APPENDIX F:
INDEPENDENT PEER REVIEW - VISUAL ASSESSMENT

INDEPENDENT EXPERT REVIEW

PROPOSED RYE PARK WIND FARM DEVELOPMENT

Prepared for
NSW DEPARTMENT OF PLANNING & ENVIRONMENT

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REVISION D

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Revisions

957-Z-01	draft issued	27th Feb 2016
957-Z-02	draft issued	18th April 2016
957-Z-02 rev B	draft issued	8th July 2016
957-Z-02 rev C	draft issue	5th Sept 2016
957-Z-02 rev D	final issue	7th Sept 2016

Section 1 *Report Overview*

1.0 Executive Summary

O'Hanlon Design has been engaged by DP&E to review the Landscape and Visual Impact Assessment (LVIA) for the Rye Park Wind Farm proposal provided by the proponent. The engagement was carried out as a desktop analysis supported by a number of site inspections to ground test our findings. Our review has identified that the LVIA is prepared to a sufficient standard to meet the bulk of the Director General's Requirements as issued in February 2011. It is our opinion that whilst lacking in the anticipated level of community consultation required to contribute meaningfully to the assessment of stakeholder values and community perceptions of the landscape, further community consultation is unlikely to significantly change the outcome of the assessments of impacts created by either the final LVIA or this review.

It is important to recognise that over time the gradual increase in height of turbines has increased the likelihood of increases in impacts from wind farm developments. As a result the Rye Park Wind Farm with proposed turbine heights of 157m does require significant mitigation to avoid unreasonable impacts on viewing locations in close proximity to the turbines. At Rye Park the lineal form of the turbine layout significantly increases the length of the interface with rural residential properties, resulting in a high number of affected properties on the fringe of the proposed development. Our assessment has highlighted a number of locations where visual magnitude of the proposal turbines and/or cumulative impacts are high, resulting in recommendations for further mitigation or removal of turbines.

Generally, removal of the recommended turbines will reduce the overall impact at the selected viewing locations from high or high-moderate back into the more moderate range of impacts. Of particular note is the recommendation to remove 27 turbines generally north, north-east and east of the village of Rye Park. These turbines are concentrated adjacent to several clusters of rural residences and the village of Rye Park, the most densely populated area adjacent to the proposed wind farm. In total we have recommended the removal or mitigation of 40 turbines.

1.1 Introduction

O'Hanlon Design Pty Ltd has been engaged by the NSW Department of Planning and Environment (DP&E) to review and comment on the quality and accuracy of the landscape and visual assessment report for the Rye Park Wind Farm, provided as part of the Environmental Assessment (EA) submitted for development approval by Epuron Pty. Ltd (the Proponent).

The engagement specifies the expert review is to include consideration of:

- the appropriate documentation provided by the Department with regard to the Director-General's requirements, relevant planning guidelines with particular regard to the Department's *Draft NSW Planning Guidelines - Wind Farms 2011,* industry standards and legislation.
- Accompany representatives of the Department on a site visit to key visually impacted residences and public viewpoints;
- Preparation of an independent expert review report providing advice and commentary on the :
    - The Rye Park Wind Farm Revised LVIA (including methodology, assumptions and assessment of impacts including cumulative impacts of the Bango Wind Farm), and if necessary, identify gaps in the documentation to be addressed by the Proponent to ensure it accords with all relevant guidelines;
    - suitability of the proposed mitigation and management measures if required;

- changes required for the acceptability of the project, in particular the acceptability of the wind turbines or related infrastructure as viewed in the landscape from public or private viewpoints.
- Rye Park Wind Farm LVIA assessment of residences within a 3km radius of any turbine to verify the accuracy of the revised assessment.

1.2 Relevant Documents

During preparation of this report we have reviewed and taken into consideration the following documents:

- *Rye Park Wind Farm Environmental Assessment (EA) MP10-0223*

  Epuron: January 2014

- *Revised Landscape and Visual Impact Assessment (LVIA)*

  Green Bean Design: December 2015

- *Draft NSW Planning Guidelines – Wind Farms*

  NSW Dept of Planning & Infrastructure: December 2011

- *Wind Farms and Landscape Values-National Assessment Framework*

  Under the auspices of the Council of National Trusts and Auswind: 27 June 2007

1.3 Methodology

The methodology for preparation of this review has included three site visits, a desktop review of residences and potential viewing locations, DOPI guidelines, the proponent's Environmental Assessment (EA), the first and final LVIA's and submissions in response to the exhibition of the Environmental Assessment. We have also extensively analysed topographic maps for the study area and wider areas to identify possible local issues and potential cumulative or regional issues.

