created and expanded to 20% in an attempt to address "the greatest moral challenge of our time" (not the budget).

Previously there was also a requirement to state the key drivers of the projects - Climate Change policy, The Paris Agreement, The Renewable Energy Target, The NSW government's position. For

example in Victoria the Planning Guidelines note: *The Victorian Government supports the development of the renewable energy sector as an important contributor to the sustainable delivery of Victoria's future energy needs.*

Neither the Assessment Policy nor the template SEARS require a section on the social, economic and environmental benefits of the project. There appears to no longer be a requirement for quantifying the output of the wind farm in the context of emissions reductions.

Within the document 'Benefits' are mentioned once, alongside 'at least cost to the energy customer'. All other references to benefits of the project relate to the concept of benefit sharing, which is strongly encouraged.

### **Public policy context**

It is difficult to understand why the tone of the document is so sorely out of step with the demonstrated support for renewables shown time and time again by the NSW electorate.

The most recent NSW government survey showed 91% support for renewable energy across the state and 83% of those surveyed consider that NSW should be producing more renewable energy. When broken down to show the views of people living in non-metropolitan regions of NSW the survey revealed:

- 81% support for wind farms within NSW
- 73% support for wind farms within the local region
- The main benefits identified by people who supported locating wind farms within 1-2 km of their homes were environment - 69% and cost - 23%
- 17% of respondents were opposed to having a solar farm within 1-2 km of their home and
- 37% of respondents were opposed to having a wind farm within 1-2 km of their home
- The main reason people opposed having a wind farm within 1-2 km of their home were noise – 61%, visual impact 38% and health – 23%
- For those who supported wind farms yet expressed concerns 32% were about noise, 11% were about visual impact and 8% were about health.

### **Visual impact bulletin**

As can be seen from the survey statistics above there is huge support for wind farms in regional NSW. Of all the issues of concern noise is the key issue, significantly higher than visual.

The stated driver of the new Framework is to shorten the assessment timeframe. The key issue of concern to the Department of Planning and Environment is visual impact, despite the findings of the government's own survey which identifies it as noise.

The visual impact bulletin aims to shorten the assessment timeframe by extending the amount of work required to be undertaken prior to the issuing of the SEARS. It does not shorten the time it takes to develop and approve a wind farm, it only shortens the timeframe the project "has the clock ticking" within the planning process. It is not a driver of new wind energy projects in the State, however, it does create a new hurdle.

This bulletin seeks to gain community acceptance at the expense of efficiency and effectiveness. The entire thrust of the visual impact bulletin is on avoiding and minimising visual impacts. Avoiding and minimising visual impacts by removing or relocating wind turbines off the ridges simply reduces the viability of projects.

Chief Justice Preston in the L&EC Taralga decision describes a logical approach to the siting of wind turbines, noting under his section on sustainable development and renewable energy:

- [par 81]: *It is common that the areas that are best suited to wind energy are also the most visually prominent locations. In constructing windfarms, it is necessary to go where the wind is.*
- [par 85] (referencing the NSW Wind Atlas 1999): *... localised wind mapping shows, as is intuitively obvious, that the higher levels of wind availability are at high points in the landscape.*

If this bulletin sets a visual impact precedent it could be applicable to other planning approvals such as those residences highly affected by views changed by new roads, mines or transport corridor housing developments?

In a subjective field such as visual impact the best way forward is the one already in action - it presumes that each resident cherishes the view they have and that qualified landscape architects are best placed to provide objective assessment of the degree of impact on the landscape and the impacted neighbours. Where such expert assessments err the department will reject their view on the basis of a clearly described balanced consideration of the social, economic and environmental impacts weighing the broader public interest against the impacts to the individual. Where the Department fails the Land and Environment Court will make a judgement as it did in the Taralga decision, which it is hoped will inform future planning decisions.

Chief Justice Preston further considered the possibility of modifying that wind farm layout and turbine numbers in his benchmark Taralga decision where he noted:

[par 144] *... "there is no compelling general visual impact basis upon which to adopt any one of the four major modification options as there is no such option which would achieve both a significant visual impact benefit for the village and leave a wind farm which would be economically viable.*

The next three paragraphs of the decision are important too:

[Par 145] *As a consequence, having accepted that the intrusion of turbines into the landscape is acceptable and that the various broad modification options requiring consideration are not viable, it follows that the choice lies between the whole project as originally proposed (including those turbines removed by the Minister) or no project at all.*

[Par 146] *This choice arises in a context where there is no compelling reason why there should not be some turbines in this landscape and where there is a significant public interest, in general terms, in adoption of alternative, more environmentally friendly, energy generation sources.*

[par 147] *Although there will be change to the village's outlook, I am satisfied that the broader public interest must outweigh this impact.*

Subsequent cases in the Land and Environment Court have cited this decision.

### **Serious impacts from projects**

Visual impact is the main concern of neither supporters nor opponents to wind farms, nor is it meant to be a driver of decision making. All impacts should be weighed against all benefits and the policy position of government in favour of net community benefit and sustainable development.

In contrast, a NSW Health submission to a coal mine project currently on exhibition notes:

**Air Quality** ... receptor xx, is significantly impacted by particulate emissions with a prediction of 23 exceedances of the 24 hour PM10 goal of 50 µg/m3 in year 2.5. There are approximately seven mine owned residences that are subject to significant exceedances of this goal and substantial incremental PM10 impacts. Occupants of these residences should be fully informed of the potential impacts of the project. Where possible it would be desirable to decrease the impact on all residential lands, private and mine owned, so that the project does not reduce the number of habitable residences in the local community.

Such projects are dealing with real health impacts, the kind of impacts that reduce the number of habitable homes and create documented, quantifiable health risks<sup>3</sup> according to the Department of Health.

This NSW Health submission to the coal project is noted to draw attention to the approach of the NSW Government towards wind energy in comparison to the approach towards coal mining. Wind Farms have the most stringent noise conditions in the world unlike resource projects and particulate criterion.

Wind farm developments conversely are to be driven by how they look and are required to avoid, minimise and mitigate visual impact and further to “benefit-share” for this... “blight”? Electricity generation used to be critical infrastructure. Is it truly relevant to consider as the driving issue in the planning process for electricity generation which energy source is the most visually acceptable? Which energy source would win: wind, solar, coal, gas, other?

### **Visual impact and the right to a view**

The Wind Energy Visual Impact Assessment Bulletin notes on page 15: “The Department adopts the widely accepted and commonly utilised approach that visual impacts can be determined from a combination of receiver sensitivity (a person’s susceptibility to a specific type of change) and the magnitude of visual effect (the size, scale and overall extent of change).”

However, one of the documents this Bulletin references<sup>4</sup>, notes: *The visibility and visual impacts of a wind farm are affected by the distance from which it is viewed, as well as other aspects such as weather conditions, siting and its context. In the past several guidance notes offered generic*

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<sup>3</sup> The Katestone Report 2011 <http://www.epa.nsw.gov.au/resources/air/ke1006953volume1.pdf>

<sup>4</sup> Scottish Natural Heritage Siting and Designing Wind Farms in the Landscape May 2014 (section 3.22)

*categories of degrees of visibility and visual impact related to distance. This is no longer considered helpful as there is now such variation in turbine size and design.*

It may also be prudent to note here that at common law there is no private right to a view regardless of the person's susceptibility to a change to that view. As Dr James Prest noted in his submissions to the Senate Inquiry into Wind Turbines:

*"It is settled law that there is no 'right' or proprietary interest in a view from a particular property. This flows from the fact that property is defined or described as every type of right (that is, a claim recognised by law), interest, or thing which is legally capable of ownership and which has a value. As a view is not capable of ownership, it does not amount to property."*

Chief Justice Preston in the Land and Environment Court Taralga judgment clearly stated that compensation or "benefit-sharing" for "blight" is not consistent with the NSW Environmental Planning and Assessment Act 1979. Noting:

*[Par 160] "Creating such a right to compensation (for creating such a right it would be) would not merely strike at the basis of the conventional framework of land use planning but would also be contrary to the relevant objection of the Act, in s5(a)(ii) for the promotion and coordination of the orderly and economic use and development of land".*

If a person's susceptibility to a specific type of change is part of the assessment threshold of projects in planning then many of the major developments assessed by the State would be found to be creating "highly affected residences". Should benefit sharing therefore be part of the government's Framework requirements?

Public consultation is vital and responding to it by minimising impacts is an important part of the development of any project. However, the strategic direction for the State is a matter for Government. By escalating the visual assessment process without highlighting the need for strategic justification for the project in the draft SEARS the implicit message is that wind farms are problematic, and need to be justified.

### **The industry is already engaging with communities**

The industry is constantly attempting to do better and is keen to do so. If the government demands more work then more work will be done. The Department of Planning and Environment currently requires neighbour agreements and in the context of wind farm community enhancement funds set up to counter wind farm impacts going to local councils with neighbours to a project receiving no benefit from the community fund, there is some merit in this approach.

However, the government must temper the message it is currently giving that everyone near a wind farm will be impacted, will be paid for impacts and that those whose views are altered against their wishes will have the offending turbines removed. The government must also live up to its aspirations for the orderly transition to a lower emissions electricity sector for the State and that it will do this by encouraging development of and investment in renewable energy projects, including wind farm projects, in NSW.



That message must be embedded in policy and there is no better place than this Framework to make a clear, unequivocal statement of support.

### **Noise bulletin**

Epuron welcomes the adoption of the South Australian EPA 2009 noise standard in NSW. In particular we appreciate the change to ensure the base limit of the current NSW approach and the draft Noise Bulletin being numerically equivalent rather than the previous approach of the base limit being more onerous than the limit's numerical value.

The retention of compliance monitoring at intermediate locations is appreciated.

A few concerns must be noted including the application of 35dB to all types of land zoning in NSW rather than South Australia's application of 35dB in rural residential and 40dB in all other land zones would appear to be an unnecessary deviation from a cohesive Guideline.

Low frequency noise – while this is not significant feature of modern wind turbine noise the current bulletin provides a more stringent criteria than the previous draft guidelines which could unnecessarily constrain wind farm development in the State.

NSW's more rigorous approach to noise criteria may in principle provide greater amenity protection but the result may be that more wind farms are required in NSW to achieve the capacity required to meet the RET.

Epuron considers that with the exceptions noted above the noise bulletin is a step forward for wind energy development in the State.

### **SEARS**

There should be a requirement for the following:

- Strategic justification,
- Project Benefits
- Emissions reduction quantification

The Health dot point under Hazard/Risks is inconsistent with the best available evidence and the stated position of independent health bodies.

### **Other considerations – planning fees**

Wind farm developments have some of the highest planning fees in the state. The Government has agreed to review these for wind farms to ensure they do not unfairly burden renewable energy projects. The sector awaits action on this commitment.

### **Climate Change and the NSW Government response**

The government has a website called Adapt NSW at <http://climatechange.environment.nsw.gov.au/> It has the following tabs: *about climate change; climate change projections for NSW; impacts of climate change; adapting to climate change and education resources*. There is no tab for *action on climate change*.

Under *About Climate Change* is a page on emissions which notes that NSW emissions represent 26% of Australia's total emissions and 80% of those emissions come from the extraction, processing and burning of fossil fuels, primarily coal.

The Environment Defenders Office has recently released a discussion paper<sup>5</sup> titled "Planning for climate change: How the NSW planning system can better tackle greenhouse gas emissions". This report notes that:

*"most NSW greenhouse gas emissions are authorised by planning and development approvals under the EP&A Act [the planning act]. The decisions we make now under the NSW planning system – on transport, energy, city planning building standards and vegetation management – will have long-term effect on present and future generations."*

This report makes a number of recommendations which if adopted would provide a roadmap for emissions reduction through environmentally sustainable development and the assessment of major projects.

Epuron recommends this report to the government. Vehicles using the new roads being built and the daily activities of the residents of the tens of thousands of new apartments being built along transport corridors will significantly increase emissions in NSW. The government risks a charge of at best oversight, at worst negligence, in its lack of emissions quantification, if not control, without a statutory consideration of emissions from the projects it assesses.

As an example of the effect of strong renewables policy, the Flinders Ranges Council Development Plan (SA)<sup>6</sup> which provides setbacks for electricity infrastructure also has guidance which explicitly ranks visual impact as of lower significance than other issues where it states:

*"Wind farms and ancillary development should be located in areas which provide opportunity for harvesting of wind and efficient generation of electricity and may therefore be sited:*

*(a) in visually prominent locations*

*(b) closer to roads than envisaged by generic setback policy. '*

## **In conclusion**

We thank the staff of the department for their consultative approach and acknowledge the difficulties they face in their task to create workable wind farm guidelines.

Epuron considers the new Framework, and in particular the Visual Bulletin, creates barriers to wind farm development, assessment, approval and community acceptance. The wind industry needs Guidelines that state the support NSW is offering to encourage investment in renewable energy and which are clear, which set assessment thresholds and methodologies to guide suitably qualified experts, and finally which create certainty for communities, proponents and decision-makers alike.

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<sup>5</sup> [http://www.edonsw.org.au/planning\\_for\\_climate\\_change](http://www.edonsw.org.au/planning_for_climate_change)

<sup>6</sup> [http://www.dpti.sa.gov.au/\\_data/assets/pdf\\_file/0012/250014/The\\_Flinders\\_Ranges\\_Council\\_Development\\_Plan.pdf](http://www.dpti.sa.gov.au/_data/assets/pdf_file/0012/250014/The_Flinders_Ranges_Council_Development_Plan.pdf)

Statements indicating that the NSW government supports wind energy are hollow without documented policy support and State renewable energy targets.

It is important that NSW makes clear that it is not only 'open for business' but that it supports action to minimise emissions, that it supports sustainable development and the development of wind farms and that it underlines that support with clear policy and direction in its new Wind Energy Planning Framework.

Visual impact must be returned to equal footing in the assessment of wind farms and projects should consider social, economic and environmental impacts and benefits, weighing sustainable development and net public benefit against private impacts.

The level of investment in renewable energy projects in NSW in the next four years will be the litmus test of this Government's efficacy in this task.

Yours sincerely,



**MARTIN POOLE**  
Executive Director

## **Epuron Background**

Epuron is a North Sydney based, NSW-owned, renewable energy company with a proven track record in the development of wind and solar projects. Established in 2003, Epuron has gained planning approval for the largest number of wind turbines in NSW, and is the most active wind farm developer in NSW.

In addition to its wind farm activities, Epuron owns and operates 7 MW of solar (photovoltaic) power generating plants in the Northern Territory, 6MW of which was constructed by Epuron. The company is developing further solar power and wind farm projects around Australia.

## Caleb Ball

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**From:** system@accelo.com on behalf of [REDACTED]  
**Sent:** Thursday, 15 September 2016 6:13 PM  
**To:** Caleb Ball  
**Cc:** Felicity Greenway  
**Subject:** Submission Details for [REDACTED] (comments)  
**Attachments:** What you need to know about the draft VI guidelines v3.pdf

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Confidentiality Requested: yes

Submitted by a Planner: no

Disclosable Political Donation:

Name: [REDACTED]  
Email: [REDACTED]

Address:  
[REDACTED]  
[REDACTED]

Content:  
To NSW Dept of Planning,

Regarding the proposed Wind Energy Planning frame work.

Thank you for the opportunity to comment on this proposal.

My home is within the proposed Jupiter wind farm footprint, 175 Meter Turbines are proposed only 1000 meters from my house across open country. In addition dozens of other turbines are planned in an arc of approximately 240 degrees around me. This gives me a strong interest in the subject of wind industry regulation.

I find it very hard to swallow that these turbines will have absolutely no effect on the amenity and saleability of my property or the other properties near by. I find the assertions to the contrary by the department to be ludicrous and dismissive.

The new framework document seems to have been touted by many as offering more protection for rural residents whose homes, amenity and property values are threatened by wind farm development.

I do not believe that this is the case, in fact protection seems to have been reduced, particularly in relation to Visual impact.

The section concerning Visual impact is incredibly hard to decipher. Im not sure if this is an intentional barrier to easy scrutiny, however, if one has considerable time to follow it through, it becomes clear that the framework actually applies less control to wind farm development than the 2011 draft. I suspect that very few people, perhaps even within the department, have taken the time to properly read and understand its implications.

.Most people probably don't get past the fairly straight forward looking Visual Magnitude graph at the start.

At first glance this graph seems to outline somewhat more reasonable buffer distances than the 2011 draft, however this is not really the case. It is deceptive.

It all hinges on an arbitrary decisions about the landscape scenery quality and depends on a number of key assumptions which seem to run counter to published research.

The fact is that this framework seems to allow for turbines to be built very close to homes, closer than the 2011 draft guidelines suggested. If this frame work is accepted then its seems quite likely that I will in fact have 50 storey high turbines 1000 meters from my door and so will many other people. Where is the protection for us?

I have attached a document which has been circulated among rural residents which provides a more thorough and comprehensive consideration of the proposed guideline from the perspective of local residents. In particular it provides a modified graph which

reveals the true implications of the proposed framework for rural residents. Would the department disagree with the validity of this graph?

The developer proposing with Jupiter wind farm has proven time and again that they are utterly unconcerned about the impact of their proposal on local residents and the local community. They have demonstrated a bulldozer mentality and are utterly deaf to feedback from the local community. How would this proposed frame work protect residents from such unscrupulous developers?

Any wind farm frame work needs to work to protect local residents from inappropriate wind farm development, not make it easier for any developer to put turbines wherever they want.

The frame work does not offer protection to rural residents against unscrupulous developers, is based on some unnamed persons interpretation of the value of scenery (someone from Sydney?) and seems deceptive in its design.

Rural residents have been waiting a long time for guidelines which provide them with some measure of protection, however, this document should not be accepted. It is not fair and will only serve to protect multinational wind farm developers and not rural Australian citizens.

[REDACTED]

[REDACTED]

IP Address: [REDACTED]  
Submission: Online Submission from [REDACTED] (comments)  
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## Bait and switch

The proposed wind farm Visual Impact (VI) guidelines (called a Bulletin) are a classic example of *bait and switch* in formulating bad public policy.

The first part of the guidelines (Stage 1: *Preliminary environmental assessment*), considered alone, suggests to the unwary that there is some attempt being made at rigour and fairness in assessing wind farm proposals. It has some eye catching graphs and pictures. But, for reasons outlined below, the only thing that really matters is Stage 2: *Assessment and determination*, and that part is rigged to work in favour of developers and against residents.

## The reason Stage 1 is a fig leaf

Stage 1 offers a graph purporting to relate allowable turbine closeness to the height of the turbine. Leaving aside the matter of whether the line is correctly placed, the principle of connecting height and allowable distance is right.

However, as the Department has said, the pre-assessment process cannot be used to deny EARS to a developer or prevent them subsequently submitting an EIS and DA. All it can do is provide a basis for suggestions about how the developer might proceed.

So for a developer the only significant consideration is what will be the effect of the actual assessment guidelines, i.e. Stage 2. And when you get into the detail of Stage 2, it is very developer-friendly. Therefore developers will realise that Stage 1 is just a process they are required to pay VI consultants to go through but which doesn't affect what they can propose or the ultimate VI assessment of what they propose.

## The misleading graph in Stage 2

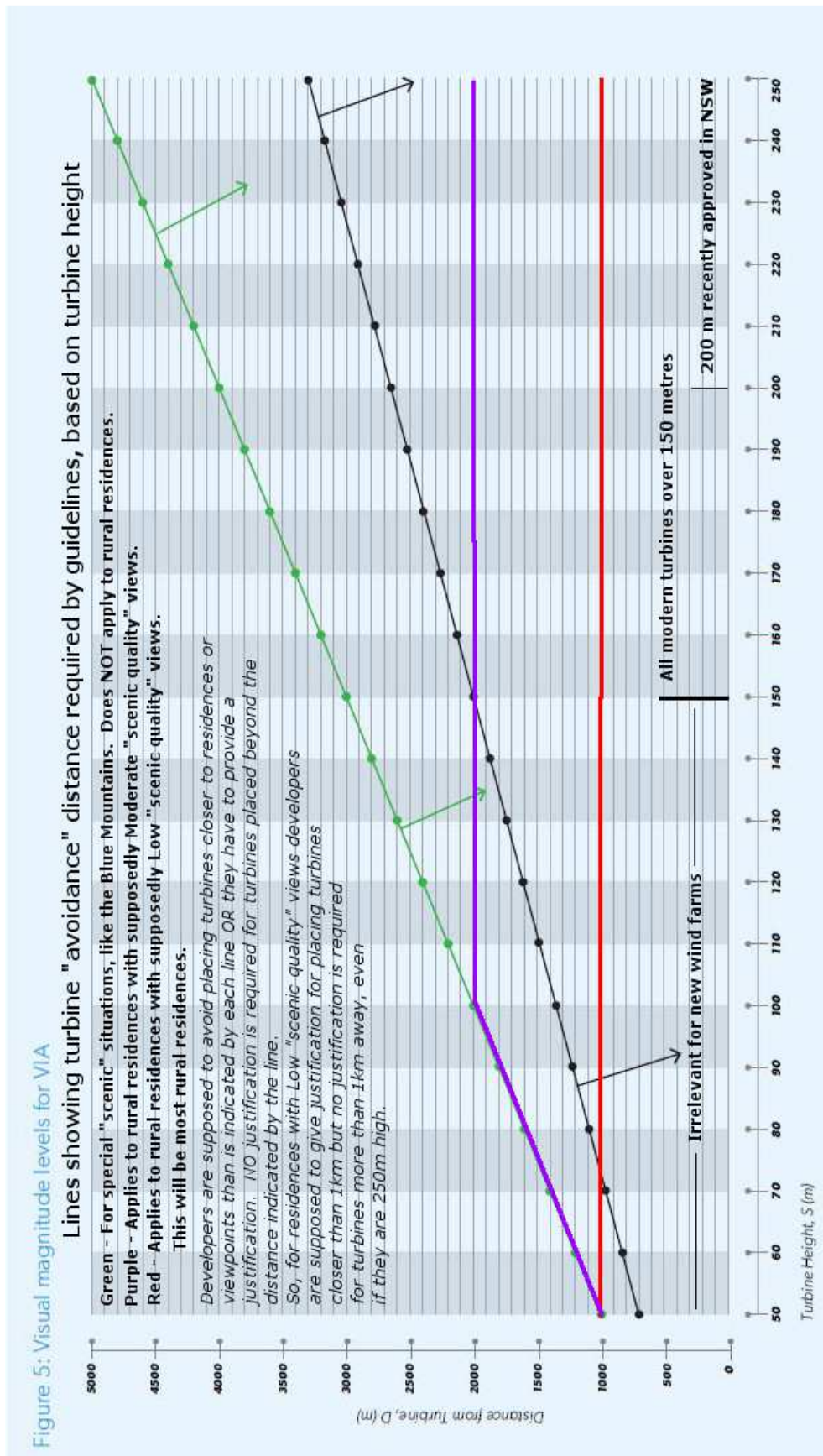
The height/distance graph from Stage 1 reappears in Stage 2. Indeed it even has an additional line which looks a bit more resident-friendly. Unfortunately it is useless for protecting most residents.

If there was a simply stated requirement of “no turbines closer than the line”, then it would have some effect. But in fact the guidelines have no such requirement.

The closest the guidelines come is to impose some vague constraints under certain conditions ***which will exclude most residents***. The most restrictive requirement is to “Avoid turbines **OR** provide detailed justification of turbines below the green line”. Notice that important **“OR”**.

In fact, the green line in the graph ***does not apply for most rural residences***. Due to the fine print of the guidelines, rural residences are subject to the much less protective red and purple lines in the graph below. This is the guidelines graph to which two additional lines have been added.

These two lines do not appear in the graph published by the Department – because that would reveal the truth which the guidelines are constructed to hide.



Adapted from Table 8 in draft *Wind Energy: Visual Assessment Bulletin*, August 2016

Under the proposed guidelines, if a rural residence is located in an area deemed to have *low* “scenic value”, developers are supposed to avoid placing turbines closer to residences than indicated by the red line OR give a detailed explanation for doing so. Note that the red line prescribes the same distance, 1 km, irrespective of turbine height. So the same distance constraint applies to 250 metre turbines as to 50 metres ones. Nowadays all proposed turbines are 150 metres or more.

Note also that if turbines are to be placed outside that distance of 1 km, then no justification is required irrespective of turbine height.

Because of the landscape categorisation proposed in the guidelines, most rural residences will be deemed to be in areas of *low* “scenic quality”. If, however, it is deemed to be an area of *moderate* “scenic quality” (it won’t ever be *high*, unless you are living in the Blue Mountains, the Snowy Mountains or on Sydney Harbour), the purple line applies.

In that case, the developer is supposed to avoid (or explain) putting a 50 metre turbine closer than 1 km, a 75 metre turbine closer than 1.5 km, or a 100 metre turbine closer than 2 km. But for turbines taller than 100 metres, the boundary remains at 2 km.

### **Farcical protection beyond the “avoid or explain” boundaries**

Outside the “avoid or explain” boundaries given by the graph, the only protection specified for residents is one of two options:

- Apply impact mitigation and/or provide detailed justification of turbines
- ***Consider*** screening

Appendix 3 of the guidelines offers 4 mitigation possibilities: resite turbines; resize turbines; recolour turbines; or vegetation screening (again).

So where mitigation is required, the developer has the option of relocating or removing its turbines, making them smaller, painting them a particular colour (discussed in detail in Appendix 3 of the draft guidelines) or offering screening. How tough a choice is that for the developer? Paint them the right colour and everything is OK!

Alternatively they can provide a “detailed justification for your turbine placement” (which no doubt can be any consultant produced waffle). And if the combination of the graph and VIZ classification doesn’t even require “mitigation”, then all they have to do is ***consider*** screening. They don’t even have to provide it, just show they have considered it. How hard is that?

### **How the guidelines fabricate the developer-friendly outcome**

The green line in the graph is fraudulent for anyone except those living in what can be classed as *high* “scenic quality”. The guidelines’ basis for deciding scenic quality (described in its Table 4), makes clear that worked and residential rural areas in most of NSW cannot be classified as *high* “scenic quality” and will generally be classified as *low*.

The fraud has been “baked into the cake” by doing two things. First, making the “avoid or explain” zone given by the green line in the graph subject to an arcane set of conditions. Then, structuring those conditions so they are dependent on someone’s definition of the attractiveness of views and then making even that limited by additional arbitrary distance constraints.



The guidelines include a subjectively constructed table (Table 7), without any apparent rigorous research substantiating it, to determine what are called VIZ classifications for any property or other viewpoint (e.g. roads). The green line in the graph shows the boundary below which the developer is supposed to “avoid or explain” placing turbines – **but only for VIZ1 properties**.

For rural and rural-residential dwellings, in order to be VIZ1 (the only ones to which the green line in the graph applies), a dwelling needs to be within 2 km of a turbine if the landscape is classified as *moderate* “scenic quality” or within 1 km if the landscape is classified as *low* “scenic quality”. The classification of scenic quality is left up to the developer’s consultant but the framework in the guidelines virtually guarantees that your landscape will be at best classified as *moderate* but more likely as *low*.

So, with few exceptions, the only residences that will be classified as VIZ1 are those within 1 km of a turbine. That is how the apparently reasonable green line in the guidelines graph turns out to be the red line in reality.

The actual “avoid or explain” line may be reasonable for 50 metre turbines, but nowadays 150 metres is the starting point. If you looked casually at Figure 5 you would believe developers are not supposed to erect 150 metre turbines any closer than 3 km from residences. But under the fudge factors built into the guidelines, the “limit” is only 2 km if the “scenic quality” is claimed to be *moderate* and only 1 km if claimed to be *low*. And for 200 metre turbines the apparent “limit” is 4 km but in reality only 2 km and 1 km respectively.

### **What about number of turbines, layout and all the other factors?**

Table 8 of the draft guideline introduces a number of other factors to be “considered”, in particular *Landscape Scenic Integrity*, *Key Feature Disruption*, and *Multiple Wind Turbine Effects*. Assessment of the first two is subject to the VIZ rating assigned a property or viewpoint.

If the “scenic quality” is claimed to be *low*, and the turbines are more than 4 km from you, then you are totally ignored so far as *Landscape Scenic Integrity* and *Key Feature Disruption* are concerned. There could be a million 250 metre turbines in a panoramic view just over 4 km from you and the guidelines says that’s fine because you are rated VIZ3 in that situation and for VIZ3 “No Visual Performance objective applies” for *Landscape Scenic Integrity* and *Key Feature Disruption*.

If the “scenic quality” is claimed to be *moderate*, then you are rated VIZ2 for turbines between 2 and 12 km away. In that case the *Landscape Scenic Integrity* “objective” is

*Wind turbines should not cause significant modification of the visual catchment and avoid isolated impacts.*

*Turbines may be visually apparent and could become a major element in the landscape but should not dominate the existing visual catchment.*

These words can mean almost anything the developer and Department wish. Note in that quote above, turbines can “become a major element in the landscape” but “should not dominate the existing visual catchment”. This is massively subjective and leads to the question of whose subjectivity is going to apply. Nothing in the guidelines suggests it is to be that of the people living there, despite published research indicating it should be.

So far as *Multiple Wind Turbine Effects* is concerned, the “objective” is based on the *Sensitivity* of the viewpoint according to the draft guidelines. For rural and rural residential that is Level 2 and the requirement is that turbines from the proposed and other wind farms not exceed “horizontal views in three or more 60° sectors”. Aside from the fact that the wording is actually ambiguous, under the proposed guidelines it is certainly acceptable to have turbines at multiple locations around a property, and without any concern for the size, number and closeness of turbines not in the proposed wind farm.

Aside from the *Visual Magnitude* graph, all the other major criteria are entirely subjective and open to many interpretations. So the practice will inevitably be to concentrate on the one criterion that seems “objective”, i.e. *Visual Magnitude*, since at least turbine height and distance can be specified with reasonable precision – especially since using that criterion gives a favourable outcome for developers.

That means concentrating on a fraudulent application of the graph whose effect is to suggest (not mandate) very small setbacks which, given the VIZ conditions, are unrelated to turbine height (let alone blade length, number of turbines, etc) and for anything beyond those setbacks suggest painting the turbines a particular colour and some screening. That is the sole protection proposed for residences not in villages and urban areas.

### **Effectively no closeness limit for roads and property boundaries**

If you are concerned about being confronted by turbines as you work your property or walk or drive about the locality, too bad. There is effectively no closeness limit. Those situations are classed as “Level 3” *Sensitivity* (Table 5). For that level of “Sensitivity” the VIZ1 category applies only for *high* or *moderate* “scenic quality” **and** only for turbines less than 500 metres away.

So if the area around your property is classed as *low* “scenic quality”, the developer can erect turbines on your boundary fence. If you drive on roads near the wind farm, for the same “scenic quality” the developer can erect the turbines alongside the road. If the “scenic quality” is claimed to be *moderate* or *high*, they are supposed to keep their 200 metre turbines 500 metres from the road.

Nor do the other criteria provide any protection. For “Level 3” *Sensitivity*, VIZ3 applies if turbines are further away than 1 km for *low* “scenic quality” or 2 km for *moderate* “scenic quality” and then “No Visual Performance objective applies” on *Landscape Scenic Integrity* and *Key Feature Disruption*. There can be a mass of 200 metre turbines filling the landscape for many kilometres along a road you regularly use, but the effect on *Landscape Scenic Integrity* is deemed of no significance.

### **The previous 10 km Zone of Visual Influence becomes a 4 km Visual Influence Zone**

The 2011 Guidelines required VI assessments to apply a Zone of Visual Influence of no less than 10 km. That was at a time when turbines were typically less than 150 metres. The latest turbines approved in NSW are 200 metres and higher will be coming. So the ZVI should be increased to no less than 15 km. However, this draft guideline replaces the Zone of Visual Influence with a Visual Influence Zone of effectively 4 km for most rural areas. It proposes to shrink the distance to be considered to about one quarter of what should now apply given the height of new turbines. That is an enormous benefit to developers.

## **Draft guidelines far worse than those of 2011**

The Department has put forward guidelines which pretend to offer some sensible protection to rural residents but which are actually far worse than those of 2011 (*bait and switch*). The Department is attempting to codify a structure which makes it far easier for developers to put very large turbines close to residents while at the same time the Department gives the appearance of dealing sensibly with the VI of those turbines.

The presentation of the first part of the guideline is fairly simple with some nice graphs which appear to suggest real restrictions on prospective developers. But this section is irrelevant to the merit assessment of the project. The second section, which is the pertinent one, is constructed of masses of complex verbiage, scientifically unsupported assumptions and complex combinations of rules, all of which are favourable to developers.

The devil is in the detail, and the detail is so confusing and complicated that it hides the real effect from anyone without a lot of familiarity with wind farms, VI assessment and the tricks that developers and VI consultants play.

## **The very arbitrary Mr Stokes**

In releasing the draft VI guidelines, Minister Stokes said “Importantly, there will be no arbitrary buffer zones based on the height of turbines.”<sup>1</sup>

In fact, everything in the guidelines is arbitrary. Much of it is contradicted by published research. The one thing about wind turbines that is not arbitrary is that visibility increases with size and decreases with distance. This is not opinion, it is the simple working of the laws of physics (optics). Yet the Minister claims there won’t be “arbitrary” buffer zones based on the one non-arbitrary piece of visual data available for wind turbines. But his guidelines then use a height and distance graph to arbitrarily set the point at which the developer does not have to explain their decision to site a turbine.

Under Mr Stokes proposed guidelines, a developer is not supposed to build a 50 metre turbine 1000 metres from you if you are deemed to have a view with *low* “scenic quality”, but they are OK to build a 200 metre turbine, even a 250 metre one, 1001 metres from you. And Mr Stokes wants to claim this is not arbitrary.

Mr Stokes and his department are masters of arbitrary decisions and amazingly, by some extraordinary coincidence, all those arbitrary decisions turn out to favour developers and to harm rural communities.

Dr Michael Crawford

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<sup>1</sup> *New wind energy framework to give certainty*, Minister Stokes, Media Release, 1 August 2016.

***Submission***

***Wind Energy:  
Assessment Policy***

***Draft for Consultation August 2016***

***NSW Department Planning and Environment***

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***14 September, 2016***

***The same prudence which in private life would forbid our paying our own money for unexplained projects, forbids it in the dispensation of the public moneys.***

Thomas Jefferson

## **DISCLAIMER**

The subject matter of this submission should not be used to infer any bias for or against wind energy and any other form of electrical power generation including coal, gas, solar, geothermal, and tidal or wave.

This submission should not be used to characterise any individual nor organization.

No social, intellectual or financial support for the research, authorship, or publication of this submission has been sought or received.

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Any and all errors or omissions are unintended.

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## 1. Preamble

In **December 2011** the NSW Department of Planning and Environment (DoPE), then Planning and Infrastructure released its Draft NSW Planning Guidelines for Wind Farms for public comment and submissions. A substantial number of submissions were received but the draft guidelines appeared to languish for nearly **five years**, submerged by bureaucratic indolence in some long forgotten pigeon hole. Only to rise again with a fervor of biblical proportions to its current governmental status. This rebirth is grossly late, deficient in fact and content but with true public service flair is resplendent with its new title, “Wind Energy: Assessment Policy - Draft for Consultation August 2016”. Yes another draft.

Careful reading of this latest document exceeds disappointment. The opportunity to address many of the deficiencies apparent in the 2011 draft planning guidelines has been lost and therefore the current document is the poorer for it. Examples of this will be discussed.

Beyond the poor quality of this flimsy document and its lack of regulatory authority is the frustrating knowledge that much of this discussion will be one of minutia. When the real question, which is not acknowledged in the 2016 draft, should be:

**WHY IS THE NEW SOUTH WALES GOVERNMENT, INDEED WHY IS ANY AUSTRALIAN GOVERNMENT, CONTEMPLATING RENEWABLE ENERGY FROM INDUSTRIAL WIND TURBINES AT ALL?**

If the promotion of renewable energy (large scale wind and solar) is to reduce the production of carbon dioxide (CO<sub>2</sub>) because questionable science has identified increasing CO<sub>2</sub> as the cause of catastrophic anthropogenic global warming (CAGW), or climate change, then there is a problem. Consider this:

1. Climate throughout the millions/billions of years since the earth was formed has always changed, sometimes violently, is continuing to change and will do so into the foreseeable future. This has nothing to do with the machinations of the human species.



2. CO<sub>2</sub> concentrations have certainly increased over the past couple of hundred years but is poorly correlated (if at all) with rising temperatures or dramatic changes in other weather events such as storms and droughts.
3. CO<sub>2</sub> concentrations in geological timeframes have sometimes been radically higher than they are today (at least 10 times). The earth did not fry and catastrophes did not occur. In fact there was abundant vegetative growth and biodiversity. These were the eras when much of the carbon based fossil fuels which we enjoy today were laid down. In fact, considering their origin, fossil fuels are quintessentially organic.
4. The fact is that we live in an interglacial period which is actually CO<sub>2</sub> poor and the world is already benefiting from an increase in atmospheric CO<sub>2</sub> concentrations with satellite observations confirming the “greening” of planet Earth (increasing forestation, reduction in desert areas etc). Glass house experiments abound proving increasing plant growth with CO<sub>2</sub> enrichment.
5. Despite the hysteria to the contrary, climate change, and the associated science is far from “settled.” It is a complexity influenced by many factors, most of which are not well understood, but include solar changes in irradiance and sunspot activity; alterations of the earth’s elliptical path around the sun with cycles of 13 000 years, 41 000 years and more; the ocean as both a source and a sink for heat; the transfer of heat between tropics and polar regions; the cloud albedo and many other confounding influences. Nothing that the human species can do will ever significantly impact these global forces.

We had much better concentrate our resources on **adaptation to changing climate** (or weather) patterns rather than chase useless technology such as energy from wind turbines. After all, that is what the human species has always done. Witness its survival of the last ice age and its ability to live and prosper in the most extreme of today’s climates from the Arctic to the tropics.

If one accepts the points above and the fact that the world is not about to implode via the irrational promotion CAGW then the indecent haste to inappropriate renewable energy technology is redundant. This is not to say that energy production should not be cleaner, but here we are

talking about **air pollution**. This is a significant topic deserving of a separate discussion and should not be aligned with renewable energy debate. This difference may be witnessed as the heavily polluted “brown cloud” over many Asian countries. The production of wind turbines in China and India uses energy principally from coal for manufacture and this plays its part in contributing to poor air quality and the production of CO<sub>2</sub>. Wind turbine manufacture contributes to this “brown cloud.”

We have time to consider more carefully the manner in which the world’s energy requirements will be met. That means **research and development** – a much better use of taxpayer’s money rather than subsidising feckless industrial wind turbines.

The governments of Australia obviously have been caught up in the lemming-like rush to renewable energy. A trend that is reversing in some European countries which formally embraced wind power electrical generation. They have found many of the problems which this document mentions to be costly and intractable, including subsidies. **The questions therefore are why is Australia lagging behind and why cannot Australia learn from the overseas experience?**

The Federal Government’s relevant legislation, the Renewable Energy (Electricity) Act 2000, the Renewable Energy (Electricity) Amendment Bill 2015, and its state spin-offs have locked in targets that are impossible to meet. There is a completely irrational acceptance by the deluded that energy from wind turbines will save the day, the planet and mankind. Or that wind turbines only need to be built at greater speed and in such profusion that, magically clean, green, efficient, planet-saving energy will result.

The truth could not be further from this idiocy.

**Wind turbines are not fit for purpose.** They fail at each and every level of genuine objective assessment.

Let us assume that, despite irrefutable scientific facts, the mindless quest for CO<sub>2</sub> reduction must insanely occupy man’s energies and precious resources, eternally. Wind turbines will not provide a path to this mythical nirvana. Further, consider this:

1. **There is no net saving of CO<sub>2</sub>.** The energy required for the manufacture and installation of industrial wind turbines and the tonnes of concrete and steel required for its base equal

or outweigh (depending on the source of information) any savings in CO<sub>2</sub> made during operation.

2. **Additional electrical energy** is also required to start up wind turbines, to maintain them in a ready state when they are not operating because the considerable quantity of oil (800 litres) within the nacelle requires constant circulation and pumping.
3. Wind energy has the obvious disadvantage of being intermittent and thus is **inherently unreliable**. The technology for storage of wind-produced electricity is not mature and currently plays no part. End of life disposal will also pose technical and logistical problems in the future with recycling options being extremely limited, and decommissioning will have its own considerable power requirements.
4. Wind energy cannot **provide baseload power**.
5. To provide reliable electricity to customers, **backup** must be provided in the form of electricity that can be generated and come on line quickly. Realistically this can only be achieved by gas-fired or coal-fired power generation. This produces CO<sub>2</sub> in its own right and is an insane waste of resources. To have a parallel power generation system running in the background so that it can step in at a moment's notice when wind power generation fails is actually beyond insane. It represents fossil fuel generation of nothing more than water vapour or clouds!
6. Rapid changes in energy production, either too much or too little from industrial wind turbines creates **instability** within the grid resulting in erratic spot pricing of electricity. The resultant variable supply always leads to more expensive electricity (from \$70 per MWh to a mind boggling \$14,000 per MWh). This avoidable expense is inevitably passed on to the hapless consumer – the very people our governments are entrusted to serve and protect.
7. Compounding this are the truly enormous **subsidies** paid to the wind energy companies. Billions of precious tax payer dollars are quietly syphoned off to maintain an industry that is both unnecessary and positively damaging to the economy and the welfare of the

electricity-consuming public. Many Australians are now deemed **energy poor**. This is a travesty that cannot be justified on any level in a country such as Australia.

8. Further, industrial wind turbines have even more disadvantages, some of which involve:

- Visual impacts
- Health impacts
- Environmental impacts affecting specifically birds, bats and remnant bushland
- Community disruption and alarm
- Real estate values
- Decommissioning

It is impossible to see any benefits accruing from the roll out of industrial wind turbines. Their impact on the majority of people is unconscionable with the only parties likely to profit being the wind energy companies (mostly foreign) and the often misguided host farmer who finds himself trapped in an unassailable contract, steeped in legalese and filled with conflict and implied threats via confidentiality clauses.

Modern society now accepts there may be trade-offs for the greater societal good and thus negative impacts will be felt by some people. But in the case of wind turbines there is no greater good. They are useless, irrelevant and a monstrous imposition on man and his wellbeing.

Australian governments, most particularly NSW in this instance, need to re-assess the Renewable Energy Target (RET) and its impost on society. It is negatively impacting our economy and our sovereignty. We are allowing our country to be manipulated by outside organisations and foreign countries. Our international competitiveness in particular, through the increased price of energy, and our standard of living is being eroded through neglect and ignorance.

The circumstance now exists in Australia where foreign governments own and therefore control **essential** and **strategic industries**.

It is time to repeal the Renewable Energy (Electricity) Act and the RET.

It is time for sanity to prevail and to embrace not only the truth but the science.

**At the very least it is time to cease constructing any more wind turbines and to stop the subsidisation of those already operating.**

No doubt this would cause an enormous protest from various quarters. But be aware that those who would protest the loudest will be those with the greatest to lose. This has the added advantage of identifying the insane, the greedy and the misguided, as follows:

1. It will certainly include the wind energy companies whose profits appear to be solely reliant on subsidisation. But if the wind energy is the great panacea why cannot it stand on its own economic merits, without subsidisation? Since when has the Australian public given its governments permission to prop up overseas companies? No other industry in peace time Australia has received such government favour and assistance for what is an artificial yet compulsory product. So called “green power.”
2. The extreme ideological Greens for which the reasoned balance of environment, industry and man can never be rationally discussed.
3. The well-intentioned but misinformed who are always a sad group because often they are genuinely well meaning but just profoundly hampered by their crippling ignorance and naivety.
4. Various terrified and terrorized governments lacking the courage to do what is right, being swayed by fear of electoral defeat or loss of electoral funding.
5. Public servants who contain elements of all of the above and often swayed by,
6. Academia and quasi research modeled on poor science and tainted with research grants producing poor research and a predetermined result.

You, as a department in a state government and being aware of these facts, are not acting in the best interests of Australian citizens. Still today, there are decent, hard-working Australian rural families, who are suffering because of the nature of your actions.

It is therefore reasonable to expect the government to answer the question proffered above and importantly repeated:

WHY IS THE NEW SOUTH WALES GOVERNMENT, INDEED WHY IS ANY AUSTRALIAN GOVERNMENT, CONTEMPLATING RENEWABLE ENERGY FROM INDUSTRIAL WIND TURBINES AT ALL?

## **2. “Wind Energy: Assessment Policy - Draft for Consultation August 2016”**

### **(i) Introduction**

We are opposed to the construction and operation of industrial wind turbines, the prohibitively expensive subsidisation of the intermittent and disruptive electricity production, and the environmentally damaging consequences.

Nevertheless, we chose to enter the debate with the following comments on the 2016 draft “Wind Energy: Assessment Policy” in the full knowledge that the NSW government is unlikely to reverse its energy policy or cease its cowardly partnership with the wind energy companies in the near future.

Please find attached our submission to the 2011 “Draft NSW Planning Guidelines: Wind Farms” as Appendix 1. Much of the material within that submission remains relevant despite the NSW governments embarrassing ineptitude in their preparation of the even less rigorous and less authoritative 2016 draft document.

Some additional comments concerning the new 2016 draft are pertinent however, namely:

### **(ii) The Environmental Impact Statement (EIS)**

Once again this is an opportunity lost. The situation where the proponent of the wind farm (the wind energy company) controls the EIS is intuitively absurd. We quote from our submission to the 2011 draft guidelines:

“The process must be arranged so that the proponent has no influence whatsoever on either the selection of the consultant or the resultant environmental assessment. This can be achieved by the proponent paying an appropriate levy to an independent third party (a Commission or Authority for instance) which then arranges for the EA (*or EIS*) to be conducted impartially and without the present overwhelming conflict of interest.”

### **(iii) The Assessment Process**

The 2016 draft stipulates a minimum of 30 days for public consultation after the EIS has gone on public display. This seems to be indecent haste. The 2011 draft allowed **60 days**. Even that is insufficient. Six months would be fairer. Most EIS's are extremely large, technical documents, some in excess of 1000 pages. The proponent may have taken many months or even years to prepare or release these documents. Detailed comment (especially if it requires expert opinion and clarification) could take equally as long. It is not reassuring that the time scale it is apparently at the **Secretary's discretion**.

### **(iv) Permissibility**

Throughout the 2016 draft and the various reference documents provided on the DPE website there is specific statements about and allusions to wind turbine location being in predominately rural areas (where apparently wind turbines are axiomatically more acceptable!), as opposed to areas where lifestyle properties are situated. In many instances this is simply untrue particularly in the Central and Southern Tablelands of NSW where the number of smaller holdings and lifestyle properties are significant and increasing. Not enough care has historically been taken to accommodate this fact, and the current document inspires no confidence about future considerations.

## (v) Visual Impacts

The visual impacts, often poorly or fraudulently demonstrated by photo montages, can be overwhelming. And this becomes worse as the size of modern wind turbines inexorably increases. There is no escaping it and no amount of comforting spiel will improve the visual impacts. And there is no reversal process. Once in position the wind turbines will be there for good, or at least until they are (hopefully) decommissioned sometime in the distant future. The despair that many people feel as their rural quiet enjoyment is willfully and permanently destroyed is not to be belittled. It is a social consequence that cannot be rectified once the wind turbines are constructed. As already argued the very fact that wind turbines are a useless generator of energy makes their enforced sacrifice completely pointless!

It is noteworthy that no wind turbines have been placed on Sydney's scenic coastal areas despite these locations being considered beyond excellent.

Why is this?

## (vi) Noise Impacts

We particularly refer to our comments about noise and setback distances in our submission to the 2011 draft (pages 9-10; 16-23). We have gone backwards! At least the 2011 draft discussed a 2 km setback distance, albeit (as we argued) a completely inadequate one. **The current 2016 draft omits all mention of any setback distance.** The topic has been avoided presumably because it has become too difficult or, worse still, it is to be entirely disregarded.

**Therefore, what is the current setback distance?**

Perhaps we should expect the counter argument, that while the emphasis is on a noise upper limit (35db(A) + 5 db9A)), there is no need to worry about distance. But this obfuscates the situation. The distance a receiver is from a noise source will always be an important factor particularly in the case of low frequency sound (LFS) and infrasound.



The draft also (breathtakingly) dismisses the effects of noise (**particularly LFS and infrasound**) on health. Despite the complete reliance on a statement from the NHMRC that there are no health effects from wind turbines there is now a considerable body of national and international research (in addition to serious anecdotal evidence) that health impacts are real and debilitating. The impacts encompass noise from all parts of the spectrum but those from the LFS and infrasound seem to be more serious, and are harder to elucidate. The NHMRC was very selective in what literature it reviewed and missed several important papers on the subject. There is also a patronising tendency to dismiss out of hand any anecdotal evidence. It is the anecdotal reports which often leads the way to more rigorous scientific investigation. There have been calls for more focused research to be carried out but, despite some Government promises, this has been slow in forthcoming. Why?

#### **(vii) Biodiversity/bat and bird strike**

There is an increasing number of research papers and anecdotal reports, both nationally and internationally, about the alarming numbers of deaths of birds (particularly raptors and/or migrating birds) and bats (especially, but not exclusively microbats). The fact that the rate of bird and bat deaths does not appear to be abating makes a lie of the propaganda that wildlife is adapting to the presence of wind turbines. It is somewhat implausible that wildlife have the opportunity to adapt – death always precludes adaptation!

Implacably, if you want industrial wind turbines, you have to admit that bird and bat deaths are inevitable – and that you are prepared to accept it. The only way to protect wildlife in any meaningful way is to **not** build wind turbines in the first place. So called environmentalists are silent on the subject. Presumably the fate of birds and bats needs to be accepted as the price to pay for “the greater good”. This is just another green double standard burdening society.

### **(viii) Decommissioning**

Decommissioning of wind turbines is extremely important. It is the only way that their blight on the landscape may eventually be removed. In generations to come wind turbines will be regarded as an historical moment of man's madness which is of no comfort to those who are suffering the ramifications of their presence now. It is critical that decommissioning be set up so that wind energy companies have the legal and enduring responsibility for their removal. Of course a cynic might wonder how many of these companies will be in existence. Would we end up in the same unpalatable situation as in parts of the United States where already there are thousands of abandoned, derelict wind turbines for which no legitimate owner can be found. With no one willing to accept responsibility or carry the significant cost of decommissioning. Who would there be left? Logically, and probably legally, the host farmer would be burdened with the final responsibility for turbine removal. The local government would certainly distance itself and ratepayer's funds from such a venture. Environmental groups, where the job is obviously beyond the Sunday afternoon working bee, would never be seen.

The only solution to this problem is a **substantial decommissioning bond paid by the proponent up front before the construction of wind turbines begin.**

The 2011 draft paper briefly accedes to this point and under certain conditions "...a condition of consent will be imposed requiring the proponent to pay a decommissioning bond."

The 2016 draft paper makes no mention of a decommissioning bond at all. Perhaps that's small wonder given the cries of outrage that have emanated from the wind industry since 2011.

**(ix) Real Estate Values**

Please note our comments on page 25 and 26 of Appendix 1 concerning the effect of wind turbines on real estate values. They still stand. We note the inclusion in the information provided by DPE of the report by the Urbis group: “Wind Farm Value Impacts”. We also note the fact that they state they were **unable to assess a significant number of properties**.

Excluded from data discussed was the number of properties which have been (or potentially would have been) on the market with no sale taking place. While we have not done an exhaustive study there are several in circulation where this issue has been addressed. Anecdotally as well, anyone who has opposed wind turbine construction in their area will be aware of examples where there has been failure to sell, as well properties now deemed “unsellable” by the real estate industry.

Reinforcing the feeling of powerless irrelevance that those affected by wind turbines often experience is the resulting sense of entrapment. There is serious social injustice here, all in the name of heavily subsidised, ineffectual industrial monoliths that are nothing more than a meaningless blight on society and the landscape.

**(x) Community Consultation**

The current 2016 draft is festooned with “motherhood” statements that were contained in the 2011 draft. There is no way that people who are opposed to their lives being destroyed can be placated by this degree of condescension.

And that is so often the result. The wind energy companies start off from a base of certainty. There has never been an industrial wind generating plant that has ever ultimately been refused development.

Indeed, there are cases in Australia where industrial wind generating plants are operating illegally while receiving government funds.

Wind companies rely on a powerless or gullible public to force their developments. together with a government (and its bureaucracy) acquiescing to assist them.

And there is no retribution if the wind industry get it wrong. An extension of time or a modification to their contractual obligations is more usual if they transgress or ignore their original Conditions of Consent. Should noise levels, for instance, exceed legal limits they are usually not shut down, or fined, but given an indeterminate amount of time to “rectify the problem” or illegality.

Experience shows that **Community Consultative Committees** develop to be a propaganda arm of the wind energy company. Real complaints are trivialized or rationalized with no resolution. How can there be? If the wind turbines are up and running no government agency is going to stop them because of any local opposition.

Probably the most callous example of wind energy company patronage is the establishment of the **community enhancement fund**. This provides a wonderful opportunity for the company to promote itself via, say, football jerseys for the local team. It is always a small fund – to give the illusion of wind company’s generosity and community mindedness. When in effect it is a token amount compared to the hundreds of millions of dollars of income derived from taxpayer funds.

But undoubtedly the worst is the societal sense of betrayal at the way government handles wind energy applications and operations. An example of this is the **Planning Assessment Commission** (PAC) which routinely rubber stamps applications for industrial wind turbine construction and operation. Its officers dutifully call for public consultation but clearly take no notice. We have been to several such meetings where the sentiment has been overwhelmingly against wind turbines – and backed up in many instances by

thoughtful and well researched verbal and written submissions. It seems to have no impact. It is as though we are all playing a game for which there is only one, predictable winner. We commit to the farce process because we feel compelled to, but in the full knowledge that we are wasting our time. The Commissioners cannot hide their distaste for the community opinions and stifle any real debate. Their imposed time restrictions and their haste to leave the meetings are indecent when one considers the impact these industrial wind turbines have on the lives of those assembled.

Having witnessed PAC meetings, we are left with total contempt for this ill-mannered and unfair process.

### **3. Conclusion**

The “Wind Energy: Assessment Policy - Draft for Consultation August 2016” authored by the New South Wales Department of Planning and Environment is a disgrace. This is a flimsy document of no consequence. It is a collection of platitudes and meaningless statements. It has no regulatory authority and favours the wind industry to such an extent one wonders if they wrote it.

Any thinking person will have nothing but contempt for this document and what it implies.

We oppose the 2016 draft guidelines.

We advocate the position that wind turbines, and electricity by wind generation therefore, have no place in the present or future energy plans for New South Wales or Australia. They are ineffective, expensive, heavily subsidised and for a myriad of other reasons (described) should be abandoned as an ill-conceived experiment that has failed abysmally.

Even if the scam of catastrophic anthropogenic global warming (CAGW) had any substance there would still be no role for wind turbines in the electricity generation industry of planet Earth.

In light of this unequivocally logical position we urge the NSW government to accept the obvious conclusion that this industry is a hideous mistake of far reaching and catastrophic proportions and must not only cease but be reversed.

It is a timely reminder that you, the NSW Government, is a servant of the people – not the reverse – and you ignore this basic truth at your electoral peril.

Yours faithfully,

*Alan C. Watts*

*Colleen J. Watts*

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14<sup>th</sup> September, 2016

**4. APPENDIX 1:**

**DRAFT NSW PLANNING  
GUIDELINES  
WIND FARMS  
  
SUBMISSION  
NSW Department of Planning and  
Infrastructure**

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**12 MARCH 2012**

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## 1. SUMMARY

The “Draft NSW Planning Guidelines – Wind Farms” is a discussion paper only. Its inherent poor quality ensures this.

An examination of this document reveals little rigour, contradictions, omissions and escape clauses which would easily allow circumvention of the embarrassingly absent regulatory authority this document should contain.

Close examination of this document reveals several reoccurring and alarming aspects:

1. The obvious lack of due diligence by parties responsible for the authorship of this document. This ensures criticism of these guidelines by any reasoned analysis.
2. The obvious bias contained to ensure swift success of industrial wind turbine developments.

These Guidelines were developed to overcome the legal deficiencies which became apparent in the SA 2003 Planning Guidelines (used by the NSW Department of Planning and Infrastructure) following the appeal in the SA Supreme Court of the Quinn-AGL matter (see Section 2 (iv) below).

Surprisingly very little has changed.

- There is still insufficient protection for the non-host residents.
- Setback distances are inadequate.
- Health implications are largely ignored or treated very perfunctorily.
- Rights of appeal by objectors to any wind farm proposal are weak and are obscured by layers of bureaucracy.
- Any appeal process that is open to residents and prospective neighbours of proposals are skewed by inequities of finance, power and access to expert witnesses.
- There are too many opportunities for abuse of power, violation of natural justice, attacks on local democracy and citizens’ rights, inequality and bias.

## 2. INTRODUCTION

- (i) **Moratorium and the Precautionary Principle:** Although not within the true gambit of a draft document on wind farm guidelines, the Department of Planning and Infrastructure should have used this opportunity to endorse a **moratorium** on all wind farm

developments. The evolving body of evidence demonstrating issues of setback distances, adverse health impacts and the increasing noise (audible and inaudible) from ever enlarging wind turbines has elucidated significant and serious problems with the whole wind turbine industry. Authorities such as the National Health and Medical Research Council and the 2011 Senate Enquiry into “The Social and Economic Impact of Rural Wind Farms” have called for more research. This must lead to the inevitable application of the **precautionary principle** where, if there is any doubt about the safety of the siting of wind turbines, approval must be denied until better evidence is available. There is no legal or moral defence to the continuation of developments that may cause harm to Australian families. To deny a moratorium in favour of development will and can only be seen as **profits before people**.

The Draft “NSW Planning Guidelines – Wind Farms” regrettably has displayed no duty of care in this regard and has ignored the precautionary principle.

- (ii) **The Environmental Assessment Process:** The Draft NSW Planning Guidelines for Wind Farms (2011) once again presents an opportunity lost. Now is the time to meaningfully control the preparation of an Environmental Assessment (or Environmental Impact Statement) by the proponent. The process whereby the proponent organises and pays for the EA, and selects the environmental consultant to prepare the EA has always led to accusations of undue influence and bias. A case of “he who pays the piper calls the tune” (perceived or otherwise).

The Guidelines have failed to rectify this glaring anomaly.

- (iii) **Conflict of Interest:** A further conflict of interest also exists with the Department of Planning and Infrastructure, and the Environmental Protection Authority both currently promoting energy derived from industrial wind turbines as environmentally desirable. With the EPA now set to develop an as yet unspecified regulatory role it is necessary for it to stand aside from all promotional aspects of the industry and confine itself solely to regulation. The regulator cannot be the operator or promoter.
- (iv) **Due Diligence:** The NSW Department of Planning and Infrastructure has failed to exercise Due Diligence in the preparation of the Draft Guidelines. **No actual data is produced, or referenced,** to support the basis of the assessment process. The proposed noise limits appear to be delineated at random and are not backed by credible scientific research. No due diligence has been conducted on potential adverse health effects of wind turbines on individuals and communities.

There has been insufficient due diligence undertaken regarding legal ramifications. What is the legal standing of the Guidelines? It is noted that it is proposed to strengthen the regulation of noise from wind farms in the POEO Act 1997 to give the EPA a stronger regulatory role. Will this give the EPA authority to institute legal penalties (via PINs, fines, legal procedures within Courts of Law etc)? What penalties are envisaged for non compliance? Will there be financial penalties or fines (of suitable levels)? Will there be alteration of operational conditions of consent? Will EPA close down wind farm operations in the case of continuous non compliance? What are the trigger points?

