Submission
No 102

INQUIRY INTO RURAL WIND FARMS

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The Director
General Purpose Standing Committee No.5
Parliament House
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Dear Sir/Madam

Rural Wind Farms (Inquiry)

My name is Andrew Homewood; I am a Consultant Landscape Architect with over 18 years experience in private practice. I have a BSc (Dual Hons) in Landscape Architecture and Archaeology and a Graduate Diploma in Landscape Management. I have prepared a significant number of landscape and visual impact assessments for a range of large scale infrastructure projects including wind farms in rural New South Wales.

I assisted in the preparation of visual assessments for the Crookwell II, Woodlawn and Molonglo wind farm projects and was commissioned to undertake the landscape and visual impact assessment for the recently approved Silverton wind farm development. I am in the process of completing landscape and visual impact assessments for the proposed Boco Rock and Sapphire wind farm projects in New South Wales.

1. What does this submission address?

This submission specifically addresses Point 2 of the Terms of Reference: *'Locating rural wind farms to optimise wind resource use and minimise residential and environmental impacts'.*

More specifically, this submission provides a brief overview of a typical landscape and visual impact assessment process, and provides an opinion as to whether or not wind farm developments in rural New South Wales are adequately assessed in relation to potential landscape and visual impacts.

2. Why do wind farm proponents commission landscape and visual impact assessments?

A landscape and visual impact assessment is usually required by the NSW Department of Planning and set out in the Director General's Requirements (DGR's) for wind farm projects to be assessed and determined under Part 3A Major Projects.

As a rule the DGR's will require the proponent to consider a range of landscape and visual issues that address:

- assessment of view locations within a nominated viewshed (generally up to 10km from the wind farm site);
- assessment of shadow flicker and blade glint;
- potential 'Zone of Visual Influence';
- preparation of photomontage from surrounding view locations;
- cumulative visual impacts;
- impacts of night time lighting; and
- potential for visual amenity mitigation.

A small number of NSW local councils have introduced DCP/LEP guidelines for wind farm developments, and although a number of NSW wind farm projects are likely to be assessed as Part 3A Major Projects and determined by the Minister for Planning, the preparation of a thorough and professional landscape and visual impact assessment would normally address the majority of issues raised by local councils.

Whilst wind turbines are likely to be the most visible component of a wind farm development, they may also include ancillary structures such as substations, transmission lines and control buildings and access tracks which should also be included in the landscape and visual assessment.

3. Who prepares a landscape and visual impact assessment for a wind farm development?

There are no guidelines as to who is best qualified to undertake a landscape and visual impact assessment. Visual impact assessments (but not necessarily for wind farms) have been prepared by a wide range of professionals, including Landscape Architects, Architects, Planners and Engineers. A large number of landscape and visual impact assessments for wind farm developments in NSW have been prepared by Landscape Architects.

4. Are there existing guidelines for landscape and visual impact assessments?

Yes. The majority of DGR's issued for wind farm developments reference the Australian Wind Energy Association and Australian Council of National Trust's publication Wind Farms and Landscape Values National Assessment Framework [1]. In addition to the National Assessment Framework, there are a number of other documents including the draft Impact Assessment Guidelines for Wind Energy Facilities (June 2003) and the AusWind Best Practice Guidelines for Wind Farm Developments[2].

5. What is a landscape impact and what is a visual impact?

Landscape impacts relate to the effects of a wind farm on the physical character of the landscape and the resulting ability of the landscape to accommodate a wind farm. The capability of the landscape to accommodate a wind farm can result from the nature of perceptual factors that influence our interpretation of the landscape, and may include issues relating to landform, scale, landcover and human influence or modifications.

Visual impacts relate to the effects on views experienced by people and may result from the potential visibility of a wind farm and the character of the landscape between, and surrounding people and the wind farm. The potential visibility and resulting visual impact may be partly determined by a combination of factors including:

- category and type of situation from which people may view a wind farm (e.g. residents or motorists);
- visual sensitivity of people surrounding a wind farm;
- potential number of people with a view toward a wind farm from any one view location;
- distance between the people and a wind farm; and
- duration of time over which a person may view a wind farm from any static (e.g. resident) or dynamic (e.g. motorist) view location.

Wind farms are generally easy to recognise in the landscape and, to take advantage of available wind resources, are more often located in elevated and exposed locations. The geometrical form of a wind turbine is a relatively simple one and can be visible for some distance beyond a wind farm, and the level of visibility may be accentuated by the repetitive or repeating pattern of multiple wind turbines.