In addition to the documents available on the notification website we have accessed a number of other Environmental Assessments for wind farms and the National Assessment Framework document. The purpose of these reviews was to provide background information, a reference for the methodology and depth of assessment that could be considered reasonable.

Further information on individual regional wind farms was sourced where possible from the individual wind farm web sites.

1.4 Terms and Abbreviations

Terms and abbreviations used throughout the text of the report are shown in **Table 1.1** below

Table 1.1 Terms and Abbreviations

Term / Abbreviation	Meaning
AHD	Australian Height Datum
Crookwell	The study areas in and around Crookwell and adjacent residential properties
DGR's	Director General's Requirements
DP&E	NSW Department of Planning & Environment
DIPNR	Former NSW Department of Infrastructure, Planning and Natural Resources. (now NSW Dept of Planning and Environment)
The EA	Environmental Assessment Report – Epuron, January 2014

Term / Abbreviation	Meaning
EIS	Environmental Impact Statement
EP&A Act 1979	NSW Environmental Planning and Assessment Act 1979
km	Kilometre
LGA	Local Government Area
LVIA	Landscape and Visual Impact Assessment – prepared by Green Bean Design
Final LVIA	Final Landscape and Visual Impact Assessment dated 22nd April 2016 – prepared by Green Bean Design
m	metre
NAF	Wind Farms and Landscape Values - (National Assessment Framework)
The Guidelines	NSW Planning Guidelines – Wind Farms 2011 (Draft)
RtS	Response to Submissions
RL	Relative level

Section 2 Review of Relevant Documents

2.0 General

The Director General's Requirements (DGR's) for the project were issued on 14 February 2011. The DGR's have several requirements to be met in relation to the visual assessment as noted in the table below.

2.1 Director General's Requirements for the EA.

Amongst a range of other requirements the DGR's for the Rye Park Wind Farm proposal fall into two groups, General Requirements and Key Assessment Requirements for visual impacts.

Table 2.1 **Director General's Requirements Summary**

Location	**Requirements**
General Requirements	• *Location, dimensions of all components (incl. map coordinates and AHD)*
	• *Supporting maps and plans identifying existing environmental elements.*
	• *Supporting maps and plans identifying the location and siting of the project including associated infrastructure in the context of the existing environment*
	• *A draft statement of commitments*
Key Assessment Requirements	**Visual Impacts** – The DGR's require that the EA must:
	• *provide a comprehensive assessment of the landscape character and values and any scenic or significant vistas of the area potentially affected by the project. This should describe community and stakeholder values of the local and regional visual amenity and quality, and perceptions of the project based on surveys and consultation;*
	• *assess the impact of shadow 'flicker', blade 'glint' and night lighting from the wind farm;*
	• *identify the zone of visual influence (no less than 10 kilometres) and assess the visual impact of all project components on this landscape;*
	• *assess the cumulative impacts of the transmission line infrastructure.* • *assess the feasibility and reliability of the mitigation measures* • *Include photomontages from affected residences and public locations*

In addition to these requirements the Director General issued 'Supplementary Requirements' dated 16th August 2011. These require amongst other matters a *'comprehensive, detailed and genuine community consultation ….'* and further *'the Environmental Assessment must state how the communities issues have been responded to.'*

2.2 NSW Planning Guidelines – Wind Farms (draft)

The NSW Planning Guidelines – Wind Farms (The Guidelines) is currently issued as a draft document dated December 2011. Section 1, Part C (p.4) and Section 3.2 on (p.14) set the overall

guidelines with particular focus on assessing impacts at neighbouring houses within 2 km of a proposed wind turbine.

Section 1 Part C requires a comprehensive assessment of visual impacts of the proposed wind farm on the landscape character, landscape values, visual amenity or any scenic or significant vistas to be undertaken. The Guidelines identify that the assessment should particularly focus on any neighbours' houses within 2km of a proposed wind turbine that do not host the wind farm. Appendices A and E of the Guidelines has an extensive and detailed list of elements that require identification and assessment.