What legal force will the Guidelines have? Will these be regulations under the POEO Act? Will they have statutory status? Or will they be a simple advisory document having no standing in a Court of Law? If the latter case how will the EPA be able to prosecute them even with a strengthened POEO Act? None of this is clear in the Draft Guidelines.

The NSW Draft Guidelines appear simply to be a re-write of some sections of the South Australian EPA Wind Farm – Environmental Noise Guidelines (2003 and 2009). Due diligence surely should involve some original investigation and research into what would be best for New South Wales. In particular the South Australian guidelines have been successfully shown to **not** adequately protect health (7 November 2011, the Full Court of the Supreme Court of South Australia ([2011] SASCFC 126) in the matter of Quinn & Ors v. Regional Council of Goyder & Anor [2010] SAERDC 63.Quinn – AGL).

To prepare Wind Farm Guidelines in NSW based on what is obviously a legally flawed document not only negates due diligence but it espouses laziness, carelessness and poor regard for the rights and welfare of affected citizens.

- (v) **Bureaucracy:** The layers of bureaucracy advocated within the Draft Guidelines are unworkable and represent unnecessary organisational complexity. For any single proposed wind turbine installation the following organisations will be involved, as a minimum:
- The proponent
  - The Department of Planning & Infrastructure (various sections and various levels)
  - The Environment Protection Authority (presumably)
  - NSW Health (at the discretion of the Director General)
  - The Planning Assessment Commission
  - The Joint Regional Review Panel
  - Local Council (possibly)
  - Community Consultative Committee (with often conflicting opinions)
  - Plus significant others if there is any form of appeals process, legal or otherwise.
- (vi) **Language:** The language used in the Draft Guidelines is weak and open to interpretation, often providing “escape” clauses for proponents and government agencies wishing to obstruct objection, avoid regulation, stultify community consultation and cloud

information transfer. The document is full of such phrases as “may”, “will generally need”, “can”, “typically”, “should”, “relies on assumptions”, “recommends” (and many other examples), none of which instil confidence in either the Noise Guidelines or the ability of the Department of Planning and Infrastructure to effectively control or regulate the processes of development and operation.

- (vii) **References:** The references cited demonstrate little original research or investigation in developing these guidelines. There seems to have been little attempt to study original research. References are a catalogue of prior Government publications, some of which are out of date and do not assimilate contemporary data and research, and demonstrate laziness, ineptitude and distain in the Guidelines development process.

### 3. DISCLAIMER

The Disclaimer preceding the text of the Draft Guidelines appears to disclaim any responsibility for the use of the guidelines.

- What are the “relevant statutory requirements” (para 2)? At the very minimum these should be listed and the relevant sections identified.
- There are no rights or obligations attached to the guidelines. In stating that the guidelines are not intended to give rise to any “*rights, claims, benefits, privileges, liabilities or obligations*” all legal or meaningful regulatory authority has been removed, or indeed has never been included. What then is the purpose of the guidelines? If any purpose exists it has not been made clear. It would seem therefore that **adherence to the Guidelines is not mandatory and is not a necessary legal prerequisite to a development approval** (para 3).
- For example, the EPA Industrial Noise Policy (INP) states it is a **non mandatory, non statutory guideline**. However the EPA and/or Local Government and/or the Department of Planning and Infrastructure **can exercise their various authorities to ensure compliance with the INP as a condition of consent**. Somehow this then makes it mandatory.
- There does not seem to be a similar provision included in this disclaimer.
- Within the text of the draft guidelines there is provision for a procedure to be followed. Does this disclaimer make this procedure optional rather than mandatory? If the Conditions of Consent insist on the Guidelines being followed, does this over-ride the disclaimer and impose “*rights, claims, benefits, privileges, liabilities or obligations*” after all?

- Why should the Department of Planning and Infrastructure *not* take responsibility for its own Guidelines? If not, then who? If not, why not?

#### 4. PLANNING FRAMEWORK FOR WIND FARMS IN NSW

##### (i) Permissible zones for Wind Farms (Section 1.1)

- **Wind turbines are industrial development.** These should therefore be confined to Industrial zones. There is a resulting conflict that devolves to the manner in which Council can charge rates. If land rates are charged on the basis of zoning rather than land use then there is a disconnect. Wind turbines should only be permitted on industrial zoned land and the rates should be similarly based, with the wind energy company entirely responsible for the rates to local Councils rather than the current situation where the rural host is the entity responsible for rates.
- The land use zones RU1 to RU4 are not defined. Presumably they are part of a SEPP but examination of the Environmental and Assessment Act 1979 (No. 203) could not identify them. An easy reference or actual definition is essential here.
- RU2 (Rural landscape) and RU4 (Rural small holdings) in particular are often contested zones where opinions differ concerning the appropriate placement of industrial wind turbines (IWT). **In particular any area zoned as “rural small holdings” should be considered unsuitable for the location of IWTs and be removed from the list of applicable land use zones.** “Rural small holdings” implies that the landscape is *closely settled* thereby ensuring that a significant number of residents will *inevitably be impacted*.
- **Prime agricultural land should be protected** with no industrial development allowed. There is a move within the Australian parliaments to define and protect such land as “strategic” and this should be adhered to. Where there is a conflict of land use Australia’s prime agricultural land should have protection precedence. There have been studies performed where the long term economic benefit of agriculture (both economic and environmental) far outweighs the financial rewards of short term industrial and mining developments which do little to sustain land, communities and local economies. ***The imperative need to protect and preserve the staple necessities of sustainable life on earth, namely food and clean water, must always take precedence over company profits and greed.***

(ii) **Development Assessment Process (Section 1.2)**

- The draft guidelines recommend a minimum public exhibition period of 60 days.
- This is insufficient.
- A proponent for a wind farm proposal often takes years to assemble a development application and an environmental assessment. This inevitably involves environmental consultants, extensive investigations, surveys, research, community consultations (although often token) and other matters pertaining to the proposed project. There is no timeline and the environmental assessment can take a protracted and even leisurely period to complete.
- By contrast, any community member or organisation, or indeed business, corporation, facility (such as school, hospital) etc inevitably will find 60 days too little to study and produce a quality submission (either for or against) the IWT development proposal.
- **This is *inequitable*. At the very least there should be a minimum exhibition period of 120 days or, better still, the same period for exhibition that the proponents took to prepare the submission, whichever is the greater.** This ensures some equality of proposal evaluation by the community especially as developments become larger and more complicated, and regulatory powers are eroded or eliminated. As has been seen by the previous callous excision of wind turbines from the INP and the POEO Act to nullify effective noise monitoring and complaint.
- **Wind monitoring towers should not be an “exempt” development** under Clause 39 and like any other development should require planning approval. Wind monitoring towers are becoming taller as the height of IWTs increases. They have now become significant obstructions to light aircraft (including agricultural air services and aerial fire fighting) and, as such, should have their own planning/development requirements.
- Once a development application is approved a **definite commencement time** must be stipulated and adhered to. There should be **significant constructions** commenced that should include foundations, roads, underground cabling. There should be a requirement that such constructions be finalised within three years of the approval date.
- If no definite commencement has occurred within three years of approval then the approval must lapse and a DA must be resubmitted with costs for approval, if the proponent wishes to continue with the project. It is noted that the Victorian Government has very recently stipulated that wind turbine projects approved under its old

regulations must be commenced by 15/03/2012 or lapse to give greater certainty to residents, particularly in view of the fact that some approvals are up to seven years old.

- Any approval must also **stipulate a completion date**. This important condition is currently not required. Further any completion date must not exceed five years. Certainty is required for both the hosts and non-hosts. Failure to comply or complete construction within this generous time period would obviously incur a financial penalty payable to the local area authority incurring the inconveniences of development delay.

**(iii) Proximity of Industrial Wind Turbines to existing residential dwellings (Section 1.3[a])**

- 2.0 km is an insufficient setback.
- Considerations relating to setback distance include (but are not limited to) noise, blade throw, blade flicker and glint. 2.0 km is considered to be the minimum in some European countries to guard against sequelae from blade throw. As the size of IWT increases this will only increase the setback distance required for safety, noise and visual amenity.
- A minimum 2 km setback is now applied in Victoria, with no “gateway” process. (See Section 4 (iv), this submission). This allows certainty to all parties and eliminates unnecessary application delays as it passes down the protracted bureaucratic process. NSW residents deserve at least to have the same standards as Victorians! This also goes in some way towards the Federal Senate recommendation of June 2011 for Australian National Guidelines.
- **The Guidelines make no provision for increasing IWT size.** Currently IWTs of 5 and even 10 MW size are operational or prototyped respectively. Much expert opinion considers 2 km is an insufficient setback for 2.5 to 3.3 MW size IWTs. It therefore follows it certainly won’t be sufficient for 5-10 MW turbines.
- Noise characteristics from IWTs are also determined by wind speeds and topography. It is not possible to have a fixed standard setback distance when there are so many variables. Ignorance of this critical aspect of incorrect turbine placement has significant health and social consequences.
- The setback distance of 2 km (or greater as argued here) should be calculated from a property boundary rather than a residence.

- Any property which has subdivision rights will be adversely affected if a subsequent subdivision is placed within the 2 km zones. Unless the 2 km is measured from the boundary any subdivision (actual or potential) will be lost to the land owner.
  - There is an issue of occupational health and safety. A farmer (host or non host), while his residence may be set at 2 km, will inevitably have to work in areas that are less than this distance. He will thus be exposed to health and safety consequences by his necessary and daily occupational proximity to IWTs.
- **It is necessary therefore to increase the setback distance** to cater for the wealth of present and future imponderables: **10 km** (particularly for noise effects) is now considered prudent and frequently cited. This also overcomes potential problems of accurately measuring the setback distance. The draft guidelines do not define how distance is measured for setbacks. Is it line-of-sight or distance-over-ground? 10 km also provides an adequate buffer for unexpected consequences of IWT placement. Once constructed it is very difficult to move or remove an IWT should intractable problems arise.
  - 10 km also automatically alleviates some visual amenity concerns.
  - It should be noted that the new Victorian setback distances include provision for a **5 km** setback from regional populations and from significant landscape areas. There is even room for questioning this type of setback differentiation. Is not the person living in a rural landscape being discriminated against compared to a person living in a regional population centre? Does this not allow an actionable case for discrimination? **A 10 km setback removes all possibility of discrimination.**
  - At what point do the different State noise guidelines for wind farms (which represent different Australian state populations) transgress Federal discrimination law (**Discrimination Act 1991**), when one state legislates obviously superior safeguards for its population when compared to another?
  - While the authors do not advocate IWT placement within National Parks it has to be asked, if they are considered suitable for closely settled rural populations why are they not suitable to be placed in **National Parks**? It also follows, if they do not present **visual amenity problem** what is the objection of placing them in areas of **scenic significance**. An obvious example would be North Head of Sydney Harbour which superbly fulfils many of the wind industry's topographical planning criteria.

#### (iv) The Gateway Process



- **The Gateway process has to be a joke!**
- The introduction of a gateway process eliminates all minimum setback distances. Following an application for a site compatibility certificate, would the JRPP potentially recommend 100 metres? 500 metres? 1 kilometre from a residence? It certainly would have the power to do so. **Thus there is no absolute minimum.**
- Once a setback distance (2 km in the case of these draft guidelines) is deemed appropriate there should be ***no reason to reduce it.*** A setback distance is **safe or it is not.** This is simply a method for appeasing the Wind Industry and providing a mechanism for it to circumvent the setback distance. **Put simply, this is a licence to affect human harm.**
- If a non-host resident (within the 2 km setback distance) genuinely objects to a wind turbine, the ability of the wind energy proponent to apply for a Site Compatibility Certificate (SCC) renders him powerless. An average landholder may well feel unable to or overwhelmed by the prospect of commenting on the powerful, well funded, legally resourced wind energy company's application for a SCC. The prospect of appearing before a public hearing of the Joint Regional Planning Panel (JRPP) is also likely to discourage participation of some landholders in the process. See also comments in Section vi.
- One supposes that the JRPP is set up to provide an appeal mechanism through an impartial third party for the process of obtaining a SCC. While the possibility of increased community input is welcomed, the process itself lacks rigour and is full of uncertainties and fails to imbue confidence:

*“The department and the JRPP **MAY** also seek advice from independent experts...”*

*“the JRPP **MAY** hold a public meeting where there **MAY** be further opportunity...”*

*page 2*

- What or who determines what MAY or MAY NOT occur? What are the criteria? Who has the final say: the Department? The JRPP? The wind energy proponent? The Landholder? The neighbours? The Community via its representative organisations?
- The claim that the JRPP in having the role of determining the proposal “**ensures**” that there is local representation in the decision making is thus **not true.** The JRPP has the authority to decide **NOT** to have a community meeting.

- **The composition of the JRPP is inappropriate.** The 5 member panel is made up of 3 State nominees (including the Chairman) and 2 local members. This is an **uneven** composition at best. There should be greater provision for more local members rather than State nominees, after all this is **a community based objection**. There is no indication of what qualifications or qualities or experience the members (and indeed the Chairman) should have.
- Where is the role of **Local Government** via the relevant Shire Council? These are after all the elected and responsible first line of government for the Australian citizenry. Council nullification is insulting, undemocratic and eliminates community consultation via their elected representatives.

(v) **Requirements for a Site Compatibility Certificate include the following:**

(Note that the following points also apply to the requirements for an Environmental Assessment)

- A predicted level of noise at any houses within the 2 km zone is required **including low frequency noise**. This will be dealt with in Section 6 but presumably this will be based on background noise data collected down to 20 Hz.
- There appears to be **no intention to measure infrasound** and predict infrasound noise levels when wind turbines are operating. The Department of Planning and Infrastructure is well aware of the potential for infrasound to adversely affect health over and above the noise “annoyance” defined by the World Health Organisation which results from excessive audible noise.
- The Department is also aware of the increasing levels of infrasound and low frequency noise as the size of the wind turbine increases.
- This is therefore an abrogation of Duty of Care by the Department of Planning. **Infrasound needs to be measured as part of any routine monitoring of noise.**
- **Photomontages** notoriously under-demonstrate the visual impact of wind turbines on the landscape. “Photographic tampering” to falsify turbine height has been noted in the past and it is difficult for the viewer to obtain a realistic idea of the scale and size of a wind turbine simply by photography. There is an ambient characteristic which is never captured. It would be more meaningful for the potential host or neighbour to be taken to an operating wind farm and view wind turbines at various points within the 2 km setback distance to obtain a more realistic visual impression. This obviously would be at the proponent’s expense and guided by an impartial third party.

- **Landscape values** are not defined and no financial compensation to affected landholders is mentioned. RU4 Rural Small Holdings is also an important Landscape zone since it has the potential to affect a greater number of residents. Landscape values will be of even greater importance in areas with iconic landscape and these areas are surprisingly not described.
- **Blade glint and shadow flicker** are extremely important consequences of wind turbines placed close to residences. Again these are difficult to visualise and, as with visual impacts above, potential hosts and residents should be allowed to view these impacts (at appropriate times of the day, wind speed, distance etc) at alternate wind farms which are operating.
- **21 days for public comment on a SCC application is insufficient.** Once again the proponent has the ability to take an unlimited time to fulfil the requirements of the SCC application and the public, particularly those most affected, are expected to provide counter argument and information within a short, prescribed time frame. This should be extended to 120 days at least.

**(vi) Agreements between residents and wind energy companies:**

- There is anecdotal and substantiated evidence that wind energy companies will sometimes apply undue persuasion and financial inducements to ensure that contracts are signed between themselves and wind turbine hosts. Too often landholders are not truly aware of the full ramifications of what they are signing, do not seek legal advice and, after signing, realise too late that they have no recourse to reverse the contract.
- With the Gateway process there is also the possibility that non host landholders living within the 2 km set back will be vulnerable to bullying tactics or inducements by wind energy companies to sign away their right of objection.
- The Guidelines must make provision for an “arms length” mechanism, preferably a Department of Planning “Ombudsman”, who acts to both inform and protect landholders in this situation. No contract should be signed before a detailed briefing, with all liabilities and obligations discussed and explained, has taken place. This should include acknowledgement of possible health, economic, aesthetic, environmental and related issues. There should be a standard “cooling off” period as well.
- The Department of Planning and Infrastructure, either through its Guidelines or through its public service requirements, should make provision for this.

- Gag clause are odious and an anathema to democracy and legal transparency. They should be eliminated and democracy reinstated immediately.

## **5. COMMUNITY CONSULTATION (Section 1.3 (b) and Appendix C)**

**Please Note:** the Draft Guidelines error in referring to Appendix D. It should be Appendix C.

### **(i) The Role of Council**

- During the last NSW state elections one year ago the now elected government gave reassurances that decision making would be more decentralised and returned to local communities, via their Councils. These guidelines have invalidated this promise.
- Councils have effectively been removed from the development and approval processes. They have a minor role on the Community Consultative Committees, and may be useful for the proponent energy company as a source of local information. This is an abrogation of election promises that have been quietly ignored.
- Where Councils have a Development Control Plan (DCP) this must be considered and adhered to. DCPs have been constructed to take into account local land uses, land zoning, industrial development, community input, landscape, local businesses (present and future) and any issues pertinent to a particular Local Council and its constituents.
- The Guidelines must require of the proponent and the consenting authority (Department of Planning and Infrastructure or the Planning Assessment Commission) to abide by any restrictions, rules or regulations in the DCP at all times. This represents, as well as any system can, the will of the people. All developments ultimately exist for the good or the use of people and therefore these very same people must be allowed to accept or reject any proposal according to their needs and circumstances.
- Councils should have representatives on the Planning Assessment Commission. At the very minimum there should be a representative appointed by the Local Government Association and one “rolling” appointment where a particular Council with a wind farm proposal being considered will have a representative for that particular assessment only – the position then moving on to another Council where another proposal is being considered.

**(ii) Membership of the Community Consultative Committee.**

- The CCC is to consist of 9 to 12 members. Of these, a substantial majority namely 6 to 8 members will be appointed by the Director General, 1 by the local Council and 2 to 3 by the proponent wind energy company. Obviously this gives the Director General the power to select the majority of the CCC without appropriate local knowledge or input, and indeed the power to weight the CCC in a fashion which is not truly representative of community concerns or indeed the community concerned.
- Local Councils, being the elected local government, should have authority to select community members of the CCC and/or provide a voting system for electing local CCC members.
- Clearly the fact that the proponent can nominate its own representatives on the CCC and the local community cannot is **gross discrimination and bias**.
- Council should have more than one representative on the CCC (Councillors, not Council employees). Council already representing and managing local and community issues are electorally responsible which should make them the logical choice.

**(iii) Functions of the Community Consultative Committee**

- A key responsibility of the CCC is to provide information to the community. Where this is done by public meetings it is essential that the format be that of information sessions followed by well adjudicated Q & A's. Recent experience where participants have been facilitated into small groups has effectively censored and muzzled the opportunity for full meeting relevant Q & A's, especially those directed towards the proponent. This in turn leads to poor information transfer and frustration on the part of participants who, rightly, feel they are being fed sanitised propaganda. Why is transparency, fairness and common sense so lacking from this consultative process?
- What resources will be given the CCC?
- What level of involvement will be expected with the complaints process?
- What audit reports will actually be available to them? For instance recent noise data relating to Capitol Wind Farm has been removed from the Department of Planning's website by the Deputy Director General, Mr. Richard Pearson. It has been reported to several enquirers that this is because of "commercial in confidence" matters insisted on by Infigen Energy. Disguising data which should be publically available as

“commercial in confidence” is outrageous censorship and violation of democratic process.

- What rights therefore will the CCC have to demand and receive current noise collection data? At what point may the proponent request and obtain deletion of public data displayed on the Department’s website because of “commercial in confidence,” when it clearly is not. Who decides on the validity of “commercial in confidence” and what happens when disagreement occurs?
- With little imagination the scenario will develop of greater power for the well resourced, professional and influential wind energy company over the poorly resourced (financially and time), poorly conceived and easily ignored CCC.
- Unless the CCC is a statutory body (as is the case with the PAC and JRPP) it will have no power and will be forever a dissenting party to the bias currently displayed by the Government and the wind energy proponent.

## 6. NOISE (Section 1.3 [d] and Appendix B)

### (i) Noise Criteria

- Table 1 of the draft guidelines (page 5 and page 28) sets out acceptable limits for noise criteria. **These are too high, inadequate and incorrect when applied to rural settings.** Moreover, there is no acknowledgement of the source of this table.
- General references for the Noise Section include WHO: “*Guidelines for Community Noise (1999)*” and “*Night Noise Guidelines for Europe (2009)*”.
- Any reliance on the **WHO night time targets is totally misplaced.** The WHO document identifies traffic noise as the major issue of complaint and considers road, rail and aircraft noise in an **Urban Setting not Rural**. There is no reference to wind farm noise, low frequency noise or rural communities. The WHO documents allows 21 dB(A) attenuation from outside to inside which may be appropriate for road traffic noise but wind farm noise attenuation is much lower.
- Therefore, how do the noise goals of 50 dB(A) in the day and 40 dB(A) at night in any way equate with endeavours to be made “*to retain an acoustic amenity commensurate with the objectives of the surrounding land uses.*” Clearly it can’t, and once again the obvious lack of thought that has gone into these guidelines is obvious.

- Given that surrounding land uses are primarily **rural** (often rural small holdings) how does this relate to the dot point below:
- The guidelines also state that these noise criteria will be either “background + 5 dB(A)” or “35 dB(A)” ***whichever is greater.***
- Background noise levels at night in rural areas are generally accepted to be in the range of 20 dB(A), or lower. The criteria allow the proponent to choose the upper noise limit of 35 dB(A). Clearly this is a much higher allowable noise level than background + 5 dB(A) which would normally be, in a rural area, in the order of 25 dB(A), or lower. Many rural inhabitants choose their locality for this very point ie. **a lack of intrusive noise.**
- Under this system a resident could be subjected to night noise levels 10-15 dB(A), or greater, than those the resident would normally be accustomed to, with clear ramifications for annoyance and sleep disturbance.
- **To take a precautionary approach the noise criteria should be “background + 3 dB(A)” or “20 dB(A)” whichever is the LESSER. Only these levels will accurately reflect the true rural night time ambient noise levels.**
- The Guidelines state that the noise criteria have been developed “*to minimise the impact on the amenity of neighbouring properties.*” How will this happen? Neighbouring properties are just as vulnerable to noise as host properties, and will be just as vulnerable to set back distances, turbine noise, visual amenity and the normal array of problems associated with proximity of wind turbines. Once again, the reader is left with the real conclusion that the guidelines have been written by or for the wind industry.
- The Guidelines do not address the issue of **offensive noise**. Offensive noise is defined as “any noise that causes harm to a person and/or interferes with their rest and repose”. In mining and other industries a condition of consent is the prohibition of offensive noise. In **NSW wind turbines are exempt from this requirement**. It is uncertain whether, or if, the strengthening of the regulation of noise from wind farms under the *Protection of the Environment Operations Act (1997)* will address this anomaly and if so, how?
- The Guidelines do not address the issue of **ageing wind turbines**. As they get older there is increasing noise produced as gear boxes, shafts and bearings wear with time.

(ii) **Measurement and Modelling of Noise**

- The Guidelines use different criteria when measuring noise. It is important to have **consistency**. For instance, predicted noise levels **prior** to construction are to use  $L_{eq}$ , 10 minute measurements (page 27) whereas **after** construction when testing for compliance  $L_{90}$  is to be used. This will result in a situation where compliance testing cannot be assessed properly against predicted noise. **Where is the sense in that? Why would anyone ever adopt two different standards to measure the same thing, ie IWT noise, unless they were determined to confuse the monitoring process to ensure a lack of compliance impossible to prove? This inconsistency must be fixed immediately.**
- There is an erroneous assumption that as the noise of wind increases so too will the noise of the turbines running at a higher speed will be masked. Wind speed at turbines often does not correlate with wind speed at residents' homes. For instance, a home located down a valley and away from the wind turbine may experience very little wind at times when the wind turbine on a ridge will experience much greater wind speeds producing greater noise.
- This needs to be built into predictions and modelling of noise at residents' homes. At the moment it is not. ***This must be fixed immediately.***
- **It is axiomatic that instruments (loggers) used to monitor noise must be able to measure the full range of noise, especially when collecting background data.**
- According to the Guidelines loggers need only measure down to 20 dB(A).
- Clearly any background noise below 20 dB(A) will not be measured, and yet it is demonstrable that background noise in a rural setting (particularly at night) can drop down below this level. To obtain true background readings loggers must be able to record noise well below this level. If **average noise levels are being calculated the exclusion of below 20 dB(A) readings will skew the results to produce an erroneously high average.**
- Any data collection that guarantees to demonstrate higher background noise than is actually present will favour developers and disadvantage residents. ***This must be fixed immediately.***
- This inherent inaccuracy in the calculation of ambient background noise also affects the **accuracy of any modelling** of predicted noise of the operating wind farm. This then affects the limits imposed in the conditions of consent.



- Flyers Creek Wind Turbine Awareness Group recently provided the Department of Planning with a submission concerning Infigen Energy's proposed Flyers Creek Wind Farm. Acoustic work reported in the submission readily demonstrated the **inadequacies of the logging instrumentation** used to record background noise and the modelling used to predict the noise from the proposed wind farm.
- The assumptions made when modelling predicted noise levels are often wrong. Any modelling done that assumes flat terrain and a single noise source **cannot** translate to situations where terrain is hilly (with variable and turbulent wind characteristics) or where there is a cumulative effect from several or more turbines. ***This must be fixed immediately.***
- Modelling that does not account for the many likely variables will inevitably **under predict** the noise from the wind turbines. The Flyers Creek Wind Turbine Awareness Group's submission clearly showed that acoustic modelling for the operational Capital Wind Farm was **incorrect** as the wind turbines there are producing audible noise significantly above predicted levels and also above the allowable levels in the conditions of consent.
- The Guidelines make no real allowance for **temperature inversion**. It is mentioned on page 51 where "*noise monitoring during period(s) commensurate with 'worst case' operation and meteorological factors*" MAY be required as part of a Noise Compliance Report which MAY be required within the first 12 months. Temperature inversion occurs particularly in winter with colder night time temperatures as found commonly on higher (ie. Tablelands and ridges) terrain – a landscape typical of the areas proposed for wind turbine installation in NSW.

### (iii) **Low Frequency Noise (LFN) and Infrasound**

- Despite assertions within the Guidelines that LFN is not typically present, peer reviewed literature is increasingly citing its presence, as well as the presence of infrasound. LFN is generally accepted to be 20-400 Hz, while infrasound is <20 Hz.
- This is an increasing problem as it has also been demonstrated that LFN and infrasound increase as the size of the wind turbines increase (despite assertions by the wind industry to the contrary). As described previously the Guidelines should take into account the fact that wind turbines of between 5-10 MW may become the norm, thus requiring more stringent regulation. ***This must be fixed immediately.***
- **Both LFN and infrasound should be assessed INSIDE and OUTSIDE residences.**

- LFN levels of 65 dB(C) during the day and 60 dB(C) at night are considered acceptable. On what basis? One assumes that these are outside noise levels? What is an acceptable indoor level **where people sleep**?
- **In fact the indoor level for LFN should not exceed 45 dB (C) otherwise noise annoyances and sleep disturbance invariability will result.**
- **Infrasound** MUST also be measured and an upper limit set. Recent literature suggests that it should be considerably lower than the 60dB(C) often quoted. Moreover infrasound is more accurately calculated as dB(G) and this should be mandated for use in this instance.
- The Australian Federal Senate held an enquiry into The Social and Economic Impact of Rural Wind Farms releasing its report in June 2011. Recommendation 6 states: *“The Committee recommends that the National Acoustics Laboratories conduct a study and assessment of noise impacts of wind farms including the impacts of infrasound.”*
- Therefore there should be provision in the Guidelines to adjust maximum allowable noise limits (audible, LFN and infrasound) as emerging research dictates. ***This must be introduced immediately.***
- An upgrade of suitable instrumentation is required. The present Category 2 loggers obviously are not adequate to measure noise at low frequencies. There appears to be inadequacies also with Category 1 without modification. Instruments must be able to measure noise as dB(A), dB(C) and dB(G) as a minimum. Cost of better instrumentation and/or lack of proficiency in consultant acousticians and/or objections by developers should be no excuse to fail to undertake these noise measurements. ***This must be introduced immediately.***

#### (iv) **Tonality and Amplitude Modulation**

- The statement (page 33) that *“tonal characteristics typically do not occur in well designed and well maintained wind turbines”* is false. Waterloo Wind Farm in South Australia recently demonstrated tonality and it is regularly demonstrated internationally despite false and misleading statements to the contrary by the wind turbine industry because it is not in their financial interest to do so. Further, tonality incurs a noise penalty of 5dB(A) and is therefore of great concern to IWT developments.

- On page 34 the Guidelines state that “*an absence of tone measured at an intermediate location is sufficient proof that the tone at the receiver is not associated with the wind farm’s operation.*” This is false and illogical and “Intermediate location” is not defined. Residents (or receivers) can very easily experience tonality at a residence when there may be none demonstrated at an “intermediate location”. Differences in topography, landscape, wind speed, direction and number and placement of turbines can all exert an influence on tonality. Importantly, and to further refute this assertion, it has been demonstrated that there are significant differences in tonality between inside and outside dwellings.
- Similarly the argument is mounted for amplitude modulation. The Guidelines state that “*Absence of excessive modulation in noise emissions at an intermediate location is sufficient proof that the modulation is not a feature of the wind farm.*”
- The assumptions here likewise cannot be validated and these statements should be removed from the Guidelines.
- A further criticism is that the tonal assessment is inappropriate for narrow band tones; again this is totally disregarded and conspicuously absent.
- The description of amplitude modulation is poorly worded and requires clarification.

#### (v) **Issues of Compliance**

- A protocol for compliance testing must include the full range of sound, both audible and inaudible (LFN and infrasound) because it is at the very heart of the ongoing health concerns. The protocol must be comprehensive and measure noise as dB(A), dB(C) and dB(G). To safeguard sleep the protocol must include measurements both **inside** and **outside** affected residences within a minimum of 5 km.
- Compliance testing must occur within 12 months of the commencement of operation of a wind farm. The Guidelines are quite ambiguous here. On page 7 and page 36 it is stated that compliance testing will be compulsory within the first 12 months. However Appendix E (page 51) states that “*Conditions of consent **MAY** require the applicant to prepare and submit a Noise Compliance Report.*”
- From this it is assumed that, as the Director General actually issues the eventual Conditions of Consent, the DG can determine **whether** or **not** compliance testing within the first 12 months (or ever!) is even required. This lack of rigour again reflects the poor quality of this document.

- **Compliance testing must be mandatory. *This must be introduced immediately.***
- **Compliance testing must be carried out by an independent acoustician. *This likewise must be introduced immediately.***
- Any protocol for compliance testing must also include periodic (and unannounced) testing by an independent acoustician over the years of operation. As previously mentioned ageing wind turbines can emit increasing noise. **Ongoing surveillance must be mandatory. *This must be introduced immediately as an obvious regulatory requirement.***
- **All noise monitoring data must be available to the public and placed on the Department of Planning's website.** There must be no future fictitious issues of "commercial in confidence". This infringes democratic rights of citizens affected by noise issues.
- It should also be mandatory that the DG order an **independent** review of a wind farm's operation if a landholder so requests. The draft guidelines merely allows the DG to order such a review if he/she considers it warranted. This provides no guarantees for the landholder and does not allow for a fair, practical or legal framework for complaint resolution and compliance assessment. Moreover the landholder rights to natural justice are obviously jeopardised. What possible good could this serve?
- The Guidelines state that the proponent (wind energy developer) will commission an expert to carry out any review. This self-regulation is **totally unacceptable**. An independent expert must be appointed by an independent and relevant professional organisation. ***This must be introduced immediately.***
- Most importantly, **there is no indication within the Guidelines of the consequences of non compliance. Wind turbines must cease operation if there is evidence of non compliance and remain so until compliance can be achieved.** This occurs with other industries. Industrial wind turbines must not be exempted and this must be legislated (with the inclusion of fines as well as closure). The EPA, as the newly proposed regulatory body, must have sufficient powers to enforce such legislation. ***This must be introduced immediately.***
- Legislation must also provide for compensation to landholders in the event of distress caused by wind turbines remaining operational when non-compliant. ***This must be introduced immediately.***

## 7. HEALTH

- The health effects of noise from wind turbines are becoming increasingly important as the expanding body of research (national and international) demonstrates. Considering this, the brief paragraphs given to this topic in the Guidelines (pages 7 and 21) are inadequate and only draw attention to the deficiency of this topic in this document.
- It is inappropriate to only confine consideration of impacts to within 2 km of any proposed wind turbine. As mentioned previously the evidence now is that this distance should be 10 km until we have research to indicate otherwise.
- The recommendations from the Senate enquiry into The Social and Economic Impact of Rural Wind Farms have been totally ignored. For instance (in Recommendation 4) it is stated that there should be “*as a matter of priority thorough, adequately resourced epidemiological and laboratory studies on the possible effects of wind farms on human health.*” Why do the taxpayers of this country tolerate wasteful enquiries which are (sadly) ignored?
- Evolving research into health effects is likely to continuously change the parameters of what is acceptable when considering noise emissions from wind turbines. Any Guidelines must be flexible enough to incorporate this.
- The NSW Department of Health is listed as the authority for health effects in NSW such that “*The Department of Planning and Infrastructure may refer applications to the NSW Department of Health as part of the assessment.*” Given that the Department of Health has not conducted any assessment of the health impacts itself how can it consult with the Department of Planning on this matter with any authority? The Department of Health must regain its role in the protection of public health and initiate immediate research into these health effects, otherwise it will continue to be judged as an organisation which has placed itself into a position of irrelevancy in the current debate. The continued Department of Health dogma that the rural population should carry the responsibility for the entire population’s renewable fuel good moment is unacceptable, as is the abrogation of its duty of care to the citizens it is assigned to protect.
- There are only THREE references on health cited in the literature reference list. Two are from the National Health and Medical Research Council (NHMRC) from 2010 which, on the NHMRC’s own admission are now outdated and which are due to be

updated later this year. The other is from the Victorian Government although it is not made clear where this is used.

- It is obvious that this very important issue has been ignored with token platitudinous statements which in no way protect any landholders who may suffer from adverse health sequelae from industrial wind turbines. This represents a health disgrace by any measure.

## **8. ENVIRONMENTAL CONSIDERATIONS**

- Once a wind farm proponent submits an application to the Department of Planning there should be a mandatory lapse time of 18 months before the proponent's Environmental Assessment is submitted to the Department. This is necessary to enable district residents to assess the impacts on their community and environment, and to carry out such environmental (and other) assessments they consider necessary. It is often necessary to study impacts over a 12 month period to allow for significant seasonal variations in fauna movements, flora life cycles, and weather, rainfall and wind patterns. This time frame is particularly necessary in view of the mere 60 days proposed for the public exhibition of the proponent's Environmental Assessment.
- The Guidelines are virtually silent on water quality and erosion. There is significant land disruption during construction particularly. Clearly wind farms are usually sited on ridgelines and hilly country which means that access is also across country that will be vulnerable to erosion. This has significant implications for water erosion particularly near water courses and dams.
- Therefore, no turbines should be erected within 1 km of a watercourse, 2 km of a lake of more than 5 hectares and no closer than 1 km from a road or highway. This is particularly important in catchments of water storages which are being used for potable water.
- Habitats of threatened and vulnerable species (as defined by either the relevant State or Federal Acts) must be protected and there should be no disruption of habitats either during construction or operation. This must include height restrictions near the breeding grounds or migratory flight paths of endangered birds or bats.
- The Rural Fire Service defines fire-prone areas. No wind turbines should be built in these areas because of the difficulty of fighting fires that massive wind turbines present. There are no-fly zones generally of 1 km from a wind turbine where it is not safe for aircraft to traverse. This puts obvious obstructions to managing uncontrolled

bush fires which in turn further endangers human life. ***This must be introduced immediately.***

- Any wind turbine that is nevertheless built in a fire prone area must not operate in extreme or catastrophic fire conditions and should be removed at the earliest opportunity in the interest of human safety.
- In addition, when considering wind turbines as a source of fire themselves, all wind turbines must compulsorily be fitted with fire suppressors.

## 9. REAL ESTATE VALUES

- The Draft Guidelines addresses this aspect with obvious minimal interest.
- Numerous studies both nationally and internationally show that land values around an industrial wind turbine development decrease. Figures range from 25 to 50% depending on how close a property is to wind turbines.
- Although the Guidelines specify that issues regarding land values “should be considered” within the 2 km band this is not restrictive. Proponents will often consider land values out to 10 km which will obviously bring in a dilution factor. That is, more properties will be in the 5-10 km band than say the 2-5 km and particularly the 0-2 km bands. Land values will be less affected at 10 km than say 2 km, but this will not be demonstrated and importantly will be reflected in inaccurate average prices.
- The results are likely to be further skewed by the demonstrable fact that properties close to wind turbines do not sell readily and/or are unsalable. If a property cannot be sold this will not be reflected in statistics.
- In many instances the wind developer will buy up a property at a price which does not reflect the true market value.
- It has also been shown, and is the authors’ experience, that the mere prospect of a wind developer submitting a development application is sufficient to significantly reduce marketability of adjacent property at least out to the 5 km limit.
- The guidelines do not allow for compensation or mention voluntary or involuntary acquisition. Fair real estate values must form part of the development process. ***This must be introduced immediately.***

## 10. ISSUES WITH DECOMMISSIONING

- This is a very important aspect of industrial wind turbine installations. It must be mandatory that decommissioning is dealt with openly and clearly in the contracts between the proponent and the host. In NSW, in the event of the proponent defaulting, it is the responsibility of the land holder to decommission any wind turbines on his land. This is often not spelt out clearly in any contract.
- The Guidelines state on page 26 “*a condition of consent MAY be imposed requiring the proponent to pay a decommissioning bond in the event the Development Application is approved.*” **This MUST be mandatory and *must be introduced immediately.***
- The current argument propounded by the wind industry proponents that the scrap value of the wind turbines would always cover the cost of decommissioning does not stand up to scrutiny and must not ever be given any legitimacy. This trite statement again is not representative of the truth and has never taken into account the increasingly cost of labour to effect the turbine removal, the economies of scale that were available to the proponent when the turbines were actually constructed and the doubtful availability of recycling facilities for the specialised turbine components (currently not available in Australia and who knows what the situation will be in 20 years time!).
- Bonds (AAA rated) must be paid for the entire calculated cost of decommissioning prior to the commencement of construction. The bonds should be administered by an independent, statutory body.
- Over and above the payment of a bond the proponent should present the Department of Planning, as part of its development application, a full decommissioning schedule and associated costs including deconstruction, transport, and recycling of components. This schedule must include the methods of recycling or safe disposal of toxic IWT products. This report should be independently verified. Given the unknown circumstances that may be in place in 15-25 years there must be a “margin of safety” of, say, + 10% in these costings. This figure must be indexed to provide the safety necessary to safeguard the Australian taxpayer.



## 11. SUBMISSION TO THE DEPARTMENT OF PLANNING AND INFRASTRUCTURE.

The above submission is presented to the Department of Planning and Infrastructure for consideration.

We retain the right to further add to this submission beyond the 14<sup>th</sup> March, 2012 should we wish to present further information, facts and material pertinent to the Planning Guidelines – Wind Farms

Signatures:

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12 March, 2011

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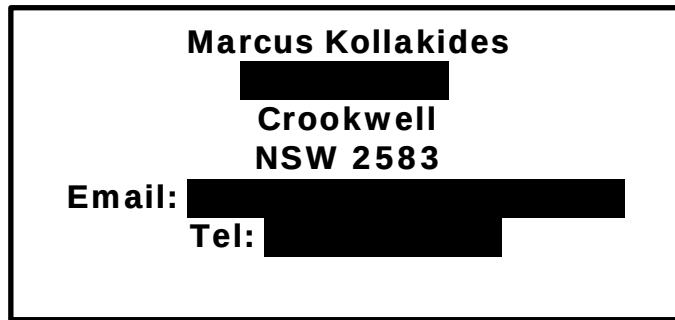
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**"NSW Government Blows  
Rural Community Away."**

**Submission on NSW Government Draft 2016  
Wind Energy Policy.**

**By: Marcus Kollakides  
September 2016.**





## **Submission on the NSW Government Draft 2016 Wind Energy Policy.**

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## 1. Executive Summary.

*The Draft 2016 Wind Energy Policy* is a failed deficient document which comprehends only the small picture by relying on invalid data.

The *Draft 2016 Wind Energy Policy* distracts from and avoids the big picture or macro aim of the NSW government to distort the energy market. The purpose appears clear. To inflate the sale value of the grid. The result will be to the detriment of taxpayers and consumers.

At the heart of the Draft Policy are **three critical failures:-**

- Administrative Failure: The NSW *Government Sector Employment Act 2013* requires quality outputs and actions which are in the public interest. In the *Draft 2016 Wind Energy Policy* does not meet these obligations. Instead the Draft relies on unscientific methodology and unreliable, obsolete data. Further, the Draft fails to comprehend or provide comparative analysis with the solar alternative. The Draft breaches the Act.
- Secondly, the *Draft 2016 Wind Energy Policy* lends support to a de-facto like relationship wherein the NSW government is imposing extra ordinary planning powers to sweep away normal procedures in order to create a clear a path for the commercial operators of wind farm turbines. The Draft avoids and abrogates government responsibility for financial issues such as bonds or just compensation to adversely affected parties.
- Above all, the Draft wrongfully supports distortion of the energy market forces and substantial lessening of competition.

Of the two chief competing renewable power sources, solar and wind, solar power is flexible and wind is not. Solar can either feed into the grid or it can form part of the lead technology, to generate and store on site.

Wind is constrained to the grid only. It is for that reason the NSW government and the *Draft policy* appear all about advancing the interests of wind at the expense of solar. The 2016 *draft Wind Energy Policy* is about inflating the future value of the poles and wires grid and thereby, to inflate any proceeds which the government might realize from the sale or lease of the grid.

**The solutions to the NSW *Draft 2016 Wind Energy Policy* are to initiate an ACCC Inquiry and a Judicial Inquiry into this failure of governance.**

## **2. Failures of the Draft Policy. NSW Government Sector Employment Act 2013. - Ethics.**

The NSW *Government Sector Employment Act 2013* establishes a legal requirement for all people employed in the government sector, to act ethically and in the public interest. The framework sets out four government sector core values and 18 principles that guide their implementation.

Sections 25 and 30 of the Act make Department Secretaries/Heads of Agencies responsible for ethical conduct and management of Agencies.

The *2016 Draft Wind Energy Policy*, reads as professionally sub-standard, unscientific and not in the public interest. It therefore breaches the Act. Attention is drawn to provisions of Part 2 of the Act, as set out below, which had they been complied with could well have remedied the failures of the 2016 Draft wind Energy Plan

- **S.6 (a)** requires a preserving of the public interest, defending public value...
- **S.7 Trust** - (b) Build relationships based on mutual respect.
- Service (a) Provide services fairly with a focus on customer needs.
- (d) Focus on quality while maximising service delivery.
- Accountability (c) Provide transparency to enable public scrutiny.

The *Government Sector Employment Act 2013* stipulates there is no hierarchy among these core values and each is of equal importance. The Mandatory Conduct provisions require that the Ethical Framework is to be applied at all times including in working relations with clients, customers, stakeholders.

These provisions **require acting in the public interest** and state that "*Acting in ways that are expedient or convenient, but which do not promote the integrity, trust, service and accountability of the public sector, are not in the public interest.*"

**It appears incumbent upon the Public Service Commissioner to intervene in this matter of the 2016 Draft to ensure these core values are restored.**

### 3. Crookwell Community Consultation.

The Draft Plan was the subject of a Community Consultation evening held in Crookwell NSW, at Crookwell RSL Services Club on 01/09/2016. The meeting was chaired by the Executive Director, Resources and Industry Policy, Department of Planning and Environment, with several other officials assisting.

About 70 members of the public attended and some took the trouble to register at the door. At the invitation of the Chair, questions were put with the meeting convened and also informally afterwards.

About two dozen questions from the floor all were opposed to, or concerned about shortcomings in the Draft Plan. Three were in favour of the Draft. Of those one declared himself to be a farmer with wind turbines on his property, the second noted he was an employee manager of a wind farm and the third person spoke of the metaphysical beauty of the turbines. A good faith summary follows.

#### Comments and Questions from the floor:-

- **Wildlife:** Question about why the Draft Plan failing to address the avian kill rate caused by wind turbines, especially of protected species like bats and raptors?  
Department reply "we will take that as a statement thank you."
- **Fire and toxic materials:** Question about fire and aviation clearances rendering aerial fire fighters unable to support any RFS ground crews should a fire break out. Noting there is no Safe Operating Procedure (SOP) for fighting a turbine fire and that local 'haz mat' fire fighters had indicated they would not attend a turbine fire. Concern that firefighters lacked expertise or equipment to deal with a fire in a 163 metre high turbine?  
Department reply "we believe these fires can be fought without aerial support but we will take that on-board."
- **Noise Averaging:** Question that in cold climates such as here in the Southern Tablelands a ground level layer of cold air occurs at night and magnifies the noise problem, yet this negative effect is overlooked because the Draft Plan averages noise output over 24 hours, allowing the adverse effect to take place.  
Department reply: "We hadn't foreseen this factor and we will reconsider the problem"
- **Obsolete Data:** Question that the Draft Plan was a failure and why was the Department was relying on the paucity of information in outdated or inadequate studies about effects on health and real estate values?  
Department reply, "we can't agree with that"

- **No Buffer Zone:** Question about why a 2km buffer zone or any minimum had not been legislated and made applicable?  
Department Reply, "We now have the visual impact assessment tool" (pointing to a slide showing an angle calculator" and "we believe when the turbine is 8km or more away, then it becomes only part of the background"
- **New super size turbines:** Question about the increasing span and height of new turbines and why the Draft Plan sought to justify these new units based on obsolete information gathered from older wind farms where turbines were less than half the size?  
Department reply, "we have used all the available information and we now have the visual impact assessment tool."
- **Decommissioning Bond:** Question about decommissioning costs and why there was no bond requirement imposed as condition of consent given that years later a \$2 shelf company owning the turbines could declare bankruptcy and avoid liability?  
Department reply, "we think the individual landowner is best placed to negotiate that concern with the company operating the turbines."
- **Inadequate benefits:** Question about lack of community benefits and why were Local Councils only receiving \$2,500 per turbine?  
Department reply "that is what they have always asked for".
- **Bargaining power:** Question about the imbalance of bargaining power between local communities and wind farm companies?  
Department Reply, "we believe each community or individual is best placed to negotiate their particular needs."
- **Vagueness:** Complaint that the Chair was not providing specifics or certainty and was answering most questions by saying "that is a good question which we will consider" or "thank you and we will take that on-board?"  
Department reply, "I'm sorry we are doing our best."
- **No Carbon calculation:** Question about why the Draft Plan lacked a calculator to evaluate the environmental merit of a wind farm in terms of a carbon footprint calculation for manufacture, installation and operation and also as compared to the solar alternative?  
Department reply "this is a wind energy policy not solar."
- **No limit on turbine numbers:** Question about saturation, threshold or ratios Department might have as to maximum number of turbines in the shire.  
Department reply: "There is no maximum number because each turbine application treated on its merit."

- **Inadequate zone distribution:** Question about wind speed zones and given the current group of wind farms were only switched on to operate 30% of the time, why was the Department concentrating them into a small number of high wind speed zones instead of spreading them out into medium wind areas where they could operate at say 60% of the time and produce the same result? Department reply, "we need to locate them where the electricity grid is."

#### **4. Urbis Review of Impact on Property Real Values.**

The devil is in the detail. The NSW Office of Environment and Heritage (OEH) commissioned Urbis to investigate the impact of wind farms on NSW property prices. At first glance Urbis may appear to deliver the answer OEH wanted to hear, but the actual detail of the Urbis report reveals a different story and Urbis is to be commended for including it.

The Urbis analysis exposes the lack of appropriate data or comparative analytics to assess adverse impacts of wind farms lowering property prices. It also fails to comprehend properties unable to secure buyers.

The OEH only selectively quotes from the Urbis report. In the detail Urbis says *"...based on the available data and traditional valuation sales analysis techniques..... it is our expert opinion that wind farms may not significantly impact rural properties used for agricultural purposes."* (Underlining added by us)

Urbis goes on to say...

- *"There is insufficient data to provide a definitive answer..."*
- *"There is limited available sales data to make a conclusive finding relating to value impacts....."*
- *"We encountered limitations in the availability of sales transactions around wind farms in NSW and some inconsistency in results.."*
- *Those studies which identified a negative impact are based in the Northern Hemisphere ..."*

Urbis identifies *"changes in the circumstances of future wind farm developments that may warrant future additional studies into value change..."* Understandably Urbis neglects to factor in the significantly increased size of new wind turbines, compared to the smaller units upon which their available (obsolete) studies are based.

It is important to note that the OEH does not apply impartial analysis to the Urbis report where it seeks to argue that available data suggests wind turbines do not adversely impact property values. In fact OEH fails to properly recognize that the Urbis cited case studies rely on a statistically invalid small sample size of only 10 properties and are only supported by anecdotal comments from anonymous real estate agents.

OEH failed to exercise its own expertise to highlight the methodological flaws in the data relied upon by Urbis and consequently the unsafe conclusions reached about adverse affect and compensation.

#### **A sample of the Urbis data problems:-**

- The comparisons are not based on like for like property but rely only on general area property price averages.
- Results are based on effects of older smaller wind turbine types.
- Some properties lacked a dwelling or any indication of whether a dwelling was intended.
- One real estate agent did comment that wind turbines "limit buyers profile as some do not wish to live near wind farm".
- Some price increases could be explained by further investment in the intervening period, such as a house constructed, whilst for other properties such data was simply missing or omitted.
- Information about whether the property was in rural production or taken out of production was missing.
- No information was available about whether dwellings were occupied full time or only occasionally.

#### **5. Subsidizing Obsolescence in Poles and Wires with Turbines.**

The NSW Government has been trying to realize a significant sum of money by ridding itself of the electricity poles and wires grid. *The Draft 2016 Wind Energy Policy* exploits the premise that wind farm turbines must be located close to the grid and are grid dependent.

There are no recent advances in technology for alternative electricity transmission methods to replace the grid. Wind turbines are part of a NSW government strategy to prevent the grid becoming obsolete.

Advances in electricity storage systems like the Tesla battery wall are already being marketed to integrate with solar panels and form **"generate and store on site"** systems, rendering the grid redundant.

Wind turbines and their solar competitors have similar projected lifespans of 20+ years. The threat to the grid and wind turbines comes from solar. The race is on to contrive wind turbines are into the grid before solar generate and store on site technology makes the turbines obsolete.

Wind turbines will become obsolete before the end of their designed working life. With no decommissioning bond system in place, farmers will be left with the liability to dispose of them and they simply will not be able to afford to do so, leaving taxpayers to foot the bill.

The ameliorated unit costs to consumers of turbine produced electricity and costs of operating the grid itself, will therefore become punitive in lieu of this failed policy.

The NSW government can surely foresee these market trends and its default position amounts to locking in as quickly as possible the maximum number of wind turbines to artificially inflate the short-term grid sale or lease value. It could then impose a further cost burden on consumers by legislating a **grid facility fee**, payable even by those who choose to go solar and go off the grid. This cannot be a responsible use of taxpayer dollars nor an equitable burden to impose on electricity consumers.

The previously out of sight out of mind despoliation of rural areas would come to directly disadvantage the hip pocket of every urban electricity consumer. Effectively locking them in to the grid power and out of solar 'generate and store on site' technology.

## **6. Compensation for Adversely Affected Property.**

The *2016 Draft Wind Energy Policy* confirms the NSW Government preference to not pay just compensation for adversely affected property.

### ***The 2016 Draft Wind Energy Policy would support a strategy of:-***

- (i)** Deny any negative property value effects from wind turbines.
- (ii)** Rely only on obsolete, small and invalid studies on the possible negative health effects caused by wind turbines.
- (iii)** 'Spin' the results of its own study into real estate property prices.
- (iv)** Frame all messages relating to compensation or adverse effects as the sole responsibility of the wind farm company.
- (v)** Avoid any deductive reasoning connecting Section 51 (xxxi) of the Australian Constitution.....  
( *The acquisition of property on just terms from any State or person for any purpose in respect of which the Parliament has power to make laws;*) or the NSW Land Acquisition (Just Terms Compensation) Act 1991 - Section 4 (1), which comprehends that the NSW Government has liability to compensate where it acquires *an interest in land*.
- (vi)** Articulate no causal links between the Commonwealth/ State Funding Agreements with the Renewable Energy Target (RET) and the subsequent NSW Government methods of applying over-riding planning powers via the (NSW) State Significant Development (SSD) etc.
- (vii)** Deny liability for wind farm developments enabled by extraordinary NSW Government planning powers which over-ride normal processes.
- (viii)** Avoid considerations regarding liability arising from possible future determinations as they may impact mortgage financing and insurance.



## 7. Conclusions.

### The Draft 2016 Wind Energy Policy:-

- Fails to address key failures as exemplified in the question and answer session at the Crookwell meeting including fire safety and a host of other community concerns.
- Fails to make a case for imposition of over-riding state planning powers.
- Fails to make a case for favouring wind energy over solar.
- Relies on out of date, anecdotal and statistically invalid data.
- Avoids the issue of just compensation and seeks instead to artificially inflate the value of the poles and wires grid.
- Raises so many concerns that the *Draft 2016 Wind Energy Policy* should be shelved pending official Inquiry.

## 8. Recommendations

**(i) Shelve the 2016 Draft Wind Energy Policy.** Suspend the application of state planning powers which further the proliferation of wind turbines and undertake extensive up to date research into the developing energy market including wind and solar.

**(ii)** Having regard for the problems identified in the *Draft 2016 Wind Energy Policy*, the **NSW Public Service Commissioner should hold an Inquiry** for the purposes of establishing whether breaches of quality performance and or acting in the public interest have occurred under the terms of the *NSW Government Sector Employment Act 2013*.

**(iii) Initiate a Judicial, ACCC or other appropriate investigative Inquiry** into the totality of the NSW Government Electricity policy including efficacy and propriety, the potential to distort the market, to substantially lessen competition and to disadvantage consumers and taxpayers.

## Caleb Ball

---

**From:** system@acelo.com on behalf of Tracey Carpenter [REDACTED]  
**Sent:** Thursday, 15 September 2016 12:10 PM  
**To:** Caleb Ball  
**Cc:** Felicity Greenway  
**Subject:** Submission Details for company Bathurst Community Climate Action Network (org\_comments)

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Confidentiality Requested: no

Submitted by a Planner: no

Disclosable Political Donation:

Name: Tracey Carpenter  
Organisation: Bathurst Community Climate Action Network (President)  
Govt. Agency: No  
Email: [REDACTED]

Address:

[REDACTED]  
Bathurst, NSW  
2795

Content:  
Dear Sir/Madam,

On behalf of Bathurst Community Climate Action Network I wanted to take the opportunity to comment on the New Wind Energy Planning Framework. BCCAN generally supports a new Framework that provides greater certainty and guidance on the assessment of wind energy projects in NSW which offer significant economic boost to regional areas like the Central West.

With increasing CO2 levels causing warming of the Earth's atmosphere and oceans, the breakup of ice sheets, glacial retreat, sea level rise, and ocean acidification, it is clear that we urgently need improved action in NSW to transition away from fossil fuels and increase our investment in renewable energy.

Wind energy will play an important role in that transition, so it is important that the New Wind Energy Planning Framework encourages investors to develop wind energy projects in NSW.

There are a number of positive aspects to the new Framework including an increased emphasis on community engagement and consultation; a shift away from arbitrary, strict buffer zones; and confirmation that wind turbines do not cause adverse impacts on health.

However I am concerned that the new Framework puts too high an emphasis on the visual impacts of wind turbines. I do not agree that the visual impacts of wind energy projects are that much more significant than other major projects, such as open cut coal mines or high-rise residential buildings, that they warrant a more stringent assessment. This could act as a deterrent for investors in NSW.

Wind energy has significant benefits to the people of NSW and I urge the NSW government to ensure its new Framework promotes investment in wind energy here in NSW and is finalised in a timely manner.

Yours sincerely,  
Tracey Carpenter  
Bathurst Community Climate Action Network

Sent from my iPhone

IP Address: [REDACTED]  
Submission: Online Submission from company Bathurst Community Climate Action Network (org\_comments)

## Caleb Ball

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**From:** system@acelo.com on behalf of ingrid saywell [REDACTED]  
**Sent:** Thursday, 15 September 2016 7:25 PM  
**To:** Caleb Ball  
**Cc:** Felicity Greenway  
**Subject:** Submission Details for ingrid saywell (comments)

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Confidentiality Requested: no

Submitted by a Planner: no

Disclosable Political Donation:

Name: ingrid saywell

Email: [REDACTED]

Address:

[REDACTED]

pyramul, NSW  
2850

Content:

I have read the documents on exhibition and compared them with the previous draft 2009 South Australian Wind Farm Guidelines.

1. Noise is supposed to be the same - 35dB(A) or background noise plus 5 dB(A). However the new draft says averaging 35dB(A). In this quiet country backwater we expect no more than 16dB(A) at night so my suggestion is that noise inside an affected house should be capped at 35dB. This follows the 2009 SA document that quotes WHO in that above 35dB(A) can cause health problems. There is plenty of research out there on the adverse affects of sleep disruption from stroke and hypertension to learning difficulties in children and Alzheimers, etc. NSW Health must be referring to ultra and infra sound not sleep disruption if they say windfarm noise causes no adverse health outcomes. This should be of primary importance to NSW Planning. Setbacks of wind towers should follow in that they should be placed no closer than a location which causes no more than 35dB noise inside a house of non associated landowners. This criteria would govern the height, setback and type of turbine proposed, and may make that industry deploy quieter machines than they currently use in order to comply with this guideline. If they find they cannot comply to this they should have to retrofit or relocate residences that cannot comply. No pay to pollute licenses should be issued as it is counter to public interest. The idea that quiet country areas are plagued with traffic on roads, railway lines and farm machinery noise is false and these noises are definitely not heard after dark to disrupt sleep. In Pyramul it is almost silent 16dB(A) maximum at night, and even 35dB(A) will be a hardship to long term residents who will just not get used to it.

2. In Europe- which I take is your role model, most wind towers are no more than about 100m, with those 160m plus being located off shore- sometimes over 12km off shore and out of sight- and definitely not near agriculture. In Northern Europe unlike here, cattle are housed in barns and the pasture is regularly mowed for hay. These sheds are insulated and double glazed like the homes. Here we practice free range 'ranching' and our houses are often uninsulated due to the our different climate. Noise proliferation into homes is not such a factor as it is here in consequence, so setbacks and a sound cap is much more important. Please take this into consideration in your guidelines.

3. Wind tower setbacks from farms that have been negotiated under previous legislation should be kept and wind towers moved no closer and be no louder than the original approval if the proponent applies for approval modification.

4. Green Star principles should be applied in the planning approval process. Embodied energy of manufacture, transportation, construction and maintenance, also cradle to cradle disposal and recycling should form part of all the submissions. We are not saving the planet with wind energy if it takes years to overcome its embodied energy loading, and if they fail are just left rusting in the environment.