6. But isn't visual impact assessment a subjective issue?

People's impressions of wind turbines within a particular landscape will always form an integral part of the visual impact assessment process, but an impression is likely to be informed beyond merely aesthetic considerations and can be shaped or formed through a multitude of complex social and cultural values.

Whilst some people may accept and support wind farms in response to global or local environmental issues, others may find the concept of wind farms, and their visual appearance, completely unacceptable. Some people may support the environmental ideals of wind farm development as part of a broader renewable energy strategy, but do not consider them appropriate for their regional or local area. It is unlikely that every wind farm project will conform, or be acceptable to a single point of view.

7. How are community perceptions canvassed?

Gathering information on local community perceptions toward a wind farm development is a fundamental requirement of the assessment process. Wind farm proponents can undertake a range of consultation, including:

- Door knocking;
- Leaflets/local media;
- Dedicated project web site;
- Public open days;
- Public Opinion Surveys; and
- Individual stakeholder meetings.

A recent perception study undertaken for a proposed wind farm development in NSW indicated that over 80% of people surveyed supported wind farms being developed in the local area, with over 70% of people surveyed favouring a wind farm within 1km of their home[3]. Although the survey targeted populations in the Southern Tablelands of NSW, the level of support is consistent with the results of other perception surveys within Australia, as well as a number carried out overseas.

8. Mitigation

The purpose of mitigation is to avoid, reduce, or where possible offset, any significant negative impact arising from a wind farm development. Mitigation measures may reduce the potential visual impact of a wind farm by:

- minimising visual prominence of wind turbines and associated structures by reducing the visual contrast with the landscape in which they are viewed; and
- screening views toward wind turbines from specific receptor locations.

Modern on-shore turbines can reach in excess of 150m in height, and combined with the general open nature of the sites in which they tend to be located, are likely to be conspicuous.
The opportunity to physically modify a turbine structure is limited by technical engineering requirements; however the consideration of a suitable colour application may reduce the level of visibility between wind turbines and their background. A suitable surface finish is also a consideration to reduce the potential for reflective sunlight (glint) to become a nuisance.

The Planning Minister's Conditions accompanying a wind farm Project Approval can also include a requirement for a wind farm proponent to provide landscape screening treatment for residents with views of a turbine/s within a specified radius of a wind farm development. Landscape treatments can provide an effective solution to screen, or filter views toward individual or turbine clusters.

9. In summary – what makes a 'good' wind farm landscape and visual impact assessment?

- A 'good' landscape and visual impact assessment should distinguish between the distinct, but integral, components of 'landscape' and 'visual' impacts, bringing each together to form an overall opinion of resulting impacts. Any assumptions or criteria used to determine impacts should be provided.
- A 'good' landscape and visual impact assessment is a complex assessment requiring an individuals ability to identify, describe and characterise 'landscape' and to determine it's sensitivity or value as a scenic resource. The assessment of 'landscape' should be carried out in a consistently clear manner avoiding complexity in descriptive terminology.
- A 'good' landscape and visual assessment also needs to consider the ability of a landscape to accommodate a wind farm development, together with the likely visual impact on a range of people living, working or travelling through the surrounding landscape.
- A 'good' landscape and visual impact assessment needs to present a variety of technical information (zone of visual influence maps, photomontage and shadow flicker diagrams), and should clearly explain the methods used to produce them and summarise results where appropriate.
- A 'good' landscape and visual impact assessment needs to identify people's perceptions and attitudes toward wind farm developments and present opportunities for people to provide them.
- A 'good' landscape and visual impact assessment will involve a professional and thorough approach resulting in a balanced and justifiable conclusion.

The adoption of current best practice guidelines, together with the NSW Department of Planning DGR's for individual wind farm projects, should result in a comprehensive assessment of potential landscape and visual impacts associated with a wind farm development, and provide sufficient detailed information upon which to make an informed determination.

I hope this submission provides a useful overview of the processes and procedures that can be involved in a landscape and visual impact assessment for a wind farm development. I have attempted to keep this submission brief, and there are bound to be issues that have been missed or passed over lightly, but I believe that the main points have been addressed.

Yours sincerely

Andrew Homewood

References

1. http://www.auswind.org/downloads/landscape/NAF07-06-27FINAL.pdf
2. http://www.auswind.org/downloads/bestpractice/AUSWINDBestPracticeGuidelines.pdf
3. Epuron Pty Ltd (2008) Gullen Range Wind Farm, Landscape and Visual Assessment.