Our assessment of the final LVIA compared to The Guidelines follows in **Section 3.2 Draft NSW Planning Guidelines – Wind Farms 2011.**

2.3 Wind Farms and Landscape Values – National Assessment Framework

An assessment of several other documents was carried out as part of the desktop review for this report. The first assessment was of the document titled 'Wind Farms and Landscape Values' - a National Assessment Framework (NAF), June 2007. The NAF was the product of a national project to develop agreed methodologies for landscape assessment of wind farm location and design. The project was produced under the auspices of the Australian Council of National Trusts and Auswind (now the Clean Energy Council). It is a national trust/industry produced and agreed document formatted to create an acceptable and objective methodology applicable throughout Australia.

2.3.1 NAF Summary Table

Attached to this report as **Appendix A** is a copy of the NAF Survey Table (p.7) of the NAF Report, and copies of the detailed pages for Step 1B of the NAF, the compilation of a full landscape assessment.

In its summary table, Step 1B of the NAF highlights that in order to provide a full landscape assessment which addresses the range of landscape values and to evaluate the strength and significance of those values, direct community input is essential. The detailed tasks of the NAF for Landscape Assessment in Step 1B.3 require gathering of *Natural and Cultural Information*.

Further Step 1B.4 of the NAF requires development of a methodology to facilitate identification of community held landscape values. The NAF indicates a strong preference for direct community involvement in the identification of the landscape values of the study area. The NAF seeks to ensure that communities have direct involvement in assessment and setting of landscape values.

2.3.2 Cumulative Impact Assessment

In Section 3.3 the NAF identifies that approaches for understanding how affected communities perceive cumulative changes to the landscape are not well developed however direct consultation can be useful. The NAF identifies key factors to be addressed in identifying potential cumulative impacts. The proponent is required to describe cumulative landscape impacts, including those arising from:

- the occurrence of two or more wind farms visible from one location,
- the effect of seeing two or more wind farms along a single journey,
- the visual compatibility of different wind farms in the same vicinity,
- perceived or actual change in land use across a landscape character type or region; and
- loss of any characteristic element in the landscape

The proponent is also encouraged to consider the cumulative impacts of the wind farm in combination with other developments (e.g. industrial, urban, large-scale agricultural) in the study area or region.

2.4 Summary of the Relevant Document Reviews

Our review of the relevant documents has revealed a number of complimentary requirements and key components of the various methodologies.

2.4.1 Community Assessment

The DGR's require, and the NAF provides, a framework that relies on a high level of community involvement. The Guidelines require a description of community values based on surveys and consultation. The NAF seeks direct community involvement in setting the landscape values for the purpose of the assessment and for review of impacts. I consider the DGR's and Guidelines requirements would be met by using the methodologies identified in the NAF.

2.4.2 Cumulative Impacts

The DGR's and Guidelines require an assessment of cumulative impacts. To assess those impacts the NAF relies on community input and requires a clear rating of the impact value, duration and reversibility.

I consider that community input into the setting of values is a significant factor particularly in relation to cumulative impact assessment. This area of community input has little research as is demonstrated by the reference in the LVIA to a single documented community response. As a result the sensitivity level assessment set in the LVIA's of most projects are highly subjective and the findings, as in the Rye Park LVIA, are frequently based on professional assessments or perceptions, not on community based researched values.

In this case I also note that the cumulative effects of the proposed Bango wind farm have not been assessed to determine individual effects on either public or private viewing locations.

Section 3 THE REVISED RYE PARK WIND FARM LVIA

3.0 General

To meet the requirements of the engagement outlined in **1.1 Introduction**, we have separated the review of the Revised Rye Park Visual Impact Assessment (LVIA) into components that match the details of the engagement. We have identified our opinion of the suitability of the methodology, compliance and/or validity of the LVIA to the statutory documents and have determined a number of detailed relevant areas of the LVIA for review or comparable assessment.

3.1 Director General's Requirements

The table provided in **Section 2.1** is replicated below with comments on compliance with the requirements.