5. Department of Planning needs to scrutinize the reports submitted in greater expert detail. The ones I have seen for our local Wind Farm are so poor, with inept reports and falsification of photomontages and aerial photography, and fudging of acoustic reporting that they should have been rejected if we were talking of an approval for, say, a large shopping centre, high rise or Pub. Why should Wind farm approvals be made so much easier- with less rigorous scrutiny than any other development?

IP Address: [REDACTED]

Submission: Online Submission from ingrid saywell (comments)

[https://majorprojects.affinitylive.com/?action=view\\_activity&id=162763](https://majorprojects.affinitylive.com/?action=view_activity&id=162763)

Submission for Job: #7859

[https://majorprojects.affinitylive.com/?action=view\\_job&id=7859](https://majorprojects.affinitylive.com/?action=view_job&id=7859)

## Caleb Ball

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**From:** system@acelo.com on behalf of Ralph Price [REDACTED]  
**Sent:** Thursday, 15 September 2016 8:26 PM  
**To:** Caleb Ball  
**Cc:** Felicity Greenway  
**Subject:** Submission Details for Ralph Price (comments)

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Confidentiality Requested: no

Submitted by a Planner: no

Disclosable Political Donation:

Name: Ralph Price  
Email: [REDACTED]

Address:

[REDACTED]

Pyramul, NSW  
2850

Content:

Thank you for looking further at windfarm guidelines. Here in Pyramul we had real problems with the windfarm proposed for our area. The windfarm people approached local farmers secretly and the whole proposal was very well advanced before we ever had a clue about what was coming. Neighbours we had known for years, and could be even relatives, did not tell us as they were sworn to secrecy and it has driven a wedge right through this close knit community. There is an abrupt division between those who are getting the towers with benefits- and planning to move away on the proceeds; and those who have to suffer having the towers close by and get no benefit at all- probably just headaches. People don't talk or socialise anymore like they used to. The windfarm people take these associated farmers to dinner elsewhere whenever there is a community meeting to discuss the proposals, so they cannot hear the arguments for and against- only hearing the snow job from the salesman who signs them up to leases. Community issues were not greatly heard and we felt that the community consultation was just to make us feel like we were having input rather than taking any notice of our very real concerns. There should be teeth in what the community says and wants, not just open slather for windfarm developers.

As far as noise goes, our place is just about silent at night. There are no railway lines, airports or even minor roads around here that cause any noise at night. As for farm machinery, well I never use it after dark and only seasonally during the day, and it is not consistently loud, not like a wind farm. I still am unclear as to how the windfarm noise will affect my livestock. They are my family's livelihood not a hobby. The Wind farm people are estimating 35dB at our back door but our rear boundary is only a hundred or so meters from the towers and I have to work there and raise livestock there, where they estimate it will be 75dB(A) plus.

How am I and my aged parents going to sleep with all that noise when all our lives we have lived with silence, and how will it adversely affect our health if we can't sleep and don't get used to it? Can you safeguard our interests, and people like us, in your new guidelines? As a matter of course non-associated residences should be retrofitted to reduce noise or relocated at the wind farm developer's expense.

As for property values- you have issued a report that indicates property values will 'only' drop by about 12%. How would you feel if your home/business was after a development next door worth only \$880,000 when it had been previously worth a \$million- if you could find a buyer- and you were just told to 'suck it up'?

If there is no problem with noise from wind towers why aren't they put in National parks? No-one lives there and they are huge areas of unoccupied land.

I am also concerned with the issue of how much carbon is generated by building and maintaining windfarms, and does the power they generate ever make it up.

I am in the local volunteer fire brigade and I am concerned that wind towers could become a fire hazard if they short out and cause property damage to surrounding farms.

Can you please take into consideration these issues in your new windfarm guidelines.

IP Address: [REDACTED]  
Submission: Online Submission from Ralph Price (comments)  
[https://majorprojects.affinitylive.com/?action=view\\_activity&id=162773](https://majorprojects.affinitylive.com/?action=view_activity&id=162773)

Submission for Job: #7859  
[https://majorprojects.affinitylive.com/?action=view\\_job&id=7859](https://majorprojects.affinitylive.com/?action=view_job&id=7859)

## Caleb Ball

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**From:** system@acelo.com on behalf of Andrew Johnston  
[REDACTED]  
**Sent:** Friday, 16 September 2016 7:54 AM  
**To:** Caleb Ball  
**Cc:** Felicity Greenway  
**Subject:** Submission Details for Andrew Johnston (comments)

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Confidentiality Requested: no

Submitted by a Planner: no

Disclosable Political Donation:

Name: Andrew Johnston

Email: [REDACTED]

Address:

[REDACTED]

Mount Fairy, NSW  
2580

Content:

This submission is to outline the failure of the draft guidelines of wind farms.

The draft guidelines should be an attempt to make the wind farms more accountable for the environment and affected residents that they are forced upon. However, these proposed guidelines fail to do this, seeming to favor the wind industry.

The draft guidelines in respect to the visual impact give more consideration to those people that live in towns, according to the graph, than people living underneath or between wind turbines.

According to the graph Table 8, the lines showing the "avoidance" distance required by the guidelines, are based on turbine height and give a farcical view to the aspects that are to be considered.

Developers are supposed to avoid placing turbines closer to residences or viewpoints than is indicated by each line, or they have to provide a justification of why they need to be there. Whereas no justification is required for turbines placed beyond the distance indicated by the line.

Therefore, for residences with "Low Scenic Quality" views developers are supposed to give justification for placing turbines closer than 1 km but there is no justification required for turbines more than 1 km away, even if they are 250 mtrs high.

The special "scenic" situations that have been used in the guidelines are ridiculous, stating that situations like the Blue Mountains and Sydney Harbour Bridge are special is a tourist view of the world.

The Blue Mountains should not be used in this guideline as there is no way that turbines would be allowed in this situation, so rendering the analogy false.

In using a Sydney Landscape Designer point of view as your consultants is farcical. Who gives these consultants the right to say what a landscape view is worth and that my rural outlook is not as "SPECIAL" as that of people who live in the city.

In using this approach people that live in cities and towns that can;t see beyond their neighbouring buildings, are given more consideration than those rural residences with unobstructed views that will be greatly affected.

The draft guidelines need to be changed in order to give

those residences that are affected by proposed wind farms more say in the area in which they live.

IP Address: [REDACTED]

Submission: Online Submission from Andrew Johnston (comments)

[https://majorprojects.affinitylive.com/?action=view\\_activity&id=162814](https://majorprojects.affinitylive.com/?action=view_activity&id=162814)

Submission for Job: #7859

[https://majorprojects.affinitylive.com/?action=view\\_job&id=7859](https://majorprojects.affinitylive.com/?action=view_job&id=7859)

Site: #0

[https://majorprojects.affinitylive.com/?action=view\\_site&id=0](https://majorprojects.affinitylive.com/?action=view_site&id=0)

## Caleb Ball

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**From:** system@acelo.com on behalf of Gregory Schaefer [REDACTED]  
**Sent:** Friday, 16 September 2016 9:56 AM  
**To:** Caleb Ball  
**Cc:** Felicity Greenway  
**Subject:** Submission Details for Gregory Schaefer of GDM Schaefer (comments)

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Confidentiality Requested: no

Submitted by a Planner: no

Disclosable Political Donation:

Name: Gregory Schaefer  
Organisation: GDM Schaefer (Owner)  
Email: [REDACTED]

Address:

[REDACTED]  
Walcha, NSW  
2354

Content:  
Dear Sir/Madame,

I support the role of wind farms as a viable and necessary component of the renewable energy mix to reduce Australia's reliance on fossil fuels and meet renewable energy targets of Australia and particularly NSW. I acknowledge that guidelines specific to wind farms are necessary in addition to existing legislated requirements for EIS's and Development Approval. These guidelines should address reasonable concerns of noise and visual impacts but not be so complex and onerous that they will adversely impact the location and number of towers possible and hence the viability of the proposed wind farm development.

The proposed lower noise level of 35dB(A) for NSW when it is 40dB(A) for both Victoria and SA would necessitate a nominal setback 55% greater while the noise reduction is only 14%. This may significantly and adversely reduce the number of suitable wind tower locations.

Visual impacts are by their nature are subjective and dependant on the attitude of those affected. Using a linear scale proportional to height of tower plus blade length and distance does not allow for the fact that there is a distance at which blades firstly, then towers are not significantly visible.

I would also suggest that before being finalised that the proposed guidelines be tested on with existing developed sites and if needed modified so that any unnecessary, adverse impacts on future proposed wind farm developments will be avoided.

Gregory Schaefer

IP Address: [REDACTED]  
Submission: Online Submission from Gregory Schaefer of GDM Schaefer (comments)  
[https://majorprojects.affinitylive.com/?action=view\\_activity&id=162843](https://majorprojects.affinitylive.com/?action=view_activity&id=162843)

Submission for Job: #7859  
[https://majorprojects.affinitylive.com/?action=view\\_job&id=7859](https://majorprojects.affinitylive.com/?action=view_job&id=7859)

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19 September 2016

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Ms Felicity Greenway  
Director, Industry and Infrastructure Policy  
NSW Department of Planning and Environment  
GPO Box 39  
Sydney NSW 2001

Dear Ms Greenway

### **Draft Wind Energy Planning Framework**

Thank you for the opportunity to make this submission on the NSW Government's Draft Wind Energy Planning Framework. My submission draws upon over 25 years' experience leading community consultation on contested development projects and my experience as Independent Chair of the Jupiter Community Consultative Committee for a wind energy proposal in NSW.

This submission focusses on comment on the draft proposals to guide communications and community and stakeholder engagement for proposed wind energy.

First, I welcome the suite of draft documents. The absence of finalised guidelines since the existing draft Guidelines were issued in 2011 has been the source of frustration and concern to wind energy proponents, local government, consultants and importantly, effected communities and stakeholders. I believe that the new framework will go some way towards improving community and industry understanding of the planning and decision making processes related to State Significant (SSD) wind energy developments. Similarly it may also improve engagement between community and proponents at varying stages of the process.

I would encourage the Department to give serious consideration to submissions on the draft documents, to provide public feedback on how those submissions have influenced the final documents and swiftly finalise the documents for publication.

My specific comments are as follows:

### **Wind Energy: Assessment Policy draft for consultation August 2016**

- » 1.2 Objectives (p1). The document states that one of the objectives of the Policy is "to facilitate community understanding of the issues involved in the design and installation of wind energy development". Whilst I appreciate that this is a highly complex area I do not believe that this objective has been effectively met in the framework documentation.

This is an important objective and the ability to concisely present this information will assist the community to understand opportunities and constraints that must be considered in determining the location of turbines and turbine choice.

- » 2.1 Permissibility – (paragraph 2 page 3). In relation to consent by relevant landowners the point that "consent of a landowner to lodge an application is for assessment purposes only and does not bind the landowner to the eventual outcome" is an important one and needs greater emphasis.

Proposed wind energy developments can be very divisive in rural communities, particularly those undergoing transition to rural residential or lifestyle land uses. It is important that wind energy proponents provide quality information and consult potential "host" landowners, adjoining landowners and the broader community well before submitting a Preliminary Environmental Assessment for the Department to issue Secretary's Environmental Assessment Requirements. Potential "host" landowners must be fully informed and be in the position to provide informed consent to a development application covering their land. Similarly, the broader community and key stakeholders need to be informed at the earliest stage of the planning process.



- » 2.2 Planning pathways (p4). The final paragraph states that “under limited circumstances”, senior officers of the Department have determination power. It would be beneficial if these limited circumstances are defined.
- » 2.3.1 Transmission lines (p5). The pathway of transmission line and location of associated infrastructure are often areas of concern for community members. I appreciate that there are two ways that this infrastructure can be delivered and that the approval process varies depending upon whether it is the proponent or an operator or distributor under the *Electricity Supply Act* or the *Electricity Network Assets (Authorised Transactions) Act*.

The draft policy infers that only the proponent (the wind energy generation operator) is required to provide information about the delivery of the transmission lines and that this information is not required if it is an operator under one of the above Acts. If this is the case it does not provide the level of information that may community member’s desire about this aspect of the project.

Further, this section is inconsistent with the Standard Secretary’s Environmental Assessment Requirements (draft for consultation). In the General Requirements section it states that the EIS must include “all infrastructure and facilities, such as substations, transmission lines and road upgrades (including any infrastructure that would be required for the development, but the subject of a separate approval process.” It is also inconsistent with section 4.3.1 describing the design of the project (p9).

- » 4.1 Scoping and pre-lodgement (p8) Whilst I commend the Department on requiring meaningful community and landholder consultation at this stage I am concerned that this section does not clearly identify what is meant by ‘community’.

This section states that proponents should seek the views of affected landowners. This is quiet nebulous. Are affected landowners only potential host properties? Does it cover all community members within a certain distance of a proposed turbine or within a view shed (taking into account that the view shed for some wind energy developments is extensive for example Capital Wind Farm on Lake George)? This lack of clarity continues throughout the document. I believe that there is a need to be more prescriptive on this issue given the poor track record of some wind energy companies on effective community engagement.

- » 4.3.4 Refurbishment and decommissioning (p10). The issue of decommissioning is one of concern for some community members. I am pleased to see that this issue is included in the requirements for an EIS. However, from a community perspective I believe that more information is required about the “commitment” that the operator makes for decommissioning and rehabilitation. Enforcement of the commitment will be a critical issue. Commitments must be binding e.g. by way of a bond.
- » 5 Community and stakeholder consultation. I congratulate the Department on emphasising the importance of ‘consultation’ but feel that this section needs to be strengthened and would benefit from alignment with the International Association for Public Participation (iap2) public participation spectrum. Wind energy developers should be required to utilise the inform, consult, involve and potentially collaborate parts of the spectrum at relevant stages in the planning and operation of the wind energy development. The dot points on page 11-12 would particularly benefit from this approach.
  - > The section should be renamed Communications, community and stakeholder engagement.
  - > 5.2 When and who to consult – should include a specific dot point on engaging with Aboriginal communities consistent with the standards SEARs.
  - > 5.4 Example of a consultation model –
    - Proponents should be advised to develop and implement a comprehensive communications, community and stakeholder engagement strategy. The benefits of this could be explained briefly in the document.





- The table infers that the Community Consultative Committee is established at the end of the EIS evaluation process. The Standard Secretary's Environmental Assessment Requirements should make clear that the Community Consultative Committee should be established immediately after the SEARS are issued.
- The table does not include the focus group recommended in the Visual Impact Assessment Bulletin.
- The EIS preparation and assessment and evaluation of impacts section would benefit by being split into two sections – one for EIS preparation and one for the EIS notification and assessment stage.
- At the operation stage – a community information line should be maintained rather than a complaints line. The information line can handle complaints but should also be a conduit of information for the local and broader community.
- Decommissioning – this stage should also include requirements to inform the community about what is occurring.

It may be useful to refer in the document to the role in complaints handling and advocating best practice of the National Wind Farm Commissioner.

#### **Wind Energy: Noise Assessment Bulletin draft for consultation August 2016**

- » Determination and post approval regulation (p4-5). The community is generally sceptical of noise compliance monitoring being undertaken via self-assessment. Given the contentiousness of wind energy developments it may be beneficial to include an requirement that monitoring is undertaken by an qualified independent professional and that the Department or the EPA conducts random audits for noise compliance.

#### **Wind Energy: Visual Impact Assessment Bulletin draft for consultation August 2016**

- » Community consultation (p4) and representative samples (p25) – I strongly support the idea that consultation occurs at an early stage and that the use of a representative sample of the population is appropriate. However, care must be exercised with the determination of the representative sample. If determination of the representative sample is not undertaken independently of the proponent there is the chance that representatives will be deliberately chosen that support wind energy developments.
- » The focus group will also need to be very carefully managed and include a broad cross representative of the community, preferably randomly selected. Thank you again for the opportunity to provide feedback on the new wind energy planning framework.

#### **Wind Energy Framework: Standard Secretary's Environmental Assessment Requirements**

Finally, in order to be consistent with the guidance in the Assessment Policy, the Standard Secretary's Environmental Assessment Requirements, in the section dealing with Consultation, should be revised to read *"During the preparation of the EIS you must consult with relevant local, State and Commonwealth Government authorities, service providers, community groups and affected landowners."*

Yours sincerely

Brian Elton  
Managing Director  
[brian@elton.com.au](mailto:brian@elton.com.au)



## NSW Wind Energy Planning Framework

**Australian Wind Alliance submission to NSW Department of Planning and Environment's Wind Energy Planning Framework**

Friday 16th September 2016

### Introduction

AWA welcomes the opportunity to participate in the consultation process for the Wind Energy Planning Framework in NSW.

We agree with the Department that the Draft Guidelines were leading to unacceptable delays in planning resolutions and note that NSW has not had a legislated planning instrument for wind farms for a period of nearly five years. This impasse contributed to a climate of conflict in local communities which has slowed the rollout of wind energy throughout the state. We therefore welcome the Department's endeavours to finalise this Framework and deliver increased certainty for regional communities, landholders and developers in regard to wind farm planning processes. On balance we believe this Framework improves substantially on the 2011 Draft Guidelines.

Wind energy has made a major contribution to the \$8 billion of investment that renewable energy has brought to NSW since 2001. It has paid millions of dollars to farmers and regional communities, both from wind farm construction and in annual payments and economic activity from ongoing wind farm operation. The magnitude of the economic opportunity for regional NSW should not be overlooked. Income from energy generation has brought valuable economic diversity to farming communities that have previously been susceptible to the vicissitudes of weather and agricultural markets. A substantial growth in wind farms in NSW will make our state's agricultural sector more resilient.

AWA wholeheartedly endorses the Framework's emphasis on promoting effective community consultation and encouraging benefit-sharing between wind farms and the communities in which they operate. We have been supporting and promoting these issues for many years.

We are concerned, however, that the assessment of 'visual impact' is given too much importance in the decision-making process. Perceived visual change to the landscape is highly subjective and many people enjoy the addition of wind turbines to the landscape. There is a danger that consideration of visual changes will outweigh the goal of facilitating more wind energy development in NSW and reduce the benefits to local communities and to the environment.

## Clean energy objective

**The Framework's purpose of securing the benefits of wind farm development for NSW is not articulated strongly enough.**

- Section 1.3 *Strategic Context* of the Assessment Policy (p2) states:
  - “The NSW Government has made a commitment to contribute towards the national Renewable Energy Target of 20 percent by 2020.” and
  - “The *NSW Renewable Energy Action Plan* (2013) commits NSW to increasing the use of energy from renewable sources at least cost to the consumer and with maximum benefits to the State.”
- While the intent to invest in wind energy is useful, the extent to which this Framework needs to deliver a certain amount of wind energy is not stated.
- This is primarily an omission of NSW government policy. “Contribute towards the national Renewable Energy Target” and “increasing the the use of energy from renewable sources” offer no meaningful yardstick to judge whether or not sufficient new wind energy development has been achieved.
- Because the NSW government does not have a legislated target for the development of renewable energy in the state, the extent to which the Framework needs to deliver projects to meet this target is unclear. This leads to a situation where amenity issues such as ‘visual impact’ can be seen as more important than the larger goal of building renewable energy to reduce emissions.
- Where Departmental judgement of unacceptable visual change significantly reduces the number of approved projects and/or the number of turbines in those projects, this may impede the objective of adequately “increasing the use of energy from renewable sources”.
- While we acknowledge that a properly articulated renewable energy target for the state is beyond the scope of these guidelines, we are concerned that the benefits of each installed turbine - for emissions reduction, for improvements in health from cleaner energy generation, for economic benefits to regional NSW, etc - will be outweighed by the extensive assessment processes around ‘visual impact’.
- We therefore recommend that Section 1.3 restate these benefits, alongside recognition of “impacts on communities”, to properly acknowledge the merits of wind development.

## Visual Impact Assessment Bulletin

**This Bulletin places unreasonable restrictions on how close turbines can be to residences.**

**It is not clear that the benefits of an individual turbine in terms of emissions reduction, local economic benefits, etc are sufficiently considered against perceived ‘visual impact’.**

- The use of the word ‘impact’ in the title of this Bulletin is unnecessarily negative and should be removed.
- Wind turbines are clearly a prominent feature of the landscape but many people - probably the majority - view them as a positive addition to the landscape. Visual impact is a subjective measurement and one that shouldn’t be allowed to overshadow the benefits of wind farm development.

- We believe that the focus on visual impact obscures the fact that beyond their visual prominence, wind farms have a very small footprint. In comparison to other possible forms of rural development, wind farms create no dust, no smell, no detrimental health effects, minimal noise and any modifications to the landscape can be easily remediated.
- **While we acknowledge visual change does need to be considered we are concerned that the Screening Tools overstate the visual impact of wind turbines and the stipulated distances need to be reduced.**
  - The visual magnitude measurements that ‘red-flag’ turbines close to a residence should be eased. For example, a turbine with a 150m tip height at 2km, while prominent, should not be considered unacceptable. By way of comparison, a turbine of any height would be allowed at 1 km from a residence in Victoria and 1.5 km from a residence in Queensland.
  - The requirement for further assessment of cumulative impacts for wind farms out to 8 kms is excessive. This should be based on the definition of “Near Middleground” in Table 7, which is out to 4 kms.
- We support the Framework moving away from arbitrary buffer zones and we note that ‘further assessment’ does not automatically rule turbines out, but it is not clear how much impact is too much impact.
  - How is the ‘visual impact’ that’s asserted in this document balanced against the benefits that would accrue from that turbine going ahead - such as the emissions reductions? We would like to see greater clarity around this issue.
- We welcome the identification of financial agreements with neighbours to manage these issues as a step towards better benefit sharing. We address this more fully below in Community Engagement, Consultation and Benefit Sharing.
- There needs to be definitive recognition in the Framework of a landholder’s right to install turbines on their land. As many AWA members point out to us, “no one owns the view over my property and I have the right to develop my land for any reasonable use.” Wind farms are a permissible development on rural land. There is no ‘right to a view’.
- Under this Framework, wind farm projects are being subjected to additional restrictions that are not applied to other State Significant Developments. The visual amenity of a small number of people would not have a significant influence on other State Significant Developments.
- In Table 3, “Landscape Characteristics”, the “Pastoral Landscape” and the “Agricultural Landscape” are defined as expressing dominant “human created” features. This table includes a “Wind Energy Landscape”. This is a landscape where wind turbines exert a strong visual influence over the pre-existing character of the landscape. It is logical that these landscapes will include a recognition that Landscapes are not static and well may evolve to a “Wind Energy Landscape” in regions that have a good wind resource.
- The path to “voluntary acquisition” is not clear. Any “voluntary acquisition” requirements must be post construction, preferably a reasonable time after the completion of construction. This time lag will allow for a suitable period of “adjustment” for the opponent/applicant to assess the impact of the wind farm.

## Project Modifications

**The ability to modify permit conditions within existing project envelopes should not be impeded by any increase in visual restrictions in the Framework.**

- This framework needs to allow a pathway for approved developments, especially those that were granted approval many years ago, to remain economically viable by adjusting permit conditions. We note that the Framework is to be applied to any significant modifications to previously approved projects.
- Many projects that were approved previously are now applying to increase tip heights to make use of larger, more efficient technology.
- We are concerned that a modified project, even though it may have a smaller number of turbines, will have difficulty meeting the increased stringency of this visual assessment.
- Any approved project that cannot meet the new framework will be left with specifications for outdated, uncompetitive technology. Project modifications that do meet the Framework may still see project viability threatened by a substantial reduction in the numbers of turbines.
- The Renewable Energy Target is highly competitive as projects from all states compete against each other on cost. Tighter visual requirements are likely to significantly reduce the number and size of projects in the \$7 billion NSW wind farm development pipeline that proceed to construction.
- We suggest a threshold test be applied for whether modifications need to be assessed against this Framework. An application to increase turbine tip height within the existing project envelope would not change the visual aspect of the project significantly and should not trigger application of the new framework.

## Community Engagement, Consultation and Benefit Sharing

**Benefit sharing that emphasises equality of outcomes coupled with strong and transparent community engagement will improve ongoing community acceptance and cohesion.**

- We welcome the emphasis placed on 'early and effective' community engagement and consultation as outlined in Section 5 of the Assessment Policy. In our experience, open and transparent consultation is key to community acceptance of wind farm projects. However, just as important for ongoing community cohesion is the equitable distribution of financial benefits. We see community engagement and equitable benefit sharing as very much part of the same process.
- While the Framework's increased emphasis on shared benefits and negotiated agreements is welcome, we note that the approach to agreements with neighbours is based on 'compensation' for perceived impacts. We would prefer to see a model that goes beyond a 'compensation' model and takes equitable outcomes as its starting point. Such an approach would still include landholder lease agreements and community enhancement funds but would engage with surrounding landholders more as stakeholders than impacted residents, offering them a chance to invest in projects in their surrounding country.

- In this spirit, we recommend the Proximity Rent Model outlined in a report recently commissioned by the NSW Government on Benefit Sharing Models for Wind Farms<sup>1</sup>. Payments are made to all landowners within a specific distance from turbines including landowners which host turbines and their neighbours. Some of the model's strengths are:
  - Conceptually simple and expressed in common terminology (\$ per hectare). It is therefore easy to communicate to stakeholders
  - Money is distributed according to a profile that benefits those closest to turbines
  - The model scales well and is equally effective for larger and smaller wind farms
  - There is potential to enhance land values of properties neighbouring turbines
  - The 'foundation rent' is a bilateral contract and it is reasonable that this be a confidential lease. However, the proximity rent applies to all landholders, including those with turbines, with a known formula that is negotiated with the eligible landholders (preferably as a group). This minimises community division, which is a particularly negative side effect of landowner lease payments.
- We also commend the approach taken by developer, [Windlab](#), at their [Coonooer Bridge](#) and [Kiata](#) Wind Farms. Both projects were successful in achieving deep and widespread community support, which was recognised in their respective winning bids for the ACT and Victoria wind energy auction processes. Some of the key elements of their approach have been:
  - Initial consultation with the community is conducted through a public meeting that focusses on how financial benefits might be shared in the community (such a meeting could also be used for the early community consultation around local landscape values).
  - Decision making by the project company is made transparent by giving the local community a Board Observer position on the company's board, building trust between the developer and the community.
  - All host and neighbouring landholders within 3 km of the wind farm were offered shares. All of these shares were accepted. Landholders were able to purchase additional shares if they chose.
  - Decisions around allocation of community grants and allocation of shares under the community share scheme are made by a community committee.

## Community Enhancement Funds

- We are concerned that the community plays little role in the negotiation of the Voluntary Planning Agreements (VPAs) that establish funds to enhance the community, ie Community Enhancement Funds (CEFs). In most cases developers and councils successfully set up effective Community Enhancement Fund VPAs, however we are aware of instances where the community does not feel adequately represented by their local council in these negotiations. We therefore recommend community involvement in negotiation of these VPAs, perhaps through the project's Community Consultative Committee, to ensure that community wishes are properly represented.

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<sup>1</sup> [Strategic options for delivering ownership and benefit sharing models for wind farms in NSW](#), Ernst & Young, (September 2014) p24

- The Yass Valley Council is the only local government in NSW to have a formal policy to establish and manage CEFs. AWA supports the transparency and accountability this document gives to all stakeholders.
- The history of Community Enhancement Funding in NSW is useful. It was initially set up to share the benefits of wind farms in the Upper Lachlan Shire, particularly the Cullerin Range Wind Farm (2007) and the Gullen Range Wind Farm (2009). These wind farms did not have any benefit sharing mechanisms in place, so one was imposed from the Department of Planning. This model brings benefits for all stakeholders and has been replicated for other wind farms in NSW.
- Benefit sharing schemes such as those we describe in the previous section should be taken into consideration when determining the amount of funding for CEFs. Any direct benefit sharing beyond landholder lease payments should be considered to be part of the community funding envelope, not in addition. This will be an important incentive for wind farm developers to help achieve the Framework's objective to "encourage benefit sharing...in the communities in which they operate".

## Noise

- Bringing the noise guidelines more into line with South Australian Environmental Noise Guidelines 2009 is a welcome step towards standardising regulations across state boundaries
- The justification offered for noise limits beyond SA 2009 of 'greater population densities' is imprecise and may lead to unnecessary constraints on wind farm development
- The pass/fail methodology around low frequency noise runs counter to the acknowledgement in the Bulletin that low frequency noise is not typically a significant feature of modern wind turbine noise.

## Health

- We commend the Framework's treatment of the issue of health. The references to the positions of the National Health and Medical Research Council and NSW Health Department that there is no evidence of wind turbines causing adverse impacts on health is appropriate.

## About AWA

The Australian Wind Alliance is a community advocacy group for wind energy. We have around 650 members across the country, with a large number in NSW, who are a mix of farmers, wind workers, local businesses and community members. We advocate for greater uptake of wind energy to deliver economic benefits to regional Australia and clean up Australia's energy supply. We represent a community voice of support for wind which is distinct from that of industry.



# Nature Conservation Council

The voice for nature in NSW

Department of Planning and Environment  
Attention: Felicity Greenway  
Director, Industry and Infrastructure Policy  
GPO Box 39, Sydney NSW 2001

16 September 2016

## Submission on the New Wind Energy Planning Framework

The Nature Conservation Council of NSW (NCC) is the peak environment organisation for New South Wales, representing over 150 member societies across the state. Together we are committed to protecting and conserving the wildlife, landscapes and natural resources of NSW.

NCC welcomes the opportunity to comment on the New Wind Energy Planning Framework. This framework has been a long time in the making with the *NSW Draft Planning and Infrastructure Guidelines: Wind Farms*, released in December 2011, having never been finalised, and the Government having committed to finalising wind energy planning guidelines in its Renewable Energy Action Plan, released in September 2013.

Concerned with this delay NCC members passed a unanimous motion at our Annual Conference in October 2015 agreeing to write to Premier Baird and urge the Government to finalise the State's wind farm planning guidelines. That letter also set out our concerns with the policy settings in the Draft Guidelines, including the 2km buffer for establishing turbines near existing residences.

It is clear that the world urgently needs a rapid transition to clean renewable energy; however NSW is making slow progress on installing new wind farms and other forms of renewable energy. This is partly due to lack of certainty around wind farm projects, and regulations that have restricted the design and approval of new wind farm projects. Overall, we believe that much more needs to be done to encourage a mix of large-scale renewable energy projects; otherwise we will be faced with the severe impacts of climate change and a bleak and uncertain future. We hope this New Wind Energy Planning Framework will be the start of a greater shift towards renewable energy projects here in NSW.

While we welcome this new framework, we do have concerns in relation to a number of aspects including the visual impact guidelines, which are outlined in more detail in our enclosed submission.

We urge the Government to consider the feedback received during the public consultation period and finalise the Wind Energy Planning Framework as a matter of priority.

Please do not hesitate to get in touch if you require any additional information.

Yours sincerely,

Kate Smolski  
Chief Executive Officer



# NCC SUBMISSION ON THE NEW WIND ENERGY PLANNING FRAMEWORK

## INTRODUCTION

Increased CO<sub>2</sub> levels in the Earth's atmosphere are causing warming of the atmosphere and oceans, the breakup of ice sheets, glacial retreat, sea level rise, and ocean acidification. Australia is experiencing the direct impacts of climate change with more severe and frequent events such as droughts, bushfires, heat waves, floods and cyclones.

It is clear that as a society we urgently need to reduce greenhouse gas emissions and limit global warming. This was recognised at the historic 2015 United Nations Climate Change Conference in Paris, where 196 nations, including Australia, agreed to limit global warming to less than 2 degrees Celsius (°C) compared to pre-industrial levels, and pursue efforts to limit the temperature increase to 1.5 °C.

This agreement will require an urgent shift away from fossil fuel based energy sources to renewable energy, including wind energy.

Scientists have advised that to have at least a 50% chance of keeping global warming below 2°C throughout the twenty-first century, globally a third of oil reserves, half of gas reserves and over 80% of current coal reserves should remain unused<sup>1</sup>. Even if carbon capture and storage technologically is developed, over 90% of Australian coal reserves would have to remain unburnt before 2050 to meet the 2 degrees °C warming ceiling<sup>2</sup>.

The Australian government has committed to reducing greenhouse gas emissions by 26% to 28% on 2005 levels by 2030<sup>3</sup>. This target is wholly inadequate to do our fair share in solving the climate crisis. In spite of this commitment, it appears that Australia's annual emissions are increasing when other developed economies are cutting their carbon pollution<sup>4</sup>. Further, in 2015 Australia became the first developed country to reduce its national Renewable Energy Target<sup>5</sup>, the current commitment being that 33,000 Gigawatt-hour (GWh) of Australia's electricity comes from renewable sources by 2020<sup>6</sup>.

In NSW, the picture is also bleak. A recent report by the Climate Council found in terms of renewable that NSW 'is the worst performing state as it has the lowest (and falling) percentage of Renewable Energy'<sup>7</sup>. In 2014, only 6% of NSW's energy supply came from renewable energy<sup>8</sup>. At the same time, the NSW Government continues to approve new coal mines and major coal mine expansions.

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<sup>1</sup> C. McGlade & P Ekins: *The geographical distribution of fossil fuels unused when limiting global warming to 2degrees C*, Nature, V. 157, 8 January 2015, pp 187-190

<sup>2</sup> *Unburnable Carbon: why we need to leave fossil fuels in the ground* by Will Steffen (Climate Council of Australia), 2015

<sup>3</sup> [www.environment.gov.au/climate-change/publications/factsheet-australias-2030-climate-change-target](http://www.environment.gov.au/climate-change/publications/factsheet-australias-2030-climate-change-target)

<sup>4</sup> *Carbon emissions on rise despite Direct Action*, Australian Financial Review, 1 February 2016, [www.afr.com/news/politics/carbon-emissions-on-rise-despite-direct-action-20160131-gmif6a](http://www.afr.com/news/politics/carbon-emissions-on-rise-despite-direct-action-20160131-gmif6a)

<sup>5</sup> *Game on: The Australian Renewable Energy Race heats up* by Andrew Stock and Petra Stock (Climate Council of Australia), 2016

<sup>6</sup> [www.environment.gov.au/climate-change/renewable-energy-target-scheme](http://www.environment.gov.au/climate-change/renewable-energy-target-scheme)

<sup>7</sup> *Game on: The Australian Renewable Energy Race heats up*, above no 5.

<sup>8</sup> Ibid

We urgently need improved action in NSW to transition away from fossil fuels and increase our investment in renewable energy. It is in this context that we respond to the New Wind Energy Planning Framework (Draft Framework).

There are a number of positive aspects to the new Framework including an increased emphasis on community engagement and consultation; a shift away from arbitrary, strict buffer zones; and confirmation that wind turbines do not cause adverse impacts on health. However we are concerned that the new Framework puts too high an emphasis on the visual impacts of wind turbines.

Our submission addresses each of the elements of the Draft Framework below.

## **DRAFT WIND ENERGY: ASSESSMENT POLICY**

The Draft Wind Energy: Assessment Policy provides a useful overview of the New Wind Energy Planning Framework including the assessment process and key issues for wind farm development.

### **Strategic Context**

The inclusion of a Strategic Context in the Wind Energy: Assessment Policy is useful, however we suggest that it could include additional detail about the implications of climate change and the urgent need to transition away from fossil fuels to renewable energy. Similarly, we also suggest that there could be further detail about the significant local and public benefits of wind farms including emissions reductions and local economic benefits.

### **Health**

We support the Government's position on the health impacts of wind energy projects, which are informed by the scientific findings of the National Health and Medical Research Council (NHMRC) and its position that 'there is currently no consistent evidence that wind farms cause adverse health effects in humans'.

We note that the FAQs clearly outline the position of the NHMRC that 'there is currently no consistent evidence that wind farms cause adverse health effects in humans' whereas the Wind Energy: Assessment Policy does not include this exact statement. For clarity, we suggest including it in the Wind Energy: Assessment Policy.

We also note that the Draft Secretary's Environmental Assessment Requirements (SEARs) requires proponents to consider and document health issues of wind turbines, however this requirements seems inconsistent with the Government's adopted position that there is currently no consistent evidence that wind farms cause adverse health effects in humans. We therefore suggest that this requirement be removed from the SEARs.

### **Community understanding of issues around wind energy**

We recognise that there are people in the community who have concerns or questions around wind energy. It is important that there is clear, trusted and reliable information available to support the Government's efforts to increase investment in wind energy in NSW. The Wind Energy: Assessment

Policy is a good starting point. We note that the former Department of Environment, Climate Change and Water had prepared a public resource titled *Wind Energy: Myths and Facts*<sup>9</sup> which addressed major issues related to wind energy. We suggest a similar, updated resource may be useful as part of the New Wind Energy Planning Framework.

## **DRAFT WIND ENERGY: NOISE ASSESSMENT BULLETIN**

We note that the Draft Wind Energy: Noise Assessment Bulletin generally adopts the noise limits and methodology from the South Australian EPA's 2009 Noise Guidelines, with some variations. The variations proposed for NSW include a stricter base noise criteria and guidance on special noise characteristics such as tonality and low frequency noises and are described as 'some of the strictest noise limits in the world'.

While we generally support the consistency of regulation between jurisdictions we are concerned that such strict guidelines, including the additional requirements for NSW, may act as a deterrent to investment in wind energy here in NSW.

In particular we note that:

- The South Australia 2009 Noise Guidelines do not identify excessive levels of low frequency noise as an issue and contains no requirements for low frequency noise. It is unclear why this has been included in the NSW Draft Framework.
- Queensland deals with the issue of tonality in its Wind Farm Guidelines 2016 by providing that wind farm developers should avoid installation of wind turbines which exhibit sound with tonal characteristics by specifying the supply of wind turbines from a manufacturer which guarantees that the supplied wind turbines will not exhibit tonal characteristics at residences.

## **DRAFT WIND ENERGY: VISUAL IMPACT ASSESSMENT BULLETIN**

We are concerned that the New Wind Energy Planning Framework puts too high an emphasis on the visual impacts of wind turbines. The Draft Wind Energy: Visual Impact Assessment Bulletin is a major component of the entire framework. We do not agree that the visual impacts of wind energy projects are that much more significant than other major projects, such as open cut coal mines or high-rise residential buildings, that they warrant a more stringent assessment. A trip through the NSW Hunter Valley easily demonstrates the significant cumulative impacts of multiple open cut coal mines on that rural landscape, yet there are no robust guidelines for visual impact assessment for those projects.

This overemphasis on visual impacts suggests that protecting the view of a small minority of landholders is more important than investment in renewable energy and the local and broader public benefits that would bring. As outlined above, the Draft Framework as a whole must provide greater opportunity to consider the benefits as well as impacts of wind energy projects.

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<sup>9</sup> <http://masg.org.au/wp-content/uploads/2008/06/Wind-Energy-In-NSW-Myths-and-Facts.pdf>

That said, we are pleased that the Government has moved away from its position in the 2011 Draft Guidelines which set an arbitrary requirement of 2km in distance from houses to wind turbines. We did not believe that there was any basis for that position.

Instead the Visual Impact Assessment Bulletin uses two new preliminary screening tools for early identification of potential visual impacts that require further detailed consideration. It is our understanding that the outcomes of these tools do not prohibit turbines that are identified by the tool, but require further consideration of the impacts of those turbines. However the tool gives the false impression that turbines identified by these tools are inappropriate.

The **Preliminary Screening Tool** works on a sliding scale of turbine height to distance. Despite arbitrary buffers being removed, the outcome of that tool is that for turbines of average height (150 - 160 metres), 2km is the distance that triggers further consideration. This seems overly precautionary, given that separation distances in other jurisdictions are not as great. For example:

- Germany has no requirements for separation distances although local authorities have recommended a 500m exclusion zone from dwellings;
- Denmark recommends that turbines over 25m must be placed at least four times their height from all residences;
- Canada has no requirements although Ontario and Brunswick provinces recommend 550m and 500m respectively; and
- Victoria now has a 1km exclusion zone.

It is unclear what information has informed the development of this Tool and the positioning of the line on the graph.

The **Multiple Wind Turbine Tool** is intended to assess cumulative impacts of wind farm turbines in the landscape. Again, we note the irony of such robust cumulative impact assessment for wind energy projects, when the Department has still not finalised effective guidelines for assessing the cumulative impacts of open cut coal mines. The Multiple Wind Turbine Tool suggests assessing visible impacts in 60 degree quadrants and identifies existing or approved turbines within 8km of each resident for each quadrant. If there are turbines located in three or more quadrants then further detailed consideration of the visual impacts is required.

Again, the settings for the Multiple Wind Turbine Tool appear arbitrary. There is no explanation of how this Tool was developed.

While we are pleased that the Government has not carried over the 2km buffer, we are concerned that the setting in these tools are too stringent and may give the false impression that turbines 'below the line' are inappropriate. Wind energy has significant benefits to the people of NSW and the NSW government must ensure its new Wind Energy Planning Framework strikes the right balance between impacts and benefits and promotes investment in wind energy here in NSW.

## **DRAFT STANDARD SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS (SEARs)**

The draft SEARs that have been developed as part of the Wind Energy Framework can provide greater certainty to proponents and the community and address the key issues covered by the Wind Energy Framework.

We recognise that the Department has developed standard SEARs for other types of major projects, including:

- Critical State Significant Infrastructure Standard Secretary's Environmental Assessment Requirements
- Indicative Standard Secretary's Environmental Assessment Requirements for state significant mining developments

However, as noted above, the requirement in the Draft SEARs to consider and document health issues should be removed as it is not consistent with the Government's adopted position that 'there is currently no consistent evidence that wind farms cause adverse health effects in humans'.

Australian Property Institute Limited

# SUBMISSION

## NSW PLANNING AND ENVIRONMENT NEW WIND ENERGY PLANNING FRAMEWORK

**Date** 16 September 2016  
**Contact** Stephen Child, Member Services Manager - NSW  
**Email** [schild@api.org.au](mailto:schild@api.org.au)  
**Phone** (02) 9299 1811

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### TABLE OF STATUTES AND DERIVATIVE DOCUMENTS CITED:

*Environmental and Planning Assessment Act 1979 (NSW)*  
*State Environmental Planning Policy (State and Regional Development) 2011 (NSW)*  
*Water Management Act 2000 (NSW)*  
*Native Vegetation Act 2003 (NSW)*

## 1. Preface

- 1.1** The Australian Property Institute (the Institute) is the leading and contemporary membership organisation for property professionals which develops and supports our members to advise the community and business. The Institute is impartial, objective and independent.
- 1.2** The Institute members can be found across all sectors of the property profession, in private practice and in the public sector. This broad base of qualified and skilled professionals is unique to the Institute. The Institute is committed to building and maintaining a strong base for the future of the property profession through broadening the expertise and knowledge of membership.
- 1.3** This submission to The Department of Planning and Environment by the Institute on the tranche of six draft documents<sup>1</sup> comprising the *New Wind Energy Planning Framework (Framework)*<sup>2</sup> is part of ongoing research efforts and dissemination of factual and dispassionate information about property rights in Australia. In preparing this submission, the Institute's Submission Committee has been assisted by Mr. David Robinson, solicitor who provided specialist expertise to the Committee on fundamental aspects of wind energy and wind energy planning.
- 1.4** In addition, the Institute records its appreciation for the invaluable and numerous discussions that occurred during the preparation of the submission with members of the Submission Committee. This submission however does not necessarily represent the views of any of the individual members of the Submission Committee, sitting strictly extra-curially.

## 2. Introduction

- 2.1** This submission responds to the invitation by the Department of Planning and Environment to garner feedback on the *Framework* by Friday 16 September 2016 based upon six draft documents, which comprise the components of the new *Framework*. The Institute welcomes the opportunity to respond to the Department's invitation for feedback, in particular on the overall issue of location and impact of large-scale wind farm proposals.
- 2.2** Currently development approvals under the *Environmental and Planning Assessment Act 1979* for activities such as wind farms are dealt with under *Part 4* if regarded as large-scale proposals with a value of \$30 million+ (or \$10 million if located in an environmentally sensitive area). Hence, such development applications are considered to be State Significant Development under *State Environmental Planning Policy (State and Regional Development) 2011*.
- 2.3** It is noted that small-scale wind projects can be either exempt development, complying development, development permitted without consent, or development permitted with consent. In addition, the Local Environmental Plan (LEP) and/or relevant Development Control Plan (DCP)

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<sup>1</sup> *Wind Energy: Assessment Policy, Draft for Consultation* August 2016; *Wind Energy: Noise Assessment Bulletin, Draft for Consultation* August 2016; *Wind Energy: Visual Impact Assessment Bulletin, Draft for Consideration* August 2016; *Wind Energy Framework: Standard Secretary's Environmental Assessment Requirements, Draft for Consideration* August 2016; *Review of the Impact of Wind Farms on Property Values*, Urbis, 21 July 2016; and *Wind Energy Framework Frequently Asked Questions*.

<sup>2</sup> Department of Planning and Environment (2016) *Renewal Energy: New Wind Energy Planning Framework*. roneo (available at: <http://www.planning.nsw.gov.au/Policy-and-Legislation/Renewable-Energy.pdf> (viewed 28 August 2016)).



for the particular government area may place additional requirements when assessing such development applications for wind farms.

- 2.4** A key question in preparing feedback by the Institute's Submission Committee has been to ascertain the impact of large-scale wind farms on property values from the body of existing literature and also the research and anecdotal information available to the Institute. That key question from the standpoint of the Institute mirrors the task set for Urbis Pty Ltd in undertaking their investigation "into the potential impact of wind farm developments on property prices in NSW"<sup>3</sup>. The Institute is also crucially aware of the interrelationship between property values and perceived impacts at a broader socioeconomic level as set out in s.79C (1) (b), (c), and (e) *Environmental Planning and Assessment Act 1979*.
- 2.5** The following section of this submission responds to the various issues posed in the six draft documents, in particular the document *Review of the Impact of Wind Farms on Property Values*, referred to earlier. However the Institute looks forward to providing any further advice and consultation on this submission to the Commission if requested. For any further information or clarification, or to arrange a meeting please contact Stephen Child, Member Services Manager - NSW at [schild@api.org.au](mailto:schild@api.org.au) or on (02) 9299 1811.

### **3. Comments and Recommendations**

#### **3.1 The Effect of Wind Farms on Property Values**

The report by Urbis Pty Ltd into the impact of wind farms on property values concludes that because the location of wind farms is "predominately rural or rural residential"<sup>4</sup> the prospect for a location of a residential use in proximity to a wind farm is low. Hence it is concluded that the absence of any direct loss of productivity in rural lands used for primary production due to the proximity of a wind farm is not translated into a value impact for such properties. The report also indicates that the review of NSW and VIC case studies:

*...did not identify any conclusive trends that would indicate wind farms have negatively impacted on property values. Our same property resale analysis indicates that all of the properties examined demonstrated capital growth that aligned with the broader property market of the time.*<sup>5</sup>

#### **Response:**

The Institute notes the conclusions in the above mentioned report and also notes that similar conclusions were reached in an earlier 2009 assessment of the impact of wind farms on land values conducted by DUPONTS in association with Preston Rowe Paterson<sup>6</sup>. In this report, 45 property transactions in eight study areas<sup>7</sup> were researched and it was concluded that:

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<sup>3</sup> Urbis Pty Ltd. (Urbis) (2016) *Review of the Impact of Wind Farms on Property Values* (Report Job No. EMR0453) (Sydney: 21 July), I.

<sup>4</sup> Urbis, 19.

<sup>5</sup> Urbis, 19-20.

<sup>6</sup> DUPONTS in association with Preston Rowe Paterson (DUPONTS) (2009) *Preliminary Assessment of the Impact of Wind Farms on Surrounding Land Values in Australia*. Research report PRP ref M6777 prepared for the NSW Valuer General (Newcastle: August)

<sup>7</sup> DUPONTS, 54.

*...the majority of wind farms erected in Australia appeared to have no quantifiable effect on land values.<sup>8</sup>*

Importantly it is noted that the 2009 DUPONTS report also suggested that separation distances between individual wind turbines and the nearest residential dwellings was an issue in evidence suggesting that impacts on land values:

*...can be readily alleviated by ensuring a suitable separation distance between the wind turbines and any nearest residential dwellings. Generally, the separation distances identified in NSW appeared to be sufficient in this regard. It is noted that standard separation distances are not used in NSW in the major project approval process. Instead, each wind farm proposal is assessed individually on its merits.<sup>9</sup>*

It is further noted by the Institute that a considerably earlier investigation in 2006 of wind farms conducted by The Australia Institute<sup>10</sup> concluded that:

*In summary, the available evidence indicates that wind farm developments are unlikely to have a significant negative impact on property prices. Initial concerns about visual and noise impacts could temporarily reduce prices, but these affects are likely to be small and dissipate quickly. If appropriate planning controls are in place, the risks of adverse impacts on property prices will be significantly reduced.<sup>11</sup>*

It is therefore concluded by the Institute that there is scant evidence of a measurable impact upon property values due to the presence of wind farms or a wind turbine. However it is noted that the 2009 DUPONT report identified “separation distances”<sup>12</sup> as an issue having potential for “wind farm related impacts on land values”<sup>13</sup>. This aspect will be considered in the following section of this submission.

### **3.2 Wind Energy Assessment Policy**

The document entitled *Wind Energy: Assessment Policy Draft for Consultation* forming part of the six draft documents referred to earlier, identifies two key issues which are relevant to the location of wind farms. Visual impacts and noise impacts are identified as these key two issues<sup>14</sup>. In both issues the acceptability of impact and the adequacy of these measures to ameliorate or avoid is identified. Other issues such as biodiversity, traffic and transport, strategic context, and hazards and risk are also discussed albeit in a less detailed manner.

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<sup>8</sup> DUPONTS, 55.

<sup>9</sup> DUPONTS, 55.

<sup>10</sup> Macintosh, Andrew & Downie, Christian (2006) *Wind Farms: The Facts and the Fallacies* Discussion paper No 91 (Canberra: The Australia Institute, October).

<sup>11</sup> Macintosh & Downie, 27.

<sup>12</sup> DUPONTS, 55.

<sup>13</sup> DUPONTS, 55.

<sup>14</sup> Department of Planning and Environment (2016) *Wind Energy: Assessment Policy Draft for Consultation* (Sydney: August), 6.

## Response:

The Institute notes that large-scale wind farm developments have been the subject of scholarly literature for some time and in relation to impacts it is also noted that in 2007 Wustenhagen, Wolsink and Burer identified the above mentioned issues of visual and noise impacts, describing them as residual questions when developments of wind farms were first proposed in the early 1980s<sup>15</sup>. Subsequently the authors drew attention to the absence of understanding of the public antipathy toward wind farms, noting:

*...in particular the underrating of the crucial significance of landscape issues in the attitude toward wind power schemes.*<sup>16</sup>

Further, the authors identify “the perception of landscape amenity”<sup>17</sup> as being the crucial factor for acceptance of wind farms.

Subsequently in a useful Australian study in 2013 Byrnes, Brown, Foster and Wagner<sup>18</sup> identify the lack of social acceptance through the very visual nature of wind farms as a barrier to such developments. The authors point out that non-renewable electricity generation has historically been located in areas (such as coal fields) well away from urban areas and by its very nature, much less visible through the “land use being externalised”<sup>19</sup>. Hence the prospect of private impacts from the use of non-renewable electricity generation is very little, whilst alternatively the very visible nature of renewable electricity generation through wind farms has a prospect for private impact.

Importantly the Institute also notes that the authors identified the issue of “high levels of complex multi-tiered regulation”<sup>20</sup> for the development of wind farms. As previously mentioned, wind farms are by their nature potentially more visible being situated on elevated locations to gain optimum wind potential which in itself guarantees higher visual intrusion in the landscape. It is also noted that the NSW government has identified optimum sites for potential wind farm development in a ‘wind atlas’ which will hopefully assist in the location of future such developments. However, the Institute is concerned that there are too many layers in the process of obtaining consent for large-scale wind farms. In particular whilst such developments will be dealt with under *Part 4 Environmental and Planning Assessment Act 1979 as State Significant Development* the relevant local government area will also provide an input to the development approval process.

Underpinning the Institute’s concerns over the continuing multi-tiered planning processes, a submission to the Productivity Commission in March 2016 to the Issues Paper *Regulation of Australian Agriculture*<sup>21</sup> highlighted this ongoing issue stating:

*API considers there are too many layers in the process of obtaining consent to a particular agricultural endeavour (proposed or renewed) to be conducted on a specific parcel of land. In NSW for example, development consent may have to be obtained from a local consent authority (Council) pursuant to the Environmental Planning and Assessment Act 1979 (NSW) for an activity such as the planting of a vineyard in a specific local government area. However, development consent for the planting of a vineyard in other local government areas may not be*

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<sup>15</sup> Wustenhagen, Rolf, Wolsink, Maarten & Burer, Mary (2007) “Social acceptance of renewable energy innovation: An introduction to the concept”, *Energy Policy* 35, 2683.

<sup>16</sup> Wustenhagen, 2684.

<sup>17</sup> Wustenhagen, 2690.

<sup>18</sup> Byrnes, Liam, Brown, Colin, Foster, John & Wagner, Liam (2013) “Australian renewable energy policy: Barriers and challenges”, *Renewal Energy* 60, 711-721.

<sup>19</sup> Byrnes, 714.

<sup>20</sup> Byrnes, 718.

<sup>21</sup> Productivity Commission (2015) *Regulation of Agricultural Land, Issues Paper* (Melbourne: December).

*necessary under the provisions of another Council's planning scheme (known as a Local Environmental Plan or LEP).*

*For example in the Hastings Valley in the mid-North Coast of NSW, pursuant to the Port Macquarie-Hastings LEP 2011 (NSW) vineyards are only permissible with development consent on land situated within the standard zone RU1 Primary Page 6 of 15 Production, as such an activity is defined as intensive plant agriculture. In the Manning Valley to the south, vineyards are similarly defined as intensive plant agriculture within the zone RU1 Primary Production pursuant to the Greater Taree Local Environmental Plan 20109. Paradoxically, vineyards as defined within the Manning Valley are permissible without development consent. Such inconsistencies between local government areas are not uncommon, however both the Hastings and Manning Valleys have a long history of viticulture which confounds any attempt to understand the differing approach to the planting of vineyards.*

*Nevertheless, concurrent approval may also have to be obtained pursuant to the Water Management Act 2000 (NSW) for water impoundment, access to stream flows of water, or construction of a bore for irrigation purposes. The approval authority for such a specific purpose water access licence is not the local Council but the Department of Primary Industries - Water.*

*Approval may also have to sought for activities to be undertaken involving removal of native vegetation pursuant to the Native Vegetation Act 2003 (NSW) to permit an agricultural endeavour such as a vineyard. A consent for such vegetation clearing (where required) is to be sought from the Office of Environment and Heritage, not the local Council.*

*Whilst the above three examples do not include all the approvals necessarily to be obtained to allow a vineyard to be planted and subsequently managed, the examples do emphasise the complexity of regulatory processes which place a significant burden on a relatively prosaic agricultural endeavour such as the planting of a vineyard. This complexity can clearly inhibit smaller farm businesses from undertaking such activities given the obvious external resources required such as finance, specialist skills such as legal, land use planning or hydrological advice amongst other matters, and timeliness all of which can deter innovation or viability. In addition, where such an agricultural activity is proposed in a peri-urban area or in an established agricultural area adjoining urban areas, the range of issues can be significantly greater reflecting the increasing interactive difficulties occurring between urban and non-urban uses generally throughout Australia. In addition agricultural activity is increasingly impacted upon by Indigenous and non Indigenous heritage legislation which requires quite separate applications pertaining to this area.*

*To improve this situation, API considers there is a need for greater interaction and coincidence between government regulatory processes, and better transparency of regulatory processes to obviate complexity and resultant confusion.<sup>22</sup>*

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<sup>22</sup> Australian Property Institute (2016) *Submission to the Productivity Commission on Issues Paper: Regulation of Australian Agriculture* (Sydney: March), 5-6.

Hence, the Institute considers that the key issues of visual and noise impacts need to be addressed through careful location of future large-scale wind farm developments in a manner which has clarity and avoids unnecessary complexity if such renewable electricity generation endeavours are to proceed in an efficacious manner.

## **APPENDIX 1**

### **AUSTRALIAN PROPERTY INSTITUTE INC.**

The Australian Property Institute, (formerly known as the Australian Institute of Valuers and Land Economists), has enjoyed a proud and long history. Originally formed in South Australia over 87 years ago in 1926, the Institute today represents the interests of approximately 8,000 property experts throughout Australia.

The Institute, the nation's peak professional property organisation and learned society, has been pivotal in providing factual, independent and dispassionate advice on a broad range of property issues addressed by the Commonwealth and State/Territory governments and their agencies since the Institute was formed.

In addition, the Institute's advice has increasingly been sought by international bodies such as the United Nations, the Food and Agriculture Organisation (FAO) and the World Bank, evidencing a level of expertise within the Institute and its membership, which is recognised regionally and globally.

As a professional organisation the primary role of the Institute is to set and maintain the highest standards of professional practice, education, ethics and discipline for its members. Institute members are engaged in all facets of the property industry including valuation, property development and management, property financing and trusts, property investment analysis, professional property consultancy, plant and machinery valuation, town planning consultancy, property law, research and education.

Membership of the Institute has become synonymous with traits and qualities such as professional integrity and client service, industry experience, specialist expertise, together with tertiary level education and lifelong continuing professional development.

## APPENDIX 2

### SUBMISSION COMMITTEE

Professor Spike Boydell FAPI,  
Otford, NSW

Mr. Stephen Child (**Committee Secretary**)  
Member Services Manager NSW  
Australian Property Institute  
Sydney, NSW

Mr. Colin Davies FAPI,  
Colin Davies & Associates,  
Dickson, ACT

Mr. Robert Dupont FAPI,  
Preston Rowe Paterson,  
Newcastle, NSW

Mr. Shaun Hendy FAPI,  
Colliers International,  
Toowoomba, QLD

Associate Professor Andrew Kelly FAPI,  
Institute for Conservation Biology and Environmental Management,  
Faculty of Law,  
University of Wollongong,  
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Mr. David Purtle FAPI,  
Key Property Group,  
Camden, NSW

Mr. Ken Rayner FAPI,  
Valuation Lecturer,  
Property Services,  
Sydney Institute of TAFE,  
Haymarket, NSW

Mr. David Robinson,  
Solicitor,  
Dulwich Hill, NSW

Professor John Sheehan LFAPI (**Committee Chair**),  
Chair Government Liaison,  
Past President,  
NSW Division,  
Australian Property Institute,  
Sydney, NSW





**EPYC** Pty Ltd

Department of Planning and Environment,  
Attention: Felicity Greenway, Director,  
Industry and Infrastructure Policy,  
GPO Box 39, Sydney NSW 2001

16 September 2016

Submitted online

Dear Ms Greenway

### **Submission on the Draft *New Wind Energy Planning Framework***

EPYC Pty Ltd (**EPYC**) welcomes the greater certainty provided by the Draft *New Wind Energy Planning Framework* (**Draft Framework**).

The draft *NSW Planning Guidelines for Wind Farms* (which were prepared by the Department of Planning and Environment (**DPE**) in 2011 but never finalised) have generated ongoing uncertainty for both industry participants and the community. This was particularly the case in relation to the proposed 'gateway process' contemplated by the draft *NSW Planning Guidelines for Wind Farms*.