Table 3.1 **Director General's Requirements: Compliance Table**

Location	Requirements	Compliance of the EA	Reason
General Requirements	• *Location, dimensions of all components (incl. map coordinates and AHD)*	Compliant	Provided
	• *Supporting maps and plans identifying existing environmental elements.*	Compliant	Provided
	• *Supporting maps and plans identifying the location and siting of the project including associated infrastructure in the context of the existing environment*	Compliant	Provided
	• *A draft statement of commitments*	Partly Compliant	The LVIA commits to various measures in the document however proposed screening commitments are not specific but generic and rely on further consultation.
Key Assessment Requirements	***Visual Impacts** – The DGR's require that the EA must:*		Summary of Relevant Document Reviews
	• *provide a comprehensive assessment of the landscape character and values and any scenic or significant vistas of the area potentially affected by the project. This should describe community and stakeholder values of the local and regional visual amenity and quality, and perceptions of the project based on*	Partly Compliant	The LVIA does not identify any research in relation to community and stakeholder values of the local and regional visual quality. The assessment and findings in relation to landscape character are not based on local surveys or consultations.

	surveys and consultation;		
	• *assess the impact of shadow 'flicker', blade 'glint' and night lighting from the wind farm;*	Compliant	Provided
	• *identify the zone of visual influence (no less than 10 kilometres) and assess the visual impact of all project components on this landscape;*	Partly Compliant	The zone of visual influence is mapped and elements are identified however without the required assessment of character based on survey or consultation the assessment of visual impact could be inaccurate.
	• *provide an assessment of the feasibility, effectiveness and reliability of proposed mitigation measures and any residual impacts after these measures have been implemented.*	Partly Compliant	The revised LVIA has modified the original proposal by reduction of turbine numbers and re-location of some proposed turbines, this has mitigated some of the original impacts. Further individual or potential overall mitigation measures are not clearly set out as a statement of commitment. The LVIA does not specify where individual screening will occur, only that it may provide mitigation. Therefore the potential reduction of impact, feasibility, effectiveness and reliability of proposed mitigation measures cannot be determined.

In addition to these assessments the Director General issued 'Supplementary Requirements' dated 16th August 2011. These require amongst other matters a *'comprehensive, detailed and genuine community consultation ….'* And further *'the Environmental Assessment must state how the communities' issues have been responded to.'*

I consider that genuine community consultation must include identification of local and regional stakeholder values and community perceptions of the impacts both individual and cumulative. This is a key requirement that determines the validity of the methodology. The LVIA does not meet the DGR's for this element of community consultation.

3.2 Draft NSW Planning Guidelines – Wind Farms 2011

The individual requirements of the NSW Guidelines have been considered below under the headings identified in Section 2.2 of this review. Relevant text from the NSW Guidelines is shown in italics and our comments related to the Rye Park Wind Farm LVIA follow each heading.

3.2.1 Assessment Methodology

- *a description of the assessment methodology and a clear justification of it including discrete justification of the methodology for assessing impacts at neighbours' houses within 2km of a proposed wind turbine.*

The LVIA has provided a clear description of the methodology

The LVIA has provided a discrete justification of the methodology for assessing impacts at non associated residences within 2km (and out to an extended distance of 3km) as required of the turbine and infrastructure impacts.

3.2.2 Project Description

- *A description of all relevant components of the project, including turbine heights and layout- where micro-siting or a range of turbines is proposed, the assessment should be based on the 'worst case' layout and turbine height.*

The LVIA and the EA have provided a clear description of the relevant components of the project and based the assessments on a worst case scenario.

3.2.3 Landscape Description

- *A description of the landscape including key features*

The LVIA has provided a description of the landscape character areas of the study zone. The LVIA and EA have identified few key features.

3.2.4 Visibility

- *A description of the visibility of the development*

The LVIA provides a Zone of Visual Influence Assessment and an assessment of climatic and other visibility factors.

The LVIA does have a methodology to assess visibility and to assess the effect on the spatial dominance or required set backs due to the potential height of the turbines at 157m.

3.2.5 Photomontages

- *Photomontages of the project and associated transmission lines taken from:*
    - *potentially affected residences (including approved but not yet developed dwellings or subdivisions with residential rights) within 3km of a proposed wind turbine or other associated infrastructure,*
    - *urban settlements, and*
    - *significant public view points including roads, lookout points and walkways.*

The LVIA includes a wide range of photomontages for affected locations and residences. The methodology used for production of the photomontages is widely accepted and assuming the methodology was followed the results are indicative of the likely potential views.

3.2.6 Zones of Visual Influence

- *Identification of the zone of visual influence of the wind farm (no less that 10km)*

The LVIA identifies zones of visual influence.

3.2.7 Landscape Character

- *A description of the significance of the landscape values and character in a local and regional context*

The LVIA assesses the landscape character however the assessment is not based on local community values but on the professional opinion of the assessor.

3.2.8 Stakeholder Values

- *A description of community and stakeholder values of the local, regional visual amenity and quality and perceptions of the project based on surveys and consultation.*

The LVIA does not describe the stakeholder values of the local visual amenity and quality using a methodology based on surveys or consultation of the local community.

3.2.9 Cumulative Impacts

- *Assessment of cumulative impacts on the landscape and any cumulative visual impacts from transmission line infrastructure and any surrounding approved or operational wind farms in the locality.*

The LVIA considers that any adjacent or surrounding wind farm is not within a distance that will significantly add to the impacts of the Rye Park Wind Farm. This assumption, although reasonable within the visual context of the LVIA, does not account for the potential cumulative effect of the development of an extended group of wind farms along the ridges of Great Dividing Range and the change of character associated with those extended cumulative impacts. This wider ranging assessment is beyond the Scope of this assessment. However the proposed Bango wind farm on the western edge of the Rye Park site does have potential for cumulative impacts on Rye Park village, residences to the south west and public viewing locations along the Dalton-Rye Park Road. This is generally noted however the Final LVIA was not updated to include any information in relation to the proposal.

3.2.10 Potential Change to Landscape

The visual impact of a wind farm depends on the extent of the change to the landscape caused by the development, taking into account:

- *the visibility of the development,*
- *the locations and distances from which the development can be viewed,*
- *landscape values and their significance, and*
- *the sensitivity of the landscape features to change.*

The LVIA has taken into account these factors however the assessment is limited by the lack of community consultation, assessment and description noted in 2.2.4, 2.2.6, 2.2.7 and 2.2.8 above.

The LVIA correctly assesses that the impacts created by the Rye Park Wind Farm are in keeping with the existing character created by other approved wind farms in the locality.

The LVIA does not consider the fact that the existing character of the Rye Park landscape is one of predominantly enclosed pastoral valleys with a backdrop of wooded hills and ranges and that the result of the impacts of this proposal will be an overall change of character to a "*Wind Farm Pastoral Character*" as described in an independent review of the Crookwell 2 Wind Farm EIS by Scenic Spectrums Pty Ltd, January 2005. In that study a *"Pastoral Wind Farm – Landscape Character"* is described as *"a landscape expressing dominant wind farm uses that exert a strong visual influence over the character of the landscape primarily in the form of tall wind turbines with moving blades, access roads substations and supporting infrastructure."*

3.2.11 Contributing Factors to Visual Impact

The visual impact of the development relates to:

- *the number, height, scale, spacing, colour and surface reflectivity of the wind turbines*
- *the quantity and characteristics of lighting, including aviation obstacle lighting (subject to CASA requirements and advice)*
- *potential or visual clutter caused by turbine layout and ability to view through a cluster or array (visually well ordered series) of turbines in an orderly manner*
- *the removal or planting of vegetation*
- *the location and scale of other buildings and works including transmission lines and associated access roads*
- *proximity to sensitive areas*

- *proximity to an existing or proposed wind farm, having regard to cumulative visual effects.*

In addition to comments in section 3.2 above the LVIA has taken these factors into account.

3.2.12 Landscape Features

The features of the landscape include:

- *the topography of the land*
- *the amount and type of vegetation*
- *natural features such as waterways, cliffs, escarpments, hills, gullies and valleys*
- *visual boundaries between major landscape types*
- *the type, pattern, build form, scale and character of development, including roads and walking tracks*
- *flora and fauna habitat*
- *cultural heritage sites*
- *the skyline*

The LVIA has taken some of these factors into account. However, the effect of the location of the turbines on ridges, the relative heights to viewers, nor the effect on the skyline appear to have be considered as part of the stated methodology.

3.2.13 Mitigation of Impacts

The NSW Guidelines offers possible mitigation measures stating:

Examples of mitigation measures that proponents can use to reduce the visual impact of a proposed wind farm include:

- *where possible, locate turbines;*
    - *away from areas with high scenic values*
    - *away from areas with high visibility from local residents*
- *select turbines that:*
    - *look the same, have the same height and rotate the same way*
    - *are off-white or grey colouring*
- *minimize the removal of vegetation*
- *plant vegetation to provide a visual screen*
- *reduce impacts of night and obstacle lighting by*
    - *limiting lighting on towers to that required for safe operation and aviation safety and*
    - *use of lighting design which minimizes glare*
- *underground electricity wires where practicable*
- *use alternative transmission line pole designs to minimize visual impact.*

The original LVIA has been reviewed and where the proponent considers it reasonable has adjusted the proposal to reduce impacts and mitigate residual impacts using some of these techniques and those changes are encompassed in the final LVIA.