While EPYC supports the greater certainty which the Draft Framework will, once appropriately finalised, deliver for both industry participants and the community, there are a number of significant issues with the Draft Framework which EPYC strongly submits need to be addressed before it is finalised. Addressing these issues is necessary to both:

- restore industry confidence in the NSW Government's approach to assessing wind farm projects; and
- enable renewable energy investment decisions to be made which will deliver on the NSW Government's commitment to support a sustainable wind energy industry in NSW and deliver its Renewable Energy Action Plan.

EPYC's detailed comments on each of the draft:

- Wind Energy: Assessment Policy;
- Wind Energy: Visual Impact Assessment Bulletin; and
- Wind Energy: Noise Assessment Bulletin.

are set out below.

## **1 About EPYC**

EPYC is an Australian wind farm developer and the proponent of the proposed Jupiter Wind Farm, southeast of Tarago in New South Wales.

EPYC:

- supports the robust assessment and regulation of wind farms; and
- is committed to working with regulators and the community to ensure that its wind projects deliver strong outcomes for the Community.

The Jupiter Wind Farm will involve the construction and operation of up to 88 wind turbine generators and ancillary facilities with a total installed capacity of up to 350 Megawatts (MW) of renewable energy.

The proposed Jupiter Wind Farm is currently being assessed as State significant development (SSD) under Part 4 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act).

If approved, assuming an indicative operational capacity of 350MW, the Jupiter Wind Farm will:

- provide economic stimulus during construction phase (approx. \$104 million) and operational phase (approx. \$7 million per annum);
- contribute to local and regional economy through use of contractors and suppliers during construction and direct employment of approximately 336 personnel during construction phase and about 32 personnel per annum for the operational phase;
- save 1.9 Mt of GHG emissions by 2020;
- generate 1,100 gigawatt hours (GWh) of electricity annually; and
- produce enough electricity to power the equivalent of 150,800 homes annually (based on the average NSW household electricity consumption of 7.3 MWh/year).

## 2 Draft Wind Energy: Assessment Policy

| Issue                                       | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Introduction</b>                         | <p>The 'Strategic Context' section of the draft Wind Energy: Assessment Policy (<b>Draft Assessment Policy</b>) should be updated to include recognition of the broader public policy considerations beyond NSW, including the Australian Renewable Energy Target.</p> <p>Further, EPYC understands section 1.4 to mean that the Draft Framework will not give retrospective application and so will not apply to any projects for which SEARs were issued prior to the Draft Framework publication. EPYC strongly supports the certainty which this provides to industry and the community.</p> |
| <b>Planning Framework</b>                   | <p>Both section 2.1 and section 5.3.3 incorrectly state that development applications cannot be lodged until landholder consent is obtained. This should be amended to accurately reflect:</p> <ul style="list-style-type: none"> <li>• the land with multiple owners designation provisions contained in the Regulations; and</li> <li>• the long line of cases including <i>Ironlaw Pty Ltd v Wollondilly Shire Council (No 2)</i> [2013] NSWLEC 146 which make it clear that landowner's consent may be obtained at any point prior to determination.</li> </ul>                              |
| <b>Key Issues for Wind Farm Development</b> | <p>EPYC supports the general approach of the Draft Assessment Policy which proposes to 'level the playing field' by applying the existing standard assessment policies to wind farm project.</p> <p>However, EPYC considers that this section should be amended to</p>                                                                                                                                                                                                                                                                                                                           |

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|                                             | <p>make it clear that:</p> <ul style="list-style-type: none"> <li>in assessing wind farm projects, the ultimate task is to 'to balance all the relevant matters in determining whether the preferable decision was to approve or disapprove' (see <i>Warkworth Mining Limited v Bulga Milbrodale Progress Association Inc</i> [2014] NSWCA 105); and</li> <li>in doing so, the overall public benefits must be weighed against any 'private disbenefits either to the ...community or specific landowners' (see <i>Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd</i> [2007] NSWLEC 59 (12 February 2007).)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Preliminary Environmental Assessment</b> | <p>The Draft Assessment Policy proposes to bring forward the assessment of wind farm projects by requiring Preliminary Environmental Assessments (<b>PEAs</b>) lodged in support of a request for SEARs to include detailed turbine layouts and assessments.</p> <p>It is unduly onerous and unrealistic to expect a PEA to include detailed turbine layouts and assessments at such an early stage and the Draft Framework should be revised to recognise this.</p> <p>Determination of the turbine locations for a wind farm is a highly technical matter which needs to be informed by:</p> <ul style="list-style-type: none"> <li>wind resources requiring extensive data collection over a minimum 12 month period;</li> <li>community and landholder consultation;</li> <li>site constraints including identification and assessment of: <ol style="list-style-type: none"> <li>flora and fauna constraints;</li> <li>visual impacts; and</li> <li>noise impacts; and</li> </ol> </li> <li>preliminary constructability assessments.</li> </ul> <p>To require the wind farm layout to be determined at the PEA stage, even before SEARs have been issued to inform the content of the required technical assessments:</p> <ul style="list-style-type: none"> <li>ignores the reality of how wind farm layouts are developed; and</li> <li>is wholly impracticable.</li> </ul> <p>It will also result in confusion for stakeholders, including the community, who will then expect any initial layout presented in the PEA to remain unchanged throughout what is necessarily an iterative wind farm assessment and design process.</p> |
| <b>Micrositing</b>                          | <p>EPYC supports the explicit recognition given in section 4.3.3 of the Draft Assessment Policy to the appropriateness of micrositing, which remains essential for wind farm projects.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Acquisition Conditions</b>               | <p>The reference in section 4.4 of the Draft Assessment Policy to 'acquisition requirements' should be amended to make it clear that such conditions are owner initiated acquisition rights and there is no right for a wind farm proponent to compulsorily acquire land.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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| <b>Health Impacts</b>                            | <p>EPYC supports the reference in the Draft Assessment Policy to the health studies conducted to date. However, in light of the overwhelming weight of scientific evidence on this issue, EPYC submits that the draft Assessment Policy should explicitly recognise that there are no health impacts arising from wind farm projects.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Benefit Sharing and Negotiated Agreements</b> | <p>EPYC is committed to working with the community to understand their concerns and to ensure that these are considered and taken into account, to the greatest extent practicable, in wind farm layouts.</p> <p>EPYC submits that section 5.3.4 of the Draft Assessment Policy needs to be significantly revised. In its current form it creates unreasonable expectations that the industry as a whole will not be able to deliver on while still delivering the viable renewable energy projects that NSW needs to support its targets. In particular:</p> <ul style="list-style-type: none"> <li>• <b>Benefit Sharing:</b> The current wording creates an expectation that benefit sharing will be offered which is inappropriate. While EPYC has itself voluntarily proposed a benefit sharing arrangement for its Jupiter Wind Farm Project, benefit sharing is not a 'one size fits all' solution which is appropriate for all wind farm projects. Nor is it clear why 'benefit sharing' is a requirement imposed only on wind farm project and not, for example, on mining or rail projects which may result in very significant visual and noise impacts. EPYC submits that all references to 'benefit sharing' should be removed from both the objects of the draft Assessment Policy and from section 5.3.4.</li> <li>• <b>Negotiated Agreements:</b> The current wording in both section 5.3.4 and Attachment A both: <ol style="list-style-type: none"> <li>1. seeks to unduly constrain the provisions which parties may negotiate; and</li> <li>2. creates unrealistic expectations which do not reflect market practice.</li> </ol> <p>For example, the expectation that wind farm developers may be prepared to offer bonds or carry out further monitoring on top of that which required under approval conditions is unrealistic.</p> <p>Further, clarification should be provided to the effect that Negotiated Agreements should only be entered into after the EIS has been exhibited and landholders have been given greater certainty regarding turbine locations and impacts (if any). Requiring negotiated agreements prior to exhibition of the EIS is extremely problematic and gives rise to information asymmetries.</p> </li> </ul> |
| <b>Dwellings</b>                                 | <p>EPYC submits that the Draft Assessment Policy should contain a clear definition of what constitutes a dwelling. This definition should limit 'dwellings' to buildings which:</p> <ul style="list-style-type: none"> <li>• have been approved for use as a dwelling; and</li> <li>• are capable of permanent occupation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

### 3 Draft Wind Energy: Visual Impact Assessment Bulletin

| Issue                                                   | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <b>The Correct Approach to Assessing Visual Impacts</b> | <p>The draft Wind Energy: Visual Impact Assessment Bulletin (<b>Draft Visual Bulletin</b>) fails to address the decision of Chief Justice Preston of the NSW Land and Environment Court in <i>Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd</i> [2007] NSWLEC 59 (12 February 2007). In that decision Chief Justice Preston set out how the visual impacts from wind farm projects are to be correctly assessed.</p> <p>Preston CJ held that:</p> <ul style="list-style-type: none"> <li>the threshold question is whether or not a first "breach" in the present general landscape should be permitted by allowing any turbines; and</li> <li>if a decision is made that one such 'breach' is acceptable, the question is then:<br/> <i>...whether it is necessary or appropriate to remove elements of it if, in the first instance, one had reached a prima facie view that the present total project would have an unacceptable impact but that some lesser (but still viable) project might be approved.</i></li> </ul> <p>Preston CJ held that:</p> <p><i>As I am satisfied that the presence of at least some turbines in the Taralga village landscape is acceptable, following a path of modification leading to constructive refusal is inappropriate. I have so concluded because to grant a consent, knowing that it was an effective futility, would clearly be contrary to the proper function of the Court and contrary to the broad public interest in the establishment of viable renewable energy sources.</i></p> <p>Accordingly, Preston CJ reinstated the 2 rows of turbines deleted by the Department of Planning, noting that:</p> <p><i>I am satisfied that the overall public benefits outweigh any private disbenefits either to the Taralga community or specific landowners.</i></p> <p><i>I am also satisfied that there is no rational basis upon which to require the deletion of any of the turbines originally proposed and thus I am satisfied that the full original scope of the windfarm should be permitted.</i></p> <p>EPYC submits that the Draft Visual Bulletin should be amended to reflect the overall visual assessment approach which the NSW Land and Environment Court has determined should be applied in assessing wind farm projects.</p> |
| <b>Proposed Preliminary Screening Tools</b>             | <p>The Draft Visual Bulletin includes detailed requirements for assessing the visual impacts of wind farms including for 'preliminary environmental assessment' using 'preliminary screening tools'. These preliminary screening tools require preliminary analysis using:</p> <ul style="list-style-type: none"> <li><b>A 'Visual Magnitude' Tool:</b> This requires each residence within 3.5km of a turbine to be plotted on a figure which records the</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |



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|  | <p>turbine height and distance to the closest turbine in metres. Any turbine locations which are 'below the line' shown on this figure are deemed to require 'detailed consideration to the visual impacts on dwellings from turbines'; and</p> <ul style="list-style-type: none"> <li>• <b>A 'Multiple Wind turbine' Tool:</b> This requires each residence within 8km of a turbine to be mapped against turbine locations to determine whether or not turbines are visible in more than three 60 degree sectors around the residence. If so, these residences 'will become a focus for assessment in the EIS'.</li> </ul> <p>The proposed approach is highly novel and does not reflect contemporary requirements for wind farm visual assessment adopted anywhere in the world. Rather, it appears to have been arbitrarily determined as no research is provided which enables any assessment to be undertaken as to its technical basis. This is extremely concerning.</p> <p>In <i>Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd</i> [2007] NSWLEC 59 (12 February 2007) Chief Justice Preston declined to adopt a not dissimilar 'cone of viewing approach' proposed by the DPE's expert noting that it:</p> <p style="padding-left: 40px;"><i>... involved an arbitrary selection of the angle of the apex of the cone and of the viewing point within the village from which it was to be measured. No firm justification was provided for this during the course of the hearing.</i></p> <p>EPYC strongly submits that any 'preliminary screening tools' need to be underpinned by a defensible justification which is based on best practice visual assessment and supported by broad consensus of visual experts. This does not appear to have occurred or, if it has, the resulting technical reports have not been made publicly available.</p> <p>Indeed, a September 2013 report prepared for the Scottish Government by the University of Dundee entitled 'Review of the 2Km separation distance between areas of search for onshore wind farms and the edge of cities, towns and villages' found that "it is questionable to suggest that subjective aspects of visual impacts are directly proportional to physical distance". This report concluded that</p> <p style="padding-left: 40px;"><i>Providing an evidence-based approach to inform what an appropriate buffer might be with reference to future bigger onshore turbines remains challenging in the absence of further relevant data and information</i></p> <p>EPYC strongly submits that the NSW Government should not adopt 'preliminary screening tools' without first ensuring that they are supported by a publicly available and defensible evidence-based approach.</p> <p>Moreover, requiring the use of the proposed 'preliminary screening tools' gives rise to the significant issues noted under 'Preliminary Environmental Assessment' in the table contained at section 2 above by requiring the wind farm layout to be determined at an inappropriately early stage.</p> <p>If, notwithstanding EPYC's submission to the contrary, the proposed 'preliminary screening tools' are retained, they should be further clarified to make it clear that the tools are not intended to:</p> |
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|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                       | <ul style="list-style-type: none"> <li>establish any exclusion zones; or</li> <li>be used to determine requirements for negotiated agreements.</li> </ul> <p>If this clarification is not provided then this is likely to significantly affect the economic viability of further wind farms in NSW.</p>                                                                                                                                                                                                                                                                                                                                                          |
| <b>Role of Community Consultation</b> | <p>EPYC supports consultation with the community to determine their views as to the sensitivities of the landscape in which they live and work. However, ultimately, the sensitivity and character of the landscape needs to be capable of being objectively determined in accordance with established technical landscape and visual impact assessment methodologies. The Draft Visual Bulletin should be amended to reflect this.</p> <p>Alternatively, a better approach may be for the visual character baseline assessment to be undertaken not by individual wind farm proponents but by the DPE as part of the Regional Plans being developed by DPE.</p> |

#### 4 Wind Energy: Noise Assessment Bulletin

| Issue                                                       | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SA EPA Guideline Limits</b>                              | <p>The draft Wind Energy: Noise Impact Assessment Bulletin (<b>Draft Noise Bulletin</b>) proposes to retain the noise limits retained in the SA EPA 'Wind Farm Environmental Noise Guidelines' (<b>SA Guidelines</b>).</p> <p>EPYC supports the retention of the noise limits contained in the SA Guidelines and the ongoing certainty which this will provide to industry, regulators and the community.</p> <p>Further, while the Draft Noise Bulletin rejects the higher noise limit of 40dB(A) which applies to non-'rural living' zoned land in SA, EPYC accepts that this is in line with community expectations that NSW will adopt significantly lower limits than are generally applied in South Australia and Victoria.</p> |
| <b>Preliminary Noise Assessment</b>                         | <p>EPYC is opposed to the proposed requirement for an 'indicative noise impact assessment' using 'simple modelling tools and conservative assumptions'. Requiring this gives rise to the significant issues noted under 'Preliminary Environmental Assessment' in the table contained at section 2 above by requiring the wind farm layout to be determined at an inappropriately early stage.</p>                                                                                                                                                                                                                                                                                                                                    |
| <b>Proposed Penalty for 'excessive low frequency noise'</b> | <p>EPYC is strongly opposed to any noise penalty being imposed for 'low frequency noise' which is both inaudible and has been established as safe. There is no scientific or public policy justification for this approach which could unnecessarily constrain renewable energy development.</p> <p>Further, the proposed penalty adjustments are based on outdoor noise criteria unless a detailed assessment is carried out inside each relevant neighbour landholder's home. This presents obvious access constraints and is unnecessarily intrusive for neighbouring landholders.</p>                                                                                                                                             |



## 5 Conclusion

EPYC asks that the DPE consider and address the issues outlined above in finalising the Draft Framework. If these issues are not addressed before the Draft Framework is finalised then there is a risk that the Draft Framework will frustrate the ability to deliver on the NSW Renewable Energy Action Plan by forcing industry to focusing its investment in other States and Territories.

Yours sincerely

Dr Shahroo Mohajerani





16 September 2016

Ms Felicity Greenway  
Director, Industry and Infrastructure Policy  
GPO Box 39  
Sydney NSW 2001

Dear Ms Greenway

**Subject: Draft Wind Energy Planning Framework Submission**

Thank you for the opportunity to provide feedback on the NSW Government's Draft Wind Energy Planning Framework for state significant development. As Lake Macquarie City Council has recently held elections, the new Council has not had an opportunity to review this submission.

Council's submission of March 2012 on the 2011 Draft Wind Farm Guidelines was broadly supportive of wind energy and the planning approach proposed at that time, and provided suggestions on improvements to the process. I acknowledge that this Draft Framework generally incorporates those suggested improvements that are relevant to state significant development.

I support the Framework's focus on early and extensive consultation with the community, councils and, in particular, key stakeholders in close proximity to wind farm development. I agree that site selection and early project design should begin well before the development application stage and be informed by meaningful community and landholder consultation undertaken by the proponent.

The Secretary's Environmental Assessment Requirements could be strengthened by placing stronger emphasis on proponents demonstrating the suitability of their chosen location and the viability of wind resources at that location.

I welcome this step towards a clearer development pathway for large-scale wind energy in NSW.

Should you require further information, please contact Council's Manager Sustainability, Dean Chapman on 4921 0410.

Yours sincerely

Brian Bell  
**General Manager**

ABN 81 06 027 868

*"Quality Lifestyle"*

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## Wind Energy Planning Framework

*A submission to the NSW Government,  
Department of Planning and Environment*

16<sup>th</sup> September 2016

**To the Director, Industry and Infrastructure Policy, Department of Planning and Environment**

Tilt Renewables Australia Pty Limited, a subsidiary of Trustpower Ltd ("Trustpower") welcomes the opportunity to provide a submission to the Department of Planning and Environment on its *Wind Energy Planning Framework*.

For any questions relating to the material in this submission, please contact:

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## 1.0 Introduction and Overview

- 1.1 By way of introduction, Trustpower, with a history dating back to 1915, is a New Zealand based renewable energy generator and multi-product retailer, offering electricity, gas and telecommunication services in the New Zealand market. Trustpower owns and operates 41 hydro stations, 38 in New Zealand and 3 in New South Wales, Australia, along with 7 wind farms. Trustpower is predominantly a wind and hydro generator, and in the past 10 years, has invested in the order of AU \$1 billion in new generation developments, the majority of which has been in wind power, most of which is located in Australia.
- 1.2 Trustpower's wind portfolio comprises 307 wind turbines with a total installed capacity of 582 MW. This includes the recently completed Snowtown Stage 2 Wind Farm located in South Australia, a 270 MW, AU \$440 million investment – in conjunction with Stage 1, this 370 MW development is the largest in South Australia, and one of the largest operating wind farm developments in Australia. Trustpower also owns two small wind farms in NSW (Crookwell and Blayney) and some 200MW of capacity in New Zealand, including the Tararua Wind Farm which has been operating since 1999, in excess of 16 years. This makes Trustpower one of the most experienced developers, owners and operators of wind farms in Australasia
- 1.3 The assets in NSW were acquired by Trustpower. In July 2013 Green State Power Pty Ltd was established by the NSW Government to own and operate a portfolio of renewable generation assets, with a view to selling these assets. Trustpower successfully acquired these assets in July 2014.
- 1.4 Trustpower has completed five separate wind developments in the last ten years. Each of these has been completed on time and within budget, and all are now operated under strong and enduring contractual arrangements. Importantly, each of these projects also enjoys strong landowner and community support. This is something Trustpower prioritises not only during the development of any project, but also over the asset life following commissioning.
- 1.5 Recently Trustpower announced that it is progressing a proposed demerger to create two new companies. If implemented:
  - a) the first company ("New Trustpower") will continue to operate Trustpower's remaining Australian and New Zealand hydro generation assets and its multi-product New Zealand retail business. This entity will retain Trustpower's name and brand (; and
  - b) the second company ("Tilt Renewables") will hold Trustpower's Australian and New Zealand wind generation assets and its wind and solar development options. This will position that company to focus on projects to meet Australia's renewable energy needs.
- 1.6 The anticipated timing of the proposed demerger, should it proceed (subject to shareholder approval), is mid October 2016. Each of the two companies are intended to be listed on the NZX Main Board, and Tilt Renewables is also expected to be listed on the ASX.



## 2.0 Trustpower's Future Investment Aspirations

- 2.1 Trustpower has been active in Australia for the past 12 years, as a result of the support by successive Australian governments of the Renewable Energy Target ("RET").
- 2.2 Building on the successful track record established by Trustpower, Tilt Renewables will continue to actively explore wind and solar generation investment opportunities across several Australian states. In Australia, Trustpower has established a robust pipeline of well over 1,500 MW of wind projects at various stages of development which, if fully developed, will require investment in the order of A\$3 billion. A significant portion of these developments are located in NSW.
- 2.3 Over the past few years Trustpower has advanced a number of these projects to various stages. Trustpower has invested heavily to develop greenfield projects as well as purchasing development options from third party developers, applying its development expertise to continue to negotiate and secure landowner and environmental approvals, and progressing the projects towards financial close.
- 2.4 In NSW, Trustpower has been actively pursuing development approval for the Rye Park Wind Farm, located to the north-east of Yass. The project was initially developed by Epuron since 2008, Trustpower acquired the project from Epuron in 2014. The proposed wind farm crosses the Upper Lachlan Shire, Boorowa and Yass Valley Council areas.
- 2.5 The Rye Park Wind Farm has been determined to be a State Significant Development, with the decision on its application to be made by the NSW Minister for Planning.

## 3.0 Trustpower's Submission

- 3.1 Trustpower welcomes the opportunity to provide input into the NSW Wind Energy Assessment Policy and associated Assessment Bulletins for Noise and Visual Impact (together referred to as 'the Wind Energy Documents'). As highlighted above, Trustpower has considerable experience in renewable generation projects, and is well placed to provide meaningful and functional feedback on the Wind Energy Documents.
- 3.2 As a member of the Clean Energy Council Trustpower supports their submission and provides further comments on the framework and Wind Energy Documents below.
- 3.3 Trustpower generally supports the development of the Wind Energy Documents to replace the draft Wind Farm Planning Guidelines which have remained in draft form since December 2011. It is crucial for NSW to attract significant new investment in renewable energy developments that there is a framework in place which provides clarity and certainty for communities, landowners, developers, operators and regulators.
- 3.4 The wind energy industry creates jobs and injects millions of dollars a year into regional and rural farming communities and can make a material contribution to reducing the state's carbon footprint in the process. The role of wind energy in helping to reduce electricity prices and protect consumers from rising fossil fuel prices is becoming more broadly appreciated among the general public. Wind Farms are also supported by more than 80 per cent of people in NSW<sup>1</sup>.
- 3.5 The Baird Government has an opportunity to position NSW as a leader in a sector that is innovative and can support meaningful employment in rural and regional areas. A clear,

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<sup>1</sup> NSW Department of Environment, Climate Change and Water, *Community attitudes to wind farms and renewable energy in NSW*, page 4

transparent and fair wind energy planning framework is an effective way to demonstrate a strong commitment to the industry and will boost investor confidence.

- 3.6 There are a number of positive aspects to the framework, including the standardisation of assessment requirements with other industries, standardised SEAR's, the reduced assessment timeframes, and adopting the proven South Australian EPA 2009 noise guidelines. Trustpower also supports a framework that encourages meaningful and ongoing community engagement by developers.
- 3.7 However Trustpower has a number of fundamental issues with the Visual Impact Assessment Bulletin ('VIA'). This creates an unjustified focus on visual impacts for one of the most cost effective and cleanest forms of renewable energy technology that is inherently visible in the rural landscape. It will create a precedence for visual impact escalation on other infrastructure developments in NSW and ultimately elsewhere. This will result in additional challenges and uncertainty for both private and government critical infrastructure approvals in the future, where overall public benefit can be outweighed by individuals on the grounds of the degree of visibility.
- 3.8 The Wind Energy Assessment Policy proposes that the VIA is required in order to provide clarity and certainty for developers and the community in the development assessment process. However, the Visual Impact Assessment Bulletin will in fact result in the opposite outcome as it introduces further uncertainty and lack of transparency for the wind energy industry on the potential outcomes of projects in NSW. The VIA Bulletin is in general far too complicated, difficult to understand and interpret, and will be very difficult to put into practice. The references to deleting turbines and uncertainty it creates around potential outcomes will be a key consideration in investor's and developer's confidence in long term investment plans for NSW.
- 3.9 If the NSW Government is serious in promoting renewable energy investment and achieving its greenhouse emissions targets, it should put in place strategic State Plans identifying wind farm regions, similar to South Australia. NSW should identify regions or zones with certain characteristics favourable for wind farm development (like rural and general agricultural land use zones) and explicitly provide for wind farm development as a permitted land use in their regional plans.
- 3.10 The VIA should further recognise and acknowledge the inherent visual aspects of wind farms as an accepted implication. The VIA should include simple and realistic distance set-backs that would be deemed to satisfactorily address visual impacts in these zones; for example, the 1km set back from dwellings in South Australia. A similar 1km set-back has also been adopted by the Victorian Government. The result of which is providing a lot more investor confidence for investing into South Australia and Victoria. This would remove the need for every single development to go through the lengthy process of defining landscape character and justifying the visual aspects of the development.
- 3.11 The VIA also attempts to ensure early and constructive community engagement in an effort to reduce conflict or community division. Trustpower strongly supports proper community engagement during the development stages of the project and well in advance of lodging the planning applications and take great pride in our reputation for extensive community engagement on all our projects.
- 3.12 However the current proposed approach of community surveys and the level of engagement in advance of even basic site investigations, which are required in order to provide clarity to the community on what is being proposed and outcomes of preliminary

investigations, will be counterproductive and will result in unavoidable initial distrust and scepticism within the community.

- 3.13 Input from a community should be limited to areas that have a level of subjectivity around the local importance of specific sites which may have a higher scenic value to a community relative to the overall scenic classification of a proposed wind farm, which should be determined by objective and planning zoning methods.
- 3.14 The VIA also states it is applicable to planning permit modifications after the date of this Policy. This will have challenges particularly as blade length increases have been specifically identified. The visual impact assessment process outlined is extremely onerous and time consuming, which is excessive for a simple blade length change or increase in hub height, which does not necessarily result in additional visual impacts. It may also result in significant benefits due to increased efficiency of the development, producing more cost effective clean energy and making a greater contribution to State and Federal emission reduction targets. Trustpower proposes that the need for compliance with this Policy (and particularly the Visual Impact Assessment Bulletin) for future planning permit variations for blade length increases be quantified to only be required for changes in turbine dimensions that are deemed by a qualified landscape architect to materially increase the visual impact of the development.

## 4.0 Wind Energy: Assessment Policy

- 4.1 The Strategic Context refers to ensuring that adverse impacts are “avoided”. This can be unachievable and creates unrealistic expectations. This sentence should be reworded to *“...impacts of wind energy development are accurately identified and adverse outcomes are minimised as far as practical.”*
- 4.2 In section 1.4, the Application of the Policy, it is unclear as to when the Policy would apply to applications. The current wording suggests that it would apply from July 2016 onwards, as that is the date of the consultation draft. However, given that this Policy is not yet finalised and ‘legislated’, the wording needs to be amended to reflect that it does not apply until after the final Policy has formally been endorsed by the NSW Government.
- 4.3 Trustpower supports the comments made in the noise impacts of section 3. Trustpower considers taking scientific advice from the NHMRC and NSW Health to be an appropriate and sensible approach.
- 4.4 Trustpower supports section 4.3.3 which provides for micro-siting and environmental envelopes, as this provides a level of flexibility as a wind farm development evolves. The standard conditions of approval should however avoid specific inclusion of 100 m micro-siting restrictions where adequate development envelopes have been assessed. It completely defeats the purpose of achieving micro-siting flexibility within development envelopes if a 100 m micro-siting condition is overlaid as well.
- 4.5 In section 5.2 ‘When and Whom to Consult’ definitions of several types of affected parties is included, however there also needs to be differentiation within associated properties between host landholders and neighbouring properties that may have entered into financial or in-kind agreements. Trustpower recommends three separate landholder groups: host associated properties, neighbour associated properties and non-associated properties. Host associated properties should also include owners and occupiers of land required for access during construction and/or maintenance of the facility.



- 4.6 Section 5.3.3 requires written landowner consent to be obtained prior to lodging a Development Application. It should be made clear what consent is required, which should be limited to consent to lodging the Development Application only.
- 4.7 Further, it is not always feasible to obtain written consents from the Crown prior to lodging the Development Application. While it is acknowledged that Crown consent will ultimately be required for any infrastructure on Crown land, this can be more than adequately covered by a condition of approval to demonstrate all relevant and required Crown consents have been secured prior to construction commencement.

## 5.0 Wind Energy: Visual Impact Assessment Bulletin

- 5.1 The objectives of the bulletin should be linked to the Federal Government and State Government's overarching renewable energy objectives to be considered in the context of the positive benefits that wind energy brings to a community and to the wider State and avoid it being given undue weight in isolation. This issue could be partially addressed by including the strategic preamble from the overarching assessment document into the visual assessment bulletin, referencing the State's renewable energy goals and recognising the important role wind farms play in reducing emissions and creating rural jobs and investment.
- 5.2 The title of the bulletin should be changed to 'visual assessment bulletin' to remove the negative association of the term "impacts" and make it consistent with the "noise assessment bulletin"
- 5.3 Trustpower has some concerns with the Visual Impact Assessment ('VIA'), and its methodology and usability. The VIA is a very complicated and lengthy process, and is doubtful that it will produce appropriate and reasonable outcomes for wind energy developments.
- 5.4 Trustpower strongly considers that the VIA needs to be simplified, and to remove some of the more onerous or subjective elements from this assessment methodology. Areas for improvements are discussed in the following sections.
- 5.5 Throughout the Bulletin, there is constant reference to avoiding visual impacts. This creates the perception that visual impacts can be avoided, which is not possible due to the inherent characteristics of wind turbine technology, primarily as a result of the scale of this technology. The language throughout the Bulletin requires amendments to refer to minimising or mitigating visual impacts where practical.
- 5.6 Generally, the methodology refers to 'turbine height' but does not define this further. Within a wind turbine, the visually dominant components include the tower and the nacelle (the housing located at the top of the tower, at hub height). The turbine blades are not visually dominant due to their shape and dimensions in comparison to the rest of the wind turbine components.
- 5.7 Therefore, the references in the VIA to turbine height should be explicit in that it is to the height of the turbine nacelle. It would be more appropriate to refer to the turbine hub heights and provide for ranges or increments in hub heights and blade lengths rather than exact heights and dimensions. This is to allow for the recognition that a difference of a few metres will not make a material difference in the degree of visibility and to allow the flexibility required in final turbine design and selection.
- 5.8 Further, it is suggested that this VIA will apply to any future change to a Development Approval, including variations to Development Approvals secured prior to this Policy and

where variations may only be related to a change in tip height. As mentioned earlier in this submission, Trustpower is concerned that this requirement will be unduly onerous, given that it may apply to wind energy developments approved prior to the requirements of this VIA. Trustpower proposes that the need for compliance with this Policy (and particularly the Visual Impact Assessment Bulletin) for future planning permit variations for blade tip increases be quantified to only be required for changes in turbine dimensions that are deemed by a qualified landscape architect to have a material increased visual impact.

### Stage 1: Preliminary Environmental Assessment

- 5.9 The staging of the Preliminary Environmental Assessment is problematic and overly prescriptive. In particular, Trustpower has concerns with the extent of required community involvement at a very preliminary stage of a wind energy projects' development.
- 5.10 Stage 1 requires a proponent to undertake a preliminary environmental assessment which considers the landscape areas of the proposed wind energy project. This in itself is not a concern, however the requirement that this very preliminary assessment requires community consultation is a significant concern.
- 5.11 This assessment includes conducting landscape value "surveys" with the community in advance as part of preliminary screening step prior to lodging a SEAR's request. A survey can't been done in isolation without at least having developed a feasible wind farm layout and primary assessments available to inform this layout and then to provide these to the community and be able to answer their questions adequately.
- 5.12 Trustpower is concerned that it will deteriorate community trust if a wind energy proponent is not able to provide information on the proposal and its potential impacts, including environmental assessments results at that same time. The proposed steps in this consultation is very specific, including conducting an online or email survey reflecting the population profile in accordance with Census data, and to be supplemented by focus group meetings.
- 5.13 There are a number of more productive and different methods to secure community input into visual and landscape assessments without being as prescriptive. The approach taken will also greatly depend on the dynamics of the community and the specific location of each project. Trustpower proposes that this requirement be deferred to the proponent to demonstrate they have provided opportunity for community input, while undertaking appropriate visual assessment by landscape professionals, prior to lodgement of the Development Application.
- 5.14 The extent of community input needs considerable refining. Input should be limited to areas that have a level of subjectivity around the local importance of specific sites which may have a higher scenic value to a community relative to the overall scenic classification of a proposed wind farm, which should be determined by objective and planning zoning methods.
- 5.15 Trustpower requests the deletion of the Community Consultation for the Stage 1 Preliminary Environmental Assessment section. A landscape assessment can be undertaken by suitably qualified and experienced professional, using available information along with site visits to determine a landscapes value and scenic quality, without the need of community input at such an early stage in a projects life.

- 5.16 The need to demonstrate community input has been taken into consideration into the final proposed layout and design is supported by Trustpower, however this is best achieved at a time when sufficient preliminary independent assessments and surveys, including on landscape character, have been completed. Rather than requiring the prescribed level of community input into the preliminary environmental assessment and prior to lodging application for SEARs, Trustpower recommends that the SEARs include clear requirements on developers to demonstrate that adequate community input has been secured and taken into consideration prior to lodgement of the Development Application.
- 5.17 The Preliminary Screening Tool terminology could create confusion, as the use of the word 'screening' could be misinterpreted as vegetation screening as a mitigation tool. Trustpower suggests the name is changed to something like 'Preliminary Visual Assessment Tool'.
- 5.18 The Multiple Wind Turbine tool used for assessing the cumulative effects of wind turbines on a dwelling, whether those turbines are from the same wind farm or from neighbouring wind farms is generally supported. It states that the proponent must map any existing, approved or **proposed** turbines within 8 km of a dwelling. The definition of proposed turbines needs clarification and has to be linked to layout information in the public domain and a stage of advancement under the planning process, such as projects where SEAR's have been issued.
- 5.19 Trustpower considers that a distance of 8 km is too far, and is inconsistent with the preliminary screening tool, which suggests for turbines of 160 m height dwellings of up to 2 km away need further consideration. This should be amended so that multiple wind turbines up to 4 km from a residence are assessed.
- 5.20 There also needs to be recognition of the relevant importance of sectors that includes the dominant turbines visible with reference to the actual orientation of a dwelling. Turbines visible in the sectors aligning with the physical orientation of the house (the direction in which the house is pointing) will have a higher level of impact compared to turbines in sectors that are not aligned with the physical house orientation. For example, turbines that may be visible behind the house and not from the main house viewpoints.

### Stage 2: Assessment and Determination

- 5.21 The Mitigation and Management Options refer to the incorporation of appropriate setbacks, however Trustpower opposes this terminology. The intent is not to establish setback, rather to incorporate mitigation measures. This sentence should be re-worded to state "*... wind farm layouts can be appropriately designed to incorporate appropriate mitigation for affected residential dwellings to minimise impacts.*"
- 5.22 Consideration of a specific dwelling's orientation towards a proposed wind turbines needs to be given recognition, along with localised topography. While a dwelling may appear to need visual mitigation through a preliminary assessment, it may in fact not be required if there are specific local aspects as mentioned, that means a turbine is not visible (or has a low or limited viewing range) from that dwelling or the main views from the dwelling.
- 5.23 There also needs to be a recognition of where landholders have provided evidence of no concerns with the visual impacts of the wind farm which needs to be captured in this section as a legitimate management option.

- 5.24 The reference to ‘re-colouring’ of turbines as a mitigation option has some technical limitations. It needs to be noted, that external factors, such as the high ambient air temperatures experienced in Australia, may limit the ability to change the colour of turbines as this could limit the operational performance of the wind turbines.
- 5.25 A correction is required on page 14, under Visual Magnitude. It refers to the ‘red and orange lines in Figure 5’ where this should be the *‘black and green lines in Figure 5’*.

### Appendix 1: Baseline Study Inputs

- 5.26 Trustpower considers the methodology outlined in this appendix is flawed and is overly restrictive and subjective in some aspects.
- 5.27 The level of subjectivity in the inputs needs to be limited to where local input is sourced on the relative visual importance of specific locations or viewpoints within the site which may have a higher scenic value to a community relative to the overall scenic classification of a proposed wind farm, which should be determined by objective and clearly defined methods – such as expert landscape architects and or defined under planning zoning. It is recommended that community input be gathered on the “Key Landscape Features” and relative “Scenic Quality Class” areas within the site.
- 5.28 The Viewer Sensitivity Level Classifications outlined in Table 5 has incorrectly placed some elements into the wrong sensitivity level. In particular, Rural Villages needs to be shifted from Level 1 and into Level 2, to sit alongside Rural Residences. Similarly the Tourist and Visitor Accommodation also needs to be shifted from Level 1 to Level 2 to provide a more consistent allocation and assessment.
- 5.29 It is also noted that Table 5 contains a footnote suggesting that all views from a rural residence, including the land surrounding the dwelling, and other buildings or structures, needs to be included in viewpoints.
- 5.30 In the rural environment, property and lifestyle blocks can cover a larger area, and it is unrealistic to expect that all potential views of a wind farm should be mitigated from a rural property. Trustpower considers it is only the predominant view from the dwelling and its immediate exterior (ie decks or verandas) that need to be taken into consideration in a visual impact assessment.
- 5.31 The Visual Influence Zones outlined in Table 7 are concerning, in that it is unlikely to work in practice. This is due to the proposed Table 5 suggesting a rural village has a Level 1 viewer sensitivity, which will place it into a Visual Influence Zone 1 according to Table 7. This would then determine that, for example, a wind turbine height of 160 m within 2 km of a rural village will result in a VIZ 1 category which according to Table 8 requires turbines to be avoided or a detailed justification provided where it is within 3.2 km of a rural village.
- 5.32 If a Rural Village were in a Level 2 viewer sensitivity, it would still be deemed to have a Visual Influence Zone 1, and requiring wind turbines to be avoided within 3.2 km.
- 5.33 It is therefore considered that the Table 7 has overly restricted the Visual Influence Zones. Trustpower considers that wind turbines may be appropriate within 3.2 km of a rural village or residence, if appropriate mitigation is tailored to the unique onsite conditions. It is unrealistic to simply require that all wind turbines within 3.2 km are avoided.
- 5.34 To correct this, Trustpower requests that Table 7 is amended to the following:

| Viewer Sensitivity<br>Level – Distance Zone | Scenic Quality Class |          |      |
|---------------------------------------------|----------------------|----------|------|
|                                             | High                 | Moderate | Low  |
| <b>Level 1 Viewpoints</b>                   |                      |          |      |
| Near Foreground<br>0 – 500m                 | VIZ1                 | VIZ1     | VIZ1 |
| Mid Foreground<br>500m – 1 km               | VIZ1                 | VIZ1     | VIZ2 |
| Far Foreground<br>1 – 2 km                  | VIZ1                 | VIZ2     | VIZ2 |
| Near Middleground<br>2 – 4 km               | VIZ2                 | VIZ2     | VIZ2 |
| Far Middleground<br>4 – 8 km                | VIZ2                 | VIZ2     | VIZ2 |
| Near Background<br>8 – 12 km                | VIZ2                 | VIZ2     | VIZ3 |
| Mid Background<br>12 – 20 km                | VIZ2                 | VIZ3     | VIZ3 |
| Far Background<br>20 – 32+ km               | VIZ3                 | VIZ3     | VIZ3 |
| <b>Level 2 Viewpoints</b>                   |                      |          |      |
| Near Foreground<br>0 – 500m                 | VIZ1                 | VIZ1     | VIZ1 |
| Mid Foreground<br>500m – 1 km               | VIZ1                 | VIZ1     | VIZ2 |
| Far Foreground<br>1 – 2 km                  | VIZ1                 | VIZ2     | VIZ2 |
| Near Middleground<br>2 – 4 km               | VIZ2                 | VIZ2     | VIZ2 |
| Far Middleground<br>4 – 8 km                | VIZ2                 | VIZ2     | VIZ3 |
| Near Background<br>8 – 12 km                | VIZ2                 | VIZ3     | VIZ3 |
| Mid Background<br>12 – 20 km                | VIZ2                 | VIZ3     | VIZ3 |
| Far Background<br>20 – 32+ km               | VIZ3                 | VIZ3     | VIZ3 |
| <b>Level 3 Viewpoints</b>                   |                      |          |      |
| Near Foreground<br>0 – 500m                 | VIZ1                 | VIZ1     | VIZ2 |
| Mid Foreground<br>500m – 1 km               | VIZ2                 | VIZ2     | VIZ2 |
| Far Foreground<br>1 – 2 km                  | VIZ2                 | VIZ2     | VIZ2 |
| Near Middleground<br>2 – 4 km               | VIZ2                 | VIZ2     | VIZ3 |
| Far Middleground<br>4 – 8 km                | VIZ2                 | VIZ3     | VIZ3 |
| Near Background<br>8 – 12 km                | VIZ3                 | VIZ3     | VIZ3 |
| Mid Background<br>12 – 20 km                | VIZ3                 | VIZ3     | VIZ3 |
| Far Background<br>20 – 32+ km               | VIZ3                 | VIZ3     | VIZ3 |
| Areas Not Visible                           | VIZ3                 | VIZ3     | VIZ3 |

## Appendix 2: Visual Impact Assessment

- 5.35 Table 8 outlines the Visual Performance Objectives, and outlines what mitigation should be considered in various situations. However, Trustpower is concerned with Figure 5 and the determination of the 'green line'.
- 5.36 Trustpower considers that this is on the upper end of restrictiveness, particularly when considering a typical turbine height of 160 m will require avoidance within 3.2 km of a Visual Influence Zone 1, and screening within 2.1 km.
- 5.37 It is unclear how the threshold for VIA was determined, and it appears to not be well founded or justified. Trustpower requests that this is amended to have a lower distance threshold.
- 5.38 The Objectives for Landscape Scenic Integrity are problematic, in that it suggests that isolated impacts should be avoided. This is not achievable with a wind farm and in many instances can be a result of implementing other mitigation measures for visual impacts, such as relocating or deleting turbines in specific areas. This reference should be deleted in both the Objectives for VIZ1 and VIZ2.
- 5.39 Similarly, in VIZ2 the Objective refers to turbines dominating the existing visual catchment. This second part of the sentence should be deleted.

## Appendix 3: Impact Mitigation Options

- 5.40 The section on re-sizing of turbines is incongruous in its suggestion that larger turbines should be substituted for more turbines which are smaller. In actual fact, smaller turbines are less efficient and generate less electricity. To install more turbines than what would usually be required leads to a greater impact on biodiversity, as more land will need to be cleared for the turbines and associated access roads. It is also impractical from a turbine supply perspective to have substantially different sized turbines on a project. Trustpower requests complete deletion of this section.
- 5.41 The section on re-colouring is completely problematic for a wind farm. As highlighted earlier, in the Australian context, there are often external factors, such as the high ambient air temperatures, which may limit the ability to change the colour of turbines. Trustpower requests complete deletion of this section.
- 5.42 The section on vegetation screening is also problematic in that it suggests that consideration needs to be given to the potential future loss of existing vegetation that forms part of the existing environment and which may have been taken into account when undertaking visual impact assessment. It is completely impractical to require consideration of potential future activities or natural events that could impact existing vegetation, and this part of the Vegetation Screening sections needs to be deleted.
- 5.43 There are numerous potential impact mitigation options that have not been included in this Appendix. A clear mitigation measure that needs to be included is evidence of specific landholders providing evidence of no objections to the visual impacts of the wind farm.
- 5.44 Given that mitigation options are always evolving, the determination of appropriate options is done on a site by site basis. Trustpower believes that it is wind farm proponents and their independent experts that are best placed to provide impact mitigation options and this section to allow for alternative mitigation measures to be proposed for consideration.

## **6.0 Wind Energy: Noise Assessment Bulletin**

- 6.1 Trustpower generally supports the Noise Assessment Bulletin, however it has a few concerns as outlined below.
- 6.2 In the Background section, a statement is made that preliminary studies have indicated greater level of annoyance around wind farms and noise compared to other noise sources at same noise levels. Trustpower is not aware of any such studies, and requests that these studies be referenced or the statement deleted.
- 6.3 In the Framework section, justification of variations to the SA 2009 Wind Farm guidelines is made. However, Trustpower does not accept the justification that due to regional areas in NSW being more populated, that these requirements need to be 'supplemented'. Trustpower also notes that the South Australian 2009 Wind Farm Guidelines are broadly consistent with the New Zealand Standard 6868, which has been also adopted in Victoria.
- 6.4 In the Determination and post approval regulation section, it refers to wind farm compliance with approved noise limits. This could infer that the modelled noise predictions based on a representative turbine determined during the impact assessment will become the approved consented limits, and therefore cannot be exceeded.
- 6.5 Predicted noise levels are not 'hard' levels approved per dwelling, but rather they are used to demonstrate prior to construction, the likely noise levels to be experienced at that location, and to satisfy the consent authority on a proposals final wind turbine layout.
- 6.6 This section should rather state wind farms are demonstrate compliance with the SA EPA 2009 guidelines.
- 6.7 Trustpower supports the statements made in the Noise and Health section of this Bulletin.

## **7.0 Conclusion**

- 7.1 Overall, Trustpower is generally supportive of the Wind Energy documents, however has significant concerns in relation to the Visual Impact Assessment Bulletin as described, and trusts that the Department finds this feedback useful.

## Caleb Ball

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**From:** system@acelo.com on behalf of [REDACTED]  
**Sent:** Friday, 16 September 2016 2:47 PM  
**To:** Caleb Ball  
**Cc:** Felicity Greenway  
**Subject:** Submission Details for [REDACTED] (comments)

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Confidentiality Requested: yes

Submitted by a Planner: no

Disclosable Political Donation:

Name: [REDACTED]  
Organisation: [REDACTED]  
Email: [REDACTED]

Address:

[REDACTED]  
[REDACTED]  
[REDACTED]

Content:

consultation with affected property should be at beginning of process & ongoing  
proximity of homes distance to turbines should be given greater consideration in relation to visual, noise & health psychological effects  
Cumulative affects of more than one wind farm is an issue which is extremely important. Topography can amplify noise & visual effects  
More emphasis should be placed on impacts to existing infrastructure such as road degradation including that caused by extra auxiliary traffic e.g. staff commuting, gravel trucks, service vehicles to maintain to a safer standard  
consideration given to availability of gravel& water needed for construction of turbines and related structures/ access roads  
size of turbines should be set in initial application

IP Address: [REDACTED]  
Submission: Online Submission from [REDACTED] (comments)  
[https://majorprojects.affinitylive.com/?action=view\\_activity&id=162977](https://majorprojects.affinitylive.com/?action=view_activity&id=162977)

Submission for Job: #7859  
[https://majorprojects.affinitylive.com/?action=view\\_job&id=7859](https://majorprojects.affinitylive.com/?action=view_job&id=7859)

Site: #0  
[https://majorprojects.affinitylive.com/?action=view\\_site&id=0](https://majorprojects.affinitylive.com/?action=view_site&id=0)



16 September 2016

NSW Department of Planning and Environment  
GPO Box 39,  
Sydney NSW 2001

**Attention: Felicity Greenway – Director, Industry and Infrastructure Policy**

Dear Felicity

**NSW DRAFT WIND ENERGY PLANNING FRAMEWORK: NOISE ASSESSMENT BULLETIN**

Thank you for the opportunity to provide comment on the draft *Wind Energy: Noise Assessment Bulletin* (the draft Noise Bulletin) released in August 2016 as part of the NSW Department of Planning and Environment's proposed new wind energy planning framework.

We have carried out a review of the draft Noise Bulletin and provide our comments herein.

The draft Bulletin provides useful clarifications for a number of aspects of wind farm noise assessment. We have however identified some aspects which we consider warrant further consideration or modification. For ease of reference, a brief summary of our recommendations is provided in Table 1.

Further discussion of each subject is provided in the appendices to this letter.

**Table 1: draft Noise Bulletin – Review Recommendations**

| Subject                  | Recommendation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Base Noise Limit (35 dB) | Conduct a qualitative policy impact assessment, based on spatial analysis, to determine if the NSW base noise limit risks preventing the development needed to achieve NSW's renewable energy targets, or conversely, if the base noise limits are inconsequential to the meeting the state's renewable energy target.<br><br>See further discussion in Appendix A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Low Frequency Noise      | Remove the low frequency noise criteria, or specify a less prescriptive approach in recognition of the absence of sufficient evidence to support the necessity and suitability of the proposed criteria as definitive pass/fail thresholds. A less prescriptive approach could comprise:<br><br>Requiring C-weighted measurement data obtained during post-construction monitoring to be submitted as reference information for review by the regulator.<br><br>Requiring formal assessment of low frequency noise only in instances when related complaints are received and deemed by the relevant authority to warrant objective assessment.<br><br>Identifying the external and internal noise assessment procedures as the relevant procedures that must be considered in any low frequency noise assessment plan that must be implemented following instruction by the relevant authority in response to related complaints<br><br>See further discussion in Appendix B. |

| Subject               | Recommendation                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tonality              | Specify a more detailed tonality assessment procedure that is consistent with comparable Australian and international jurisdictions, and consider options for more effective management of tonality, earlier in a project's lifecycle.<br><br>See further discussion in Appendix C.                                                                                                                                                      |
| Compliance Monitoring | Provide guidance on the selection of monitoring periods to avoid times of year when it is less likely that suitable wind speeds and directions will occur.<br><br>Specify longer periods than one week for the assessment of special audible characteristics or provide better definition of the operating conditions of the wind farm that must occur for the one week period to be valid.<br><br>See further discussion in Appendix D. |

We trust the above and attached are of assistance. We would welcome the opportunity to discuss the draft Noise Bulletin if you would like to discuss any of our review findings.

Yours faithfully

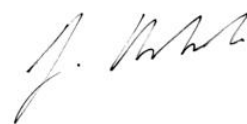
**MARSHALL DAY ACOUSTICS PTY LTD**



**Christophe Delaire**  
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**Justin Adcock**  
**Associate**

## APPENDIX A BASE NOISE LIMIT

The base noise limit of 35 dB nominated in the draft Noise Bulletin is a technical requirement which could have broader implications for renewable energy development in NSW.

It is acknowledged that defining noise criteria is ultimately a policy matter rather than a technical matter, and is based on achieving a balance between protecting the amenity of neighbouring communities and supporting a planning framework which enables the development of renewable energy projects. However, aside from brief references in the draft Noise Bulletin to higher population densities in rural NSW relative to South Australia, there is no indication of a quantitative analysis or policy impact assessment having been carried out in developing the noise criteria. This type of analysis is particularly relevant to wind farm noise policy development for the following reasons:

- Unlike other forms of development, noise criteria can have a direct impact on the viability and productivity of proposed wind energy developments. Seemingly small changes in noise criteria or assessment methods can have a significant impact on the potential renewable energy yield of a site, despite equating to subjectively minimal changes in wind turbine noise levels at receptor locations<sup>1</sup>.
- Noise limits can have broader strategic consequences in terms of the amount of development required to meet renewable energy targets. Setting lower noise limits may reduce the level of noise experienced at the nearest neighbouring houses. Conversely, by limiting the energy generating potential of each site, lower noise limits may mean that a greater number of sites is ultimately required to achieve a given renewable energy target, increasing the total population exposed to wind farm noise.

Additionally, in the absence of any relationship between the base noise limit and land use zoning, the noise criterion does not prioritise development in areas where industry and economic activity is promoted. Conversely, the limit does not differentiate areas where the planning system promotes rural living and potentially higher amenity from those areas where the planning system prioritises industry and economic activity.

These types of policy considerations should be informed by policy impact assessment based on modelling and spatial analysis<sup>2</sup>. For example, NSW has adopted significantly lower limits than are generally applied in South Australia and Victoria where wind energy development has occurred at a greater scale. An objective analysis could assist in determining whether the adoption of lower noise limits has significantly constrained renewable energy development in NSW, or conversely, if the rate of development has not been influenced by the adoption of lower limits.

Given the sensitivities surrounding the expansion of renewable energy development and the impact of the policy on renewable energy generation in NSW, this type of analysis is considered essential for credible policy development. In the absence of this analysis, the suitability of the selected base noise limit is unclear – in terms of both community expectations and broader government policy objectives.

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<sup>1</sup> *Wind Farm Noise Predictions: The Risks of Conservatism*, Adcock J, Bullmore A, Cand M, Jiggins M, Second International Meeting on Wind Turbine Noise, France 2007.

This study demonstrated the potential for differences of the order of 3 dB to translate to substantial reductions in energy generating potential (of the order 40 % loss)

<sup>2</sup> The Sustainable Energy Authority of Ireland provides an example how spatial analysis and development constraints mapping can be used to inform policy – see: <http://www.seai.ie/>

## APPENDIX B LOW FREQUENCY NOISE

The NSW 2011 draft Guideline and the draft Noise Bulletin acknowledge that low frequency noise is not typically a significant feature of modern wind turbine noise. Nonetheless, the draft Noise Bulletin proposes stringent criteria which could unnecessarily constrain renewable energy development.

The following key issues are associated with the proposed low frequency criteria:

- Experience with some proposed sites is now indicating the potential for the low frequency criteria to be more restrictive than the A-weighted noise criteria for certain wind farm designs. However, there is little reliable evidence to indicate that wind farm noise at or above the proposed external and internal thresholds would be sufficient to result in low frequency noise issues. In particular, the detailed assessment method in the draft Noise Bulletin is based on application of a UK government guidance document in a manner that directly contradicts the stated purpose and limitations of the guidance. Specifically, the UK guidance states:

*It is suggested the proposed criterion be used not as a prescriptive indicator of nuisance ...*

And:

*... it is clear that problems do not necessarily arise when the criteria are exceeded.*

Despite these statements in the UK guidance, the draft NSW Noise Bulletin applies the UK guidance prescriptively as a pass/fail test for low frequency noise.

- The draft Noise Bulletin automatically applies penalty adjustments based on outdoor noise criteria unless a detailed assessment is carried out inside a neighbour's homes. However, indoor measurement introduce a raft of potential complications including access considerations, measurement contamination related to domestic sources inside a home and privacy issues associated with recording in resident's homes.
- There is significant uncertainty associated with the prediction of low frequency noise and the measurement of low frequency noise in windy environments.

The draft Noise Bulletin does not provide guidance on how to overcome these potentially significant complications, particularly if access to private homes is not available to the wind farm operator. It is acknowledged that these are not matters that can be easily addressed in a policy document. However, this supports the adoption of a less prescriptive approach on low frequency noise, particularly given that the UK guidance that has been referenced specifically states that it clear that problems do not necessarily arise when the criteria are exceeded.

Further, while the draft Noise Bulletin attempts to address community concerns about low frequency noise by introducing objective criteria, the adoption of a prescriptive pass/fail criterion which can designate low frequency noise as problematic, even where no related complaints exist, could have the counter effect of unnecessarily exacerbating community concerns.

Notwithstanding the above, and acknowledging that the NSW government consider it is necessary to introduce objective criteria as a means of addressing community concerns about low frequency noise, a more appropriate approach could be to:

- Require C-weighted measurement data obtained during post-construction monitoring to be submitted as reference information for review by the regulator.

This data would then be available in the event that low frequency noise related complaints are received by the regulator. More broadly, obtaining this data would provide a basis for the NSW government's ongoing monitoring of the issue of low frequency noise

- Require formal assessment of low frequency noise only in instances when related complaints are received and deemed by the relevant authority to warrant objective assessment.

This would avoid the problems of false-positive low frequency noise assessment outcomes when low frequency noise related complaints do not exist, in turn avoiding unnecessary operational restrictions

- Specify external C-weighted noise thresholds and the detailed internal assessment method (UK guidance) as the relevant procedures that must be considered in any low frequency noise assessment plan that must be implemented following instruction by the relevant authority in response to related complaints.

This would provide a degree of flexibility for addressing the technical limitations and practical challenges of the reference methods on a case-by-case basis, accounting for project-specific circumstances (e.g. availability of homes for conducting internal noise measurements and recordings, and addressing potential discrepancies between complaint periods and periods when the reference thresholds are exceeded)

## APPENDIX C TONALITY

The draft Noise Bulletin specifies a simple method of assessing tonality which is identical to the approach used to assess industrial noise sources in NSW. However, wind farms are a specific type of noise source that warrant specific assessment procedures. In this respect, experience has shown that the simple method often fails to detect wind farm related tones that are subjectively perceptible. This means the simple method could permit continued operation of turbines which would otherwise be identified as tonal using more appropriate and detailed methods, as implemented in other Australian jurisdictions and internationally.

It may be considered beneficial for the wind industry to be subject to less stringent requirements for tonality, particularly in the context of the lower base limit that is proposed to be retained in NSW. However, when present, experience has shown that tonality is one of the most likely causes of complaint about wind farm noise. Indeed, the presence of tonality in the earliest turbine designs in the 1990's was a significant cause of complaint about wind farms, which subsequently lead to an increased focus on tonality in wind farm assessment and turbine design. As a result, improved modern turbine designs now mean that the majority of modern wind farms are unlikely to be characterised by tonal emissions. This means that more onerous standards can be applied to tonality without compromising the potential for renewable energy development. However, a concession which could allow atypical sites that are characterised by tonality to continue to operate without restriction could have two effects:

- Create an incentive for the use of lower specification turbines in NSW relative to other markets; and
- Contribute to negative community perceptions about wind farm development.

Therefore, while a more lenient tonality criterion may seem to provide a concession for the wind farm industry, the effect in practice may be counterproductive in the long term. Further, the use of a simple method may represent a lost opportunity to improve wind farm design standards and provide greater confidence to neighbouring communities about the control of tonal characteristics. For example, early sound emission testing in the construction phase of projects provides the opportunity to identify and avert tonality issues before a site becomes fully operational, limiting the chance of protracted community disturbance as a result of late detection during the commissioning phase of a project.

## APPENDIX D COMPLIANCE MONITORING

The NSW 2011 draft Guidelines included provisions for conducting compliance monitoring at intermediate locations positioned between a wind farm and surrounding receiver locations. This approach is retained in the draft Noise Bulletin and is considered a positive inclusion, and an aspect of the NSW policy which sets an example for other jurisdictions. This approach provides the benefit of:

- Enabling compliance monitoring at accessible locations that do not necessarily require intrusion on private on property (intermediate locations can often be cited within host land areas related to the wind farm)
- Enabling compliance monitoring to be carried at locations where the noise of the wind farm can be more reliably separated from background noise, enabling site noise models to be verified, subsequently allowing compliance to be investigated at a broader range of distant locations.

In terms of survey durations, experience has shown the 6 week period is a reasonable balance between capturing a sufficient range of conditions and avoiding very long survey durations which are generally not required on technical grounds. However, it would be prudent to consider including:

- Guidance on the selection of monitoring periods to avoid times of year when it is less likely that suitable wind speeds and directions will occur
- Guidance to specify longer periods for the assessment of special audible characteristics. Experience has shown that a one week period, as referenced in the draft Noise Bulletin, is unlikely to be sufficient for a complete assessment of the sound character of wind farm, particularly without any definition for the operating conditions of the wind farm during the one week period.