3.2.14 Social Issues

Several of the issues identified as 'Social Issues' in Appendix A of the NSW Guidelines relate to visual impacts.

Social issues that have a visual component include:

- *blade glint*
- *shadow flicker*
- *night lighting*

The LVIA has made assessment and provided expert comment on blade glint and shadow flicker and night lighting.

Appendix A has an extensive and detailed list of elements that require identification and assessment. The key headings and verification of compliance with the requirements is tabulated below.

Table 3.2 **NSW Planning Guidelines *Appendices A and E* – Assessment Table**

Location	**Description of surrounding environment**	**Comment**
Appendix A	• Landscape and Visual Amenity	Refer 3.2.3 and 3.2.7
	• Assessing Landscape and Visual Amenity impacts	Refer 3.2.10, 3.2.11 and 3.2.12
	• Mitigating Landscape and Visual Amenity impacts	Refer 3.2.13
	• Blade Glint	Assessed
	• Shadow Flicker	Assessed
	• Night Lighting	Assessed
	• Cumulative impacts	Refer 3.2.9 and 3.2.10
	• Construction Issues	Assessed
Appendix E	Micro Siting of Turbines	The LVIA identifies some micro siting of turbines will be required and commits to maintaining the minimum set back from residences.

3.3 National Assessment Framework

The Wind Farms and Landscape Values – NAF sets out a process for Landscape Assessment of a wind farm that requires 5 steps. For each step direct community involvement is considered essential. In the *Introduction* Section 1.2 of the LVIA states it has encompassed the general assessment framework of the NAF in the LVIA methodology. Whilst I agree the methodology used for the LVIA is based on general assessment framework of the NAF incorporating,

- analysis of landscape character,
- description of development,
- identification of impacts and
- consideration of mitigation measures,

The LVIA fails to incorporate the real key element of the NAF – direct local community involvement in the process of setting landscape values and assessing impacts. The basis of the LVIA is therefore the professional opinion of the assessor and it is not identified that the assessor is informed by public perception or survey. Therefore the Revised Rye Park LVIA assessment of landscape character and potential impacts may not be a true reflection of the values of the potential stakeholders.

I consider that when the LVIA is considered against the methodology of the NAF and the DGR's it is reasonable to conclude the gathering of base data, analysis and description of development are adequate however the assessment of character and likely impacts do not meet the compliance standard set by the DGR's.

3.4 LVIA Assessment Elements for further consideration

Below are a list of items noted during visits to the site when comparing the LVIA photomontages to current outlooks or during our office review of the final LVIA.

3.4.1 LVIA Items 8.6 to 9.3 (pages 47-54) Visual Impact Elements and Visual Grading Matrix

This section is the most critical section of the report. The methodology used in this section of the report affects the outcome and degree of impact for every assessed element and residence. The discussion and explanation of the elements and methodology is reasonably clear. However the setting of parameters and the synthesis of parameters in Table 16 the 'Visual Impact Grading Matrix' does not appear to be a properly integrated matrix that produces a reliable quantifiable outcome.

An example is the combination of LVIA Table 13 "Visual Effects" and Table 15 "Magnitude Assessment". In Table 13 a **Moderate to High** rating is set for viewers around 3km from the turbines as the text suggests the turbines would generally dominate the landscape, then Table 15 sets duration of effect at **Very Low** for less than 10 minutes exposure and a rating of **Very Low** for up to 20 turbines. When entered into table 16 for people driving past on a local road this results in an outcome of **Very Low**. This is surprising as I would expect the impact to be at least Moderate.

Notably the synthesis of key factors in Table 16, the sensitivity analysis, does not appear to correctly account for the number of viewers. Using the same example, turbines close to a main highway are suggested to have a **negligible** effect using Table 16 for the sensitivity of people on highways. It is difficult to imagine driving past 20 turbines at distances between 3km and 1km over 10 minutes and suggesting the impact is negligible or very low.

A further example is that Table 16 does not assess or allow consideration of a very short distance view over any time criteria other than a long duration of time which in itself is not a defined parameter in Table 13.

In summary Table 16 is not a matrix that allows for the combination of the range of visual parameters set in the preceding discussion in the LVIA and, where it does attempt to combine them, the Table appears to produce in some instances, unjustifiable results. The result of this significant discrepancy is that some of the assessment ratings in the LVIA appear to be skewed.