16 September 2016

Mrs C McNally  
Secretary  
Department of Planning and Environment  
GPO Box 39  
Sydney NSW 2001

Attention: Felicity Greenway, Director, Industry and Infrastructure Policy

Dear Mrs McNally

**Re: Wind Energy Framework**

Thank you for providing Queanbeyan-Palerang Regional Council with the opportunity to provide comment on the Wind Energy Framework. It is understood that the draft framework consists of the following components:

- draft wind energy: assessment policy
- draft wind energy: noise assessment bulletin
- draft wind energy: visual impact assessment bulletin
- draft standard secretary's environmental assessment requirements

Within the Queanbeyan-Palerang Regional Council area there are the following established wind energy establishments:

- Capital Wind Farm
- Capital 2 Wind Farm

It is understood that there is one proposed wind farm, the Jupiter Wind Farm which has been considered by the Department. Council welcomes the development of the Framework and hopes that it is finalised and implemented in early 2017.

The following comments are based Council's experience with the above wind farms. It is noted that the former Palerang Council adopted a policy of generally supporting wind farms in rural areas and opposing them in areas close to residences or rural residential areas. As the Queanbeyan-Palerang Regional Council is a new Council, this policy will be reviewed as part of the preparation of a draft comprehensive local environmental plan, once a new council has been established.

***draft wind energy: assessment policy***

- It is agreed that visual and noise impacts are the major key issues and the other matters listed on page 6 and 7 are also important.
- Council agrees that early consultation is important
- It is suggested that under section 5.3.4 that mention should be made of the need to consider development contributions plans. For instance Council has a section 94A plan for infrastructure which includes windfarms and encompasses the former Palerang local government area

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**Offices:**  
144 Wallace St, Braidwood  
10 Majara St, Bungendore  
256 Crawford St, Queanbeyan

**Postal:**  
PO Box 348,  
Bungendore NSW 2621  
PO Box 90, Queanbeyan  
NSW 2620

**Contact**  
**Bungendore/Braidwood:**  
**Ph:** 02 6238 8111  
**Fax:** 02 6238 1290  
**E:** [records@palerang.nsw.gov.au](mailto:records@palerang.nsw.gov.au)  
**W:** [www.palerang.nsw.gov.au](http://www.palerang.nsw.gov.au)

**Contact:**  
**Queanbeyan:**  
**Ph:** 6285 6000  
**Fax:** 6285 6666  
**E:** [council@gcc.nsw.gov.au](mailto:council@gcc.nsw.gov.au)  
**W:** [www.gcc.nsw.gov.au](http://www.gcc.nsw.gov.au)



***draft wind energy: noise assessment bulletin***

Council agrees with the statement "...rural zones in NSW are often more densely settled than those of South Australia and that there is a relatively high density of rural residential living in parts of regional NSW with high quality wind resources." and policy being developed that recognises this situation

***draft wind energy: visual impact assessment bulletin***

Council agrees with the approach of requiring the visual assessment to be undertaken in accordance with a set method.

***draft standard secretary's environmental assessment requirements***

It is suggested that non-indigenous heritage should be included under Heritage as in rural areas there may be a structure of heritage value that could be impacted, for example the visual setting in which the heritage item sits may be altered by the development

If you wish to discuss this submission please contact myself on 6238 8111 or at [john.wright@qprc.nsw.gov.au](mailto:john.wright@qprc.nsw.gov.au)



Yours sincerely

**John Wright**

Director of Planning and Environment

**Queanbeyan-Palerang Regional Council**

## Caleb Ball

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**From:** system@acelo.com on behalf of [REDACTED]  
**Sent:** Thursday, 1 September 2016 3:43 PM  
**To:** Caleb Ball  
**Cc:** Felicity Greenway  
**Subject:** Submission Details for [REDACTED] (comments)

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Confidentiality Requested: yes

Submitted by a Planner: no

Disclosable Political Donation:

Name: [REDACTED]  
Organisation: [REDACTED]  
Email: [REDACTED]

Address:  
[REDACTED]  
[REDACTED]  
[REDACTED]

### Content:

It will be difficult to supply accurate turbine locations to surrounding landowners in the preliminary phase. A lot of work involved in turbine siting is dependent on aerial studies, ecology, heritage studies etc and is not done until the EIS stage.

The cost of visual impact studies in the preliminary phase when Turbine siting has not been optimised will make a project very expensive in this phase - and could turn away potential developers of windfarms.

If turbine siting then changes from where they were sited in the preliminary phase due to ecology / heritage / etc reasons - is likely to cause distrust in the local community.

Negotiated agreements with local landowners could take up to 2 years to get organised with solicitor involvement - making it a costly task both monetarily and timewise.

What if landowners refuse to negotiate and agreement as they hate windfarms? And if they do wish to negotiate - how do you place a reasonable value on their visual amenity?

IP Address: - [REDACTED]  
Submission: Online Submission from [REDACTED] (comments)  
[https://majorprojects.affinitylive.com/?action=view\\_activity&id=160702](https://majorprojects.affinitylive.com/?action=view_activity&id=160702)

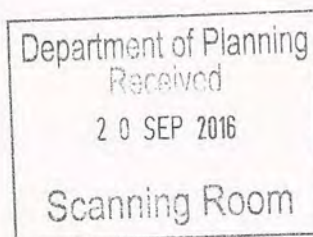
Submission for Job: #7859  
[https://majorprojects.affinitylive.com/?action=view\\_job&id=7859](https://majorprojects.affinitylive.com/?action=view_job&id=7859)

Site: #0  
[https://majorprojects.affinitylive.com/?action=view\\_site&id=0](https://majorprojects.affinitylive.com/?action=view_site&id=0)



16 September 2016

Director Industry and Infrastructure Policy  
Department of Planning and Environment  
GPO Box 39  
SYDNEY NSW 2000



### Draft 2016 NSW Wind Energy Framework

Dear Sir/Madam

Thank you for the opportunity to comment on the draft 2016 NSW wind energy framework.

It's noted the draft is clear that it only applies to state significant development. This is development that generally has a 30m or greater capital investment value or greater than 10m and located in an environmentally sensitive area of state significance.

This is contrary to the 2011 NSW Department of Infrastructure and Planning's Draft NSW Planning Guidelines Wind Farms which were ambiguous in regards to what types of wind farm developments they apply to.

The media releases assertion that the policy framework has been developed in response to issues raised with the 2011 draft is noted. However, many of the issues raised in Council's submission at that time are not accounted for in the current exhibition material.

Council's policy position on wind farms is as per its 7 February 2012 resolution which follows:

1. *That Council recognises that the unique features of the Shellharbour Local Government Area afford a pleasant and attractive amenity to its residents;*
2. *That Council is obliged to act in the best interests of the persons it represents by preserving and enhancing that amenity;*
3. *That wind farms and wind turbines are not consistent with the visual amenity of Shellharbour;*
4. *That any commercial wind farms and wind turbines that are erected are more than likely to detract from the economic and social benefits of the community and, further, that there has not been enough research or information on the effects of 'Wind Turbine Syndrome';*
5. *That the Council oppose in principle the development of wind farms in the LGA and will be making appropriate representations to the State Government regarding the legislation applying to this type of development.*



**ENGLISH**

If you have difficulties understanding this correspondence, please contact Council by phone (4221 6111) or, if you wish, come into the office where staff will be pleased to assist you and if required, an appropriate interpreter will be called.

**MACEDONIAN**

Ако имате тешкотии да ја разберете оваа кореспонденција, ве молиме контактирајте ја Општината по телефон на 4221 6111 или ако сакате, дојдете во канцеларијата каде што службениците со задоволство ќе ви помогнат, и ако е потребно, ќе повикат соодветен преведувач.

**SPANISH**

Si tuviera dificultades para entender esta correspondencia, le rogamos llamar por teléfono al Municipio, número 4221 6111, o bien, si lo prefiere, puede venir a nuestras oficinas, donde el personal tendrá el agrado de ayudarle y, si fuera necesario, de llamar a un intérprete.

**GERMAN**

Wenn Sie Schwierigkeiten haben, diese Korrespondenz zu verstehen, setzen Sie sich bitte telefonisch mit der Gemeinde in Verbindung (4221 6111) oder, falls Ihnen das lieber ist, kommen Sie in unser Büro: wir werden Ihnen gerne behilflich sein und werden, falls nötig, einen entsprechenden Dolmetscher hinzurufen.

**ITALIAN**

Se non riuscite a capire bene questa lettera, vi preghiamo di telefonare al Comune, numero telefonico: 4221 6111. Se preferite, potete venire di persona al nostro ufficio dove il personale sarà felice di aiutarvi. Se richiesto, un interprete sarà messo a vostra disposizione.

**GREEK**

Αν έχετε δυσκολία να καταλάβετε την παρούσα αλληλογραφία, παρακαλούμε επικοινωνήστε με τη Δημαρχία (Τηλ. 4221 6111), ή αν επιθυμείτε ελάτε στα γραφεία όπου το προσωπικό θα σας βοηθήσει ευχαρίστως και αν χρειαστεί θα κληθεί κατάλληλος διερμηνέας.

**CROATIAN**

Ako ne možete razumjeti ovo pismo, molimo nazovite općinu na 4221 6111 ili, ako želite, dođite u naš ured gdje će vam osoblje rado pomoći i po potrebi nazvati odgovarajućeg tumača.

**PORTUGUESE**

Se tem dificuldade de entender esta correspondência, aueira contactar o Conselho Municipal pelo telefone (4221 6111) ou, se o quiser, queira vir á secretaria onde o pessoal terá prazer de lhe prestar ajuda e, se for preciso, mandar-se-á vir um intérprete.

**SERBIAN**

Ако имате потешкоћа у разумевању овог дописа, молим назовите Општину на 4221 6111 или, ако желите, дођите у нашу канцеларију где ће вам особље радо помоћи, или, где је потребно, назвати одговарајућег тумач.

**TURKISH**

Bu yazıyı anlamakta zorluk çekerseniz, Belediyeyi lütfen telefonla 4221 6111 arayınız, veya dilerseniz ofise geliniz; oradaki görevliler size memnuniyetle yardım edecekler ve gerekirse uygun bir tercümanla temasa geçilecektir.

**POLISH**

Jeśli masz trudności ze zrozumieniem treści niniejszego pisma, skontaktuj się z Radą Miejskiej (Council) telefonicznie pod numerem 4221 6111, lub też - jeśli wolisz - przyjdź do naszego urzędu, gdzie personel z przyjemnością udzieli Ci pomocy i - w razie konieczności - zorganizuje pomoc tłumacza.

Council does not support the draft wind energy framework based on the above position. However, Council does wish to participate in a broader discussion on wind farm and wind farm legislation and policy in NSW and the draft wind energy framework is part of that broader discussion.

Council requests that the State Government undertake a review of planning legislation and policy relating to all types of wind turbine systems.

Any state policy should incorporate appropriate consultation requirements for all types of wind turbine systems in recognition of the 2011 draft guidelines statement as follows:

*"wind farms are typically highly visible and there is typically a high level of interest from local communities and interest groups.*

*Communities in areas where wind farms are proposed have a strong and legitimate interest in the planning and assessment process. Early and effective community consultation, demonstrating an ongoing commitment to provide information and ensure opportunities for input is therefore critical. The proponent needs to genuinely understand community concerns and ensure that such concerns are comprehensively and transparently addressed in the design and development of the wind farm proposal."*

Council's submission on the draft 2011 guidelines is relevant to the draft wind energy framework and in the context of any future state policy on wind turbine systems and is attached.

With respect to the Standard Secretary's Environmental Assessment Requirements (SSEARS), the appropriateness of focussing on dwellings within only 1.5 km for health risk is questioned. A larger focus area, based on the current science may be needed.

Council urges the department to ensure it not only formulates a policy on all types of wind turbine systems, but ensures that the issues consideration and standards referenced in any policy reflect contemporary global knowledge, monitoring and experiences on wind turbine development.

Should you have any enquiries regarding this letter please contact Michael Tuffy on 4221 6128.

Yours sincerely



Michael Tuffy  
**Senior Strategic Planner**

Att: Shellharbour City Council Submission on NSW Planning Law and Policy – Wind Farms and Wind Turbines (associated with public exhibition of Draft NSW Planning Guidelines: Wind Farms)

Shellharbour City Council

Submission on NSW Planning Law and Policy - Wind Farms and Wind Turbines  
(Associated with public exhibition of Draft NSW Planning Guidelines: Wind Farms)

February 2012



### Introduction

This submission is in response to the public exhibition of the Draft NSW Planning Guidelines: Wind Farms (the Guidelines). The submission addresses issues wider than those contained in the draft guidelines. The submission strongly urges the State Government to not finalise the guidelines until a fundamental review of the State Environmental Planning Policy (Infrastructure) 2007 has taken place, in relation to wind farms and wind turbines.

Without this wider review it is considered that the Guidelines will be ineffectual and misleading to the community, applicants and consent authorities.

The Executive Summary to the guidelines state that the purpose of the guidelines is to "provide a clear and consistent statutory framework for the assessment and determination of wind farm proposals across the State". A "guideline" cannot achieve this. A guideline is a statement which offers advice on the implementation of a policy. In fact the "disclaimer" to the guideline explicitly states "these Guidelines are provided for general advice and information only". It goes as far as to "recommend that independent advice be sought in respect to the operation of the Guidelines and statutory requirements applying under the Environmental Planning and Assessment Act 1979".

The Guidelines do not offer a definition of what a "wind farm" is. The statutory framework for the planning and assessment of "electricity generating works" is established by Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP). The Infrastructure SEPP defines a "small wind turbine" and a "small wind turbine system", but not a "wind farm". Assuming that a "wind farm" is an "electricity generating works" that is not a "small wind turbine system"; the result is a set of guidelines that will not apply to a significant proportion of wind turbine developments.

Therefore, Council requests that the State Government undertake a review of planning legislation and policy relating to wind turbine systems.

### Council's Policy Position

Council has an adopted policy position on "wind farms" and wind turbines. Council at its meeting of 7 February 2012 resolved:

1. *That Council recognises that the unique features of the Shellharbour Local Government Area afford a pleasant and attractive amenity to its residents;*
2. *That Council is obliged to act in the best interests of the persons it represents by preserving and enhancing that amenity;*
3. *That wind farms and wind turbines are not consistent with the visual amenity of Shellharbour;*
4. *That any commercial wind farms and wind turbines that are erected are more than likely to detract from the economic and social benefits of the community and, further, that there has not been enough research or information on the effects of 'Wind Turbine Syndrome';*
5. *That the Council oppose in principle the development of wind farms in the LGA and will be making appropriate representations to the State Government regarding the legislation applying to this type of development.*

Council does not support the draft guidelines based on the above policy position. However Council does wish to participate in a broader discussion on wind farm and wind farm legislation and policy in NSW and the draft Guidelines are part of that broader discussion.

### Types of development covered by the guidelines

The guidelines are ambiguous in regards to what types of wind farm developments they apply to. It has sections on where they are permissible, the different types of assessment process and key matters in the assessment process; but no clear guidance on what provisions are to be applied under the different assessment processes.

The following table is reproduced from the guidelines:

| Capital Investment Value                                                 | Development category          | Assessment by                             | Determination by               |
|--------------------------------------------------------------------------|-------------------------------|-------------------------------------------|--------------------------------|
| Less than \$5 million                                                    | Local development             | Council                                   | Council                        |
| \$5-30 million                                                           | Regional development          | Council                                   | Joint Regional Planning Panel  |
| \$30 million or more (or \$10 million in environmentally sensitive area) | State significant development | Department of Planning and Infrastructure | Planning Assessment Commission |

This table sets out the different assessment processes for developments based on value. However the wording and structure of the guidelines are ambiguous in relation to what provisions apply to what type of development.

For instance Section 1.3 of the guidelines is titled "Key matters in the assessment process". It addresses fundamental issues such as proximity to residential dwellings, visual amenity, noise, community consultation, health, decommissioning and auditing and compliance. However this section is prefaced by a statement saying that State Significant Development assessment requirements are usually set out in the Director General's Requirements, then provides a summary of those key considerations. At no point do the guidelines say that these key considerations apply to local or regional development, although the Joint Regional Planning Panel is referenced intermittently. It could be reasonable argued that they only apply to wind farm developments greater than \$30 million. Clearly this is an unacceptable outcome and the guidelines need to be reworded to provide much greater clarity in terms of the development type they apply to.

The remainder of Council's submission is written on the assumption that the guidelines apply to all wind farm developments, except those that are exempt or complying by virtue of the Infrastructure SEPP or where the guidelines explicitly state that it only applies to State Significant Development.

### Community Engagement

Section 2 of the draft Guidelines is titled "Consulting with the community and stakeholders". The introduction to this section states:

*"Wind farms are typically highly visible and there is typically a high level of interest from local communities and interest groups.*

*Communities in areas where wind farms are proposed have a strong and legitimate interest in the planning and assessment process. Early and effective community consultation, demonstrating an ongoing commitment to provide information and ensure opportunities for input is therefore critical. The proponent needs to genuinely understand community concerns and ensure that such concerns are comprehensively and transparently addressed in the design and development of the wind farm proposal."*

The remainder of this section lacks clarity as to whether the community consultation requirements apply to all wind projects or only those over \$30 million. The draft guidelines do advise that it is "essential" to engage with local government, regardless of whether or not it is the determining authority.



Amongst other things, Council's should advise proponents of the permissibility of wind farms in certain zones, and presumably provide guidance on the guidelines. It may be more appropriate that the State provide advice on its own policy, especially as it may only relate to State Significant Development.

Of particular concern to Shellharbour City Council is the implication that Council will "facilitate the dissemination of project information to the local community (e.g. notification of community participation events)" and "identify potential opportunities to maximise community benefits from the project". Given that Council has publicly stated its opposition to wind farms in the LGA, this type of implied support and facilitation is not considered acceptable.

#### **Site Compatibility Certificates and neighbour consent**

The draft guidelines propose that proponents can seek written consent from land owners within a 2km radius of a proposed wind farm. If such consents are received it negates the need for the proponent to seek a Site Compatibility Certificate.

There are a number of issues that arise from seeking adjoining owner's permission. Firstly, does that permission bind future owners of the land? A situation could arise where an adjoining owner consents and subsequently sells the property. Is the consent legally binding on the new owner? What mechanisms will be put in place to ensure potential owners are made aware of the consent? Should such consent appear on an 88B Certificate? Should the State Government make it mandatory on a Section 149 Certificate?

Secondly do the guidelines prohibit proponents offering financial incentives when seeking consent from an adjoining owner? There is nothing inherently wrong with being compensated for a possible devaluation of a property or other restriction to the enjoyment of land. However environmental assessment of a proposal should adequately identify and mitigate these impacts. The draft guidelines should be explicit about financial payments associated with owners consent.

Under the guidelines, the issuing of Site Compatibility Certificates will be the role of Joint Regional Planning Panels. Coincidentally the State Government has currently got on exhibition a "Revised draft Operational Procedures, Code of Conduct and Complaints Handling Policy for the Joint Regional Planning Panels". There is a specific section on the roles of a Joint Regional Planning Panel and it does not include Site Compatibility Certificates. The roles and functions of a Joint Regional Planning Panels are usually conferred by an environmental planning instrument, such as SEPP in accordance with the Act. Council is unaware of any such SEPP being made.

#### **Role of the Environment Protection Authority**

Currently the Environment Protection Authority has no regulatory role in regards to environmental compliance monitoring or auditing of wind farms. The draft guidelines suggest that the Protection of the Environment Operation Act will be amended some time in the future to address this. In the interim it is unclear who enforces conditions of consent. Depending on the specific conditions of consent, Council may have to take on this role with its inevitable resource and funding implications.

#### **Exempt and Complying Development**

The draft guidelines are obviously the result of a lot of research and assessment of the impacts of wind farms and wind turbines. It would seem appropriate that this knowledge base should be applied through a review of the Infrastructure SEPP, and in particular the requirements for exempt and complying development. The potential impacts of these relatively smaller developments appear to have been completely ignored in this current process.

Of particular concern is the cumulative impact of exempt and complying development. For example, consideration needs to be given to the potential for wind farms to prevent the natural expansion of adjacent vegetated areas. This potential should not be inhibited. Other issues include the cumulative impacts of wind turbines on amenity, and in particular the visual landscape.

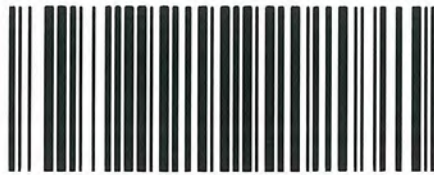
#### **Aviation Safety**

Aviation safety is of paramount concern for Council given that the Illawarra Regional Airport is located in the LGA. The contents of the draft guidelines are encouraging in so far as they request proponents to consider airports as far as 30 km away from any proposed wind farm.

This is in stark contrast to the Infrastructure SEPP that only requires proponents to consider airports up to 2 km away. As stated previously in this submission, it is imperative that the Infrastructure SEPP be reviewed in light of the new knowledge and standards contained in the draft guidelines.

#### **Decommissioning**

The guidelines state that the average operating life of a wind turbine is approximately 20-25 years. The guidelines state that a condition of consent could be the payment of a decommissioning bond, the method of valuing this bond is not included. The burden of administering such bonds for up to 25 years is unacceptable for Council.



PCU067092

Department of Planning and Environment

Attention: Felicity Greenway, Director, Industry and Infrastructure Policy

GPO Box 39

Sydney NSW 2001

By email: [Felicity.Greenway@planning.nsw.gov.au](mailto:Felicity.Greenway@planning.nsw.gov.au)

Online: [planning.nsw.gov.au/Have-Your-Say](http://planning.nsw.gov.au/Have-Your-Say)

16 September 2016

Dear Felicity,

## NSW Wind Farm Planning Framework (the Framework)

### Introduction

AGL Energy Ltd (AGL) welcomes the opportunity to make a submission on the Department of Planning and Environment (DPE)'s new *Wind Energy Planning Framework* (the Framework), which consists of:

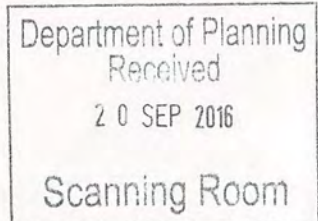
- a *Wind Energy: Assessment Policy* (the Policy);
- a *Wind Energy: Noise Assessment Bulletin* (the Noise Bulletin);
- a *Wind Energy: Visual Impact Assessment Bulletin* (the Visual Bulletin); and
- *Standard Secretary's Environmental Assessment Requirements* (Standard SEARs) for wind farms.

AGL supports the development of a robust planning framework for wind energy projects which provides:

- clear expectations on effective community consultation, including opportunities for community input throughout the decision making process;
- clear, concise and consistent guidance to facilitate community understanding of impacts (both positive and negative) from wind energy projects and an appropriate level of assessment of impacts during the approvals process;
- a merits based assessment of wind energy projects, removing buffer zones and replacing the previous NSW Draft Planning Guidelines for Wind Farms,

while encouraging the development of wind energy projects in NSW.

AGL operates across the energy supply chain and is Australia's largest private developer and operator of renewable energy sources, including wind farm projects across NSW,





Queensland and Victoria, solar farms and hydro sources. AGL has invested \$3 billion in renewable energy investments over the past decade. AGL also owns and operates coal-fired, gas-fired and embedded electricity generation, upstream gas production and provides energy solutions to over 3.6 million customers nationally.



AGL announced the Powering Australian Renewables Fund (PARF) in February 2016 to support the commitments made in its Greenhouse Gas Policy.

The PARF is an innovative funding vehicle designed to stimulate investment in renewable energy projects. Instead of financing single renewable assets, the PARF provides an opportunity for investors to finance a portfolio of renewable assets. The PARF aims to initially invest in around 1,000 MW of large-scale renewable assets with a value of up to \$3 billion. It is anticipated that the approved Silverton Wind Farm in NSW will be the first greenfield investment made by the PARF.

In AGL's experience, every wind energy project, site, landscape and community is unique, and the Wind Framework must be flexible enough to respond to each unique situation.

Wind farm developments attract significant investment and benefits to both the NSW state and regions in which they are developed and operated. For example, it is estimated that the proposed Silverton Wind Farm could generate:

- 200MW of energy from a renewable source, contributing to the NSW Government's commitments to reduce NSW's carbon footprint;
- up to 150 jobs during the peak of construction, with the development of a local industry participation plan for the project;
- regional project development and construction expenditure in the order of \$40 million;
- an annual fund for the local community;
- increased local expenditure on food and accommodation due to the influx of workers to the region;
- improvements to local infrastructure in the Silverton region;
- enhancement of local endangered ecological communities within the project area through goat/pest management strategies.

Overall, wind farm projects like Silverton bring significant positive benefits for NSW.

For wind farms to be economically viable in a competitive market, and for NSW to compete with other locations as an attractive destination for wind farm investment, wind farms must:

1. adopt the newest, most cost effective technology available – which typically includes higher turbines with a larger rotor diameter (thus requiring fewer turbines all together);
2. locate where the wind is strongest, typically on ridge lines.

This means most wind farms will have some unavoidable changes to visual amenity of the areas they are located in.

In AGL's experience, wind energy projects tend to be lower impact than traditional resources projects, particularly in relation to groundwater, surface water, dust, air quality, heritage and biodiversity, and the majority of impacts from wind farms are typically able to be effectively mitigated or managed. Residual issues of importance for local communities have been



recognised by the Framework, with a focus on visual and noise impacts for some local community members. However in AGL's view, rather than being singled out, it should be acknowledged that some level of visual impacts are acceptable, and that these impacts should be considered in the context of an overall assessment of impacts, including project benefits, to local communities, regions and the State. Numerous community members have also told AGL that the visual impact of wind farms is a positive one for them.

Typically, a wind farm project has the following phases:

- Monitoring and analysis of a wind resource to determine whether a wind energy project is feasible in a certain location;
- Negotiation with landholders to determine whether land access can be secured;
- Preliminary project conceptualisation for community consultation and the project approval phase;
- Community consultation, environmental assessment and securing project approvals;
- Tender process and detailed project design.

It is during the final phase, and only once land access and project approvals have been secured, that significant time, money and resources are invested to carry out detailed technical and field design work to make a wind energy project "construction ready".

It is therefore critical to the future growth of the renewable energy industry in NSW, as well as the investment it will attract, that NSW wind energy policy:

1. corresponds with the development phases of wind projects;
2. be clear, transparent, robust and appropriate to the level of potential impacts; and
3. encourages wind farm development, where impacts can be properly avoided, remedied or mitigated.

## General Comments

AGL supports the proposed Framework, and acknowledges the Department's aim to balance investment in wind farms with the need of the community. However as a general submission, AGL considers that the Visual Bulletin is overly complex, and puts disproportionate weight on visual impacts. AGL requests that the Visual Bulletin be reviewed and simplified, so that it provides greater clarity to proponents and community members.

In addition, while AGL strongly supports early, effective community engagement, we request that the "front end loading" of consultation and visual baseline assessment be incorporated into the EIS process, so that visual amenity is considered and assessed alongside all other impacts, and community members are able to be provided with sufficient (rather than preliminary, uncertain) information about the potential project, turbine locations and impacts by proponents.

AGL understands that the Framework will not apply retrospectively. It should be made clear that the assessment requirements in the new Framework does not apply to projects which already have approval, however for which modification applications have already been lodged.



Our detailed comments are provided below.



## 1. The Policy

### 1.3 Strategic Context

The Policy outlines the NSW Government's support for the development of a sustainable wind energy industry in NSW; comments on the State's valuable wind resources; notes that the NSW Government recognises the importance of reducing greenhouse gas emissions; and commits NSW to increasing the use of renewable sources at least cost to the customer with maximum benefits to the State.

Importantly, the "least cost" wind farms with the maximum benefits will be located where the best wind resources are, utilising the most up-to-date, low cost technology.

*AGL requests that the Strategic Context be amended by clarifying that:*

- *wind farms must be located where the best wind resources are (usually on ridgelines), and changes to technology over time are increasing the effectiveness of wind turbines by increasing their size;*
- *wind farms bring local and regional social, economic and ecological benefits through employment and other opportunities.*

### Section 3: Key Issues for Wind Farm Development

Section 3 outlines that certain assessment issues are of particular relevance to wind energy developments, being visual impacts, noise impacts, as well as biodiversity, bird and bat strike, traffic and transport, strategic context, hazards and risk, aviation safety and bush fire hazards.

In AGL's experience, some community members consider visual and noise impacts to be the most relevant impacts. However, other community members and stakeholders consider other impacts (both positive and potentially negative) to take equal importance.

As the DPE is aware, the EP&A Act requires consideration of all likely impacts on the natural and built environment and social and economic impacts in the locality.

*AGL seeks that that Section 3:*

- *Acknowledge potential positive social and economic impacts;*
- *Acknowledge that wind farms may result in positive impacts to biodiversity through pest control measures;*
- *Acknowledge that the improved access and fire break effect provided by wind farm roads may have a positive impact on bush fire hazards.*
- *Visual impacts: in AGL's view does not need to be a "complex endeavour". AGL seeks removal of this sentence.*



### Section 4.3 Preparation of an Environmental Impact Statement

Section 4.3 outlines the requirements of Environmental Impact Statements for wind energy projects, including micro-siting and environmental envelopes.

Wind farm projects often span large areas. Typically, turbines take up a very small portion of the project area, however flexibility is required for the final detailed design phase to respond to any issues arising from pre-construction geotechnical studies, constructability studies, results of biodiversity monitoring, heritage items or in response to landholder requests.

*AGL supports the ability to micro-site turbines where appropriate criteria are met and where it does not materially increase environmental impacts, or within a development envelope.*

### Section 5 Community and Stakeholder Consultation

AGL supports a clear framework for early, effective and genuine community consultation, to ensure active engagement, sufficient information is shared so that communities are informed about potential positive and negative impacts, and local community members are provided opportunities for input into the proposed wind energy project.

AGL supports sharing benefits with local communities. Projects AGL is involved in typically have community enhancement funds for local and regional communities, which are determined in consultation with local community leaders and representatives.

In AGL's view, potential impacts of wind farm projects (like all projects) should primarily be managed through the assessment and approval process, e.g., compliance with noise conditions. Only where relevant acceptable criteria are exceeded or cannot be appropriately mitigated or managed, would negotiated agreements be required.

### Section 5.4 – Example of a consultation model

While AGL strongly supports early, effective consultation, it is not always practical to require a proponent to inform landholders about proposed turbine locations and access routes at the scoping and pre-lodgement phase, given specific turbine locations would not typically be known until wind energy resource assessment, environmental assessment and community consultation/feedback have been obtained and taken into account.

*AGL requests that the requirement to inform landholders about proposed turbine locations be deleted, and replaced with a requirement to discuss the project area and likely corridors of development.*

## 2. Visual Bulletin

AGL acknowledges DPE's objective to provide clear guidance for visual impact analysis, and supports a transparent, visual impact assessment framework which provides clarity to the community and stakeholders and greater consistency of assessment. Our general comments on the Visual Bulletin are:

- The Visual Bulletin is 30 pages long, and there is opportunity to consolidate and streamline the document so that it is shorter, simpler and easier for all stakeholders to understand.



- Turbines must be sited, and wind energy projects must be designed, where the wind resource exists. Wind resources drive siting and design in the early stages of the project, then consultation and a detailed assessment and understanding of impacts, including visual impacts, will determine specific siting in the detailed design phase. This should to be acknowledged.
- There appears to be a general presumption that ALL visual impacts need to be avoided, mitigated or managed. Some changes to visual amenity are unavoidable from wind energy projects. Also, these impacts need to be considered in the context of the benefits and positive environmental, social and economic aspects of renewable energy projects. In AGL's experience, not all community members consider wind farms to have "negative" visual impacts, and there are many community members who have told us they enjoy and even prefer having a view of wind turbines.
- In AGL's experience, the main request from community members is "What will it look like?" a concern that should be addressed by photomontages.
- We have provided more detailed comments below.

## Background

The Background (page 2) acknowledges that visual impact of a wind energy development will depend upon the characteristics and values of the existing landscape.

However as noted above, at the early stages of a project, design is driven by the wind resource. Consultation and an assessment of visual impacts will inform further siting and design.

In addition, typically mitigation measures would not include reducing the size of turbines, given the current turbine technology, and desire of the NSW Government to maximise renewable energy sources for the lowest cost.

Further, while there is reference to avoiding visual impacts, there is no reference to whether those impacts are significant, minor or negligible.

*AGL seeks that the Background be amended to:*

- *Acknowledge that wind energy projects must be located where the strongest wind resource exists;*
- *Remove reference to specific mitigation options, in favour of a general reference to appropriate mitigation and management options;*
- *Remove reference to "avoiding impacts" and replace with "avoiding significant visual impacts" and otherwise managing or mitigating where appropriate to do so.*

## Preliminary Environmental Assessment

The Visual Bulletin (page 2) requires "front end loading" via a Preliminary Environmental Assessment, by outlining a process of:

- **Early community consultation** through a survey of a representative sample of the population, including census data, and focus groups, to establish key landscape values and features, inform landholders about preliminary turbine locations and access routes and inform the community about the proposed project. The results of this consultation is required to be submitted as part of the SEARs application.

AGL understands that the objective is to develop a pre wind farm "baseline" of key landscape values and features.



While AGL strongly supports early, effective community consultation, typically at this preliminary stage of the process:

- There is no certainty that the project will proceed at this stage, because wind monitoring data, land access and approvals (based on detailed environmental studies) have not been obtained;
- While the project area and conceptual turbine development corridors may be known, the wind turbine layout and specific locations will not be known (and even if they are assumed, will likely change during the detailed environmental assessment process taking into account other environmental factors);
- Given the typical large scale and size of project areas, some, but not detailed, ground-truthing may have been carried out;
- For the reasons above, in AGL's view, community consultation at this stage around details of a wind project may not be effective, and may result in more questions, concern and uncertainty for local communities than can be answered or addressed. Effective consultation must be appropriate, transparent and with the objective of establishing mutual trust, at each stage of the project. Where early consultation raises more uncertainty than answers, it may serve to exacerbate outrage and anxiety in the community.

In AGL's experience, it is only through the detailed environmental assessment undertaken during the EIS process that most community questions and concerns, and therefore better community understanding and input, can be facilitated.

Also, it is through detailed environmental investigations undertaken as part of an EIS process that a baseline of the existing environment is established, however which does not separate out visual impacts, rather considers community impacts, visual, noise, ecological, geological, landscape, heritage and other environmental matters of relevance to that location. As DPE is aware, all of these factors go into the determination of where turbines will be located.

There is also a specific risk that if a survey is the first piece of community engagement, and constitutes the first contact community members have with the project, it may needlessly magnify community concerns, anxiety and outrage.

*AGL considers that the preliminary environment assessment should not require the prescriptive level of detail set out in the Visual Bulletin, rather should be simplified to require:*

- *evidence and outcomes of early consultation with local community members and landholders;*
- *maps showing key landscape features (informed by early consultation where undertaken), the project area (as opposed to the turbine layout) and preliminary development corridors and the location of residential dwellings, which can be reviewed and commented on during the EIS assessment process.*
- *References to further opportunities to involve the community through the EIS process.*

*One option would be for DPE could put SEARS on public exhibition, so that interested community members and stakeholders have input into what studies are required and considerations should be taken into account by the proponent.*



- **Visual Magnitude Screening Tools** – require a list of turbines which are “below the line” to be identified, along with relative residential viewpoints.

Depending on the distance of residences to turbines, the tool establishes where further justification and assessment is required.

The Visual Magnitude Tool appears to require each residence within 3.5km of a turbine to be plotted on a figure which records the turbine height and distance to the closest turbine in metres. Any turbine locations which are ‘below the line’ shown on this figure are deemed to require ‘detailed consideration to the visual impacts on dwellings from turbines’.

In the opinion of AGL’s visual impact assessment expert, there is no research which demonstrates distance is an appropriate way to assess visual impacts. It will be in some project context, but not in others.

AGL is also concerned that community members will see the line as a quasi buffer.

There is also a ‘multiple wind turbine tool’ which requires each residence within 8km of a turbine to be mapped against turbine locations to determine whether or not turbines are visible in more than three 60 degree sectors around the residence. This tool may be open to interpretation and minor adjustments to turbine locations to respond to the “three 60 degree sectors”. Also, the scope of the tool is unclear. Is every residence within 8km of an existing or proposed turbine required to be mapped and assessed? AGL considers that 8km seems overly onerous from a visual impact perspective.

Also at this early stage, this will require an assumption of turbine height and location, which may not be known.

It is unclear to AGL what the consequences of being “below the line” are, and what expectations dwelling owners may expect on developers, and whether the “line” will become a de facto buffer area. AGL requests that DPE consider these comments.

AGL also requests that DPE reconsider the 8km distance for the multiple wind turbine tool, which seems overly onerous given the minor or insignificant nature of visual impacts at that distance.

In summary, AGL is concerned that there are too many variables in the proposed tools making compliance a potential challenge.

- **Stage 2: Assessment and Determination**



AGL supports clear guidance for developers, community members and other stakeholders regarding the requirements of visual impact assessments.



While it is stated on page 9 that the performance objectives listed “are not hard criteria that must be complied with, but rather provide guidance” to proponents and community members, the document appears to then provide strict criteria (eg, p10, “the following inputs are required [for the Baseline Study]”). It is therefore unclear whether the Visual Bulletin provides guidance, or assessment criteria.

The Assessment and Determination stage requires:

- A visual baseline study with identified criteria or inputs, which are also described in more detail in Appendix 1. For example viewpoint inventory of public and private viewpoints of high, moderate or lower viewer sensitivity, referring to criteria to define each in Appendix 1, Table 5 depending on viewpoint, zoning or site;
- Assessment of three delineated and mapped visual influence zones to establish relative landscape significance and mapped potential impacts, taking into account specified sensitivity levels, scenic quality classes and visibility zones (nine distinct zones base on “visibility research”;
- a number of steps which are outlined in Appendix 1 to be followed, with several supporting tables of prescriptive criteria (note that typically the table numbers do not match the “step” numbers);
- Each visual influence zone has a set of visual performance objectives;
- Visual Performance Evaluation based on objectives in Table 8 of Appendix 2, including Visual Magnitude, Landscape scenic integrity, key features disruption, multiple wind effects and others;
- Assessment and mitigation.

AGL supports a robust, transparent framework which provides clear guidance to all interested stakeholders on visual impact assessment requirements, and enables an efficient approvals process. However the Visual Bulletin, in its current form, does not achieve that objective.

In AGL’s experience, local community members want to see and understand:

- What the proposed wind project will look like from their dwelling (with a photomontage (in sufficient scale));
- How many turbines can be seen, and the distance, from their dwellings;
- What the proposed wind project will look like from important public viewpoints.

This then provides the basis for detailed consideration of visual impacts, and negotiation of turbine movements to avoid, minimise and manage those impacts where appropriate.

AGL is mindful that local communities have strong, historical connections to their land and visual amenity typically needs to be considered on a case by case basis, taking into account community perceptions. The steps outlined in the Visual Bulletin add complexity which AGL considers is unnecessary for visual impact assessment.

*AGL considers that the Visual Bulletin should be significantly simplified, so that it is not overly onerous or complex for proponents, community members and other stakeholders, and does not require such prescriptive criteria (for example, identification of visual impacts from rail lines and public highways – the focus should be on local community members).*



*For example, Table 1 (page 10) has titles referring to both Baseline Study “inputs” and Baseline study “factors”, and is high prescriptive. AGL requests that the table be simplified (eg, Sensitive land use designations and its supporting material could simply become “Land use and zonings, including any sensitive land uses or heritage sites”).*

*In addition, proposed “mitigation measures” should remain general, rather than listing mitigation measures which may not be practical, industry standard or achieve the policy objectives of increasing energy supply from renewable sources (eg, re-sizing turbines).*

### 3. Noise Assessment

The Noise Bulletin is based on the standard wind farm noise limits (35dB(A) or background noise (LA90,10) plus 5dB(A)) contained in the South Australian EPA 2009 Guidelines which are currently applied to NSW wind farm projects.

AGL supports the adoption of the South Australian EPA 2009 noise standard in New South Wales.

In general, consistent with AGL’s feedback on the Visual Bulletin:

- Noise is one of a number of factors of interest to local communities, which need to be considered as part of a wind farm development.
- In AGL’s experience, typically noise impacts can be appropriately mitigated and managed through a variety of methods.
- Importantly, conditions of wind farm approvals should provide clear criteria based on noise impact assessment, which the proponent is required to comply with. These criteria should reflect acceptable noise limits, and form the basis of the tender and detailed design process. The criteria should not be changed post approval based on additional modelling at dwellings based on final layout and turbine selection at dwellings, rather, this pre-construction assessment should be to ensure compliance with the acceptable noise limits which are specified in the approval. Proponents should be required to comply with acceptable, specified noise limits, to ensure certainty and enable compliance.

*AGL requests that the Noise Bulletin reflect this approach to noise conditions.*

### Conclusion

Overall, AGL supports the Framework, and acknowledges the DPE’s objective of developing a clear, robust planning framework for wind energy projects which provides:

- Clear expectations on effective community consultation, including opportunities for community input throughout the decision making process;
- clear, consistent guidance to facilitate community understanding of impacts from wind energy projects;
- a merits based assessment of wind energy projects, removing buffer zones and replacing the previous NSW Draft Planning Guidelines for Wind Farms.

Wind farm projects have some level of unavoidable changes to local visual amenity, however typically measures can be adopted to minimise and mitigate adverse impacts, and this needs to be balanced against a holistic assessment of all impacts, including benefits.

In order to encourage wind “prospecting” and investment in NSW, AGL considers that the Framework needs to be further reviewed and consolidated, making it a true merits, risk-based approach.

Finally, AGL submits that an annual consultation report will not be as valuable for the community as an annual face-to-face review by the Department, with the project proponent/operator, of its community engagement program and system.

We would be happy to discuss our submission with DPE in more detail. Please contact me directly if you would like to discuss any aspect of AGL’s submission.

Yours sincerely,

A handwritten signature in blue ink, which appears to read 'Tony Chappel', is positioned above the printed name.

Tony Chappel  
**Head of Government & Community Relations**





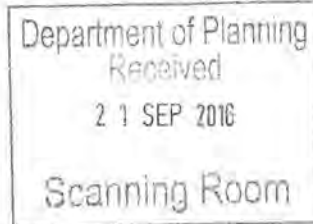
THE LAW SOCIETY  
OF NEW SOUTH WALES



Our ref: EP&D:GULb1198011

16 September 2016

Ms Felicity Greenway  
Director  
Industry and Infrastructure Policy  
Department of Planning and Environment  
GPO Box 39  
SYDNEY NSW 2001



Dear Ms Greenway,

**New Wind Energy Planning Framework**

The Law Society of NSW appreciates the opportunity to comment on the new wind energy planning framework.

The Department of Planning and Environment's draft Wind Energy Assessment Policy is a welcome policy initiative. Proponents of large energy generating projects intending to navigate their way through the planning system can benefit significantly from upfront clear policy guidance. Clearly articulated policies about what is acceptable and appropriate development allows potentially affected communities to understand what may or may not eventuate from proposals and can provide a basis upon which communities can effectively and constructively engage.

We understand that the intent of the Assessment Policy is to provide more clarity, consistency and transparency for industry and the community in relation to assessment and decision making on wind energy proposals. These are all elements of a best practice system.

The framework comprises:

- An overarching Assessment Policy
- A technical Noise Assessment Bulletin
- A technical Visual Impact Assessment Bulletin; and
- Standard Secretary's Environmental Assessment Requirements ("SEARs")

The four separate documents that comprise the policy framework form a modular approach that will provide flexibility to enable aspects of the policy framework to be updated as more wind energy generating developments are carried out across NSW. This appears to be a sensible and reasonable approach to the development of a policy framework that contains technical and specific detail about large scale development.

The Bulletins and SEARs acknowledge that large scale wind energy development has specific impacts unique to wind energy that need to be addressed. Some of these impacts arise from the unique settings of wind farms, that are likely to be single projects, located in a rural setting, across multiple properties owned and occupied by multiple parties, with unique visual and noise impacts.

The Assessment Policy seeks to resolve uncertainties relating to wind energy project assessment that have existed since the draft Planning Guidelines of 2011. The 2011 Guidelines proposed restrictions on wind energy developments that were more stringent than for other energy developments (including open cut coal mines), and often involved lengthy delays.

The emphasis on the need to engage local communities early is a positive factor and the Assessment Policy places significant weight on ongoing consultation throughout the assessment process.

One of the most significant policy shifts in the new framework is to move away from the 2 kilometre buffer zone, which was proposed in the 2011 draft Guidelines, towards the use of negotiated agreements as a means of engaging with landowners affected by specific impacts. Where negotiated agreements are not reached, proposals will be subject to impact assessment.

It appears that investment in wind energy projects to date in NSW has been less than for some other States. The NSW Government has made a commitment to contribute towards the national Renewable Energy Target of 20 per cent by 2020. With this deadline fast approaching, clear policy guidance is timely and will provide more certainty for the communities, planning decision-makers and the private sector to make more informed decisions about energy projects. It is noted that aside from the environmental benefits, there are likely to be economic benefits that will flow from large wind energy projects.

There may be some benefit to decision makers to provide guidance as to the weighting of factors in the assessment of a wind energy generating development. There is a large focus on visual and noise impacts, yet there is not much detail on how the principles of ecologically sustainable development are relevant to such projects. This is despite the existing guidance that can be found in the Court's decision in *Taralga Landscape Guardians v Minister for Planning and RES Southern Cross Pty Ltd* [2007] NSWLEC 59.

The policy would benefit from some clarification of the planning principles that apply to determine when scenic character should be prioritised and when it should not. In addition, it is not clear what 'indirect' visual impacts are, and their significance, although such impacts are referred to in the Visual Impact Bulletin.

Finally, we understand that it is the Government's policy that a wind energy project owner or operator, and not the 'host' landholder, should be responsible for decommissioning and rehabilitation at the end of the life of a wind energy project or a particular turbine. Proponents must identify and address all relevant issues for decommissioning and rehabilitation in their project Environmental Impact Statement, and include a commitment that the operator will be responsible for decommissioning and rehabilitation. However, it is not clear how this will be achieved other than through a negotiated landholder agreement. The policy framework would benefit from clarification as to how this will be achieved to provide certainty for stakeholders.

If you have any questions in relation to this submission, please contact Liza Booth, Principal Policy Lawyer, by email at [liza.booth@lawsociety.com.au](mailto:liza.booth@lawsociety.com.au) or on (02) 9926 0202.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Gary Ulman', followed by a period.

Gary Ulman  
**President**





PCU067034



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September 9, 2016

Felicity Greenway  
Director, Industry and Infrastructure Policy  
NSW Department of Planning and Environment  
GPO Box 39  
Sydney NSW 2001



Dear Ms. Greenway,

### Getting the Mix Right

It must be gratifying (and daunting) to reflect on your recent and ongoing professional journey, managing significant changes in the infrastructure landscape. Achieving the best terms for the long term lease of electricity networks, and prudent reinvestment of proceeds, is no light responsibility.

In so doing your department is:

1. making good on the NSW government's core election commitment;
2. maintaining the trust of political masters, the public and business community; in basic energy service delivery; and
3. working to ensuring that freed capital is most effectively targeted for growth.

Given the shifting global energy dynamics, and interplay of points one and two above, having confidence in achieving the third is made all the more difficult.

There's no better example than this: 12 years ago when NSW was in drought, the NSW State Government installed a desalination plant at a cost of \$1.3bn. That same year I invented HydroSun Floating Solar, and had NSW at that time opted to spend \$675m installing floating solar covering almost 50% of Warragamba Dam, the water saved from evaporation would have exceeded the amount desalinated by that plant, and the energy produced would have exceeded the amount of energy required to run the desalination plant. Twice the bang for half the buck!

Of course, your department didn't know at the time that my invention existed. This note is to introduce you to what (now former) Innovation minister Hon Christopher Pyne describes as "another great Australian invention" so you can consider its potential impact on the state's energy future.

The manner in which we generate, and utilise energy is changing, and only in the past two years have new advances in battery storage invalidated many of society's assumptions around how best to deliver a system to fit tomorrow's needs.

If indeed we as a society are to embrace the introduction of renewable energy into the existing Australian Grid it appears to me, that a much more holistic approach must be adopted. We have spent almost 6 years and \$5m getting the mix right.

Over the next 50 years, coal and gas fuels will remain as a major source of global and domestic energy. However, the shifting paradigm towards more sustainable fuel sources apparent – and whilst day to day you would be considering: delivery on international carbon reduction obligations; the competing targets set by major Australian political parties (and policy reversals with changing governments), and the public's desire for it (whether socially or economically motivated) expressed through the free market.

The correct proportional introduction of the elements listed below - is required absolutely in order to avoid the imbalanced mess in which SA finds itself. South Australia's energy supply volatility (and concomitant investment pipeline) is a problem which will manifest itself in other states, including NSW, should we continue to introduce large scale solar and wind generators in the current fashion – in other words – in the wrong proportion and in the wrong places.

All wind and solar-generated power must be introduced via storage to the grid to match demand, from the capillary end of the grid moving back towards the veins in the grid, the arterial end AusGrid and Trans Grid – will be the very last to experience this change in approach.

I have focused exclusively on NSW - as contemplating and explaining the National issue - simply is too daunting.

Correct introduction at the NSW level, will realise 12,000 MW of stored capacity from load shifting combined with 12,000 MW of renewable generation, which forms an essential part of our design and these features are pertinent. Such an approach to capacity will be required before long to embrace the introduction of electric vehicles as the 'norm'. And all this can be achieved without major expensive upgrades to the Arterial Network and indeed most of the veins in the network - only the last few km's of supply line to each town in the event of substantial growth only.

Indeed, my proposal ensures both the reduction and the viability of coal fired centralised generation. It is the foundation of our energy system. Its availability, price, and share of current market demands that it be safeguarded until such time as it is replaced (most likely with fusion technology). At which point in time floating solar could be introduced to some or all of the cooling water now servicing the coal fired industry.

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## HydroSun floating solar

HydroSun holds the international innovation patent for a device which combines solar panels with floatation at a lower cost. Solar farms situated on water not only produce more energy (panels are more efficient when operating at cooler temperatures). They also deliver environmental benefits for the water itself (shading water bodies reduces evaporation, and inhibits algal growth).

Should water borne solar generation take place on municipal drinking water, and irrigation water across the nation – obvious benefits accrue.

Should all of the elements listed below form part of renewable energy policy, and be integrated in correct portions, via capture and storage facilities situated on the outskirts of cities, towns and villages across Australia, we will achieve a 60% reduction in coal fired output gradually over 10 - 20 years.

The budget cost for NSW is a mere \$25bn. This will achieve outcomes as illustrated in the Goodooga and AusGrid Graphs produced by HydroSun in 2011 (coal resources situated next to current generators will last longer – a considerable saving against forward estimates for relocation of the generating capacity adjacent to new coal resources), or construction of new centralised gas fired generators with the required re-balancing of the grid infrastructure.

### Vital elements:

- Wind Generation
- Solar Generation – preferably water borne (for 20% added output, lower cost, efficiency reduced land clearance, and improvements to water quantity and quality)
- Storage in Lithium Ion Batteries 10%
- Storage in Australian made Vanadium Flow batteries 90%
- Proportional Load Shifting
- Smart Levelling™ to manage battery life and demand curvature.

Having met with Hon Anthony Roberts MP recently I requested Essential Energy Management undertake modelling to quantify impacts of this positive disruption I propose through HydroSun Renewable Embedded Generation (REG) technology.

We are in discussion with a number of local governments in NSW to install and manage solar energy farms on council-owned water infrastructure assets. By integrating solar panels with water pontoons we have solved one technological, and two environmental, challenges:

- 1) **Solar panels deliver reduced energy output once they heat up.** However, solar farms situated over water are kept cool and running at maximum efficiency;
- 2) **Water utility companies lose an enormous amount of water through evaporation<sup>1</sup>.** Shading water courses with solar farms reduces evaporation (and in turn salinity); and
- 3) **Australia's lakes, dams, and reservoirs are at risk of algae.** By inhibiting sunlight, algal growth is also controlled.

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<sup>1</sup> Losses through dam leakage and evaporation are less obvious than pipe bursts, which is why the latter challenge is traditionally the focus on water utility R&D budget.



While the first point above is well documented, I intend to prove HydroSun's environmental benefits with scientific testing at either:

1. The Mulloon Institute at Bungendore (under Chairman Gary Nairn AO) in conjunction with the Australian National University. As a corporate member of the Australian Water Association, I was pleased to read comments about the Mulloon Institute by Hon Greg Hunt MP<sup>2</sup>; or
2. Through Professor Stuart White (of the Sustainable Futures Institute at the University of Technology, Sydney). He is widely regarded as Australia's foremost academic mind engaged in the practical field of innovation and best practice water utility management<sup>3</sup>

HydroSun is not an enemy of traditional energy sources quite the contrary, and given the unpredictability of wind and sunshine, coal fired power will be fundamental to servicing Australia's energy needs for the foreseeable future (until a policy change occurs with respect to nuclear power, or hydrogen fusion technology achieves commercial viability).

Solar power, combined with recent developments in battery storage (described by the Prime Minister in his Wombat Hollow speech in February 2016) allows renewable energy to be a positive, instead of a negative, industry disruptor.

#### **Moving forward:**

I have focused on overcoming the pointlessness of un-stored solar. I have spent \$5M to achieve a commercialized floating solar array morphed into Renewable Embedded Generation (REG™), which has been modelled for use at the request of Essential Energy Engineer Chris Dalitz of their Dubbo Offices.

I attach Power Point including a graph showing impact of solar installed over the last few years at Nyngan and Moree at a cost exceeding \$500M. This is marked manually to show impact should \$500M have been expended on 250REG as an alternative.

#### **Looking ahead:**

At a recent CEDA luncheon, a representative from Origin Energy in a speech outlined their proposed \$3bn plan for a solar rollout, with the Origin contribution being \$300M, the remainder contributed from Federal and State funding. The cornerstone in this proposed program is a 150MW solar array installed at Broken Hill, NSW at a cost of \$300-400M (sufficient power to run 20,000 homes).

#### **Broken Hill explained:**

Broken Hill consumes approximately 1,200MWH in any given 24-hour period – similar in consumption pattern to NSW generally.

It currently enjoys a 54MW AGL installation and a further 150MW is planned by Origin.

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<sup>2</sup> [http://digitaledition.awa.asn.au/?xml=Water\\_Journal\\_Secure&iid=141373#folio=24](http://digitaledition.awa.asn.au/?xml=Water_Journal_Secure&iid=141373#folio=24)

<sup>3</sup> [http://www.awa.asn.au/AWA\\_MBRR/Publications/Latest\\_News/High\\_praise\\_for\\_our\\_innovation\\_heritage.aspx](http://www.awa.asn.au/AWA_MBRR/Publications/Latest_News/High_praise_for_our_innovation_heritage.aspx)

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Peak consumption in summer occurs at about 6:30PM at 32MW (after sunset). In Winter, at about the same time, Broken Hill consumes a little more than 38MW.

At Lunchtime when the solar arrays will generate 154MW – providing of course the sun is shining - the town requires a mere 17MW. A detailed study is being undertaken by us at this time.

**Example A:**

Should a decision be taken to substitute an Origin type proposal with an installation of 80REG at Broken Hill from HydroSun, at a cost of \$184M - a 37% increase in available energy, plus increased water security would result for the town of Broken Hill.

**Example B:**

NSW Government has called for tenders for supply of 137GWH annually to power the proposed NW Rail Line in Sydney. The only eligible contenders for this appear to be Origin and AGL. The Origin proposal to install 100MW of new solar in Country NSW as part of their \$3bn plan. HydroSun respectfully propose, that 25REG be installed on Prospect Reservoir, such an installation able to supply 140% of the actual energy required to run the new NW Rail Line – any unused energy sold into the Sydney retail market. Should 100REG be installed at Prospect – a substantial amount of the energy required by City Rail would be 100% green. See attached demand curve for NW Rail.

I trust the contents of this letter has provided sufficient general information to allow your team to explore the option of infrastructure 'value capture' as it applies to water bodies that can support floating solar farms.

Opportunities like this, to derive synergistic benefit to such diverse obligations as energy and water supply, are rare. I sincerely hope you will arrive at the same logical outcome at which I have arrived, and opt for infrastructure spend that is, at once, cheapest and most beneficial for our state.

**My mission:**

To encourage modelling of 12,000 REG™ (Renewable Embedded Generators) – this task performed by Essential Energy – as though they had been inserted across NSW over a period of 10 or 20 years.

We will in confidence supply all technical specification of 1 REG, and will include our modelling performed on an actual town in NSW named Goodooga, and a graph showing outcomes to the Management of EE.

12,000 MWH of renewable stored energy available to the NSW grid, available at a moment's notice would be wonderful for energy security and clever thinking on the part of our country – and at a much lower cost than 2 new centralised coal/steam generators, and much less than several dozen extremely large solar plants on a cloudy day – especially if the wind is not blowing!

Please do not hesitate to phone me should you or your staff require any further detail or clarification. I would be pleased to attend a meeting with you, or relevant colleagues you might nominate, to progress this discussion.

A handwritten signature in black ink, appearing to be a stylized 'A' or 'H' with a long horizontal stroke extending to the left.

Yours Sincerely



Soren Lunoe  
Director  
HydroSun Holdings Pty Ltd.  
ACN: 146 267 790

NSW Department of Planning and Environment  
23 Bridge Street  
Sydney NSW 200

16<sup>th</sup> September 2016

**RE: NEW WIND ENERGY PLANNING FRAMEWORK SUBMISSION**

The following submission outlines a few areas of concern in relation to the new framework for wind farm guidelines in NSW. My family and I are direct neighbours to the NSW State approved Crudine Ridge Wind Farm project. It is my understanding the Crudine Ridge Wind Farm in its current form will adhere to the previous draft guidelines for wind farms. We firmly oppose this project.

**1. COMMUNITY CONSULTATION:**

I note the new framework for wind farm guidelines reinforces the importance of community consultation. I refer to section 5.1 of Wind Energy Framework: Standard Secretary's Environmental Assessment Requirements, Draft for Consultation August 2016, "Early and effective community consultation, demonstrating an ongoing commitment to providing clear information and ensuring opportunities for genuine input, is important to delivering good planning outcomes".

This section also states, "Proponents should undertake a comprehensive, detailed and genuine community consultation process throughout the assessment process, including at the siting and pre-lodgement stage. The process should ensure there is active engagement with communities potentially affected by a wind energy proposal as early as possible, so that they are sufficiently informed regarding possible impacts and given reasonable opportunities to provide their views on the proposal. Consultation should be aimed at identifying and considering options for eliminating, reducing or otherwise managing impacts, not merely informing communities on the proposed layout. Proponents should seek, as far as practicable, to address landowner issues before lodging a DA for an SSD wind energy project".

The criteria of community consultation must be closely monitored by the Department in order for it to be effectively carried out. An example where a proponent has not met this requirement is in the case of Crudine Ridge Wind Farm. After corresponding with the proponent with regard to development applications and if this wind farm would impact on our current building entitlements since a large proportion of our property is within the building set back limit of 2km, I was effectively told I would need to discuss this issue further with my local council. This response is hardly "demonstrating an ongoing commitment to providing clear information". It is obvious the proponent is not willing to do any more than

absolutely necessarily when it comes to consulting with affected landowners over the potential impacts of this project. Such conduct must be addressed by the Department.

Community consultation is wonderful in theory, however it is not practically enforced. From previous experiences, I can confirm any concerns communicated to the proponent have not resulted in any change to the project whatsoever. Community consultation is only effective when community input is genuinely taking into account and as a result modifications to the project are made.

## **2. NOISE:**

I refer to Wind Energy: Noise Assessment Bulletin, Draft for Consultation August 2016. This document states “the purpose of setting noise level objectives for wind turbines is to retain noise levels that are compatible with surrounding land uses and to ensure that noise levels do not significantly affect the living experience of people residing in the area”.

It is critically important for the Department to gain a better understanding of not only the general background noise levels of rural Australia, but more importantly the nature of this ‘noise’. Peaks in noise levels as a result of wildlife or even a car passing by, is contrasting to that of a constant, mechanical “manmade” noise. The noise criteria of 35dB(A) or 5dB(A) greater than background noise provides the proponent with an allowable noise level that will guarantee significant noise disturbances to those living near wind farms. Furthermore, as soon as the noise created by a wind farm is just 1dB(A) above background noise, suddenly this is the dominant noise source and will obviously cause nuisance.

## **3. VISUAL:**

Visual impacts as a result of the creation of a dominant ‘eyesore’ in the surrounding landscape, is a major reason why I (and many others) oppose wind farm projects. The industrialisation of beautiful farming land completely destroys the visual appeal of our countryside.

The document Wind Energy: Visual Impact Assessment Bulletin, Draft for Consultation August 2016 of the new framework states “At the scoping and design phase, the proponent must undertake a preliminary environmental assessment that considers the landscape area in which a proposed wind energy project will be located”. I note a number of tools are used to determine visual impacts including wireframe analysis and photo montages. I also note the expected impact view (in degrees) is also generally calculated. Once again, all these tools used by the Department to evaluate the expected visual impact can only be relied upon if accurate. What is the scenario if these visual interpretations are not accurate and the reality is in fact much worse? What happens if a calculated 110 degree visual impact at a residence results in 130 degrees of the view once built? Does non-compliance with the proponents projected visual outcomes (which project approval has been based on) result in turbine removal? It must, otherwise the whole assessment and approval process carried out by the Department is completely pointless.



I am pleased to see the new framework admits visual mitigation via vegetation screening is largely ineffective, “this mitigation option should not be the first that is considered. A key reason for this is that visual impact issues often cause conflicts between the community or individual residents and the proponent’s wind energy development proposals, and people value landscapes and particular views of the landscape. Vegetation screening can potentially remove such views. Given this, it should be kept in mind that mitigation using vegetative screening will be subject to further consideration by the consent authority.....due to the great height of most wind turbines compared to that of surrounding trees, generally the vegetation must be relatively close to the viewer to be effective”.

The three other forms of visual mitigation (re-siting, re-sizing and re-colouring) will only be effective if made as conditional, not optional. In recent months, the proponent of the Crudine Ridge Wind Farm met with my husband and I to discuss visual mitigation as my family and I will see up to 43 turbines in the direction of the most prominent viewpoint from our home. The only form of visual mitigation that was offered was “vegetation mitigation” or financial compensation to the same value. Re-siting, re-sizing, and re-colouring of turbines were not mentioned. If implemented correctly, the inclusion of the additional forms of visual mitigation would be an improvement on the current draft guidelines.

#### **4. LAND VALUES:**

Review of the Impact of Wind Farms on Property Values, Urbis, 21 July 2016 document does not consider devaluation of nearby land as a resulting impact of wind farms, stating “The findings from our review of case studies in NSW and Victoria did not identify any conclusive trends that would indicate that wind farms have negatively impacted on property values”.

“As such, the circumstances of wind farms in NSW and the differences between those circumstances and those in other countries where similar studies have been conducted, have led us to the following conclusions: In our professional opinion, appropriately located wind farms within rural areas, removed from higher density residential areas, are unlikely to have a measurable negative impact on surrounding land values”.

I find this an incredible statement for the Department to make. Surely the Department understands the land where wind farms are proposed is not 100% farming land. Although many hosts may need to travel a considerable distance to their properties as they live elsewhere, many nearby landowners reside on the same property they operate. The nearby land comprises of residences, providing the home for many of the impacted landowners. This land is not just a means of “making a living”, but it also importantly provides the lifestyle appreciated by many living in these areas. Avoiding “higher density residential areas” merely reduces the level of opposition against the project, it does not eliminate the risk of impacting on the homes and the lives of people.

Ironically, this same document states “issues surrounding noise, shadow flicker and close visual impacts are likely to be exacerbated if wind turbines are located close to residential dwellings, and therefore any such perceived diminution of residential amenity has the potential to influence property values”.

As soon as prospective buyers are turned away from property as a result of a wind farm, the available interest in the property is decreased, the competition amongst buyers is decreased, and therefore the property value is decreased. I know that I am not alone when saying "I would not be interested in purchasing property in the vicinity of a wind farm". Therefore, how on earth can the Department disregard the impact of property devaluation as a result of wind farm construction when a number of prospective buyers are suddenly out of the market as a direct result of the existence of a wind farm?

## **5. DECOMMISSIONING:**

I refer to document Wind Energy Framework: Standard Secretary's Environmental Assessment Requirements, Draft for Consultation August 2016. Section 4.3.4 *Refurbishment and decommissioning states* "Once installed, wind turbines typically have an expected operating life of around 20 to 25 years, at which point they are usually refurbished or decommissioned...proponents must identify and address all relevant issues for decommissioning and rehabilitation in their project EIS, and include a commitment that the operator will be responsible for decommissioning and rehabilitation".

The Department really needs to explicitly detail this commitment. Genuine commitment can only be demonstrated by a bond built into the licence fee. At a current estimated cost of \$350,000 per turbine for decommissioning, the absence of a bond results in the very real risk of demolition never occurring. Only an appropriate bond prior to the construction of the wind farm will guarantee decommissioning will take place.

## **6. SUMMARY:**

Prior to granting project approval, all impacts must be comprehensively assessed by the Department, not only in writing, but more importantly in reality.

An increase in public confidence would result if the contractors employed to carry out assessments (noise, visual, enviro etc.) for the project EIS were not selected by the proponent, but from a more "independent" source. Red flags must be raised when the same contractors are used at a number of wind farms across not only NSW, but Australia.

It is important for the Department to recognise the need for tight compliance control on any development. Guidelines are only as effective as their level of reinforcement.

Penny Hundy

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Tel: [REDACTED]

16 September 2016

The Director,  
Industry & Infrastructure Policy,  
Department of Planning and Environment  
GPO Box 39  
Sydney NSW 2001

**Attention: Felicity Greenway**

Dear Madam,

**Re: NSW Planning Guidelines: Wind Farms**

I am a retired solicitor with 37 years' experience in property law and practice, with particular expertise in commercial leases, and 10 years' experience in cattle farming on the Southern Monaro. Generally, in relation to the "New Wind Energy Planning Framework" I comment as follows:

1. It is a disgrace and a major public policy scandal and failure that after about 25 years of approving wind turbine projects the NSW Government still does not know what the rules should be.
2. The decision by the NSW Government to work closely with wind turbine developers, often foreign owned, to help establish a new industry in this State, based upon the leasing of farmland, with little or no consideration for neighbouring farmers, and with little or no understanding of the law and practice of commercial leases, is unsatisfactory in the extreme. This decision may well result in NSW residents paying at a later date for the massive costs associated with removing the structures and components installed by the developers. It is the same as the problem in the mining industry where the security for the rehabilitation of former mines is grossly inadequate. The blatant bias of the government planners in favour of developers is evident in all planning guidelines issued, the fact that at a Cooma conference to discuss wind projects no speaker opposing the projects was invited to speak, and the fact that few, if any, such projects have by determination been refused.
3. Mr Angus Taylor, the Federal Member for Hume, has said that a modern industrial wind turbine attracts a subsidy of about \$400,000 per year, which is about one-half of the annual income it produces, the purpose of the subsidy is to reduce carbon dioxide emissions and the emissions could be reduced in other ways at a quarter of the cost. All arrangements concerning this subsidy should be immediately available on the public record.
4. The NSW Government should immediately create a public record comprising the following information and documents relating to wind turbine developments whether approved or not approved, either in the past or in the future:

- 4.1 Details of all land in NSW zoned as being suitable for wind turbines.
  - 4.2 A copy of all agreements between developers and land owners
  - 4.3 A copy of all determinations by the NSW Government, including precise details of decommissioning arrangements.
  - 4.4 Details of all financial subsidies in respect of the development.
  - 4.5 Details of all legal and financial assistance provided by the Commonwealth and the State of NSW to councils, landowners and other persons affected by any such development.
  - 4.6 Details of all legal rights available to persons adversely affected by such developments to obtain compensation.
  - 4.7 All expert reports available to government concerning whether wind turbines result in more or less carbon dioxide emissions in their manufacture, installation, operation and removal than they save in their operational life.
5. On 10 June 2015 a witness who gave evidence to the Senate Select Committee on Wind Turbines and who had hosted wind turbines on his property said that towers should not be within five kilometres of residences, and that he personally would not buy a house within 20 kilometres of a wind farm.

It is unsatisfactory that a city-based town planner should decide what is or is not suitable in the country based on any criteria. If wind turbine developers wish to damage the landscape of the country they can seek to purchase all properties adversely affected by a wind farm. The NSW Government has no expertise in, and should not be intervening in, the private property market. In particular, the government should not make rules which benefit developers without providing all assistance and advice to its residents. The assumption that residents have the same funds, knowledge and expertise in these matters as developers is, of course, completely incorrect.

Both the NSW Government and the Commonwealth Government are guilty of gross hypocrisy with respect to these developments. The Kosciusko National Park is an ideal place for wind turbines having existing electricity infrastructure and strong wind. Being government controlled land, one would have expected wind turbines to be built throughout the Park, having regard to government policy to encourage wind turbine development. Presumably the reason for the absence of wind turbines in the Park, and for the lack of such developments in the ACT, is that the developments damage the landscape. The government on the other hand is happy for the landscape to be damaged on productive private land.

These developments alter the landscape for huge distances over the countryside. Rural NSW districts have commonly two main assets, namely a pristine landscape and history, both of which are attractive to city residents. These developments damage not only a principal asset of a rural district, but also its future prosperity. When the ACT was developed town planners had two rules to fit the city into the countryside. One

was that hills were not to be built on, (to retain landscape) and the second was that city buildings would be strictly limited in height. These rules have worked well. Now, all these principles have been cast aside so that dominating tall industrial structures are placed in the middle of the countryside and no-one in the NSW Government appears in the least concerned. The rules allow the continued destruction of the assets and prosperity of country citizens so as to benefit city residents. Country residents should have a right of veto in respect of these developments. Of course, country residents do not determine what happens in city developments.

6. Laws should immediately be introduced as follows:

- 6.1 Developers and owners of wind turbines should be required in all cases to provide a bank guarantee or cash (to be invested and held in trust) to the value of the cost of removing all wind turbine components at the determination of the lease or when the project ceases to operate, with the amount of the bank guarantee or cash to be increased every three years to the then amount of the removal costs. Without such a bank guarantee or cash, there can be no certainty that the components will be removed by the wind turbine owner.
- 6.2 Developers should be required to pay compensation to the local Council (on behalf of the local government district) and to any other person who suffers financial loss as a result of the development in accordance with independent valuation reports. (Currently, the practice appears to be that compensation is paid to a host landowner and a fund is set up to compensate the district only and an independent expert is not engaged to fix the value of the fund.) If such a law is not passed, it is clear that the NSW Government is not acting impartially in its treatment of its residents, but is acting to support the interests of developers. If developers claim that they will have to deal with multiple compensation claims, this will be proof of the unfairness of the current treatment of neighbours and the fact that they are suffering losses. Such a law will force developers to carefully consider buffer zones around turbines and to ensure that neighbours are properly considered. Of course, the developers always have the option of purchasing properties instead of leasing them. Compensation should be payable in respect of any development at any time approved by the NSW Government.
- 6.3 All decisions as to wind turbine developments in NSW, either as to approval or refusal, or on appeal, should be required to be made by persons with extensive knowledge of the law and practice of property development, evidence and the assessment of damages (including the assessment of witnesses including biased witnesses) and experience in property litigation. Such decisions cannot be made without expert witnesses being tested under cross-examination if required by an objecting party affected by the development.
- 6.4 Objecting interested parties should be given proper opportunity to obtain and file expert reports at government expense after a development application is made so that a proper decision can be made, not merely having regard to the views of experts engaged and paid by the developer. Where the only reports from experts are obtained by a developer, it is almost certain that a balanced, fair and proper decision cannot be made. If a developer's expert provides a report with which another expert disagrees, a proper opportunity must be given to obtain and present a report by the other expert.



- 6.5 All necessary staff and moneys should be made available to the NSW Environmental Defender's office and all steps taken to ensure that legal advice and assistance is available to assist and act for all councils and persons affected by wind turbine developments in all respects including litigation. A failure to do so will demonstrate continuing bias by government in favour of developers.
- 6.6 Ratepayers of a council district should have a veto in respect of any turbine development.
7. I consider that the Urbis report on values of property near wind turbines to be wholly unconvincing and unsatisfactory as:
- 7.1 Overseas studies are largely irrelevant as social and farming conditions there are often not comparable to Australian conditions.
- 7.2 Not one of the many persons making submissions to parliamentary wind turbine enquiries in Australia to the effect that their farm or property was unsaleable or had lost value was apparently interviewed or even considered.
- 7.3 No consideration was given to the fact that properties near a wind farm which have lost value are unlikely to have been sold.
- 7.4 No consideration was given to the fact that developers may have purchased properties to settle litigation.
- 7.5 No discussion seems to have taken place with real estate agents. The local real estate agent has advised me that properties near wind turbines are likely to lose at least 30% in value.
- 7.6 Each property is different, and is affected in a different way by wind turbines.
- 7.7 Heritage properties are particularly badly affected, becoming unsaleable or losing substantial value. A property, which has historic buildings, and landscape largely the same as in 1788, is likely to lose most of its value if it overlooks wind turbines.
- 7.8 Broad conclusions taken from the small available property sales data are therefore unsatisfactory and cannot be properly made.
- 7.9 The fact is that in the Australian context most wealth is in urban areas and little wealth is in the country. Most people in Australian cities would expect that if renewable energy schemes result in some country people suffering losses, as certified by independent experts, then those people should be compensated.
- 7.10 My observation of travelling in England in 2014 is that wind turbines are less likely to be seen in wealthier socio-economic areas. I was told by a farmer near Lincoln of her pride and relief that she and other local people had fought off a

wind farm. In my view, it is likely that a similar situation will develop or has already developed in NSW in that city capital will be invested in areas without wind turbines, thereby raising land values in those areas.

8. With regard to adverse health effects caused by wind farms, to my knowledge no proper studies have been carried out following personal consultations with medical experts by persons complaining of health problems associated with living near wind turbines. Conclusions cannot be made until these studies take place.
9. If wind turbines are unsuitable in the Snowy Mountains or in the ACT, they are unsuitable in any part of NSW and the best solution is to cease altogether the experiment of permitting them anywhere in NSW in favour of other energy sources, such as solar, which do not cause the same social divisions, damage to landscape and health problems. The wind farm planning guidelines assume that wind farms are suitable in certain situations. This assumption is incorrect. In the case of the local Boco Rock wind farm, we were told that the turbines would not be seen from the nearby highway and would be unobtrusive. These statements were false. The turbines dominate a large part of the Southern Monaro and are completely unsuitable. As long as the turbines remain they will inhibit progress in the entire Southern Monaro. They are a good example why these projects should be banned altogether. If they are not, a proper compensation scheme and other measures as previously stated should be introduced.

Yours faithfully,

Alan Gillespie-Jones

September 16<sup>th</sup> 2016

Department of Planning and Environment  
Attention: Felicity Greenway, Director, Industry and Infrastructure Policy  
GPO Box 39  
Sydney NSW 2001

By email: [Felicity.Greenway@planning.nsw.gov.au](mailto:Felicity.Greenway@planning.nsw.gov.au)  
Online at: [planning.nsw.gov.au/Have-Your-Say](http://planning.nsw.gov.au/Have-Your-Say)

Dear Ms Greenway,

Neoen Australia Pty Ltd is pleased to submit this submission to the NSW department of Planning and Environment (NSW DPE) regarding the new Wind Energy Planning Framework (the framework).

#### **Background**

Neoen Australia is a subsidiary of Neoen, a leading French renewable energy company engaged in the development and operation of renewable energy projects across Europe, Australia, Africa, the Middle East and Central America, with close to 1GW of assets in operation or under construction. Neoen enjoys strong support and access to capital via its shareholders which include Impala, Omnes Capital and Bpifrance.

In Australia, Neoen has recently attained a number of achievements including:

- Successfully tendering for Stages 1, 2 and 3 of the ACT Government's Next Generation Renewables Auction for its 315MW Hornsdale Wind Farm project in South Australia;
- Successfully tendering for ARENA's large-scale solar funding programme for three of its projects in New South Wales with a total capacity of 119MW; and
- Completing construction on Australia's largest off-grid solar and storage project with the 10.6MW DeGrussa Solar Farm in Western Australia.

Neoen intends on greatly increasing its portfolio of operating assets by developing and acquiring projects across all Australian States and Territories. In meeting its goals Neoen invests and directs substantial capital flows towards manufacturing, construction, rural rents and local governments. In terms of new developments, NSW is of particular interest to Neoen due to its high total energy consumption and many quality wind energy sites.

Neoen thanks NSW DPE for their commitment to the new wind energy planning framework to replace the draft planning guidelines for 2011 and also for opening this discussion up to communities and developers so that the right balance can be struck.



## Submission

Neoen welcomes the opportunity to provide feedback on the new Wind Energy Planning Framework (the framework). Neoen supports the development of the framework and commends the NSW DPE for managing an open and transparent consultation process so that all views can be heard in what can be a contested space.

Neoen agrees wholeheartedly with the need for new guidelines. The 2011 draft planning guidelines for wind energy have created uncertainty for both communities and developers, and have resulted in a dearth of new projects and investment in NSW when compared with other comparable jurisdictions. A new, clear planning framework is required.

Neoen also agrees with the two key objectives of the new guidelines:

- To provide clear and consistent technical guidance to regulators, industry and the community about how to measure and assess the key environmental impacts of wind energy projects, and
- To encourage better consultation and benefit sharing between wind energy operators and the communities in which they operate, where appropriate.

This submission is broken into sections that include Neoen's comments on the three technical bulletins, these being: *Noise Impact Assessment Bulletin, Draft for Consultation August 2016*; *Visual Impact Assessment Bulletin, Draft for Consultation August 2016*; and *Standard Secretary's Environmental Assessment Requirements, Draft for Consultation August 2016*.

### Noise Impact Assessment Bulletin, Draft for Consultation August 2016

Wind turbine noise is a well understood science and the noise guidelines must reflect this. Neoen makes the following submission with respect to how wind farm noise impacts should be handled in a planning context:

- Noise limits should be based exactly on the South Australian noise guidelines for wind farms,
- Noise modelling should not be used to set future noise limits in permit conditions,
- The SA EPA study shows that low frequency noise is a non-issue and Neoen is of the view that there should be no consideration of low frequency noise in any noise impact assessment guidelines.

### Visual Impact Assessment Bulletin, Draft for Consultation August 2016

Neoen understands from discussions with NSW DPE that the setbacks, limits and offsets described in the Draft Visual Impact Assessment Bulletin are intended as a guide to help developers determine when they need to engage more closely with sensitive receivers. While this may be the intent, Neoen is concerned that both developers and the community will consider all of these guides as hard 'limits'.

Neoen makes the following submission regarding the Visual Impact Assessment Bulletin so that it better meets the stated goal of providing clarity to communities and developers:

- Revise the tone and language of the document. Having hard language such as 'avoid', or 'apply impact mitigation' will be seen by both communities and developers as enforcing a setback, even when it was not the intent of NSW DPE.
- Figure 1 will be considered a hard limit by developers and communities.
- Neoen is of the view that a specific setback limit gives more clarity to communities and developers than the graphs in Figure 1 and Figure 5. Neoen proposes that turbines cannot be placed within 1.5km of houses unless letters of support from the house owners have been supplied.

- If NSW DPE is determined on including a tool such as the ‘Preliminary Screening Tool’ in the final visual impact bulletin, Neoen suggests that a standard turbine (now 200m to tip height) intersects the line at 1.5km. At 1.5 km this will largely be in line with Queensland and South Australia, which require closer examination of turbine positions within 1.5km. It will still be more onerous than Victoria, where a 1km limit is applied. This comment applies to Figure 5 as well. When compared with Figure 1 in the draft visual impact bulletin, this line would appear on the graph here:

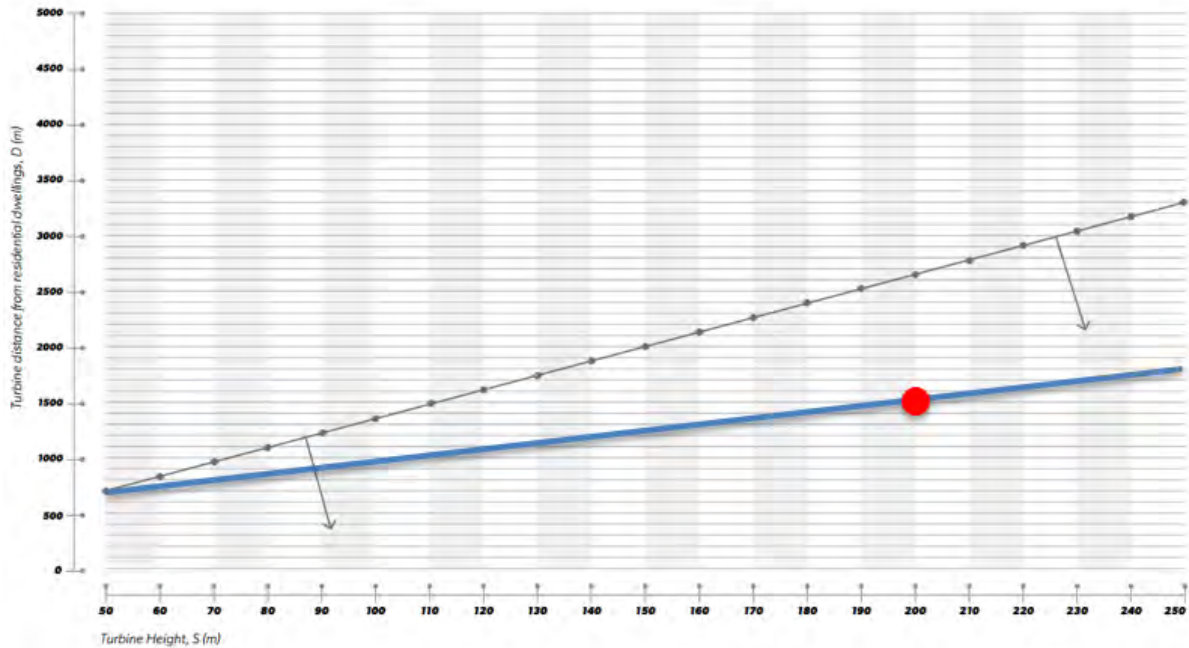


*Figure 1: Industry standard turbines are now approaching 200m in height. For this graph to be in agreement with comparable jurisdictions such as Queensland and South Australia (Victoria has a stricter 1km setback) the line should pass through the red dot. As stated above Neoen is against the use of graphs such as this and proposes a fixed 1.5km setback as a way of providing clarity to communities and developers.*

- Neoen supports the use of the Multiple Wind Turbine Tool however would suggest that at most a 3km distance be applied. When set at 8km, turbines 15km apart with a house in the middle could trigger a high level focus for assessment in the EIS which appears unreasonable.
- Neoen is of the view that visual amenity from urban residential areas and rural villages should be protected in the same way as for rural residences. As a result, Neoen proposes that urban residential areas and rural villages be moved from Level 1 Sensitivity to Level 2 Sensitivity in Table 5
- Neoen proposes that dot point 4 in the Level 1 Sensitivity section of Table 5, that relates to historic and heritage buildings, be moved into Level 2 Sensitivity, unless the reason for heritage listing is related to important views from the property.
- The bottom row of Table 7: “Far Background 20-32+km” should be removed as residual impact levels that may exist beyond 20km are beyond what are reasonable to consider.
- The requirements around ‘Representative Viewpoints’ on page 25 appear to be based on the clearest possible view to the wind farm regardless of intervening topography, buildings or vegetation. Neoen proposes that for each ‘Representative Viewpoint’ a developer may elect to submit a second viewpoint which represents a view that includes intervening topography, buildings and vegetation so as to provide a balanced representation of the view from a specific receptor.

**Standard Secretary's Environmental Assessment Requirements, Draft for Consultation August 2016**

Neoen is largely in agreement with the contents of the draft standard SEARs with the exception of:

- Health: Neoen is of the view that wind farms do not cause any health issues and requests as part of this submission that health considerations as a result of nearby wind turbines be removed.
- Consultation: Neoen is of the view that a Community Consultative Committee is not always the best way to engage with a community and should not be included in standard SEARs. For example, at the Coonooer Bridge Wind Farm, which was awarded best project for community engagement in Australia in 2015, no CCC was present and instead the developers relied on direct one-on-one engagement with every neighbour. Neoen proposes that this requirement be removed.

**Conclusion**

Thank you again for the opportunity to be involved in this open and transparent process to guide the planning rules around wind farms in New South Wales. New South Wales has a unique opportunity to leverage outstanding wind resource towards huge economic gains for host landholders, a high tech workforce and regional councils around the state.

For all these reasons Neoen would encourage NSW DPE to consider carefully the correct balance between protection of landscape views of a small minority, at the expense of the whole of the state that benefits from additional wind farm developments.

Yours sincerely,



Garth Heron  
Head of Wind Energy - Australia  
Neoen Australia



# **Submission on draft Wind Energy Assessment Policy**

prepared by

**EDO NSW**  
**September 2016**

## About EDO NSW

EDO NSW is a community legal centre specialising in public interest environmental law. We help people who want to protect the environment through law. Our reputation is built on:

***Successful environmental outcomes using the law.*** With over 25 years' experience in environmental law, EDO NSW has a proven track record in achieving positive environmental outcomes for the community.

***Broad environmental expertise.*** EDO NSW is the acknowledged expert when it comes to the law and how it applies to the environment. We help the community to solve environmental issues by providing legal and scientific advice, community legal education and proposals for better laws.

***Independent and accessible services.*** As a non-government and not-for-profit legal centre, our services are provided without fear or favour. Anyone can contact us to get free initial legal advice about an environmental problem, with many of our services targeted at rural and regional communities.

EDO NSW is part of a national network of centres that help to protect the environment through law in their [states](#).

### Submitted to:

#### **NSW Department of Planning and Environment**

Director, Industry and Infrastructure Policy  
GPO Box 39  
Sydney NSW 2001

Submitted online at:

[http://planspolicies.planning.nsw.gov.au/index.pl?action=view\\_job&job\\_id=7859](http://planspolicies.planning.nsw.gov.au/index.pl?action=view_job&job_id=7859)

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## Introduction

Thank you for the opportunity to comment on the Department of Planning and Environment's (**Department's**) draft Wind Energy Assessment Policy (**draft Policy**). This submission is divided into four parts:

|                                                           |           |
|-----------------------------------------------------------|-----------|
| <b>1. Summary and recommendations .....</b>               | <b>4</b>  |
| <b>2. Draft Wind Energy Assessment Policy .....</b>       | <b>7</b>  |
| <b>3. Visual Impact Assessment (VIA) Bulletin .....</b>   | <b>13</b> |
| <b>4. Noise Assessment Bulletin (Noise Bulletin).....</b> | <b>18</b> |

EDO NSW welcomes the efforts of the Department to resolve uncertainties over wind energy project assessment that have existed since draft Planning Guidelines (**2011 Guidelines**) were exhibited in December 2011.

Our submission on the 2011 Guidelines noted that the proposed restrictions on wind energy were more stringent than for other, more polluting energy sources without clear justification.<sup>1</sup> We recommended starting from a level playing-field in assessment of all major projects, and then considering the need for NSW to transition from a high-carbon polluting economy to a low-polluting one. This is one way the planning system should encourage ecologically sustainable development (**ESD**). This perspective also informs our comments below.

While the Government's 2016 draft Policy retains a focus on visual and noise impacts as the most significant impacts for wind projects, we understand it shifts away from the 2011 Guidelines' approach of buffer zone distances and consultation periods for renewable energy that go beyond other State Significant Development (**SSD**).

We welcome more equitable treatment of wind energy under a risk-based approach. Our comments support risk-based assessment and consistent standards where appropriate. We also make recommendations to ensure decision-makers properly consider the need for NSW to reduce greenhouse gas emissions; and along with other states and territories and the rest of the world, rapidly transition to low-carbon energy, to avoid the dangers of 2 degrees' average global warming.

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<sup>1</sup> EDO NSW *Submission on Draft NSW Planning Guidelines for Wind Farms* (March 2012) - [Download PDF](http://www.edonsw.org.au/planning_development_heritage_policy). Available at: [http://www.edonsw.org.au/planning\\_development\\_heritage\\_policy](http://www.edonsw.org.au/planning_development_heritage_policy).

# 1. Summary and recommendations

In summary, our comments are as follows:

## General comments on draft Wind Energy Assessment Policy

- Aspects of the draft Policy, such as the need to engage local communities early, are a positive move towards leading-practice. These principles should apply equally to other major projects, beyond wind energy.
- A 'risk-based' framework for assessing wind energy should be considered in the context of how other (potentially competing) energy development proposals are assessed. If anything, energy-intensive projects should be subject to more stringent assessment (including of cumulative impacts) given the need to rapidly reduce carbon emissions.
- The final Policy should apply to new projects and modifications, as proposed. Similarly, contemporary noise and other pollution standards should apply to modifications for *other* SSD projects (such as mine extensions), to promote *continuous improvement* in environmental standards for existing development.
- Given its detailed focus on visual and noise impacts, the draft Policy should clarify what *weight* the Government expects authorities and decision-makers to give these factors relative to other impacts (and relative to other major projects).
- The final Policy and Visual Impact Assessment (**VIA**) Bulletin should explain in more detail how principles of ecologically sustainable development (**ESD**) are relevant to wind projects, drawing on the NSW court decision in *Taralga* (2007).<sup>2</sup> In particular, the precautionary principle, inter-generational equity and full environmental costing are relevant in weighing up the benefits of low-carbon energy sources.
- The draft Policy's main gap is the need to explain the public interest in reducing greenhouse gas emissions. The final Policy should give significant weight to this to guide decision-making. While this gap can be addressed in the final Policy, it is exacerbated by a lack of legislated targets for renewable energy or emissions reduction in NSW.
- The final Policy needs to give additional, clear support to the role of renewable energy in reducing NSW's contribution to climate change in four ways:
  - The Policy's objectives should include reducing greenhouse emissions from NSW energy production. This should be given due weight in decision-making.
  - Identify the transition to low-carbon energy under 'Key Issues for wind farm developments' (draft Policy pp 7-8).
  - Engage NSW communities on the significant challenges and opportunities of climate change, particularly for energy. The Policy should highlight the 2015

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<sup>2</sup> *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd*, at 73-81, 138.

Paris Agreement, the energy challenges this presents for NSW and its emissions, and the opportunities for wind to be a positive part of the solution.

- Consider planning principles similar to South Australia, Scotland and Europe that aim to prioritise clean energy sources where they are available.
- Complement the proposed Policy on major wind energy projects with increased guidance and assistance for community and cooperative wind energy.
- In principle we support the proposal that decision-makers must consider whether a proposed project is consistent with the NSW Renewable Energy Action Plan (**REAP**) objectives, and how it contributes to the 20% by 2020 target.<sup>3</sup> However, this target is ambiguous, and its 2020 expiry will not assist long-term planning.
- The Government needs to adopt renewable energy targets beyond 2020, and specific long-term and medium-term emissions reduction targets, in law.<sup>4</sup> New targets would enable NSW communities, planning decision-makers and the private sector to make more informed decisions about energy projects.
- The final Policy's overview document should reiterate the National Health and Medical Research Council's (**NHMRC**) current position that 'there is no direct evidence that exposure to wind farm noise affects physical or mental health.'<sup>5</sup>
- Further consideration could be given to rehabilitation bonds and enforcement of conditions for decommissioning and rehabilitation.

### Visual Impact Assessment (VIA) Bulletin

- The final Policy should ensure that early visual impact assessment supports good project design, but does not disadvantage wind compared to other energy projects.
- The VIA Bulletin, the final Policy and the Standard Secretary's Environmental Assessment Requirements (**SEARs**), should require tailored engagement with Aboriginal communities, Traditional Owners and representative bodies. The Department should consult Aboriginal organisations such as NSWALC and NTSCorp on the level and types of engagement they recommend.
- To improve community assurance, consider whether preliminary assessment tool 1 ('visual magnitude' of turbines seen from houses) could incorporate factors such as topography upfront, instead of leaving this to the EIS stage.
- EDO NSW supports consideration of cumulative impacts of all types of major projects. For preliminary assessment tool 2 (on 'multiple turbines' visible from houses) the Department should:

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<sup>3</sup> The REAP has 3 objectives to increase renewables investment, community support and expertise.

<sup>4</sup> See further EDO NSW, *Planning for Climate Change: How the NSW planning system can better tackle greenhouse gas emissions* (July 2016),

[http://www.edonsw.org.au/planning\\_for\\_climate\\_change](http://www.edonsw.org.au/planning_for_climate_change), recommendation 1

<sup>5</sup> As cited in the draft Noise Assessment Bulletin, p 9.



- provide further information on why an 8km radius is most appropriate, and whether this distance is used in similar tools in other jurisdictions;
  - consider further the draft requirement to map viewpoints of turbines for an 8km radius (16km diameter) from every local residence *prior* to a request for SEARs.
- Provide additional guidance on how much weight is given to visual impacts (and noise impacts), and to assessment against Visual Performance Objectives. This could draw on principles in the *Taralga* case, above.
    - The Policy should distinguish *visual* impact (e.g. interrupting a view of a mountain from a house) as being qualitatively different from, say, the clearing of an ecosystem or destruction of the mountain itself. Such guidance would reflect risk-based impact assessment and decision-making, and help manage public expectations of the planning process.
    - Clarify the planning principles the Department uses to determine when scenic character should be prioritised and when it should not. These principles need to be applied consistently so as not to disadvantage wind projects.
  - Clarify the proposed treatment of ‘ancillary facilities’ relative to wind turbines. It may be appropriate to incorporate this in upfront assessment, but assessment should be clarified based on a risk-based approach compared with other SSD.
  - Explain what ‘indirect’ visual impacts are, and their significance (VIA Bulletin p 9).

### **Noise Assessment Bulletin (Noise Bulletin)**

- We welcome the intention to ‘promote a planning and assessment framework which is consistent with the standards that apply nationwide’. Such standards should apply consistently to all SSD proposals.
- A risk-based framework should ensure activities in the same risk or impact category receive equal scrutiny, and higher impacts receive greater scrutiny.
- Balancing consistency and risk-based assessment, the final Policy should ensure that noise impact assessment supports good project design, but does not disadvantage wind compared to other more carbon-intensive energy sources.
- References to scientific studies should be cited and clarified in certain sections (for example, with reference to the likelihood of special noise characteristics).

## 2. Draft Wind Energy Assessment Policy<sup>6</sup>

### **Welcome efforts to resolve uncertainties and foster early engagement**

As noted, EDO NSW welcomes the efforts of the Department to resolve uncertainties over wind energy project assessment. We welcome more equitable treatment of wind energy under a risk-based approach, including the shift away from the 2011 Guidelines' approach of buffer zone distances and extended consultation periods for renewable energy beyond other SSD.

The draft Policy is proposed to apply to all new wind energy proposals classed as SSD, and 'all modification applications' for SSD wind projects. This is appropriate.

Aspects of the draft Policy, such as early community engagement and upfront design considerations, are positive moves towards leading-practice. Like any industry, commercial windfarms need a 'social licence to operate', as well as legal approvals and compliance. Respecting and working with local communities is of mutual benefit.

This part of the submission recommends that:

- Risk-based assessment must consider how other major projects are assessed
- The policy and framework must emphasise the climate-energy challenge and develop clear targets for NSW
- The need to consider planning principles that prioritise renewable energy, and
- Post-2020 targets for renewable energy and emissions should guide the Policy.

### **Risk-based assessment must consider how other major projects are assessed**

The draft Policy is premised on a 'risk-based' assessment and decision-making framework (p 2). 'Risk-based' implies the greatest impacts deserve the greatest scrutiny. This approach can be considered in the narrow context of windfarms and in the broader context of the energy sector and other major projects.

Overall, the draft Policy's settings should be considered with reference to assessment processes for other, potentially competing, energy project proposals. As a starting point, impact assessment processes (or 'bulletins') for other major energy projects – such as coal mines and fossil-fuel powered generation – should be *at least as rigorous* as windfarm assessment processes, subject to relative risks and impacts.

#### *Weighing up key windfarm impacts*

The Draft Framework focuses on visual and noise impacts as the main identified impacts of windfarm projects. This focus reflects a risk-based approach in the narrow

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<sup>6</sup> This part primarily refers to the *Wind Energy: Assessment Policy Draft for Consultation August 2016*.

sense (i.e. visual and noise impacts are likely to be the most prominent negative impacts of wind energy projects that local communities raise).

However, as noted below, it is unclear what *weight* the Government intends planning authorities (such as the Department) and decision-makers (such as the Planning Assessment Commission) will give visual and noise impacts relative to others, including positive impacts.<sup>7</sup> The final Policy and assessment bulletins should discuss this further, as it will be important for managing all parties' expectations.<sup>8</sup> As noted, the beneficial impacts of low-carbon energy are a key issue. The Policy could also give some guidance on wind energy and co-existing land uses such as agriculture.

### *Weighing up factors in context of the broader energy sector*

Considering risk-based assessment in a broader sense, it is unclear how the positive and negative impacts of wind projects will be evaluated relative to the impacts of *other* energy-generating projects. This is important because there is a significant *positive* impact in transitioning to clean energy and potentially displacing fossil fuel emissions that would otherwise generate power.

As the Land and Environment Court noted in the *Taralga* case (2007), perceptions of wind energy vary. To some, 'the change is stark and negative. ... To others, however, the change is positive... an opportunity to shift from societal dependence on high emission fossil fuels to renewable energy sources.' In that case the Court concluded that 'on balance, the broader public good must prevail.'<sup>9</sup>

We support this, noting that assessment processes must be fair, inclusive and rigorous, but must not disadvantage renewable energy compared with coal or gas mining and power generation. For example, a large windfarm may detract from the amenity or change the view of 'a visually distinctive stand of trees',<sup>10</sup> and this impact should be assessed. However, with reference to ESD principles like intergenerational equity, such impacts are less environmentally serious than a proposal to *demolish* that stand of trees and the ecosystem it supports (and should accordingly be given less weight). Despite the loss of a view, present and future generations still enjoy the forest itself.

As noted above, the final Policy should contextualise the impacts of wind energy in comparison with other energy options. If anything, emissions-intensive projects and their cumulative impacts should be subject to more stringent assessment given the need to rapidly reduce carbon emissions and avoid 2 degrees' average warming.

Yet it is not clear to us that coal mines, gas projects or power plants are always subject to the same degree of 'pre-lodgement' assessment processes or 'assessment bulletins' for specific impacts. For example, mining and coal seam gas exploration do not require a full EIS; and in some situations, activities with

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<sup>7</sup> For example, Visual Performance Objectives, draft Visual Impact Assessment Bulletin, p 12.

<sup>8</sup> For example, we recommend the guidance on departmental assessment on p 15 of the VIA Bulletin be expanded and included in the final Policy. See Climate Council (2016), *On The Frontline*, ch. 2-4.

<sup>9</sup> *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd* [2007] NSWLEC 59 (12 February 2007), paras 1-3.

<sup>10</sup> An example used in the Draft Policy – Visual Impact Assessment Bulletin, p 18.

environmental risks have been classified as exploration and therefore avoided statutory requirements for public consultation and an EIS.<sup>11</sup>

This comparison is not to detract from the value of early engagement and design for windfarms. Rather, it is to avoid discrepancies in risk-based assessment *across the energy sector*. That is, the planning system should ‘encourage’ ecologically sustainable development through its treatment of lower-impact energy projects. *Expand guidance on Ecologically Sustainable Development (ESD) and Taralga case*

We support the references to ESD principles as a consideration at the decision-making stage, as part of the ‘public interest’,<sup>12</sup> in the draft Visual Impact Assessment Bulletin (p 16). We also support references to the Land and Environment Court’s *Taralga* windfarm decision (2007).<sup>13</sup> The final Policy’s main document should expand on these important touchpoints further, noting that: ‘The principles of sustainable development are central to any decision-making process concerning the development of new energy resources.’<sup>14</sup>

The social and environmental risks of wind energy are in many cases likely to be lower than the adverse impacts of conventional energy – particularly in the context of a need to rapidly reduce carbon emissions to net zero to avoid 2 degrees average warming, and NSW’s position amongst the world’s highest per-capita emitters. This should be recognised in any risk-based assessment framework.

We recommend both the final Policy and VIA Bulletin explain in more detail how specific ESD principles are relevant to wind energy projects, drawing on the *Taralga* decision. In particular, the precautionary principle, inter-generational equity and full environmental costing are relevant in giving due weight to the benefits of low-carbon energy sources.<sup>15</sup>

### *Noise and health*

We recommend the final Policy’s main document include quotes from the NHMRC’s current position that ‘there is no direct evidence that exposure to wind farm noise affects physical or mental health.’ We welcome these comments in the Noise Bulletin (p 9).

## **Emphasise the climate-energy challenge and develop clear targets for NSW**

We welcome the ‘Strategic context’ in the draft Policy (p 2) which notes that: ‘The NSW Government supports the development of a sustainable wind energy industry

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<sup>11</sup> See e.g. *Fullerton Cove Residents Action Group Incorporated v Dart Energy Limited* (March 2013), case summary and judgement available at: [http://www.edonsw.org.au/mining\\_coal\\_seam\\_gas\\_cases](http://www.edonsw.org.au/mining_coal_seam_gas_cases). Depending on the stage and type of development, activities such as mining exploration only require a small-scale Review of Environmental Factors (REF) rather than an Environmental Impact Statement.

<sup>12</sup> Under s. 79C of the *Environmental Planning and Assessment Act 1979* (NSW) (**Planning Act**).

<sup>13</sup> *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd* [2007] NSWLEC 59 (12 February 2007).

<sup>14</sup> *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd*, at 73.

<sup>15</sup> See for example, *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd*, at 73-81, 138. See also *Environmental Planning and Assessment Act 1979*, s. 5(a)(vii).

in NSW', and 'recognises the importance of reducing greenhouse gas emissions in energy generation...'.<sup>16</sup> The final Policy should expand on these comments.

To be specific, we recommend four ways that the final Policy should emphasise the Government's support for the role of renewables, including wind power, in reducing NSW greenhouse gas emissions that contribute to climate change:

- First, identify a new objective of the Policy (p 1) as: 'to reduce greenhouse gas emissions from NSW energy production'.
- Second, identify the transition to low-carbon energy under 'Key Issues for wind farm developments' (draft Policy pp 7-8). The key issues as currently drafted are all negative impacts.
- Third, the Policy should highlight the aims and targets under the Paris Agreement (2015), the energy challenges this presents for NSW and its emissions profile, and the positive opportunities for renewables including wind energy in solving those challenges.<sup>17</sup>
- Fourth, consider specific planning principles to support renewable energy (exemplified in the section below).

Finally, to complement the Policy's major projects focus, a related and important measure for the Government to pursue is to increase assistance to smaller community or cooperative wind projects. This would build on Goal 2 of the REAP.<sup>18</sup>

### **Consider planning principles that prioritise renewable energy**

Unlike other forms of energy, there is no renewable energy SEPP or strategic statement on renewable energy and planning in NSW. We recommend considering planning principles in South Australia, Scotland and elsewhere that guide the planning system to prioritise renewable energy in appropriate places.<sup>19</sup>

For example, the Scottish Planning Policy states:<sup>20</sup>

*154. The planning system should:*

- *support the transformational change to a low carbon economy, consistent with national objectives and targets, including deriving:*
  - *30% of overall energy demand from renewable sources by 2020;*
  - *11% of heat demand from renewable sources by 2020; and*
  - *the equivalent of 100% of electricity demand from renewable sources by 2020;*
- *support the development of a diverse range of electricity generation from renewable energy technologies - including the expansion of renewable energy generation capacity...*
- *guide development to appropriate locations and advise on the issues that will be taken into account when specific proposals are being assessed;*
- *help to reduce emissions and energy use in new buildings and from new infrastructure by enabling development at appropriate locations...*

<sup>16</sup> We support similar statements in the Noise Assessment Bulletin (p 2): 'Wind energy development is a key component of the Government's commitment to increase renewable energy in NSW.'

<sup>17</sup> See for example, Climate Council (2016) *On the Frontline: Climate Change and Rural Communities*

<sup>18</sup> Goal 2 of the REAP (2013) is to 'Build Community Support' for renewable energy (Actions 10-14).

<sup>19</sup> See L. Caripis and A. Kallies, "'Planning away' Victoria's renewable energy future? Resolving tension between the local and global in windfarm developments' (2012) 29/5 EPLJ 415, pp 426, 432.

<sup>20</sup> Scottish Planning Policy (2014) <https://beta.gov.scot/publications/scottish-planning-policy/pages/6/>.

The Scottish Planning Policy also aims to maximise the ‘full potential’ of renewable sources, ‘in line with national climate change targets, giving due regard to relevant environmental, community and cumulative impact considerations.’<sup>21</sup> Within this supportive context, specific principles for Onshore Wind require development plans to identify 3 planning areas using spatial frameworks: areas where wind farms are not acceptable, areas of significant protection, and areas for potential development.<sup>22</sup> As previously submitted such principles should also be applied to resource development projects.

## **Post-2020 targets for renewable energy and emissions should guide the Policy**

Clear targets for renewable energy and greenhouse emissions reduction can inform and direct decision-makers’ significant discretion in the planning system. Long-term and intermediate targets can also inform communities, investors, councils and planners. By contrast, the absence of a post-2020 renewable energy target – or any greenhouse emissions reduction target – limits the ways NSW planning decisions will be informed by climate change considerations.

The draft Policy refers to the REAP and the NSW renewable energy target of 20% by 2020 (p 2).<sup>23</sup> In principle we support the proposal that consent authorities consider ‘whether the project is consistent with the objectives of the [REAP] and how the project contributed to the Renewable Energy Target;’ (draft Policy, p 6). However, more is needed to inform decision-makers, communities, developers and others.

We make three comments on climate change targets and how they link to the Policy. For more detail please see our recent paper, *Planning for climate change*.<sup>24</sup>

First, the draft Policy states that the NSW renewable energy target is to ‘contribute to’ the (former) national target of 20% by 2020. This is very different to NSW having its own target of 20% renewable energy by 2020. The draft Policy should clarify how planners, proponents, communities and decision-makers should consider NSW targets and the contribution of wind, when making development decisions.

Second, the NSW Audit Office has been critical of limited progress and monitoring of the renewable energy target.<sup>25</sup> The latest EPA figures note that the share of renewables, while variable, dropped from 12.9% in 2013 to 10.8% in 2014.<sup>26</sup> The Government needs to clarify its monitoring, reporting and review processes to achieve the 2020 target, and how these processes are improving.

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<sup>21</sup> *Scottish Planning Policy* (2014), para 155.

<sup>22</sup> *Scottish Planning Policy* (2014), paras 161-66.

<sup>23</sup> This renewable energy target was first identified in the 2011 State Plan, *NSW 2021*.

<sup>24</sup> [Download PDF](http://www.edonsw.org.au/planning_for_climate_change). Available at: [http://www.edonsw.org.au/planning\\_for\\_climate\\_change](http://www.edonsw.org.au/planning_for_climate_change).

<sup>25</sup> In 2013 the Audit Office highlighted a lack of progress monitoring information and ‘no baseline to compare progress against.’ (<http://www.audit.nsw.gov.au/audit-program/further-audit-information/proposed-topics-for-2014-15/renewable-energy>, accessed March 2016, page no longer available). The Audit Office’s November 2013 energy report ‘energy produced from renewables in 2011-12 declined sharply and the percentage dropped from nine per cent in the previous year to eight per cent.’ By 2014: ‘Black coal continues to be the major source of energy representing over 80 per cent of electricity generation in New South Wales. Approximately 11.6 per cent of energy generated is derived from renewable sources.’ Auditor-General’s Report to Parliament 2014, Vol 5, ‘Electricity’ p 6.

<sup>26</sup> NSW EPA, *NSW State of the Environment 2015*, p 39.

Third, the 2020 target will expire shortly and there is no indication of what will follow. Projects assessable under the final Policy may not be built in time to contribute to this target. Other states and territories have targets to 2025 and beyond:

- South Australia has a target of 50% renewable electricity by 2025;
- Victoria has a target of 40% renewable electricity by 2025;
- The ACT has a target of 100% renewable electricity by 2020;
- Queensland has a target of 50% renewable electricity by 2030.
- All of these jurisdictions except Queensland have climate change legislation.<sup>27</sup>

The Paris Agreement and the NSW Government's membership of The Climate Group's States and Regions Alliance are welcome opportunities for further action – to develop targets and strategies for renewable energy and greenhouse emissions reduction; support these with new climate change legislation; and embed climate change readiness in the planning system.<sup>28</sup>

### **Decommissioning and rehabilitation**

We note the draft policy states:

*The NSW Government's policy is that a wind energy project owner or operator, and not the 'host' landholder, should be responsible for decommissioning and rehabilitation and the end of life of a wind energy project or a particular turbine. Proponents must identify and address all relevant issues for decommissioning and rehabilitation in their project EIS, and include a commitment that the operator will be responsible for decommissioning and rehabilitation.*

It is therefore assumed that there will be relevant conditions in a landholder agreement. However, in the event of a wind farm company going bust, there are may be enforcement issues in the future. Further consideration could be given to rehabilitation bonds.

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<sup>27</sup> See EDO NSW, *Planning for Climate Change* (2016), Table 1: [Download PDF](#).

<sup>28</sup> See further EDO NSW, *Planning for Climate Change* (2016) recommendations 1-14 [Download PDF](#)

### 3. Visual Impact Assessment (VIA) Bulletin

This part of the submission addresses:

- Stage 1: Preliminary environmental assessment (pre-lodgement)
- Stage 2: Assessment and determination
- Assessment by planning authorities – determination and conditions

#### Stage 1: Preliminary environmental assessment (pre-lodgement)

*Community consultation should refer to specific groups including Aboriginal peoples*

The VIA Bulletin suggests early stage consultation can include representative surveys and focus groups with relevant communities. We support the purposes of early communications set out on p 4 of the VIA Bulletin.

The VIA Bulletin doesn't currently contain any specific guidance on identifying Aboriginal stakeholders or tailored engagement. This Bulletin (p 4), the draft Policy (main document section 5) and the Standard SEARs should refer specifically to tailored engagement with Aboriginal communities, Traditional Owners and representative bodies. The Department should consult Aboriginal organisations such as NSWALC and NTSCorp on the level and types of engagement they recommend.

We suggest references to the following in the final Policy or VIA Bulletin:

- The need for specific consultation with local Aboriginal communities and people authorised to speak for Country;
- Best practice assessment and regulation of impacts on Aboriginal culture and heritage, biodiversity, socio-economic development and benefit-sharing;
- That Local Aboriginal Land Councils are significant landholders across the State to be consulted with and involved in benefit-sharing agreements where appropriate.

*Clarify weight given to visual impacts relative to other positive and negative impacts*

The VIA Bulletin strongly emphasises 'landscape character'. For example, it notes that: 'Thoroughly gauging the landscape values of the project area' can help 'design a wind turbine layout that seeks to avoid high impacts on key landscape features and so minimises potential land use and community conflicts' (p 4).

While we agree with this, there is a need to distinguish *visual* impact (e.g. view of a mountain from a house) as being qualitatively different from, say, the clearing of an ecosystem or destruction of the mountain itself. This difference could be explained with reference to *intergenerational equity*<sup>29</sup> – that while the view may change, future

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<sup>29</sup> See for example, *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd* [2007] NSWLEC 59, para 74. The Chief Judge discusses intergenerational equity in the context of energy. He notes (at 74) that one aim is to 'maintain the environment, including the ecological processes on which life depends, for the benefit of future generations.' Another is to 'as far



generations continue to have the benefit of the mountain and its ecosystems. Such qualifications would reflect the integration of ESD principles, risk-based assessment and decision-making, and help manage public expectations of the planning process.

#### *Preliminary screening tools (p 5)*

The VIA Bulletin includes preliminary screening tools for ‘rapid analysis’ of two issues, specifically for ‘residential viewpoints’ in the area: (1) *Visual magnitude*, or prominence in the field of view; and (2) *Multiple turbines*, or cumulative impacts.

*Visual magnitude*: Tool (1) uses turbine height and distance to give an indication of where a windfarm proponent should give detailed consideration to visual impacts on houses. The Department could consider whether this tool could incorporate factors such as topography upfront, instead of leaving this to the EIS stage. This may identify avoided or reduced impacts upfront, and provide additional local assurance.

*Multiple turbines*: Tool (2) proposes an early requirement to map, for each residence, 360-degree views of any wind turbines (proposed, existing or approved) within a radius of 8km. The tool aims to allow ‘alternative design solutions to be considered that do not involve the same level of cumulative impact.’ (p 7) Where turbines can be seen from more than 2 of 6 sectors (across 360 degrees), specific information must be provided to the Department in the request for SEARs.

The Department could provide further information on why an 8km radius is most appropriate, and whether this distance is used in similar tools elsewhere. We understand ‘8km’ relates to when a turbine recedes from the ‘far middleground’ (4-8km) into the ‘near background’ (8-12km) (VIA Bulletin, Appendix 1, p 22).

We recommend further consideration as to whether a requirement to map viewpoints of turbines for an 8km radius (16km diameter) from every local residence, *prior* to a request for SEARs, is proportionate to the potential impact. In particular, the view of multiple turbines in the ‘far middleground’ (4-8 or 6-8 km) is a different prospect to views in the foreground or ‘near middleground’ (<4km).

#### *Cumulative impact assessment should apply to all major projects and not disadvantage wind projects*

EDO NSW welcomes consideration of cumulative impacts of all major development types. Cumulative impacts are not unique to wind energy, and have been of particular concern in relation to mining in the Hunter Valley for example. While we strongly support principles of early engagement and minimising near-distance impacts, the nature of wind resources also mean that clusters of windfarm projects across a landscape are likely.

The detailed requirements for cumulative visual impact mapping *prior* to the issue of SEARs is an example where wind energy projects could be seen to be disadvantaged compared with other energy projects. For example, we are not aware

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as practicable, increasingly substitute energy sources that result in less greenhouse gas emissions... thereby reducing the cumulative long-term effects caused by anthropogenic climate change’.

of equivalent 'pre-SEARs' requirements for cumulative impact assessment – whether for visual, air quality, biodiversity or health impacts of mining projects.

We recommend that the Policy ensures that early visual impact assessment processes do not disadvantage wind projects compared to other energy projects in NSW. Improvements to cumulative impact assessment in the planning system should be prioritised according to impacts of projects with the most significant risks.

## **Stage 2: Assessment and determination**

### *Environmental impact statement (EIS) preparation*

The SEARs will require the wind energy company's EIS to comprehensively assess the proposal against a set of Visual Performance Objectives.<sup>30</sup> As part of the EIS, the proponent must prepare a visual impact assessment (**VIA**). Our understanding of the proposed VIA process is below followed by three comments: weighting of visual impacts in decision-making; consistent treatment of scenic values in departmental policies; and ancillary facilities.

### *Visual Impact Assessment*

The VIA must assess overall impacts, broader landscape impacts, and 'potential cumulative impacts of wind energy developments in the region' (p 9).

There are 3 basic steps to the VIA. First, preparing a 'Visual Baseline Study', with consultation (inputs for the study are listed at Appendix 1 to the Bulletin). This Study is to consider important landscape elements, viewer sensitivity, landscape character, and existing or approved windfarms within 8 km. Second, mapping 'Visual Influence Zones' as low/medium/high using the Visual Baseline Study. Third, undertaking visual performance evaluation with reference to 'Visual Performance Objectives'. The 6 Visual Performance Objectives provide guidance, not hard criteria (p 9).<sup>31</sup>

### *Clarify weight given to visual impacts in a 'risk-based' assessment policy*

We note that the Visual Baseline Study inputs include 'landscape character type' and 'scenic quality'. This focus continues at the Visual Impact Assessment stage discussed below. We consider that landscape amenity is an appropriate consideration – for example, we welcome the use of visual aids such as photomontages (Bulletin Appendix 2, p 25).

Importantly though, guidance is needed on how much weight visual impacts are given relative to other potential impacts. For example, changing a view to a distant waterfall is qualitatively different, and less environmentally harmful, than damming the river that feeds it. Similarly, there is a qualitative difference between visual impacts affecting a distant view and noise impacts that cause significant sleep disturbance in the same house.

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<sup>30</sup> VIA Bulletin pp 8-9; and VIA Bulletin Appendix 2, Table 8, p 26.

<sup>31</sup> They include (VIA Bulletin pp 12-14): visual magnitude, landscape scenic integrity, key features disruption, multiple wind turbine effects, shadow flicker and blade glint, and aviation hazard lighting.

We recommend the Policy provide additional guidance to communities, proponents and decision-makers on how much weight is given to Visual Performance Objectives and related assessment results. This could draw on principles in the *Taralga* case with regard to unreasonable interference with the enjoyment of a landscape, as well as whether moving (or removing) turbines would actually provide tangible benefits.<sup>32</sup>

#### *‘Visual Performance Objectives’*

Similarly, the weight intended be given to Visual Performance Objectives such as ‘Landscape scenic integrity’, ‘Key features disruption’ and ‘Multiple wind turbine effects’ (VIA Bulletin, pp 13-14) should be clarified with reference to ESD principles.

The draft VIA Bulletin acknowledges that wind projects will be proposed where the best wind resources are. However, it then makes a broad statement that, while wind turbines can be ‘seen as a key characteristic of the landscape, but not at a sufficient level to be a dominant characteristic of the area...’ (p 13). This statement doesn’t differentiate between more or less populated areas, or scenic areas, and it is not clear what has led to this general conclusion (for example, community surveys, qualitative interviews etc). We recommend these sections be reviewed and clarified. For example, the *Taralga* decision provides useful discussion on the ‘first “breach”’ of a landscape, and how visual impacts are assessed, weighed and responded to.<sup>33</sup>

In our view the final Policy should not adopt a position that windfarms are not allowed to alter, or in some cases be ‘a dominant characteristic’ of, *any* visual catchment in NSW; particularly when other forms of development – whether it be mining, intensive agriculture or power generation – can do so. At a time when systemic changes to energy production and distribution are underway, and are necessary to avoid dangerous climate change, the Government should promote and be informed by further community dialogue on a range of energy options and their impacts.

We make two other, minor comments on Visual Performance Objectives. First, the VIA Bulletin should clarify the parameters of the 30-hour per year limit for ‘shadow flicker’ to non-associated residences, after mitigation measures (p 14).<sup>34</sup> Second, the Policy should explain what ‘indirect’ visual impacts refers to (p 9).

*‘Scenic quality class’: is this limited to wind energy projects, or applicable to all SSD?*

We recommend that the Department clarifies the principles it uses to determine when scenic character should be prioritised and when it should not. These principles

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<sup>32</sup> *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd* [2007] NSWLEC 59 (12 February 2007), paras 115-149 on visual assessment generally; and at 214 (noise).

<sup>33</sup> *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd* [2007] NSWLEC 59 (12 February 2007), paras 124-147.

<sup>34</sup> For example:

- We note that this standard of 30 hours been adopted elsewhere, including the *Taralga* case.
- How should impacts be assessed (e.g. from home windows and doors)?
- Is this issue likely to be seasonal? (e.g. if shadow flicker were to occur over three months in winter, then the limit becomes 1 hour every 3 days).

need to be clearer and more consistent so as not to disadvantage wind projects. Some jurisdictions such as Victoria and Scotland (see above) are integrating 'landscape assessment' at the strategic planning stage.<sup>35</sup> However, the NSW Government recently indicated such matters are best identified at the project level.<sup>36</sup>

Step 5 of the Visual Baseline Study refers to identifying 'Scenic quality class'. This is based on a method from Victorian forestry research (VIA Bulletin, p 19). Will this approach be required for wind energy projects but not other major projects, such as forestry or mining? If so, the Policy should explain how this differentiation is risk-based.

While wind turbines may change the visual landscape in a characteristic way, this is not necessarily a *more harmful* impact than visual changes from other land uses (setting aside other impacts) – whether this be electricity transmission towers, forestry, mining, a power station, an aerodrome or a stadium with floodlights.

If the NSW planning system is to appropriately integrate consideration of impacts on the visual landscape, all major projects should be required to identify 'scenic quality classes' early in the planning phase, not just wind projects. This could be assisted by strategic planning principles that balance competing and complementary land-uses.

#### *Ancillary facilities*

The VIA Bulletin should clarify the proposed treatment of 'ancillary facilities', relative to wind turbines. For example, ancillary facilities are referred to in Table 1: Baseline study factors under 'visibility distance zone' (p 10); and under 'Visual Performance Evaluation' (p 12). A primary justification for additional preliminary assessment of wind energy projects is turbine height. However this justification is less likely to apply to ancillary facilities. We are not saying such facilities have no impact, only that their preliminary treatment should be clarified based on a risk-based approach (compared with other SSD).

### **Assessment by planning authorities – determination and conditions**

#### *Decision-making weight of visual impacts*

We welcome the brief summary of how the Department will assess visual impacts (VIA Bulletin p 15). We recommend making this summary more prominent upfront, to contextualise visual impacts amongst other environmental, social and economic impacts. We also recommend including this guidance (departmental assessment of visual impacts, p 15) in the final Policy, with additional emphasis and guidance on windfarms and co-existing land uses.

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<sup>35</sup> See *Scottish Planning Policy* (2014) <https://beta.gov.scot/publications/scottish-planning-policy/pages/6/>. See also: <http://www.dtpli.vic.gov.au/planning/plans-and-policies/rural-and-regional-planning/landscapestudies>.

<sup>36</sup> For example: 'Councils on the Far North Coast will not be permitted to apply mapped planning controls for scenic protection in LEPs.' NSW Department of Planning and Environment, Northern Councils E Zone Review – Final Recommendations Report (2015), p 10.

We also welcome the references to ESD as a ‘public interest’ consideration at the decision-making stage, and to the *Taralga* decision (VIA Bulletin, pp 15-16).<sup>37</sup> As noted above, the final Policy should expand on these important touchpoints, as they provide broader context to the decision, and the weight that should be given to different factors – including the consideration of present and future generations.<sup>38</sup>

#### 4. Noise Assessment Bulletin (Noise Bulletin)

We welcome the intention to ‘promote a planning and assessment framework which is consistent with the standards that apply nationwide’ (Noise Bulletin p 1). Rigorous, consistent assessment can reduce complexity for the community, developers and regulators. At the same time, we recognise that ‘consistent’ approaches should be sufficiently tailored to the type, source and intensity of noise, and therefore support specific guidance on wind energy noise.<sup>39</sup>

A risk-based framework would ensure activities with the same risk or impacts receive equal scrutiny. Our comments below assess the Noise Bulletin on achieving consistency. First we briefly consider consistency between proposed noise assessment for windfarms and more carbon-intensive energy sources that make up the vast majority of NSW’s current electricity supplies.

##### *Modifications, continuous improvement, and rigorous assessment of SSD generally*

We support applying the Policy to *modifications* of existing wind farms as proposed (Noise Bulletin p 1). Similarly, we strongly recommend that contemporary noise and other pollution standards should apply to *other* SSD project modifications, such as mine extensions. This would promote *continuous improvement* in environmental standards for existing development.

Some other examples where proposed assessment steps in the draft Policy should be matched for other major project assessment include:

- pre-lodgement indicative noise assessment (Noise Bulletin p 3);
- ensuring noise level objectives for mining projects are consistent with the wind energy objective that noise levels ‘do not significantly affect the living experience’ of local residents (Noise Bulletin p 5 – discussed below);
- minimum data points requirements for noise monitoring (Noise Bulletin p 8).

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<sup>37</sup> Under s. 79C of the *Environmental Planning and Assessment Act 1979* (NSW) (**Planning Act**). *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd* [2007] NSWLEC 59 (12 February 2007).

<sup>38</sup> See for example, *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd*, at 73-81, 138.

<sup>39</sup> The Noise Bulletin (p 2) notes that windfarm noise is unique in 3 ways:

- it is intermittent and can be ‘masked’ by increased background noise on windy days;
- height of turbines can limit opportunities for shielding; and
- turbine noise is ‘generally perceived as being different to other noise sources’ in rural areas (e.g. road noise and farm machinery).

*Clarify study references and low likelihood of special noise characteristics*

Where the Noise Bulletin refers to preliminary studies on annoyance levels ('Background' p 2), these studies should be cited in footnotes or end references.

The Noise Bulletin later notes that special noise characteristics, like tonal and low frequency noise, 'typically do not occur in well designed and well maintained wind turbines' (pp 5-6). We suggest adding this clarification when discussing annoyance levels above (p 2). We suggest this to encourage realistic, risk-based and informed consideration. We also suggest that upfront and scientifically robust information be provided on modulation and infra-sound to assist with increasing community knowledge of these issues.

Under 'Scoping and pre-lodgement assessment' (Noise Bulletin p 3), the preliminary assessment is to be based on 'conservative assumptions' and 'worst case noise propagation conditions'. We recommend this wording be reconciled with the tailored noise monitoring on p 8 (which modifies the SA 2009 approach because 'worst case wind direction rarely occurs' in some NSW locations).

NSW Department of Planning and Environment  
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16 Sept.2016

Subject : Wind Energy Planning Framework

When the NSW Government released its Draft guidelines in 2011, it was indicated that final Guidelines would follow in the not too distant future. Five years later what do the public get? A Wind Energy Planning Framework, not a set of Guidelines.

It would have been assumed that a final Guideline document would have followed a similar format to that of the Draft copy but with more transparent and objective conditions and requirements, together with penalties imposed upon the developer if these conditions and requirements were not adhered to at any stage of the development procedure. There is no better way for ensuring self compliance. The Draft Guidelines at least had some defined conditions and requirements ( DGRs). The planning Framework appears to have far fewer conditions and no DGRs, leaving much of the Framework subject to decision making by Government officials. Therein lies the problem. Guidelines are meant to be definitive , not subject to varying interpretation. A framework is as the word implies – something that one can 'bolt on' and add to as one goes.

Unfortunately the Draft Guidelines contained for many of its conditions and DGRs, what could only be described as 'weasel' words – 'should', 'might', 'in general', 'as far as practicable', 'possible'. Such terminology provides a “get out of jail” card for the wind developer and the DPE decision makers. This is all to the detriment (especially with regard to noise and visual impact) of local communities, particularly adjoining non-host neighbours. A reading of the Framework draft documents would indicate the same vagueness as before and, as anticipated, it seems that it will be even easier for the developers and assessing personnel to dodge and weave if objections are lodged.

Any objection in the past to a windfarm development (and there is no reason to believe that it will be any different with the new 'cast in stone' Planning Framework) has two main hurdles to jump – the developer and the DPE. Unfortunately the latter of the two presents the higher hurdle of the two ( the reader only needs to reflect upon the Gullen Range fiasco ). Added to this hurdle may be the PAC, particularly if they do not adhere to the dictum of their Code of Conduct.

I cite the following as a few of the numerous issues raised throughout the whole assessment process by local residents in the most recent windfarm recommendation by the DPE and approval ( with conditions, though inadequate ) by the PAC.

The proponent's EA and PPR contained numerous false and misleading information ( non - existing residences, continual reference to four non- existing 'townships' surrounding the project site, highly inaccurate topographical/landscape descriptions, obvious errors with noise recorded data (even to a lay person), etc. Many of the proponent's 'expert' consultants' reports contained numerous errors and false/misleading information (two different traffic reports from the same 'expert' but

totally contradicting each other six months later, unrealistic employment benefits resulting from the windfarm, etc).

The LVIA submitted by the landscape consultant contained a totally fabricated and false statement with regard to the potential visual impact to a residence, describing it as having “views to the south-east towards the windfarm turbines are generally screened by vegetation surrounding the homestead and a local rise in topography”. Unfortunately the 'residence' doesn't even exist and never has! It is quite likely that an offence has been committed for knowingly making a false statement with a development application but this doesn't seem to be of any concern to the decision makers. Honesty and ethics do not seem to have been part of the assessment process with this particular item. The question “What else but not known?” must surely lurk in the background. These and numerous other issues were raised with the Planning Department from the beginning and subsequently with a former Planning Minister and the PAC. Many of the issues have been inadequately or not addressed. To the credit of the former Minister I received a reply that an investigation into these matters of concern were to be carried out within the Planning Department. Whether the DPE ignored the former Minister's instructions I do not know as nothing was ever forthcoming on these issues. The same issues were brought to the PAC's attention with many remaining unaddressed.

It is of little wonder that local impacted communities have no confidence that the DPE and PAC will deal with community issues and concerns adequately and in an unbiased and neutral manner. One can only have concern over the capability of the DPE and PAC making the correct judgements when even simple issues are easily identifiable and readily checked. For example, the PAC made as part of its Conditions of Consent that a hayshed was 'entitled' to 'visual mitigation' even though they were informed previously that the structure was not a residence (a mistake originally coming from the DPE).

The DPE Report lists as the main justifying reasons for recommending the project that it has good wind resources (disputed), grid access (15km distant), 'suitable' location, legal entitlement to be built and is 'relatively sparsely populated'. It defies belief that smallness of population should be part of deciding that a project should be approved. The DPE's attitude is appalling and can only be considered as discriminatory. The PAC ignored responding to this concern when it was brought to their attention prior to their approving the project. Until a complete 'about turn' occurs in much of the DPE's and PAC's assessment procedures no amount of 'fancy' words and phrases will give the public any confidence that transparency, integrity and genuine independence from developers are being demonstrated by the assessing personnel.

Of great concern to the community (local and at large) is the Framework's 'solution' at the decommissioning and rehabilitation stage. If the authors of the Framework believe that decommissioning and rehabilitation will occur as they propose with such an unenforceable 'condition' then they are living in a fantasy world. Only the condition of pre-posted bonds from the beginning of the construction phase will ensure (hopefully) a return to a pre-construction landscape. The proposed 'sugar coated' condition demonstrates the absurdity of this condition to achieve decommissioning and rehabilitation. Such irresponsibility cannot be permitted.

Will the Planning Framework give a better outcome to potentially impacted 'non-associated' residents than the previous Draft Guidelines? Invariably not. The Planning Framework has been developed and written by the DPE and 'key stakeholders' (read as “the wind industry and its associated consultants”). This public input ('Have your say') appears to be designed to 'sanitize' the document to make it palatable for public consumption. It is almost akin to a person being found guilty in a court and being permitted the 'privilege' of reading out their own sentence.



Ultimately the nett result of replacing the Draft Guidelines with a new Planning Framework is the same as previously, namely that potentially impacted residents will remain impacted ( and quite likely more so, particularly with regard to noise, visual and cumulative effects ). Public confidence in public administration will continue to remain at at low point and or even lower.

It is to be hoped (though highly unlikely) that the authors of the final version of the Planning Framework will give full consideration to the input of those most effected when they write up the final document. Those most affected are the only people who will know the full outcome and consequences of having a windfarm imposed upon them.

O. Rowland-Jones

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16<sup>th</sup> September 2016

## **RE: NEW WIND ENERGY PLANNING FRAMEWORK SUBMISSION**

As I sit to write this submission, I wonder if you will take any notice of the public's input or is again going to be manipulated so that only it benefits the large Wind Farm companies on their quest for the absurd subsidies they get paid.

My experience with Industrial Turbine companies and the DPE is that you have the same goal and that is to push through any development and ignore any submissions that are instigated by the community against these projects. Take for example Crudine Ridge Wind Farm there was an overwhelming response in submissions **against** this project and yet it was approved without questions being answered from these submissions, so I have no faith that you will take in to account anything I say in this submission

These are the points that you need to consider.

1. Community made aware that a wind farm company has been brought into the area. RIGHT from the start.
2. **CONTRACTS** that host sign need to open, above board. Contracts for Crudine Ridge were signed in secret. The community had no idea they had signed until contacted by the DPE

3. THE DESTRUCTION OF A COMMUNITY..... People will do awful things for money... They way that the host land owners have treated the community is awful... One host land owner saying that "I'm going to buy your land once the value drops and you can't live near it... I will have the money to do it"

Another Host land owner spreading rumours that a non-associated landowner had already accepted money.... When I confronted the company CWP Renewables about the Host land owners actions and behaviour their reply was **"we just get them to sign a contract"** I have that response recorded.....

These companies do not care about what they do to a community; they do not care about the disintegration that they cause ..... I believe that with this attitude Wind Farm Companies and the DPE have been very lucky, for there not to have been escalating conflict in communities, I believe it to be only a matter of time.

**There is a complete disregard for the families left to live with the noise and the visual impact that is in their face EVERYDAY....** Host landowners putting them on land where they do not live and it stating in the DPE reports no impact on their homes but significant impact on the rest of the community, is appalling. Anyone that thinks that is Ok I question your moral compass.

4. **The DPE does not care about the disintegration of a community.....** I can state this because the Head of resources in the DPE, Mike Young, when he did a site inspection, DID NOT get out of his car and meet the people that it would impact the most...that is a Joke.... Fix it...
5. **Visual impacts:** the DPE reports for the Crudine ridge Wind Farm states no significant scenic value.  
Who is the DPE to say it isn't significant .....You will find that farmers and people of the bush have a larger emotional connection to their land and what the DPE states as not Significant, happens to be loved by the people who live there.  
You are very right in stating that using landscaping to mitigate visual impacts does not work...I think that every single one of you making these decisions, forgets that these are working properties... They spend very little time in their homes; they are out on their land working.... The Crudine Ridge wind Farm will be in my families face every time they walk out the door, or when my dad sits in his easy chair looks out the window at his land, every time my sister-in-law cooks a meal for her family in her kitchen they will see them all the time and each time they see them they will be reminded of the powerlessness that they feel, they will be reminded of their hate for their neighbours who have put them next to their home and yet the host lives nowhere near it.
6. **NOISE:** by their very name, these should not be put next to people's homes. Industrial Turbines, they make noise... Have anyone of you stood in the bush. Stopped and stood there and listened..., any noise from an industrial turbine near a home is UNACCEPTABLE .... Get these things away from people's homes.  
Because they are inefficient Wind Farm companies are putting in taller and taller Turbines, these will spin to the high wind and there will be no ground wind to mask the noise.
7. **CORRUPTION:** I believe the tide is turning where the DPE can force through these projects like they have in the past. Senator Roberts push for a royal commission into the conduct of these Wind Farm companies and their approval by not only the DPE and PAC, will place the renewables energy sector under much needed scrutiny. There are far too many areas where corruption can take place. Review your Guidelines as if you will be caught in a royal commission.
8. **FINES FOR NON COMPLIANCE:** CWP Renewables were fined just **\$3000** for noncompliance in their destruction of aboriginal heritage artefacts at Bocco Rock Wind Farm....how can you expect a company to comply when they only have to pay a measly \$3000. Unbelievable, much higher fines need to be given for noncompliance... large companies like CWP Renewables \$3000 is nothing.

In Summary it is time to care for the people in the bush, the greed that is shown in wind farm operations from the host landowner, the Companies and the Government, is appalling. I can hear you saying that's a highly emotive submission and that's what the Government does not get. It is personal, it's distressing and it is morally wrong how this process has been conducted in the past.

Why are you not looking at the senate inquiry from 2015, why are you not reviewing South Australia's Energy Crisis? You have a duty of care to the most vulnerable in our community... Industrial Turbines will send us broke.....

Sue Lane  
Camden

Department of Planning and Environment  
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16 September 2016

## **Parramatta Climate Action Network submission on the New Wind Energy Planning Framework**

### **INTRODUCTION**

Increased CO<sub>2</sub> levels in the Earth's atmosphere are causing warming of the atmosphere and oceans, the breakup of ice sheets, glacial retreat, sea level rise, and ocean acidification. Australia is experiencing the direct impacts of climate change with more severe and frequent events such as droughts, bushfires, heat waves, floods and cyclones.

It is clear that as a society, we urgently need to reduce greenhouse gas emissions and limit global warming. This was recognised at the historic 2015 United Nations Climate Change Conference in Paris, where 196 nations, including Australia, agreed to limit global warming to less than 2 degrees Celsius (°C) compared to pre-industrial levels, and pursue efforts to limit the temperature increase to 1.5 °C.

This agreement will require an urgent shift away from fossil fuel based energy sources to renewable energy, including wind energy.

In NSW a recent report by the Climate Council found in terms of renewable that NSW 'is the worst performing state as it has the lowest (and falling) percentage of Renewable Energy'. In 2014, only 6% of NSW's energy supply came from renewable energy. At the same time, the NSW Government continues to approve new coal mines and major coal mine expansions.

We urgently need improved action in NSW to transition away from fossil fuels and increase our investment in renewable energy. It is in this context that we respond to the New Wind Energy Planning Framework (Draft Framework).

There are a number of positive aspects to the new Framework including an increased emphasis on community engagement and consultation; a shift away from arbitrary, strict buffer zones; and confirmation that wind turbines do not cause adverse impacts on health. However we are concerned that the new Framework puts too high an emphasis on the visual impacts of wind turbines. Our submission addresses each of the elements of the Draft Framework below.

### **DRAFT WIND ENERGY: ASSESSMENT POLICY**

The Draft Wind Energy: Assessment Policy provides a useful overview of the New Wind Energy Planning Framework including the assessment process and key issues for wind farm development.

## **Strategic Context**

The inclusion of a Strategic Context in the Wind Energy: Assessment Policy is useful, however we suggest that it could include additional detail about the implications of climate change and the urgent need to transition away from fossil fuels to renewable energy. Similarly, we also suggest that there could be further detail about the significant local and public benefits of wind farms including emissions reductions and local economic benefits.

## **Health**

We support the Government's position on the health impacts of wind energy projects, which are informed by the scientific findings of the National Health and Medical Research Council (NHMRC) and its position that 'there is currently no consistent evidence that wind farms cause adverse health effects in humans'.

We note that the FAQs clearly outline the position of the NHMRC that 'there is currently no consistent evidence that wind farms cause adverse health effects in humans' whereas the Wind Energy: Assessment Policy does not include this exact statement. For clarity, we suggest including it in the Wind Energy: Assessment Policy.

We also note that the Draft Secretary's Environmental Assessment Requirements (SEARs) requires proponents to consider and document health issues of wind turbines, however this requirements seems inconsistent with the Government's adopted position that there is currently no consistent evidence that wind farms cause adverse health effects in humans. We therefore suggest that this requirement be removed from the SEARs.

## **Community understanding of issues around wind energy**

We recognise that there are people in the community who have concerns or questions around wind energy. It is important that there is clear, trusted and reliable information available to support the Government's efforts to increase investment in wind energy in NSW. The Wind Energy: Assessment Policy is a good starting point. We note that the former Department of Environment, Climate Change and Water had prepared a public resource titled *Wind Energy: Myths and Facts* which addressed major issues related to wind energy. We suggest a similar, updated resource may be useful as part of the New Wind Energy Planning Framework.

## **DRAFT WIND ENERGY: NOISE ASSESSMENT BULLETIN**

We note that the Draft Wind Energy: Noise Assessment Bulletin generally adopts the noise limits and methodology from the South Australian EPA's 2009 Noise Guidelines, with some variations. The variations proposed for NSW include a stricter base noise criteria and guidance on special noise characteristics such as tonality and low frequency noises and are described as 'some of the strictest noise limits in the world'.

While we generally support the consistency of regulation between jurisdictions we are concerned that such strict guidelines, including the additional requirements for NSW, may act as a deterrent to investment in wind energy here in NSW.

In particular we note that:

- The South Australia 2009 Noise Guidelines do not identify excessive levels of low frequency noise as an issue and contains no requirements for low frequency noise. It is unclear why this has been included in the NSW Draft Framework.
- Queensland deals with the issue of tonality in its Wind Farm Guidelines 2016 by providing that wind farm developers should avoid installation of wind turbines which exhibit sound with tonal characteristics by specifying the supply of wind turbines from a manufacturer which guarantees that the supplied wind turbines will not exhibit tonal characteristics at residences.

#### **DRAFT WIND ENERGY: VISUAL IMPACT ASSESSMENT BULLETIN**

We are concerned that the New Wind Energy Planning Framework puts too high an emphasis on the visual impacts of wind turbines. The Draft Wind Energy: Visual Impact Assessment Bulletin is a major component of the entire framework. We do not agree that the visual impacts of wind energy projects are that much more significant than other major projects, such as open cut coal mines or high-rise residential buildings, that they warrant a more stringent assessment. A trip through the NSW Hunter Valley easily demonstrates the significant cumulative impacts of multiple open cut coal mines on that rural landscape, yet there are no robust guidelines for visual impact assessment for those projects.

This overemphasis on visual impacts suggests that protecting the view of a small minority of landholders is more important than investment in renewable energy and the local and broader public benefits that would bring. As outlined above, the Draft Framework as a whole must provide greater opportunity to consider the benefits as well as impacts of wind energy projects.

That said, we are pleased that the Government has moved away from its position in the 2011 Draft Guidelines which set an arbitrary requirement of 2km in distance from houses to wind turbines. We did not believe that there was any basis for that position.

Instead the Visual Impact Assessment Bulletin uses two new preliminary screening tools for early identification of potential visual impacts that require further detailed consideration. It is our understanding that the outcomes of these tools do not prohibit turbines that are identified by the tool, but require further consideration of the impacts of those turbines. However the tool gives the false impression that turbines 'below the line' are inappropriate.

The **Preliminary Screening Tool** works on a sliding scale of turbine height to distance. Despite arbitrary buffers being removed, the outcome of that tool is that for turbines of average height (150

- 160 metres), 2km is the distance that triggers further consideration. This seems overly precautionary, given that separation distances in other jurisdictions are not as great. For example:

- Germany has no requirements for separation distances although local authorities have recommended a 500m exclusion zone from dwellings;
- Victoria now has a 1km exclusion zone.

It is unclear what information has informed the development of this tool and the positioning of the line on the graph.

The **Multiple Wind Turbine Tool** is intended to assess cumulative impacts of wind farm turbines in the landscape. Again, we note the irony of such robust cumulative impact assessment for wind energy projects, when the Department has still not finalised effective guidelines for assessing the cumulative impacts of open cut coal mines. The Multiple Wind Turbine Tool suggests assessing visible impacts in 60 degree quadrants and identifies existing or approved turbines within 8km of each resident for each quadrant. If there are turbines located in three or more quadrants then further detailed consideration of the visual impacts is required.

Again, the settings for the Multiple Wind Turbine Tool appear arbitrary. There is no explanation of how this Tool was developed.

While we are pleased that the Government has not carried over the 2km buffer, we are concerned that the setting in these tools are too stringent and may give the false impression that turbines 'below the line' are inappropriate. Wind energy has significant benefits to the people of NSW and the NSW government must ensure its new Wind Energy Planning Framework strike the right balance between impacts and benefits and promotes investment in wind energy here in NSW.





**46.5165.S5:MSC**

16<sup>th</sup> September 2016

**SUBMISSION TO NSW PLANNING & ENVIRONMENT  
RE: DRAFT NOISE ASSESSMENT BULLETIN**

I Steven Edwin Cooper, the Principal of The Acoustic Group Pty Ltd, Consulting Acoustical and Vibration Engineers, have been requested by representatives of communities adversely affected by operational wind farms in Australia to review the Draft Noise Assessment Bulletin ("the Bulletin") issued for draft comment by the NSW Planning & Environment.

An examination of the document reveals a proposal to adopt the inadequate guidelines issued by the South Australian EPA and to tweak around the edges of those inadequate guidelines without addressing the failure of those guidelines to protect communities in South Australia from adverse impacts from "complying" operational wind farms.

Material has been previously provided to the New South Wales Environment Protection Authority identifying the failure of the SA EPA Wind farm guidelines to protect the acoustic amenity of communities in proximity to wind farms and significant errors contained in the SA wind farm guidelines that have not been addressed in the draft document.

In late 2013 I was approach by a wind farm operator to undertake noise monitoring at the Cape Bridgewater Wind Farm in an effort to identify the basis of complaints from residents that were related to "a compliant wind farm". Subject to certain constraints I was engaged to undertake a specific investigation into complaints related to the Cape Bridgewater wind farm.

I am the author of the report in the acoustic study into the Cape Bridgewater Wind Farm with the report being issued in January 2015. (NB as a result of a release to utilise material from the Cape Bridgewater study the wind farm operator has required I do not disclose their name).

The Cape Bridgewater study report provided the results of an investigation which is atypical to that provided in an acoustic report accompanying an application for a wind (farm) project because it was an investigation of longstanding noise complaints rather than a predicted (noise) impact assessment prior to construction of a wind farm. The Cape Bridgewater study commenced from the basis of the wind farm operator acknowledging disturbances reported by residents who had formed the view the disturbances came from the wind farm.

The Cape Bridgewater wind farm study did not look at acoustic compliance of the subject wind farm but had a specific brief to ascertain the operation of the wind farm relative to the disturbance reported by the residents and to ascertain if certain sound levels or wind speeds were related to those disturbances.

The Cape Bridgewater investigation therefore commenced from the perspective of complaints by residents in proximity to the wind farm. As such the study takes into account the impact reported by residents in proximity to a wind farm related to the noise levels that were measured during the study period.

The Cape Bridgewater wind farm investigation involve extensive sound level measurements over different wind conditions in various operating scenarios of the wind farm that involved continuous monitoring at residential locations over some nine weeks, in addition to attended measurements at residential properties and on the wind farm site, as unlimited access to the wind farm and provision of the operational data formed part of the study.

In view of the inadequacies of the SA EPA wind farm guidelines a number of specific tests were carried out during the course of the Cape Bridgewater study to address incorrect information provided in those guidelines concerning emissions from wind turbines.

In reviewing the Bulletin, the following comments are provided in terms of sequential order corresponding to the document.

### **Objective of this Bulletin (page 1)**

The section of the document identifies "provision of greater clarity and rigour for the assessment of regulation wind energy development noise, including low frequency noise, tonality and auditing and compliance issues. The objective is to ensure that the noise impacts to wind energy developments are appropriately identified, avoided, mitigated and managed".

A fundamental issue that arises with respect to the last sentence of the objective is that the Bulletin has not identified what noise impacts arise from wind farm developments and therefore what criteria or mitigation measures will ensure that noise impacts are avoided.

There is no material set out in the SA EPA wind farm guidelines to identify what constitutes a noise impact, and more importantly at what level is deemed there is no noise impact. If the threshold of an adverse impact, or for that matter any impact has not been identified, then how is this objective set out in the Bulletin satisfied?

**Background (page 2)**

The first sentence in the third bullet point in describing noise impacts from wind energy development would appear to be ambiguous. The concept of significant noise from road traffic and farm machinery would appear to be for relatively brief periods of time when compared with the operation of the wind farm, and in many respects is something of a localised temporary noise source such that the first sentence of the third bullet point may very well be considered to be misleading and should be amended.

The second sentence in the third bullet point does not agree with practice for residents in proximity to wind farms with respect to the claim that wind turbine is not likely to be the dominant noise. There are many cases of residents identifying that the dominant noise at night impacting upon their dwellings is that of wind turbines and as such are likely to be offended by the wording that has been provided.

**Framework for noise assessment (page 2)**

This section identifies a proposal to adopt the 2009 version of the South Australian EPA wind farms – environmental noise guidelines and that for the purpose of the document are identified as “SA 2009”.

In the second paragraph of that section (i.e. last paragraph on page 2) there is an incorrect claim that the SA 2009 sets out the methodology when assessing noise impacts. The SA 2009 document does not identify what constitutes a noise impact, let alone a method of assessing noise impact. The SA 2009 document sets out an incorrect and inadequate methodology for determining what has been suggested is noise from wind farms.

**Noise limits and objectives (page 5)**

The first paragraph this section identifies *the purpose of setting noise level objectives for wind farms is to retain noise levels that are compatible with surrounding land uses and to ensure that noise levels do not significantly affect the living experience of people residing in the area.*

The problem that occurs with the proposed noise limits and the existing noise limits in the SA 2009 guidelines is that the proposed limits for wind farms are not in the opinion of people residing in the area of being compatible with the surrounding land use and give rise to significant acoustic impacts.

The simple fact of the matter is that residents in rural areas experience lower ambient noise levels than that for suburban and urban areas and are generally removed from major noise sources such as highways such that during the daytime and night time periods it is not uncommon to obtain ambient background levels less than 20 dB(A). Accordingly, base level noise targets that are significantly above the ambient background noise level are not compatible with the acoustic environment people experience residing in such areas.

The inadequacy of existing NSW EPA guidelines for industrial premises in rural areas, that considers a default background level of 30 dB(A) has been raised by the Chief Judge of the Land and Environment Court as a matter that needs to be addressed, and has not been addressed with respect to the subject guidelines.

The second paragraph of this section of the Bulletin "*Under SA 2009, a higher base noise level is permitted in land uses associated with high-intensity farming practices and a lower base noise level applies in land uses associated with more residential uses*", is incorrect and misleading.

Section 2.2 of the SA 2009 document identifies a noise target of 35 dB(A) as a base level at relevant receiver which are primarily intended for rural living, or 40 dB(A) at relevant receivers in localities in other zones.

The rural living zone is identified as an area intended to have a relatively quiet environment and is an area not used for primary production other than to produce foods, crops or keep animals for the occupier's own use, consumption and enjoyment.

Attendance to properties in proximity to wind farms reveals the majority of those properties are related to the growing of crops or keeping of animals that are for the ultimate purpose of sale and that the residential dwellings contained on those properties are properties that have a relatively quiet amenity as a consequence of the location and the use of those properties. Residents in proximity to operational wind farms in South Australia do not consider that their localities are noisier than that of rural-residential lifestyle areas and object to the concept of allocating 40 dB(A) as a base level criterion, when it is not unusual to have ambient noise levels both in the day and night time periods less than 20 dB(A).

The provision of an additional component of background +5 dB(A) but utilising the greater of either the base level or the sliding level as the noise target does not satisfy the objectives so stated in the Bulletin and definitely not the objectives stated in the SA 2009 guidelines.

The Bulletin indicates that the proposal for New South Wales is to utilise the SA 2009 guidelines with minor modifications that are set out in the Bulletin.

The problem with the SA 2009 guidelines that has not been addressed by the Department of Planning or the New South Wales EPA in the proposed changes is a failure of the core objectives of the SA 2009 claimed to have been satisfied.

The SA 2009 document in the introduction identifies in the third paragraph:

*The core objective of the guidelines is to balance the advantage of developing wind energy projects in South Australia with protecting the amenity of the surrounding community from adverse noise impacts.*

A fundamental problem with the SA 2009 guideline is that there is no identification of what constitutes an adverse noise impact for rural residents in proximity to wind farms, nor is there any identification of what is a satisfactory noise impact, or for that matter what is the existing noise environment for such residents.

Without identifying what generates an adverse noise impact as a result of a wind farm then it is impossible to identify from the guidelines what creates an adverse noise impact.

There is no material provided in the SA 2009 guidelines to identify the basis of determining the criteria where such criteria have been established from wind farm dose responses.

There is no material provided in the SA 2009 guidelines that identify studies to show at what level sleep disturbance occurs from the operation of wind turbines and at what level that the operation of wind turbines results in an adverse impact.

Without providing any material as to the noise impact from dose responses and sleep disturbance as a result of wind turbines then the SA 2009 guidelines are fundamentally flawed in providing criteria that will satisfy the stated core objectives of the guideline.

The bibliography to the SA 2009 guideline makes reference to New Zealand Standard NZS 6808:1998 *Acoustics - the assessment and measurement of sound from wind turbine generators*, and the world health organisation (1999) WHO Guidelines for Community Noise.

The New Zealand Standard that is quoted relies upon a reference document that preceded the 1999 WHO guidelines but states in clause 4.4.1 that the noise targets recommended as an upper limit of acceptable WTG sound levels outdoors has been based on an internationally accepted indoor sound level of 30 to 35 dB(A) Leq commonly used as the design level to protect against sleep disturbance.

This is the only clause in the New Zealand Standard that identifies the basis of the noise targets and it is important to note that those noise targets are based upon noise levels to protect against sleep disturbance. An issue that arises by the use of the noise target that has been nominated to protect against sleep disturbance is that the assessment data upon which the criteria was based is that associated with road traffic noise. There is no mention of wind turbines in the reference document upon which the New Zealand Standard noise targets have been based.

Similarly, if one views the WHO 1999 guidelines for community noise that are referenced in the SA 2009 document the same situation arises in that the matter for sleep disturbance is referenced to data that is associated with road traffic noise. A global search of the document cannot find any mention of wind turbines.

Of further concern in terms of the inappropriate use of the SA 2009 guideline is that in section 2.3 of the SA 2009 guideline there is a discussion of agreements with wind farm developers of which there is an identification that by way of an agreement (that usually involves a financial incentive) that the likely impact of exposure to those persons will not result in adverse health impacts (e.g. the level does not result in sleep disturbance). This would appear to be the only section in the SA 2009 guidelines that provides identification of sleep disturbance related to the noise exposure.

It is also noted that ongoing sleep disturbance does affect people's health and that the SA EPA identified that an adverse health impact is one associated with sleep disturbance, although I would suggest the qualification should be ongoing disturbance but it is expected in view of an agreement with a wind farm developer usually involves a host who is still residing on land within proximity of the turbines.

The SA 2009 guidelines failed to identify that the WHO guidelines indicate where there is a presence of low frequency noise then the recommended targets should be reduced. Contrary to the claim in the Bulletin the perception of noise from wind turbines as experienced by residents in proximity to such installations is one of a constant low frequency noise that is often described "like the plane that never lands" and also may include variable components such as "rumble", "thumping" and tonal noises etc.

The Bulletin has failed to identify any modifications to the matters set out in section 4.7 of the SA 2009 guidelines. A claim that the SA EPA are unaware of infrasound being present at any modern wind farm site is totally incorrect.

There are sufficient publications and noise monitoring data from around the world that identifies the unique signature of wind turbines evident in the acoustic environment when such turbines are operating. The results of the Cape Bridgewater study involved specific testing where the entire wind farm was shutdown during which I was able to identify the presence of the particular infrasound spectral characteristic that is not present when the turbines were not operating.

Researchers from Adelaide University and other researchers in America have identified conclusively the presence of infrasound as a result of the operation of turbines, yet the Bulletin makes no identification of correction of that obvious and substantial error in the SA 2009 guidelines.

The proposal for low frequency noise control variation is not one that is been established by any practical measurements and social surveys of communities impacted by wind turbines and has limitations with respect to the dB(A) component if part of the contribution is at or slightly above the 20 Hz nominal limit for infrasound.

Communities subject to excessive noise from wind farms have lodged complaints with respect to the use of the A-weighted value. The DEFRA criteria as demonstrated by researchers at Adelaide University is not a satisfactory or appropriate control.

A fundamental issue in terms of noise limits and objectives that has been proposed is a failure to identify that the noise limits proposed by the Bulletin are significantly less stringent than that issued for industrial premises in New South Wales and do not satisfy the general criteria identified by the EPA for noise targets to protect 90% of the people for 90% of the time.

The regression analysis method set out in the SA 2009 guidelines does not (when a person appropriately qualified in acoustics examines the material) give rise to a noise target that complies with the target of 90% of the people for 90% of the time.

The regression line analysis seeks to provide a best fit regression analysis through the data that by definition will be greater than the background levels exceeded for 90% of the time.

The proposal for separating day and night time criteria for New South Wales with a lower limit for the night-time period and the daytime period is welcomed, but the basis of the criteria that is been nominated is incorrect and will not protect the community.

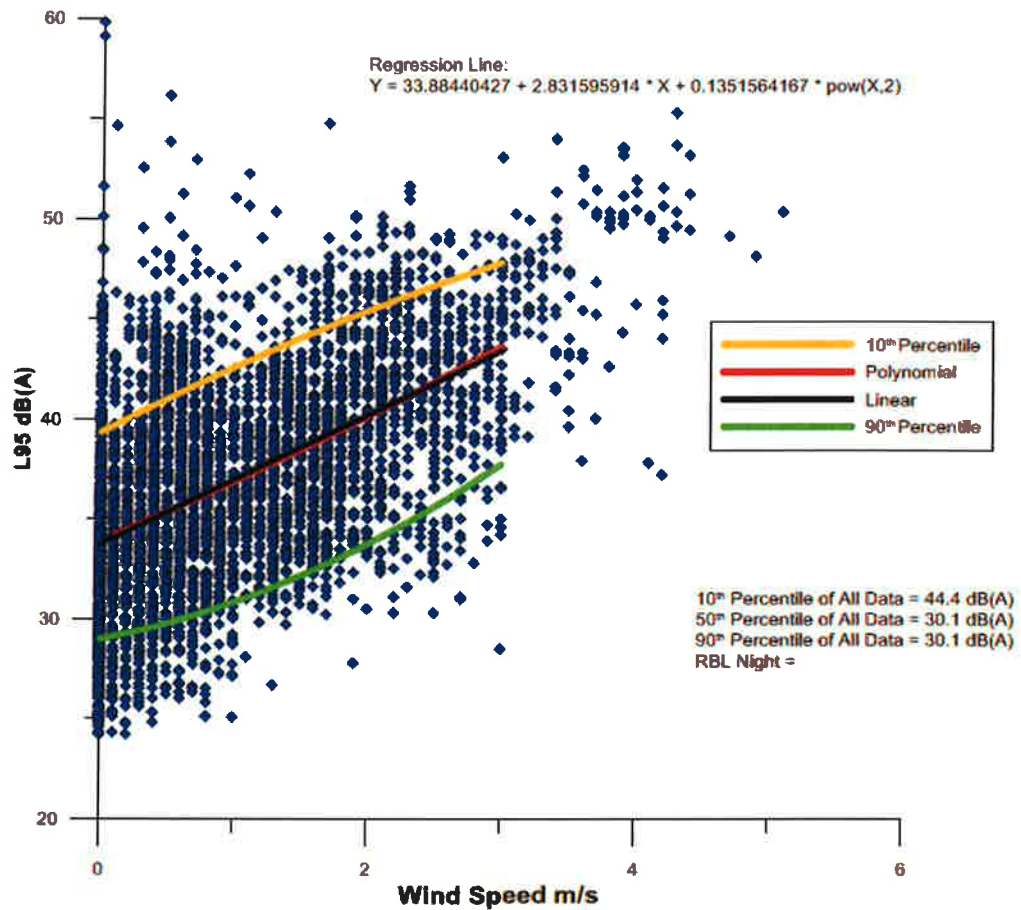
The following figure represents the results of three months of monitoring at a residential property in Victoria in proximity to a wind farm whereby the wind data has been classified into individual wind bin speeds so as to identify the statistical results in each of the wind bins from which the actual 90% of the time background levels can be just determined across the range of wind speeds which is significantly lower than the polynomial fit of the data suggested in the SA 2009 guidelines.

The methodology of seeking to provide a compliance test with respect to operational wind farm versus a dataset prior to the wind farm is inaccurate and inappropriate when there is no consideration of wind direction in terms of such data.

The EPA in their Industrial Noise Policy require for large industrial developments identification of the noise propagation under different wind directions and speed and compliance testing must consider the conditions under test and whether they are typical of the operations.

Wind farms are very large industrial developments both in terms of physical size and a sound power level generated from the facility such that depending upon the direction of the wind farm there can be significant variations at the receiver location that are not reflected in the general regression line that purports to address noise emission from the wind farm versus the wind strength and omits the matter of wind direction. This is a matter that is not been addressed in the Noise Assessment Bulletin.

### Background Noise at the Receiver vs. Wind Speed - Night - 3 Month Combined





## **CONCLUSION**

The provision of guidelines issued by a government department for the operation of wind farms in New South Wales must be a document that is accurate and presents criteria that will satisfy the fundamental objective of protecting the community.

The SA 2009 guidelines have failed to meet their objectives, are seriously flawed, have given rise to the operation of large industrial wind turbine facilities that have adversely affected the acoustic amenity of communities in proximity to such facilities, has given rise to adverse health impacts for some members of the community, and for a small percentage of people has caused those individuals to abandon their homes.

The persons responsible for the preparation of Noise Assessment Bulletin that proposes noise targets for wind farms therefore are the persons accountable in this case for the protection of communities from adverse acoustic impacts on adverse health impacts as a result of wind farms.

There is no material provided in the SA 2009 to identify by way of socio-acoustic surveys or any medical studies of what constitutes a safe noise level as a result of the operation of wind farms that will not give rise to an adverse acoustic impact or a loss of acoustic amenity.

The Noise Assessment Bulletin contains a number of inaccurate statements that do not reflect the facts of the matter and do not address the acoustic impact and loss of acoustic amenity that has been generated by existing wind farm facilities.

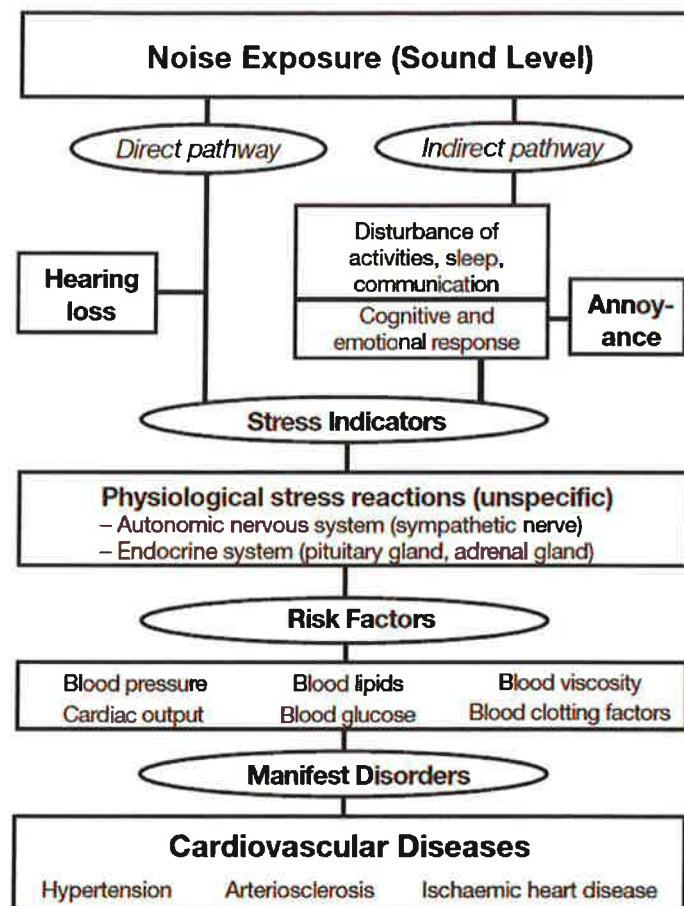
As result of monitoring and testing across a number of states in Australia the prevalence of sleep disturbance is abundant for communities in proximity to wind farms. There is no point in including social surveys of people 100 km away from the wind farm to reduce the acoustic impact so claimed.

The only scientific social survey of wind farm noise in Australia that satisfied the criteria of the National Health and Medical Research Council was that of Mary Morris in South Australia in relation to the Waterloo wind farm. Of interest is that that social survey did not use noise levels as the basis of the response but simply used circles with the wind farm as the nominal centre for separating the respondents to the survey that went out to 10 km.

The WHO Nighttime Noise Guidelines (2009) is a document reference by the EPA in their Road Traffic Noise policy. Reference is made to Figure 4.3 in the WHO document that identifies that ongoing sleep disturbance can manifest itself into cardiovascular diseases.

**Fig. 4.3**  
**Noise effects**  
**reaction scheme**

Source:  
Babisch, 2002.



Proper acoustic investigation into the operation of wind farms is urgently needed to address the multitude of complaints from operational wind farms that have been ignored by environmental authorities around the country who rely upon inadequate and inappropriate criteria such as the SA 2009 guidelines.

The author proposed in 2012 the need for a multidisciplinary approach for the investigation of impacts from wind turbines within the first instance the need for identifying the acoustic signature upon which the medical researchers could then comfortably know they were monitoring impacts when the turbines were operating. That work is been undertaken both here in Australia and overseas.

The criteria proposed in the Noise Assessment Bulletin will not satisfy the objectives is stated and as such the criteria should not be utilised in NSW. Furthermore, the authors of the criteria should be identified so that they may be held accountable for the consequences of such criteria.



New South Wales  
Aboriginal Land Council  
[www.alc.org.au](http://www.alc.org.au)

Felicity Greenway  
Director, Industry and Infrastructure Policy  
Department of Planning and Environment  
GPO Box 39, Sydney NSW 2001

*Submitted via online submission form*

Dear Ms Greenway,

### **New Wind Energy Planning Framework**

The NSW Aboriginal Land Council (**NSWALC**) welcomes the opportunity to provide comment on the New Wind Energy Planning Framework, including the draft Wind Energy Assessment Policy (**Draft Policy**) and related documents, currently on exhibition by the NSW Department of Planning and Environment (**Department**).

NSWALC is the peak body representing Aboriginal peoples in NSW. NSWALC is a self-funded statutory authority established under the *Aboriginal Land Rights Act 1983* (NSW) (**ALRA**). NSWALC provides support to a network of 120 Local Aboriginal Land Councils (**LALCs**) across NSW. With over 23,000 members, NSWALC is the largest Aboriginal member-based organisation in Australia.

The preamble of the ALRA recognises that '*Land is of spiritual, social, cultural, and economic importance to Aboriginal peoples.*' The ALRA was established to facilitate the return of land in NSW to Aboriginal peoples through a process of lodging claims for unused Crown land. The network of Aboriginal Land Councils was established to acquire and manage land as an economic base for Aboriginal communities, as compensation for historic dispossession and in recognition of the ongoing disadvantage suffered by Aboriginal communities.

Aboriginal peoples in NSW and the network of Aboriginal Land Councils are key stakeholders in relation to planning processes, including major development assessment processes. LALCs are significant landowners and managers of lands across NSW, as well as custodians of extensive cultural heritage assets. As per the ALRA, LALCs hold land for the economic, social and cultural benefit of Aboriginal peoples living within their boundaries, and have functions to protect and promote Aboriginal culture and heritage.

NSWALC supports the Department's initiative to provide best practice guidance to proponents of large scale State Significant Development (**SSD**) wind farms in NSW. Like other large scale projects, SSD wind farms across NSW can have significant impacts on Aboriginal peoples and Aboriginal culture and heritage assets. It is therefore crucial that wind farm development assessment processes are consistent with the principles enshrined in the *United Nations Declaration on the Rights of Indigenous Peoples* (**UNDRIP**), to which Australia is a signatory.

For example, the UNDRIP provides that:

**OUR LAND COUNCIL OUR MOB OUR FUTURE**

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#### **Article 11**

*1. Indigenous peoples have the right to practice and revitalize their cultural traditions and customs. This includes the right to maintain, protect and develop the past, present and future manifestations of their cultures, such as archaeological and historical sites, artefacts, designs, ceremonies, technologies and visual and performing arts and literature.*

#### **Article 32**

*1. Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources.*  
*2. States shall consult and cooperate in good faith with the Indigenous peoples concerned through their own representative institutions in order to obtain their **free and informed consent prior to the approval of any project** affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources.*  
*3. States shall provide effective mechanisms for just and fair redress for any such activities, and appropriate measures shall be taken to mitigate adverse environmental, economic, social, cultural or spiritual impact.*

NSWALC submits that the Draft Policy, as a key document providing guidance to proponents and communities on SSD wind farm development assessment processes, could be improved through the inclusion of specific advice with regard to Aboriginal peoples. Our principal comments are:

#### **1. Need for best practice assessment and regulation of impacts on Aboriginal culture and heritage**

Protecting and promoting Aboriginal culture and heritage is one of the key functions of Aboriginal Land Councils under the ALRA. The overall state of Aboriginal culture and heritage is in decline in NSW; urgent action is needed to ensure it is not lost forever<sup>1</sup>.

As noted in the State of Environment 2011 report<sup>2</sup>, development processes continue to be a primary driver of impacts on Aboriginal culture and heritage. SSD wind farms, as large scale resource extraction projects, may also have significant and irreversible impacts on Aboriginal culture and heritage. For example, a wind farm development may physically impact on an Aboriginal sacred site. In other cases, wind farms which impact on bird and bat species may affect Aboriginal connection to Country, as local Aboriginal peoples may have on-going cultural associations with birds and bats as totemic species.

The Draft Policy could be improved by specifically referring to these impacts and providing advice to proponents on best practice Aboriginal culture and heritage assessment processes. The Draft Policy only briefly refers to Aboriginal culture and heritage in passing on page 7, to state that these impacts will be “dealt with through existing policies and practices which apply to all SSD proposals.”

NSWALC has previously noted to the Department that there is a need to improve the way that Aboriginal culture and heritage is regulated through development assessment processes, and highlighted our concerns regarding how Aboriginal culture and heritage is dealt with under SSD approval processes. For example, our research showed that in 2015,

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<sup>1</sup> For more information please see NSWALC’s previous submissions on Aboriginal culture and heritage, available at <http://www.alc.org.au/culture-and-heritage/more-than-flora--fauna.aspx>.

<sup>2</sup> State of the Environment Report (2011), *Heritage*, available at <https://www.environment.gov.au/science/soe/2011-inbrief/heritage#ib9>

only 28% of SSD projects were required to prepare an Aboriginal culture and heritage management plan as a condition of consent. This is of significant concern for our network.

NSWALC submits that the Draft Policy should be amended to include:

- Aboriginal culture and heritage in the list of “significant issues for wind farms” on pages 6-7, as well as on the list of “what to consult about” on page 13. This should include information for proponents advising that wind farms may have specific and significant impacts on Aboriginal culture and heritage;
- Advice to proponents regarding the need for best practice assessment and regulation of Aboriginal culture and heritage, including early consideration of Aboriginal culture and heritage issues;
- The need for proponents to consult broadly with local Aboriginal peoples and Aboriginal representative organisations for assessment of Aboriginal culture and heritage values in the project area, including LALCs and any native title applicants. Early engagement can often save costs and delays in the case of stop-work orders issued if Aboriginal culture and heritage is damaged on-site; and
- Engagement with Aboriginal peoples for the management of Aboriginal culture and heritage should be meaningful and on-going throughout the life of the project.

NSWALC is able to work with the Department to provide any drafting for the above, if requested.

## **2. Consultation with Aboriginal Land Councils and local Aboriginal communities**

Page 11 of the Draft Policy contains a section on community and stakeholder consultation, which emphasises the importance of early and on-going consultation with communities in order to deliver good planning outcomes. NSWALC supports the general guidance provided, however we submit that it could be improved by specifically advising proponents about the importance of engaging with Aboriginal peoples.

We have noted above that LALCs across NSW are significant landholders, in some areas even being the single largest non-Government landholder in the area. With the consent of their members, LALCs may seek to develop or sell land that they hold. NSWALC is currently working with the Department on a number of fronts in order to maximize the economic development potential of LALC’s landholdings. NSWALC currently funds an Economic Development Program for LALCs; there is enormous potential for LALCs to contribute to local and regional economic development.

An important part of this work is building the awareness of proponents, consent authorities and broader communities about the ALRA, the Land Rights Network and the statutory functions of LALCs. In NSWALC’s view, this information should ideally be broadly integrated across planning policies, instruments and guidance provided to proponents and community.

Given this, NSWALC recommends that the Draft Policy’s section on community and stakeholder consultation be amended to:

- Specifically list “local Aboriginal communities, including Aboriginal representative organisations such as Local Aboriginal Land Councils and native title representatives,” in the list of “community and other stakeholders who should be consulted” on page 12; and
- Note that LALCs are major landholders to be consulted with for the negotiation of benefit-sharing agreements. This could also include parcels of land with land claims currently lodged under s36 of the ALRA but not yet determined.

### **3. Over-regulation of visual impacts**

NSWALC does not support the inclusion of additional regulation for the visual impacts of wind farms, which, according to the Draft Policy, "can alter the character of the landscape." Wind farm developments are generally less physically destructive to sensitive Aboriginal culture and heritage sites, when compared to large scale resource extraction projects which require large scale excavation and modification of landscapes.

On this basis, NSWALC does not support the assessment of visual impacts of wind farms above and beyond comparable SSD resource projects.

NSWALC is committed to working in partnership with the Department in order to achieve meaningful reform to planning processes for Aboriginal peoples and the wider community in NSW. Please do not hesitate to contact Julia Martignoni, A/ Senior Policy Officer, with regard to the contents of this letter on 9689 4427 or [Julia.martignoni@alc.org.au](mailto:Julia.martignoni@alc.org.au).

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'K. Poiner', followed by a horizontal flourish.

Kate Aubrey Poiner  
A/executive Director, Policy and Programs  
NSW Aboriginal Land Council

Date: 16/9/16



MirusWind Pty Ltd ACN 103 586 778  
PO Box 2108 BORONIA PARK NSW 2111

16<sup>th</sup> September 2016

NSW Department of Planning and Environment  
23-33 Bridge Street,  
SYDNEY NSW 2001

Attention : Felicity Greenway  
Director, Industry and Infrastructure Policy

Re : New Wind Energy Planning Framework

Dear Felicity,

MirusWind is developing a large wind project in the New England area in northern NSW. We have been working on this project for a number of years now and have been consistently consulting widely with the local community about this project.

Our consultation with likely hosting landholders, near neighbours and the broader community has found that generally people are very positive about the prospect of wind farms in the district. We wish to maintain this community sentiment during the development and operation of the proposed wind farm.

As part of our engagement with the community and the NSW Planning and Environment Department we have attended a number of forums on wind energy and the recent information session hosted by the Department in Glen Innes. There was a general positive consensus about wind farms in the area and the local wind farm that is under construction.

We welcome the New 2016 Wind Energy Planning Framework with its emphasis on community engagement in moving on from the 2011 Draft NSW Planning Guidelines for Wind Farms. However, we are concerned that some aspects of the noise and visual impact Assessment Bulletins have gone further than necessary.

This would make developing a wind farm in NSW less attractive, more difficult and costly than other states. As an example the Noise Assessment Bulletin says that the "... NSW Government has adopted some of the strictest noise limits in the world". Is this really needed?

Since this would act as a disincentive to invest in NSW we would suggest that a more balanced approach to the issues of noise levels and visual impact be adopted rather than some of the

'pioneering' methodology taken in the proposed Assessment Bulletins. Generally, there have been few problems with the more recently completed wind farms in Australia that have not undergone such methodology. The Planning Framework in NSW does not need to be significantly more onerous than other states.

Outlined below are our comments about specific sections of the Wind Energy Planning Framework.

We would be happy to have further discussions regarding details of issues we have raised in this submission.

Yours faithfully,



**MARK WARING**  
**Director**  
**MirusWind Pty Limited**



## **Wind Energy: Assessment Policy**

### **4.1 Scoping and pre-lodgement**

We would agree that “Site selection and early project design should begin well before the DA stage and be informed by meaningful community and landholder consultation undertaken by the proponent.” However, the method of this consultation needs to be flexible such that fits with the specifics of the site and it maintains a positive community attitude to wind farm developments and not cause uncertainty in the community.

The prescriptive approach outlined in the Visual Assessment Bulletin for the pre-lodgement stage is in many ways impractical and could very well lead to worse community outcomes in the current circumstances.

Much of the NSW wind resource is known and most current and planned wind farms are shown on the 2013 NSW Wind Farm map included with the new framework documents. There have been few new wind farm developments advanced since that time. The new Planning Framework should recognise this and not try and establish a process of defining “baselines” of community opinions as though there were no wind developments in NSW.

Scoping the visual details for a Preliminary Environmental Assessment would assist the Department in preparing the SEARs however the method and pathway of achieving the objective should be open to the particular site conditions.

## **Noise Assessment Bulletin**

It is a positive that this Bulletin moves away from the very strict 2011 NSW wind farm noise guidelines.

The framework for noise assessment should use the 2009 South Australian Noise Guidelines without any special NSW noise control variations regarding the actual noise levels, tonality and low frequency noise so that there are more consistent noise standards across the states.

The argument that NSW needs special, more stringent noise levels than South Australia because the regions with good wind resource ‘are more populated’ does not recognise that noise levels are a function of distance not number of potential receivers.

### **Noise and Health**

The clear statements in the Bulletin about there being no evidence of adverse health outcomes from wind turbines is welcomed.

## **Property Values**

It is useful to have an up to date study to refer to on property values that can be presented to landholders during discussions to help reduce concerns that they might have.

## **Visual Impact Assessment Bulletin**

Since the visual impact of anything is very subjective it is hard to write rules for the assessment of a proposal. Most wind farms or proposals already have stayed away from what most people would regard a high scenic quality landscapes. They have been located in moderate to low scenic quality landscapes. These are ones that don't have prominent features or have been degraded already by our agricultural practices.

A study by Dr. Andrew Lothian<sup>1</sup> has shown that in moderate to poor landscapes the effect of the wind turbines would be neutral or slightly improve the rating of the landscape. This would suggest that for a lot of people wind turbines in the landscape have not been a major issue. Our experience in discussions with landholders close to a proposed wind farm is that of all the issues relating to wind farms the visual impact of wind turbines has not been the major issue of concern.

Whilst the visual appearance of wind turbines has been the issue in debates about the merits of wind farms, we believe that problems in the past have often stemmed from other issues like equity for immediate neighbours.

There should be a reasonable assessment of the visual impact of a proposed wind farm but we believe that the proposed Visual Impact Assessment process has gone too far and overcomplicated the issue.

The new Wind Energy Framework is meant to provide a "merit-based approach" that is not based on "arbitrary buffers". However, some parts of the proposed process differ from this objective and would be used by some to argue that there are buffer zones.

### **Stage 1: Preliminary Environmental Assessment (pre-lodgement)**

There is a place for a visual assessment in the initial turbine siting process as part of a sensible pre-lodgement process but the prescriptive methodology outlined is flawed and could lead to more problems with the community.

As stated earlier in the Bulletin 'Professional assessment skills are crucial to the objective and effective application of a VIA' (Visual Impact Assessment). The process outlined to establish the relative scenic quality of the area should be done by a professional not by asking the community. Everybody believes where they live is highly valuable just the way it is. The community could be consulted to capture other issues like key landscape features although visiting the local tourist information office would be more efficient.

Many of the people in the country have poor internet service so online surveys would not be representative. This would be a very poor way of communicating when what you are trying to do is foster good community relations. General focus group meetings may sound like another way of gathering opinions but often they aren't well attended and usually only the very interested participate in these events.

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<sup>1</sup> Dr. Lothian's study, '*Visual Impact Assessment of Wind Farms in South Australia*', 2006, has been attached to this submission for consultation.

Small or individual meetings with landholders close to the proposed development work much better where the detailed information about the wind farm proposal can be discussed and the opinions of the landholders taken into account.

### Preliminary Screening Tools

Although the Bulletin says that these tools would not “provide a ‘yes’ or ‘no’ answer as to whether particular turbines are acceptable” some will attempt to use them this way. We would suggest that some modifications are made to these tools as described below.

### Visual Magnitude

Unfortunately, ‘The line’ in figure 1. will be used an exclusion / buffer zone. We would suggest that this is replaced by coloured zones to better represent the impression of a graded scale of potential visual impact that needs to be considered. Such a graded scale has been added to ‘Figure 1’ below.

#### *Preliminary screening tool*

Figure 1 - Preliminary Screening Tool Part 1 indicating potential visual impacts for further detailed consideration

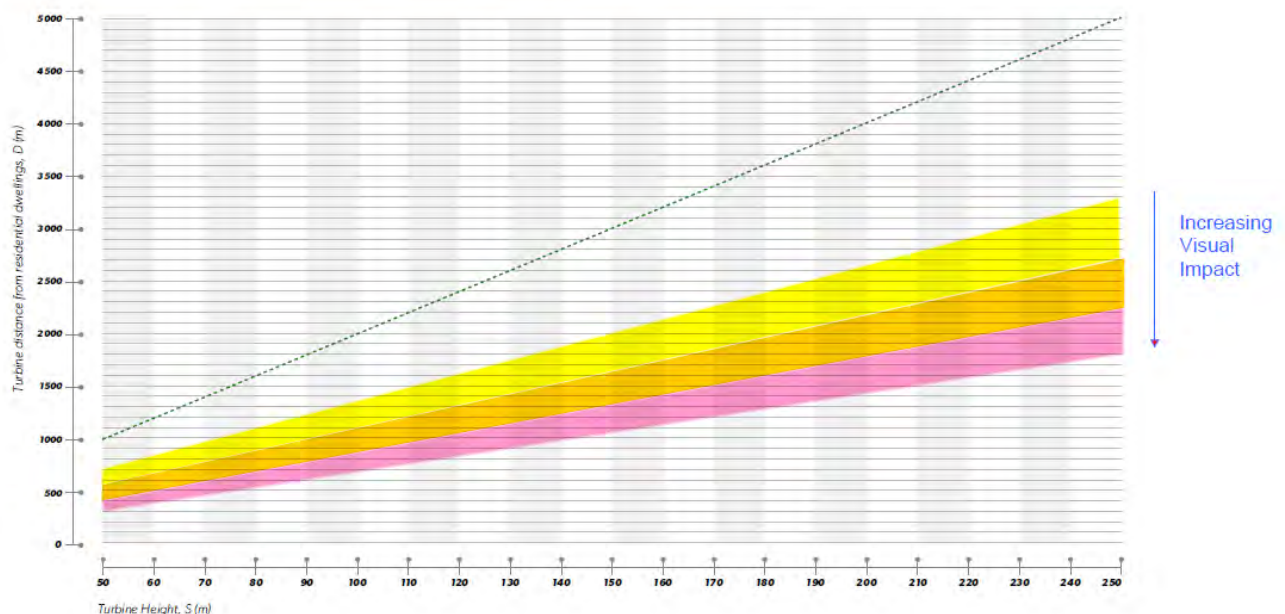


Figure 1: Modified version of ‘Figure 1’ from the Bulletin.

### Multiple Wind Turbine Tool

The overall impression of wind turbines in an area on residences would be affected significantly by a number of factors such as distance, number of turbines, how much of the turbine can be seen and the number of people affected. Simply assessing turbine placement based on a sector model disregards the difference in impact between having a single turbine 8km from a residence in three sectors, and having clusters of turbines in multiple sectors.

We would suggest some more details be included. Wind turbines would only be counted when the nacelle could be seen. There would be three distances within the 8 km (close 3km, middle 5km and far out to 8 km). A sector would be counted only if there were more than 1 wind turbine in the first 3 km of a sector or 3 wind turbines in the 3 to 5 km distance and 6 or more turbines in the 5 to 8 km distance. This would better represent the cumulative effect accounting for distance and number, as seen in 'Figure 2'.

Figure 2: Preliminary Screening Tool Part 2 indicating multiple wind turbines.

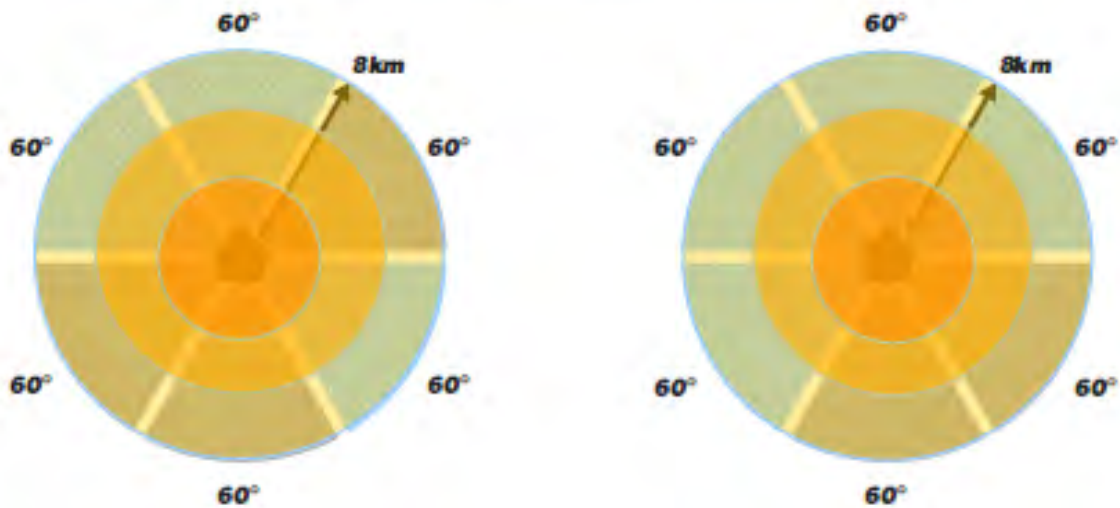


Figure 2: Modified version of 'Figure 2' from the Bulletin.

This assessment should not be required for residences that are already associated with an existing or proposed wind farm development.

## Stage 2: Assessment and Determination

### Visual Baseline Study

How can a visual 'baseline' study be done in Stage 2 "prior to undertaking any visual impact analysis" when this has been partly done in Stage 1? Should this process be called a detailed Landscape Assessment rather than a baseline study?

How will 'the sensitivity of the viewers who use the viewpoints' be measured? Apart from some comments to give a general impression, this will be very difficult to establish the complexity of extracting any conclusive data from such a subjective matter. What value would be placed on this information and how would it be used? Maybe it would be better to have the professional consultant preparing the visual report comment on the significance or not of any viewpoint.

## Consultation

On page 12 is the following paragraph regarding consultation:

*“As part of the EIS development, the proponent is required to consult with the community to verify the findings of the community consultation undertaken at the scoping and design stage regarding scenic quality classes, key viewpoints (both public and private) and key landscape features in the area. The proponent must also verify the outcomes of the baseline study and the mapping of the Visual Influence Zones. In particular, consultation with highly affected landowners is required prior to submission of the EIS.”*

What does ‘consult with the community to verify the findings of the community consultation ..’ actually mean ? Does this mean consult with the community twice ? If so for what reason ?

What does ‘The proponent must verify the outcomes of the baseline study ..’ mean since the proponent is preparing the study ?

How much consultation is enough ? The contradictory nature of this paragraph and this process need to be reassessed so that it is practical.

## Visual Performance Evaluation

Does this process only involve landholders not directly involved in the development ?

There seems to be an assumption in this evaluation that all wind farm developments degrade the landscape value. This is not the case. The included study by Dr. Lothian of people’s perceptions shows little effect or even improvements in poor quality landscapes.

The language used in the Visual Magnitude, Landscape Scenic Integrity, and Key Features Disruption sections could easily be interpreted to preclude wind farm developments almost anywhere.

As an example, using the proposed visual magnitude test, a current tall wind turbine may be excluded for being within 4 km of a residence (table 8 green line), for disrupting landscape integrity by exceeding only low level modification of the visual catchment if the wind turbine is within 2 km of a casual observer, or if the turbine is on a small hill, similar to many of the existing wind farms in NSW, it could be interpreted as disrupting a key feature.

## Assessment

The very subjective nature of how the visual performance criteria may be applied to visual impacts would mean that there is a high degree of uncertainty in the development process. This highlights just how difficult it is to have a visual assessment process as it will always come back to a subjective judgement in the eye of the beholder.

This Visual Performance Evaluation section needs to be reassessed so that the interpretation of the issues can provide a balance that reasonably would allow wind farm developments like many that are already operating in NSW.

Can the department provide as an appendix some images as examples of existing wind farm developments that do and do not meet these criteria so that there is some benchmark for interpretation ?

Table 8 in Appendix 2 should also include the coloured graded scale like figure 1.

# VISUAL IMPACT ASSESSMENT OF WIND FARMS IN SOUTH AUSTRALIA

New Zealand Association for Impact Assessment Conference, Dunedin, New Zealand  
30 November 2006



## ABSTRACT

The paper presents the results of a study of the visual effects of wind farms in South Australia. As a green industry and given community concern about their effect on perceived scenic quality, the wind energy industry has particular responsibility to locate wind farms sensitively in respect of scenic quality.

The paper briefly examines reactions to wind farms internationally and in Australia.

Photographs of proposed and potential wind farm sites were used in the study and participants shown each scene in random order, once with and once without a wind farm. The perceived scenic quality of each scene was rated on a 1 (low) to 10 (high) scale.

Wind farms had greatest negative effect on landscapes perceived as highly scenic and progressively less effect on landscapes rated as lower in scenic quality where wind farms actually enhanced scenic quality.

Tables indicate the likely visual effect of wind farms on coastal and inland landscapes of known scenic quality.

Distance to the wind farm did not appreciably reduce their visual effect. Varying the number of turbines indicated no clear trend. Colour of turbines slightly affected perceived scenic quality. Further research of these factors will be necessary.

Wind farms should avoid areas of high perceived scenic quality, particularly on the coast and be located in areas of low to moderate scenic quality.

## 1. INTRODUCTION

Wind farms have been rapidly established in Australia over recent years. A key community concern has been their effect on perceived scenic quality. This paper addresses people's perceptions of the scenic quality of selected South Australian landscapes and the effects of wind farms on that perceived scenic quality.

The paper reviews briefly the reaction to wind farms overseas and in Australia. It describes the design, conduct and results of a survey to measure their visual effect. Finally, the application of the results to the development and planning of wind farms is discussed.

## 2. CONTEXT

### 2.1 International reactions to wind farms

The rapid growth of global wind generating capacity to 59,000 MW at the end of 2005 (WWEA, 2006) has been accompanied by a massive increase in the size of turbines, and hence the visual impact they have on the landscape (Pasqualetti *et al*, 2002). Typical turbines in 1990 stood 65 m high (hub height and rotor) but ten years later in 2000 were over twice that height - 135 m high (World Wind Energy Association, 2003). A 135 m turbine with a rated power of 1.5 MW has fifty times the output of a 1980 turbine of 45 m height. With the greater scale, their visual impact has grown accordingly.

Wind farms can present a range of effects: noise, blade glint, bird strike, soil erosion, however these can generally be mitigated. Due to the turbine size, visual intrusion is not so easily addressed (Thayer and Hansen, 1988).

Surveys in Canada, the Netherlands, United Kingdom and Denmark indicate that the community support higher priority being given to wind power (Krohn and Damborg, 1999).

The United Kingdom experience is particularly interesting given the English love of their countryside:

More than their poets, their art, or their architecture, the English love their landscape, and woe betide any who would threaten it. This protectionist attitude has brought wind development in England nearly to a standstill. (Short, 2002)

*The Economist* (1994) described wind farms as a 'new way to rape the countryside' and Sir Bernard Ingham described a wind farm in Yorkshire as 'lavatory brushes in the air' (Pasqualetti, 2001). Ann West, vice Chair of Country Guardian, has described them as "industrial-size blots on the landscape" (West, 2004).

Between 1993 and 1998, 16 out of the 18 planning applications for wind farms in Wales failed because of local objectors (Garman, 2004). Short (2002) noted that only one in four of wind farm applications had been approved in the UK, such was the success of organized opponents.

Although there has been a move to offshore wind farms in the UK, partly to avoid local opposition, these also have not been immune to criticism. For example, a proposed 30 turbine project at Scarweather Sands near Port Talbot was opposed by a petition of 8,000 signatures.

Despite many proposals failing to win approval, the general UK community has been supportive. During the 1990s, many surveys of residents near wind farms and of tourists to the area were held in the UK and these provide the most extensive resource of community attitudes available. Table 1 summarises these surveys following construction of wind farms (excluding surveys held at open days).

By far the majority of participants in these surveys indicated support for the wind farms – none indicated a strongly negative view.

**Table 1 Summary of Findings from UK Wind Farm Community Attitude Surveys**

| Location                                          | Positive                                                                                                 | Neutral                            | Negative                                    | Source                       |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------|------------------------------------|---------------------------------------------|------------------------------|
| Resident Surveys – post construction of wind farm |                                                                                                          |                                    |                                             |                              |
| Delabole, Cornwall<br>~300 interviewed            | 81% turbines made no difference                                                                          | 3% neutral                         | 16% turbines made some difference           | Exeter Enterprises, 1994     |
| Cemmaes, Wales ~ 130 interviewed                  | 92% not bothered by visual impact<br>86% in favour of wind farm<br>53% supported more wind farms in area |                                    | 7% concerned about visual impact            | Market Research Assoc., 1994 |
| 3 wind farms in Wales ~270 interviewed            | 63% in favour of wind farm                                                                               |                                    | 37% oppose                                  | BBC Wales, 1994              |
| Kirkby Moore ~250 interviewed                     | 82% supported development of wind farms in area                                                          | 61% not concerned about wind farm  | 10% opposed wind farm development           | Robertson Bell Assoc. 1994   |
| Coal Clough, Lancashire<br>50 interviewed         | 80% positive about wind farm                                                                             | 16% uncertain                      | 4% against wind farm                        | Anon. 1996                   |
| Taff Ely, Wales ~400 interviewed                  | 63% support wind farm<br>29% - "scenery more interesting"                                                | 32% neutral<br>51% "its all right" | 4% oppose wind farm<br>17%- "spoil scenery" | Robertson Bell Assoc. 1997   |
| Novar, Scotland ~200 interviewed                  | 68% support wind farm<br>11% - "scenery more interesting"                                                | 29% neutral                        | 3% oppose wind farm                         | Robertson Bell Assoc. 1998a  |



|                                             |                                                                                          |                                                         |                                                                      |                             |
|---------------------------------------------|------------------------------------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------------------------|-----------------------------|
|                                             |                                                                                          |                                                         | 12% - "spoil scenery"                                                |                             |
| Stroud, Gloucestershire<br>~400 interviewed | 67% support wind farm<br>70% support more turbines<br>43% - "scenery more interesting"   | 30% - "hardly noticeable"                               | 7% oppose wind farm; 16% oppose more turbines<br>17% "spoil scenery" | Robertson Bell Assoc. 1998b |
| Lambigg, Cumbria<br>~230 interviewed        | 74% support wind farm<br>24% - "scenery more interesting"                                | 18% no opinion                                          | 8% opposed wind farm<br>26% "spoil scenery"                          | Robertson Bell Assoc. 2002  |
| 4 wind farms in Scotland 430 interviewed    | 67% favour wind farms<br>74% - nothing disliked about wind farms<br>21% liked appearance |                                                         | 10% "spoils view"<br>11% nothing liked                               | Dudleston, 2000             |
| 10 wind farms in Scotland ~1800 interviews  | 20% - wind farms have positive impact on area                                            | 51% neither positive or negative impact 23% not opinion | 7% negative impact on area                                           | Braunholtz, 2003            |
| Tourist surveys                             |                                                                                          |                                                         |                                                                      |                             |
| Argyll & Bute, Scotland, ~310 interviews    | 43% - wind farm has positive effect                                                      | 43% equally positive & negative, 6% don't know          | 8% wind farm has negative effect                                     | MORI Scotland, 2002         |
| Scotland, 1800 interviews                   | 75% positive about wind farms<br>63% - wind farms make no difference to visiting area    |                                                         | 21% negative about wind farms<br>25% would avoid area                | NFO System Three, 2002      |

The British Wind Energy Association (BWEA) monitors opposition to wind farms including letters to the press. Hill (2001) traced the results of 27 UK opinion polls on attitudes to wind energy from 1990 to 2001. She found an average of 74% support. Hill also examined the content of press articles, features and letters to the press for 1996 and 2001 and found that articles and features became far more positive over this period while the majority of negative coverage derived from letter pages. However over this period, supportive letters had increased and the proportion of negative letters decreased from 60% to 50%. Widespread support by the majority has often been rendered mute by vociferous opposition by a minority, often not from the affected area. The BWEA website includes the results from 11 surveys.

In 1991 the German Parliament passed the Electricity Feed Law which guaranteed payment of 90% of the retail price of electricity and wind farms proliferated (Schwahn, 2002). Renewable energy was further reinforced by the Renewable Energies Law in 2000. Wind farms were seen as "government-sponsored money-making machines" (ibid). In Germany where half the operators of wind farms are farmers, local residents were generally supportive. Community attitudes towards wind farms were influenced more by the decision making process and the players involved than by the size of the project (Erp, 1997).

However landscape publications in Germany described the destruction of scenic beauty as a "catastrophe" and "the beauty of our landscape is in danger". (Hoppe-Kilpper & Steinhäuser, 2002) The German Association for Landscape Protection (BLS) generally opposed wind farms.

In Sweden, communal ownership was recognized as the key to support and many farmers viewed wind farms as contributing to their livelihood. Hammarlund (2002) believed that the "development of a wind power site is out of the question if it has not been socially anchored in the local society".

With Denmark's flat landscape, so flat the "wind's strength hardly diminishes between the North Sea and the Baltic Sea" (Nielsen, 2002), its 6000 wind turbines are particularly conspicuous. Their scale "often exceeds all other elements in the landscape" (ibid). As in Germany and Sweden, there is a tradition of community ownership of wind farms in Denmark with wind farm cooperatives being funded by several hundred small investors. Among residents at Sydthy in northern Denmark, Anderson *et al* (1997) found that people with shares in wind farms were significantly more positive about wind power than those without an economic interest. They found that residents near to the wind turbines did not

consider their visual impact significant. Supporting Hammarlund's view about community support, Nielsen believed that the removal of Denmark's wind farms would result in a public outcry.

During the 1990s, Danish power companies sought to build larger wind farms comprising 20 to 50 turbines rather than the usual arrays of three to five turbines but met strong local resistance and were abandoned. These companies are now turning to offshore arrays which involve fewer private interests (Nielsen, 2002).

From these surveys the following conclusions are drawn:

- Economic participation in wind farms ameliorates adverse reactions to wind farms. As noted by Thayer and Hansen (1988) with reference to Cordelia Village in California which opposed a wind farm: "the residents ... could make little symbolic or real connection between their own electricity demand and the energy to be produced by the proposed wind farm. Had they possessed even a degree of symbolic ownership or investment in the turbines, the entire visual meaning of the landscape might have changed, and the outcome might have been different." Thayer and Hansen suggest enfranchising their "visual consumers", involving them in the wind farm development and compensating them for scenic "damage".
- While the majority of the local and wider communities are generally supportive and positive about wind farms, there is usually a vocal minority with legitimate concerns about the industrialisation of rural and natural landscapes and whether the energy significance of wind farms compensates for their visual impacts. This minority may include local land owners but more often appears to be drawn from the wider community of people who have a close attachment to the countryside. Wind energy developers ignore their concerns at their peril as opponents are generally well organized, well networked and effective in advocating their view;
- High standards of wind farm design, layout and operation are essential, aiming 'to minimize the conspicuousness of wind turbines' (Gipe, 2002).

## **2.2 Wind Energy in Australia**

The rapid growth of wind farms in Australia in recent years has been stimulated by the Commonwealth Government's Mandatory Energy Renewable Target (MRET). The target aims to increase Australia's renewably generated electricity by 2%, from 10.5% to 12.5%, by 2010 (Prime Minister, 1997). Most of the existing renewable is hydro generated. The target has been defined as a further 9,500 gigawatt hours of electricity from renewable sources, which is sufficient power for the households of four million people. MRET applied from April 2001.

By Nov, 2006, 817 MW of wind farms had been installed and, according to the Australian Wind Energy Association (AusWEA), a further 5962 MW proposed (AusWEA, 2006). If each turbine was rated at 1.5 MW, these would total an additional 4000 turbines.

The MRET Review Panel (2003) recommended the target be increased to 20,000 GWh by 2020. However the Howard Government's energy statement of June 2004 countered that the costs of such an increase (\$5 billion NPV) could not be justified (Prime Minister, 2004). Instead, the Government provided funds for the development of low emission technologies and for improved wind forecasting which "could allow wind (sic) to locate in a wider range of sites away from sensitive landscapes."

## **2.3 Australian Reactions to Wind Farms**

Victoria has witnessed the strongest opposition to new wind farms. In 1997, 95 wind turbines were proposed on the coast near Portland, an area identified by the Victorian Coastal Council as of 'outstanding scenic quality requiring special landscape protection' (VCC, 1998). On appeal, the proposal was rejected on grounds that the wind farm would have a "disturbing visual impact on the significant landscape values of the Cape" (VCAT, 1999).

Subsequently Pacific Hydro proposed a four cluster, 120 turbine wind farm near Portland and at Yambuk. The Planning Panel appointed to report on the project recommended qualified approval of the proposal with amendments (PPV, 2002) and the Planning Minister approved it with modifications.

A number of groups campaigned actively against Portland and other wind farm proposals in Victoria. Coastal Guardians Victoria was formed as an umbrella group representing wind farm opponents. The National Trust (Victoria) called for a State-wide assessment of landscapes (2002). In August 2002, the Victorian Government released new policy and planning guidelines for wind farms (SEAV, 2003).

On 27 July, 2003, the Australian Council of National Trusts and the Australian Wind Energy Association (AusWEA) announced an agreement to work together on a joint *Wind Farms and Landscape Values Project* to ensure landscape protection during the growth of the wind industry (AusWEA/ACNT, 2003). The objective of the agreement was to “determine and promote an agreed upon means for assessing landscape values in order to ensure that the planning and siting of wind energy developments can proceed, and that significant landscapes can be identified.” Planisphere, consultants engaged by AusWEA and the ACNT, prepared and released a series of discussion papers (AusWEA/ACNT, 2004) and in June 2005 following lengthy forums around Australia, released their stage one report (Campbell, 2005):.

The media release accompanying the release of the report stated:

The central finding of the Report is that, although there is this large body of methods and guidelines relating to landscape assessment, none of these assessment methodologies have yet been universally adopted, resulting in confusion and uncertainty about best practice in the community.

“Landscape values are already an essential consideration for any wind farm development and ensuring that the methodologies to assess these values are standardized across the country is an increasing priority for the wind energy industry,” said Ian Lloyd-Besson, President of AusWEA.

To date the project has not advanced to the next stage of methodological development pending funding.

The research described in this paper provides a means of determining community landscape values.

### **3. STUDY DESIGN**

#### **3.1 Objectives**

The study examined the effects of wind farms on selected landscapes in South Australia. Specifically the objectives of the study were to:

- Assess, using community preferences, the likely visual effect of wind farms in a range of South Australian landscapes;
- Develop the means to predict the likely visual effect of wind farms;
- Assess the influence of distance, number of turbines and colour of turbines on the visual effects;
- Develop guidelines for wind farm development based on the findings.

#### **3.2 Methodology**

The methodology measured differences in ratings of the perceived scenic quality of a scene with and without a wind farm indicating whether it had a positive or negative influence (Hull and Bishop, 1988). Landscape quality could be enhanced by the presence of a wind farm, or it could detract from landscape quality.

Photographs rather than field assessment of scenic quality were used. Studies have shown that colour photographs can give similar ratings as field studies (Brown *et al*, 1988; Dunn, 1976; Kellomaki

& Savolainen, 1984; Shuttleworth, 1980; Stewart *et al*, 1984; Trent *et al*, 1987; Zube *et al*, 1975) provided the photographs met the following criteria:

- The photographs were in colour;
- A sufficient number of photographs covered the area and range of features;
- The photographs were in standardised format (i.e. horizontal), non-artistic composition, provided good lateral & foreground context to scenes, covered a single landscape unit and showed typical representative scenes.

The use of photographs as surrogates offered obvious advantages over transporting a large group of people around South Australia to rate scenes. Photographs enabled widely separated locations and scenes separated by time to be rated on a comparable basis. Photographs were particularly appropriate to the needs of this study to evaluate hypothetical alterations to the landscape such as those posed by wind farms.

A 10 point rating scale was used (1 – very low, 10 – very high) and over 300 adult participants who were broadly representative of the community.

#### 4. STUDY IMPLEMENTATION

##### 4.1 Photographs

AusWEA's (2002) *Best Practice Guidelines* identified the following “five crucial technical criteria for successful development” for wind farms.

- Potential wind resource
- Potential size of site
- Electrical connection
- Land ownership and current usage
- Construction issues

Of these, the first two factors were the main considerations in the selection of potential sites. Scenes were selected to represent both the proposed and potential wind farm sites in similar numbers.

Scenes were selected to represent both proposed (35 scenes) and potential (33) wind farm sites. They were located on the coast and on agricultural land. South Australian landscapes where wind farms had been proposed or in which suitable wind regimes exist (AusWEA, 2002) were photographed using a Nikon SLR F60 camera with 50mm lens. The photographs were scanned and standardised digitally with Photoshop™ to show blue skies so that the presence of clouds would not influence ratings.

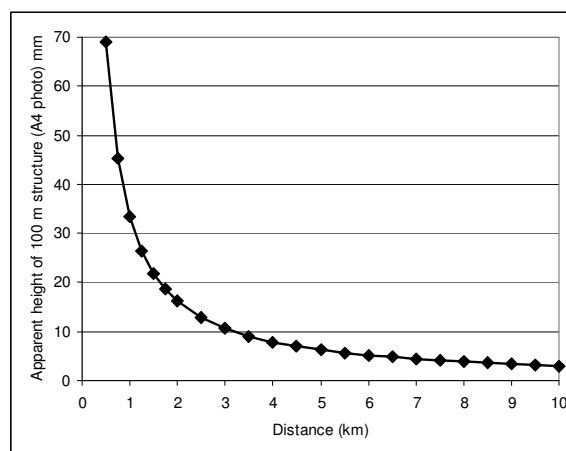


Figure 1 Relationship of height & distance of 100 m high structure

Photomontages were prepared, inserting standard wind turbines into the original photographs using Photoshop™. Whereas Hull and Bishop (1988) used similar scenes, the use of digital methods allowed the same scene to be used with and without the turbines. The turbine size was scaled appropriately with distance based on a formula developed from measurements of a structure of known height (Torrens Island Power Station chimney) at distances from 0.5 – 10 km. The exponential formula used for measuring the height of a 100 m wind turbine was  $y = 33.46X^{-1.0446}$  where  $y$  = height in mm on A4 photograph and  $x$  = distance in kilometers (Figure 1).

The visual prominence of a wind farm diminishes rapidly within 3 – 4 km distance and it then diminishes linearly, reducing only gradually with distance. The height of the turbines in the photomontages was calculated based on their distance from the observer.

The turbines shown were coloured white except in three scenes where a range of hues was applied: white, grey, blue, and tan. In two separate scenes, the turbines were coloured in the following order: red, orange, yellow, green, blue, indigo and violet (rainbow colours). The scenes were of flat agricultural land.

In three scenes, the number of turbines was varied between six and thirteen to examine the influence of frequency on visual impact. Again, scenes of agricultural land were selected. Although the number of scenes used to examine the influence of colour and turbine numbers was small, the results could indicate an area for further research.

To assess the influence of distance on visual impact, the distance to the mid point of turbines from the observer was measured in all scenes.

#### **4.2 Survey instrument**

The survey comprised 150 scenes:

|                                      |     |
|--------------------------------------|-----|
| Scenes without wind farm             | 68  |
| Same scenes with wind farm           | 68  |
| Extra scenes for colour and distance | 14  |
| Total                                | 150 |

The scenes were arranged in random order. Because viewing wind farms may be novel for participants, the first ten scenes were replicated at the end of the 150 scenes and the first ten ratings discarded. Thus a total of 160 scenes were rated but only 150 scenes analysed.

The rating instrument listed the scenes from 1 – 160 with a column for ratings. It was headed with a rating scale from 1 (very low) to 10 (very high) together with brief instructions. Information about the participants was sought covering: age, gender, education, birthplace, familiarity with regional South Australia and whether the participant had seen a wind farm and if so where. The survey was anonymous.

#### **4.3 Survey conduct**

The wind farm survey was carried out using three means:

- Sessions at which the scenes were shown to groups of participants;
- The survey was placed on CDs with instructions, distributed to worksites and undertaken by participants at their PCs;
- The survey was placed on an Internet site and invitations sent to 65 individuals invited them to participate and to forward the invitation to others in their worksite<sup>1</sup>.

---

1. The Internet site was developed using ColdFusion web scripting language with a 95 compression rate for JPEG downloads. Lower compression rates can be used if participants have broadband or high speed modem internet access.

Sessions involving groups of participants and the CD were undertaken by tertiary students and various professionals. Sessions gained 134 participants and the CD surveys 37. The Internet survey was the most rapid and efficient gaining 280 participants in 7 days when it was terminated.

Conduct of the survey comprised the following steps.

1. The instructions thanked the participants, provided a brief outline of its purpose and asked them to rate each scene on the basis of its perceived scenic quality. The survey comprised a Powerpoint™ slide show with each scene displayed for 7 seconds.
2. Six scenes were then shown of a range of typical agricultural and coastal landscapes without wind farms and then six scenes with wind farms; these were not rated.
3. All 160 numbered scenes were then shown.
4. Following completion, rating sheets were collected and participants thanked. Internet surveys were forwarded automatically to the database immediately after rating each scene.

Total participation numbered 454; however some Internet participants did not complete the entire survey. In all, 161 participants rated all 160 scenes and a further 150 completed between 150 and 160 scenes; the 311 participants which completed 150 or more scenes were selected for analysis.

#### 4.4 Survey Participants

The respondents' characteristics were compared with 2001 Census statistics for South Australia (ABS 2002).

##### Age

Compared with the State population, the survey participants were generally younger. The differences were significant ( $\chi^2 = 95.1$ ,  $df = 1$ ,  $p = 0.000$ ).

##### Gender

About 6% more males than females participated in the survey. The difference was significant ( $\chi^2 = 4.62$ ,  $df = 1$ ,  $p = 0.03$ ).

##### Education

The education level of participants was higher than the community; 76% held degrees or higher degrees compared with 10.7% of the community. The difference was significant ( $\chi^2 = 2270$ ,  $df = 1$ ,  $p = 0.00$ ).

##### Birthplace

The majority of respondents, 80.4%, were Australian-born, slightly higher than the community's 75.4%. The difference was not significant ( $\chi^2 = 3.4$ ,  $df = 1$ ,  $p = 0.065$ ).

#### 4.5 Comparison with State Population

The main differences were that there were fewer older people and more younger people in the sample compared with the State population, and far better educated people in the sample as well.

**Table 2 Ratings by Participant Characteristics**

|            | Categories of Participant Characteristics |      |      |      |      |      |
|------------|-------------------------------------------|------|------|------|------|------|
|            | 1                                         | 2    | 3    | 4    | 5    | 6    |
| Age        | 5.61                                      | 5.77 | 5.68 | 5.79 | 5.71 | 5.62 |
| Gender     | 5.69                                      | 5.73 |      |      |      |      |
| Education  | 5.67                                      | 6.08 | 5.63 | 5.76 |      |      |
| Birthplace | 5.67                                      | 5.85 |      |      |      |      |

Although the survey participants differed significantly from the South Australian community, if there was little change across the range of a given characteristic, e.g. education, then it would be apparent that the influence of the characteristic was minimal and acceptable. An analysis of the ratings based on each of the participant characteristics (e.g. education) found that there was minimal difference

across the characteristics (Table 2). Except for one item (education – certificate/ diploma), the ratings varied by only 2.4%. This suggests that although the survey sample differed from the population, this would generally not affect the ratings.

Tests of significance indicated that the only characteristic which had a significant effect on ratings was education. The differences in ratings across the other participant characteristics were not significant.

Interestingly a high 56.5% of participants indicated that they had seen a wind farm. Around two-thirds of these wind farms were in Australia – mainly on the Victorian coast at Codrington, or at Starfish Hill in South Australia. Those overseas were mainly in Europe, UK and the US. Many identified wind farms in several locations, including overseas.

## 5. RESULTS

The overall mean of scenes without wind farms was 6.15 (SD = 1.23) but the presence of wind farms reduced this to 5.49 (SD = 1.28). The difference of 0.66 was significant: ANOVA  $F = 11.44$ ,  $df = 1, 134$ ,  $p = 0.001$ . The ratings for *without wind farm* and *with wind farm* were both normal distributions.

The coastal and inland scenes were analysed separately.

### 5.1 Coastal Scenes

The presence of wind farms reduced the mean perceived scenic quality rating of the 21 coastal scenes by 1.52, from 7.61 to 6.09, a significant difference: ANOVA  $F = 35.78$ ,  $df = 1, 41$ ,  $p = 0.000$ .



**Coastal scene with wind farm (rating 6.63 – rating without wind farm 8.68)**

The difference in the ratings is evident by arranging them in descending order of rating difference (Figure 2). This indicates the rating of each scene without and with the wind farm. The largest gap occurred where the landscape quality rating was high and reduced as the landscape rating decreased. Figure 3 shows the trend lines for the data.

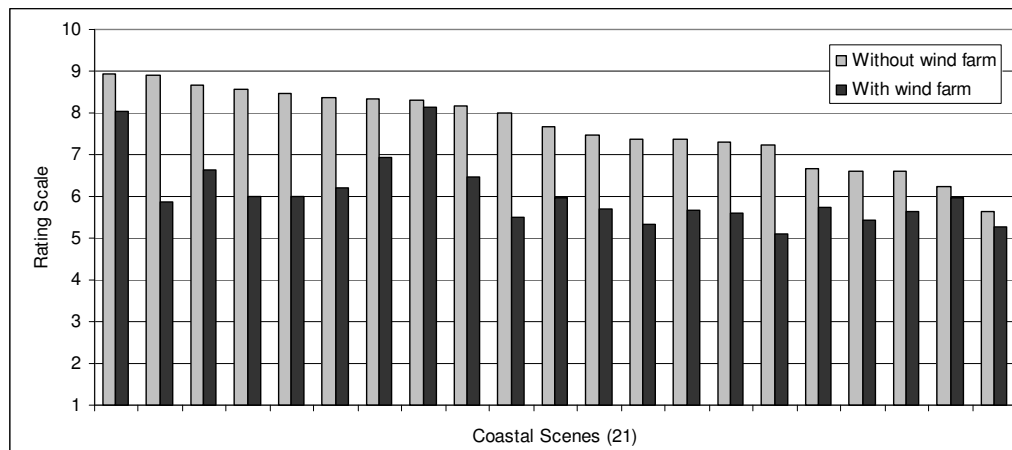


**Figure 2 Coastal scenes – arranged in descending order of rating difference**

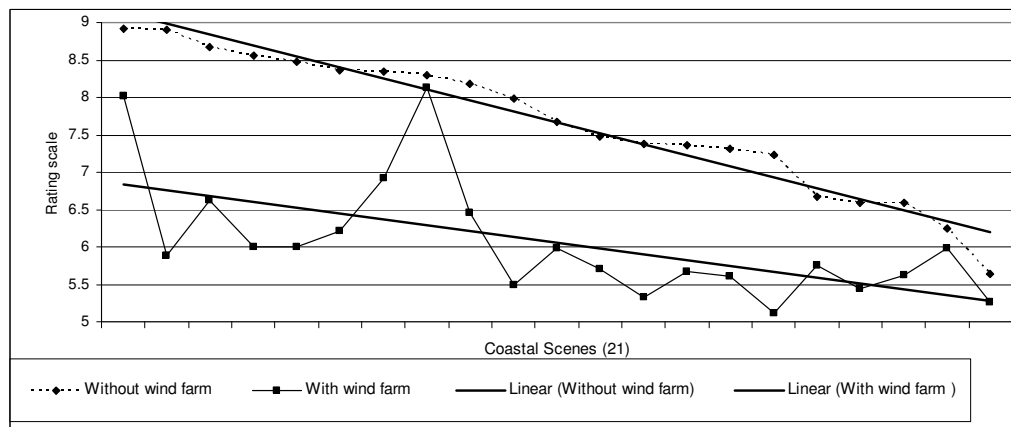


**Figure 3 Trend lines for coastal scenes**

Equation for trend line for scenes without wind farm:  $y = -0.146x + 9.27$ ,  $R^2 = 0.96$   
 Equation for trend line for scenes with wind farm:  $y = -0.078x + 6.92$ ,  $R^2 = 0.36$   
 where  $y$  = rating and  $x$  = scene number.

**Table 3 Predicted effect of wind farms on coastal scenic quality**

| Rating without wind farm | Rating with wind farm | Difference |
|--------------------------|-----------------------|------------|
| 10.0                     | 7.31                  | -2.69      |
| 9.5                      | 7.04                  | -2.46      |
| 9.0                      | 6.77                  | -2.23      |
| 8.5                      | 6.51                  | -1.99      |
| 8.0                      | 6.24                  | -1.76      |
| 7.5                      | 5.97                  | -1.53      |
| 7.0                      | 5.71                  | -1.29      |
| 6.5                      | 5.44                  | -1.06      |
| 6.0                      | 5.17                  | -0.83      |
| 5.5                      | 4.91                  | -0.59      |
| 5.0                      | 4.64                  | -0.36      |



**Table 4 Description of generic landscape ratings for coastal scenes**

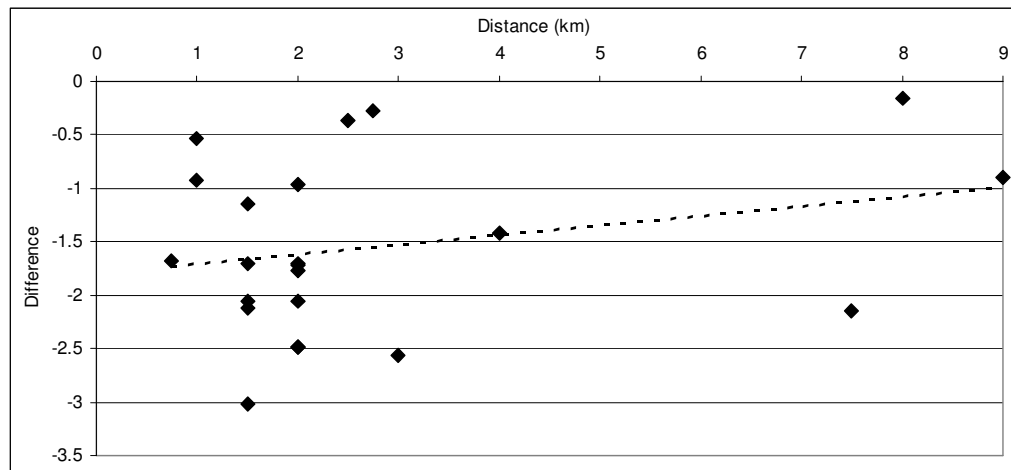
|                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rating 8</b>                                                                                                                                                                                                                            | <b>Rating 7</b>                                                                                                                                                                                                                        |
| High, sheer or very steep cliffs, frequently indented coast (maximum edge), reefs, islands, pronounced wave motion, beaches backed by steep cliffs or high land. Overall contains a high vertical element and strong awe inspiring effect. | Headlands, long wide beaches, sloping cliffs, extensive dunes, wave motion, low rocky cliffs, reefs, some islands, smoother coastline – less indented. Overall, a lower vertical element, sloping cliffs and less coastal indentation. |
| <b>Rating 6</b>                                                                                                                                                                                                                            | <b>Rating 5</b>                                                                                                                                                                                                                        |
| Beaches, low hinterland, no cliffs, islands, mangrove flats, low dunes, little wave motion. Overall very little vertical element.                                                                                                          | Flat hinterland used for agriculture or other non-natural uses, coastline lacking indentation, rocks or other features of interest.                                                                                                    |

Note: A rating of a given unit, say 6, covers the range 6.00 to 6.99.

Based on the known rating of a given landscape, Table 3 may be used to predict the likely effect of wind farms on perceived scenic quality in South Australian coastal areas. In South Australia a map of landscape quality is available based on the author's survey (Lothian, 2000; See South Australian Atlas: [www.atlas.sa.gov.au/products/other/a3qual.pdf](http://www.atlas.sa.gov.au/products/other/a3qual.pdf)). Table 4 describes scenes by their landscape rating as derived by Lothian (2000).

## 5.2 Effect of distance - coast

Bishop (2002) found using computer generated images of 15 wind turbines adjusted for distance that the visual effect dropped at 4km, was below 10% at 6 km, and at 30 km only 5% of people recognized the objects. The wind farms would be expected to diminish perceived scenic quality with distance.



Note: Trend line  $y = 0.089x - 1.80$ ,  $r^2 = 0.07$

**Figure 4 Effect of distance on wind farm effect in coastal areas**

The differences in the landscape quality rating without the wind farm and with it were compared with the distance (Figure 4). The scenes below 3 km showed the greatest negative effect on scenic quality ratings: up to -3. The negative effect of one of the distant scenes (> 7 km) was comparable with that of scenes < 2 km.

There were three scenes in which the turbines were more than 7 km from the viewpoint. The scenic quality of all three scenes was affected negatively by the presence of the wind farm. In one of these scenes, the negative effect was comparable with that of some scenes within 2 km distance, causing a reduction in rating of 2.2. However, the scenes located within 1 to 3 km showed the greatest negative effect on scenic quality ratings, with reductions of between -2.5 and -3.

The scattered data yielded an almost horizontal trendline with a low correlation coefficient. Overall the negative effect of the wind farm did not reduce appreciably with distance.

### 5.3 Inland Scenes

The presence of wind farms reduced the mean perceived scenic quality of the 47 inland scenes by 0.26, from 5.47 to 5.21, a small difference which was not significant: ANOVA  $F = 1.74$ ,  $df 1, 93$ ,  $p = 0.19$



**Inland scene with wind farm (4.94 – rating without wind farm 4.26)**

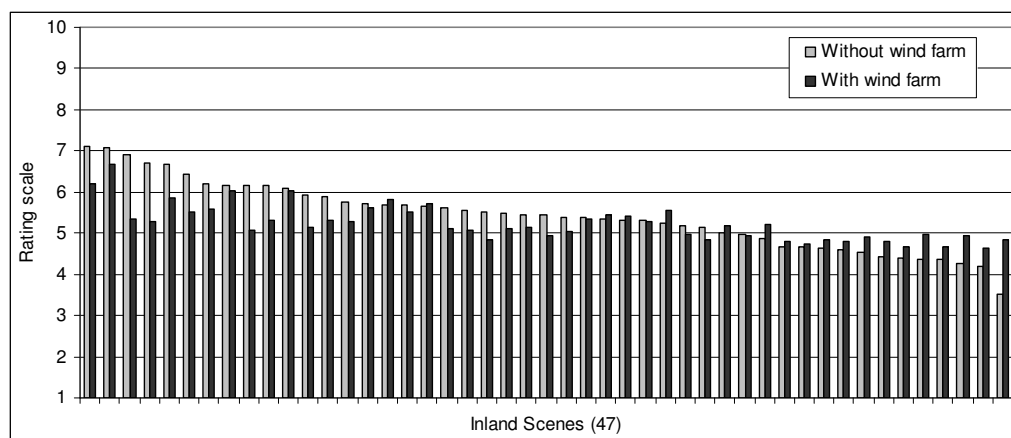


**Figure 5 Rating of inland scenes in descending order**

Equation for trend line for scenes without wind farm:  $y = -0.058x + 6.81$ ,  $R^2 = 0.96$

Equation for trend line for scenes with wind farm:  $y = -0.024x + 5.819$ ,  $R^2 = 0.56$

where  $y$  = rating and  $x$  = scene number.

Where the scenic quality rating of scenes without wind farms was close to 5 or below (Figure 5), the rating with the wind farm was always higher. Figure 6 indicates trend lines for the two data sets. The trend lines cross at a rating of 5.1; above this the wind farm generally detracted from scenic quality while below it the wind farm generally enhanced scenic quality. Table 5 indicates the likely effect of a wind farm in an inland scene of known landscape quality rating.

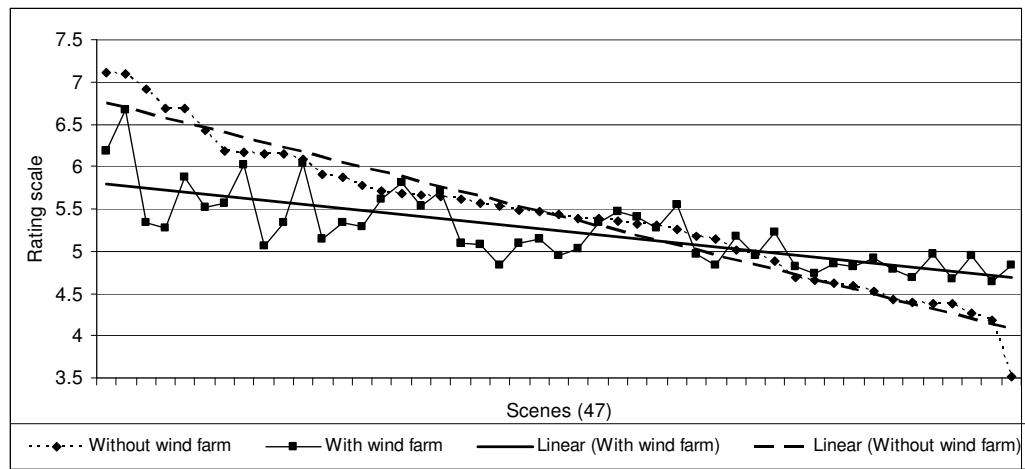


**Figure 6 Trend lines for inland scenes**

**Table 5 Effect of wind farms on inland landscape quality**

| Rating without wind farm | Rating with wind farm | Difference |
|--------------------------|-----------------------|------------|
| 7.0                      | 5.90                  | -1.10      |
| 6.5                      | 5.69                  | -0.81      |
| 6.0                      | 5.48                  | -0.52      |
| 5.5                      | 5.28                  | -0.22      |
| 5.0                      | 5.07                  | +0.07      |
| 4.5                      | 4.86                  | +0.36      |
| 4.0                      | 4.66                  | +0.66      |
| 3.5                      | 4.45                  | +0.95      |
| 3.0                      | 4.24                  | +1.24      |

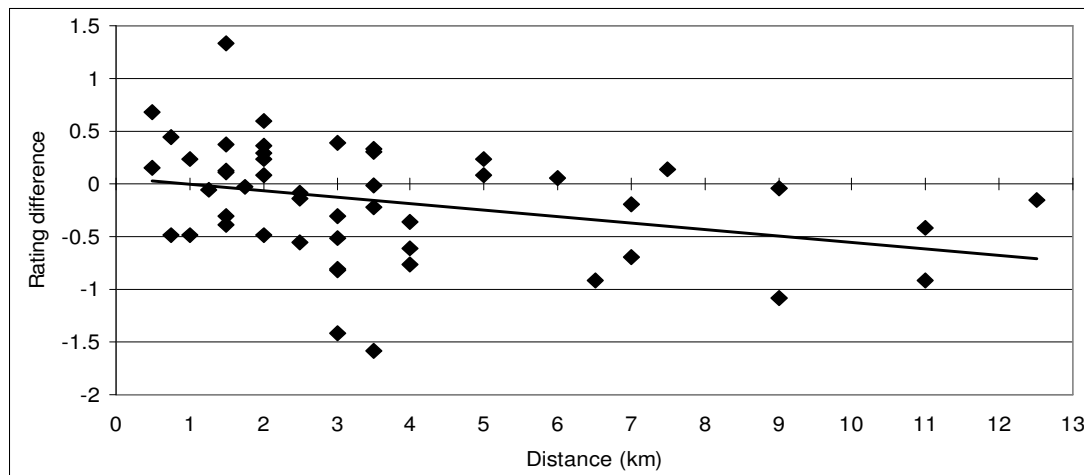
Use of Table 5 requires the rating of the landscape quality prior to the wind farms to be determined. Table 6 describes South Australian scenes by their landscape rating.

**Table 6 Description of generic landscape ratings for inland scenes**

|                                                                                                                                              |                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rating 7</b>                                                                                                                              | <b>Rating 6</b>                                                                                                                                |
| Highly natural scenes, very hilly or mountainous, thickly vegetated with tall trees, cliffs or rocks may be prominent                        | Hilly or steeply undulating land, tall scattered trees, orchards, grassland                                                                    |
| <b>Rating 5</b>                                                                                                                              | <b>Rating 4</b>                                                                                                                                |
| Broad flatter undulating hills & valleys, grazing land, scattered vegetation, savannah woodland with tall scattered trees on grassland, dams | Flat or gentle slopes, distant ridgelines or hills, fairly treeless or widely scattered vegetation or distant trees, cereals, grazing, no dams |
| <b>Rating 3</b>                                                                                                                              |                                                                                                                                                |
| Flat, treeless, cereals, bare ground                                                                                                         |                                                                                                                                                |

#### 5.4 Effect of Distance - inland

Hull and Bishop (1988) stated that "intuition suggests that visual impact decreases as distance ... increases". A comparison of the ratings with and without the wind farm, arranged by the distance (Figure 7) suggested however that the negative effect actually strengthened with distance. Up to 7 km, wind farms had both a positive and negative influence but beyond this distance, the effect was almost wholly negative. The trend line ( $y = -0.06x + 0.055$ ,  $R^2 = 0.10$ ) had a negative slope but its correlation coefficient was too low to be definitive. The differences in the ratings by distance were significant ( $p = 0.000$ ) in all but one distance category – that near the viewpoint, 1 – 1.99 km.



Note: Trend line  $y = -0.06x + 0.05$ ,  $r^2 = 0.1$

**Figure 7 Effect of distance on visual effect of wind farms in inland areas**

The effect of the wind farm at 3 km and 11 km was compared for the same scene in the southern Flinders Ranges (Table 7). The results indicated that the effect was greater at the farther distance, similar to that suggested above.

**Table 7 Influence of distance on Flinders Ranges scene**

| Distance (km) | Without wind farm | With wind farm | Difference | p     |
|---------------|-------------------|----------------|------------|-------|
| 3             | 6.43              | 5.52           | 0.91       | 0.000 |
| 11            | 6.69              | 5.28           | 1.41       | 0.000 |

A possible explanation of the apparent greater impact at greater distances is that in the nearby scenes the wind farm added interest to the landscape, but at a greater distance they merely appeared to be structures in the landscape. As structures they were considered to detract from the landscape, perhaps similar to electricity transmission pylons.

Additional testing and possible consideration of the influence of other factors visible in the scene would be necessary to establish any clear pattern regarding the effect of distance on the visual effect of wind farms in the landscape.

## 5.5 Number of turbines

In three scenes the number of turbines in each scene was varied from six to thirteen (Table 8, Figure 8).

**Table 8 Influence of turbine number on landscape quality**

|           | 0 turbines | 6 turbines | 7 turbines | 9 turbines | 11 turbines | 13 turbines |
|-----------|------------|------------|------------|------------|-------------|-------------|
| Sheringa1 | 4.97       |            | 4.95       |            |             | 4.75        |
| Sheringa2 | 4.66       |            | 4.74       |            | 4.89        |             |
| Tungketta | 6.59       | 5.45       |            | 6.06       |             |             |

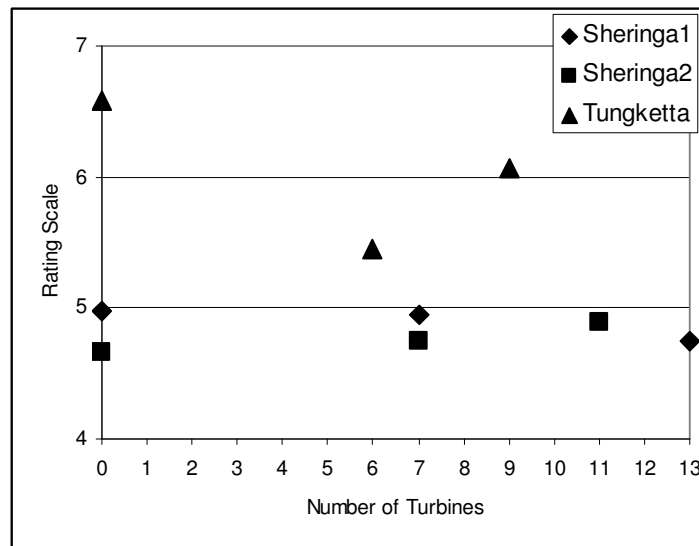


**Figure 8 Influence of turbine numbers on ratings in three scenes**

The results indicated that for Sheringa1, the greater number of turbines reduced scenic quality more than the lesser number. However, in Sheringa2 the larger number of turbines enhanced scenic quality. In the Tungketta site, where scenic value was enhanced by a glimpse of the sea, the presence of 6 turbines depressed scenic value by more than 1, but where 9 turbines were present, scenic quality decreased by a lesser amount, 0.53. The differences in ratings across the scenes showing differing numbers of turbines was not significant: ANOVA,  $F = 0.378$ ,  $df\ 1, 11$ ,  $p = 0.55$ .

These results indicate no clear trend and further sampling of sites with various numbers of turbines would be required in order to establish the influence, if any, of turbine numbers on visual impact.

## 5.6 Colour of Turbines

To test the effect of different colours on the perception of turbines, a range of colours were used in three scenes (Table 9, Figure 9). The background hues of each scene were a similar straw colour with blue skies.

**Table 9 Ratings of Turbine Colours**

| Colour  | Green Point | Nth L. Alexandrina | Woakwine |
|---------|-------------|--------------------|----------|
| None    | 4.62        | 4.43               | 5.71     |
| White   | 4.85        | 4.79               | 5.62     |
| Blue    | 4.80        | 4.87               | 5.62     |
| Grey    | 4.89        | 4.38               | 5.44     |
| Tan     | 4.50        | 4.61               | 4.84     |
| Rainbow | 3.46        | 3.51               |          |

Blue was the preferred hue in two scenes (equal with white in one) and grey in the other scene. White, blue and grey were similar in two scenes and white, blue and tan in the third scene. Most marked were the rainbow hues which rated well below the other colours. The differences between the colours were significant: ANOVA,  $F = 6033$ ,  $df\ 4, 13$ ,  $p = 0.012$ .

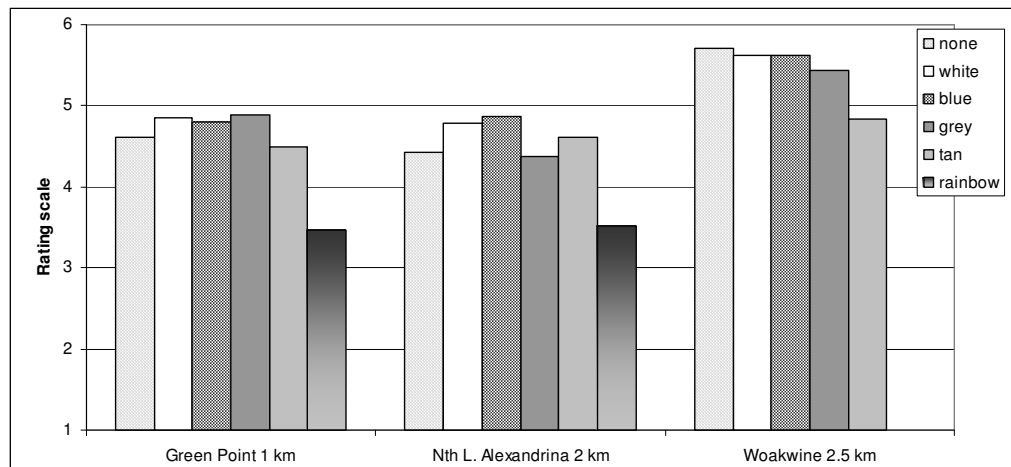


**Figure 9 Rating of Turbine Colours**

Shang and Bishop (2000) found the size of the object multiplied by its contrast percentage to be a key factor in determining visual effect. The contrast of the wind turbines against the sky and the land was assessed on a three grade scale of contrast: low, medium and high based on black and white prints. The ratings were averaged for each level of contrast and a low level of correlation between ratings and contrast was detected ( $r = .31$ ). The highest contrasting scenes were those within 1 km, whereas the more distant scenes, 2.5 km, were either of low or medium contrast.

Overall the results suggested a preference for white, blue or grey coloured turbines, with the differences between these very small. The tan hue was less preferred and the rainbow coloured turbines were definitely least preferred. The contrast the colour presented against its background indicated a slight correlation between ratings and the degree of contrast. The highest contrasting scenes were closest and the more distant scenes offered less contrast.

These findings must be regarded as tentative, being based on a small sample of scenes, but indicates an area for further research.

## 6. CONCLUSIONS

This research on people's scenic perceptions of the effects of wind farms has indicated the following conclusions:

1. Wind farms generally had a negative effect on South Australian landscapes of moderate to high perceived scenic quality (i.e. rated approximately 5.1 – 10 on a 10 point rating scale).
2. Wind farms generally had a positive effect on landscapes of moderate to lower perceived scenic quality (i.e. approximately 0 – 5.0 on a 10 point scale).
3. The effect of varying the number of wind turbines on perceived scenic quality indicated no clear trend.
4. Negative visual effects of the wind farm did not reduce appreciably with distance.
5. The colour of wind turbines and towers affected perceived scenic quality. White, blue or grey coloured turbines were preferred with very small differences. The tan hue was less preferred and rainbow coloured turbines were least preferred. There was a slight indication that ratings increased with the contrast presented.

Because of the small samples involved in examining the effect of the number of turbines, their distance and colour, further research of these aspects will be necessary.

The effect of other landscape dimensions as variables on perceived scenic quality (e.g. atmospheric conditions) and in combination with wind turbines was not tested.

Based on the study findings, it appears likely that negative visual effects of wind farms would be diminished if:

- The most scenic locations, which are often coastal, are avoided;
- Wind farms are located so as to be not visible from the water's edge in coastal settings or in association with the sea from key viewpoints;
- Wind farms are located in inland areas of low to moderate scenic quality;
- Inland areas of higher scenic quality are avoided.

It is acknowledged that locating the wind farm slightly inland from the coast may reduce the wind speed and hence the viability of the project, however this balance may need to be considered to protect scenic quality.

Scenic resources are important to manage and protect in the process of developing wind energy generation. 'World experience (in the USA, Denmark, UK and the Netherlands) suggests that landscape will normally be the single most strongly argued issue in any wind farm permit decision' (PPV, 2002, Vol 2).

For the wind energy industry, the findings are particularly significant. As a green industry, whose credentials rest on its generation of pollution-free and greenhouse-friendly electricity, it is particularly critical that the industry not cause environmental impacts. The findings of this study suggest that it should avoid the selection of sites which, although having excellent wind resources, are also of high scenic value to the community. Many of the cases of opposition to wind farms derive from the poor site selection by the industry. As a green industry, it must display greater sensitivity to scenic values than it has in the past.

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