During our site assessment we considered most of the ratings for elevated areas of Rye Park including RP 12 and 13 appear too low. It is not clear how much or how many ratings this could affect. It is however very clear that the synthesis of the parameters in Table 16 has some short comings and that overall this reduces the reliability of the conclusions and ratings drawn using Table16.

3.4.2 LVIA Figure 53, Residence 38

The montage shows the view north/ north-east however in our opinion a significant impact is also created in the view south/ south-west that is not evident in the single photomontage. This is highlighted by the wide horizon within which the turbines are located. R38 is also affected by the proposed run of powerlines to the east.

3.4.3 LVIA Figure 63, Photomontage Residence 266

The montage is very indistinct due to background colours and turbines are extremely difficult to identify in the montage if they are in fact shown.

3.4.4 LVIA Figure 65, Photomontage Residence 268

There appear to be less visible wind turbines in the photomontage than we would anticipate from topographical analysis.

3.4.5 Photomontages – General

We acknowledge the difficulty in creating realistic illustrations of proposed windfarms, however we consider that while a 120 degree photomontage creates a reasonably realistic view of the potential cone of vision for an individual, the vertical scale of the windfarm is significantly reduced in a panoramic montage through 120 degrees particularly when printed on an A4 or an A3 sheet. We consider that the resultant loss of scale and clarity somewhat diminishes the impact of the wind farm elements in the landscape and could lead to a misunderstanding by some readers of the degree of impact.

Shadows created by wind farm infrastructure are often not illustrated or appear to be incorrectly rendered. In many cases they do not match the shadows of existing elements within the landscape in the photograph used to create the photomontage. This is a relatively minor item except that the lack of shadow on the vertical turbine elements in some cases reduces the visibility of the elements in the montage. An example is LVIA Figure 34, Photomontage 3 where the correct shadow would emphasise the turbine towers against the background as the turbines would be a darker colour.

These minor discrepancies highlight the risk of assessing the impacts using photomontages in lieu of referring to the body of the text. It is likely many readers do not read the full text but use the photomontages to form an opinion of the significance of the impacts.

3.5 Assessment of Residences within 3km of infrastructure

The basis of this assessment is a review of the likely impacts of the infrastructure on residences within a 3km radius of the wind turbines. This is similar to the methodology of the LVIA. Our assessment is not a full visual impact assessment from first principles, more a review of the LVIA and a verification from desk top and site visit analysis.

In carrying out our assessment it became clear that the methodology of separating the wind turbine visual impacts and the electrical infrastructure impacts makes it difficult to form a view on the overall impacts. This is complicated by the assessment in the LVIA of impacts within distance groupings and the random numbering of the photomontage system. It is notable that the layout of turbines and the numbering system has changed slightly in the amended EIS.

To provide a more simple review of the impacts on residences our assessment is broken into area clusters with reference to the general location, distance from the main wind turbine infrastructure, the assessment provided by the proponent in the LVIA and reference to any photomontages provide from the residence as part of the revised LVIA.

For cumulative impacts we have considered the view catchment as a set of six 60 degree sectors. This simple baseline density measure allows a level of comparison of potential impacts between different viewer locations. The greater the number of sectors affected the more likely a sense of enclosure by the wind farm infrastructure is created. This also allows consideration of adjacent windfarm infrastructure in the cumulative assessment.

3.5.1 Western Intermediate Cluster (LVIA Fig 28b)

This cluster of residences is relatively elevated and several residences have elevated views to the north-north east and to the east of turbines. The more southerly residences have some very limited views to wind turbines in the south-east. Some residences have short distance views to proposed powerlines. In addition the proposed Bango wind farm would be visible approx. 9km to the west of the cluster creating cumulative impacts in more than four 60 degree sectors.

Residence	Distance	LVIA Assessment	OHD Comments	Photomontage
R47	1257m	High-Moderate	High	56
R48	1451m	High-Moderate	High	57
R50	1676m	High	High	68
R53	1629m	High-Moderate	Agree	58
R83	2067m	Moderate	High-Moderate	64
R85	2289m	High-Moderate	Agree	-
R86	2676m	High-Moderate	Agree	-
R324	1912m	High-Moderate	Agree	70

Mitigation Measures: To reduce the very high magnitude impacts on all residences in this cluster and particularly R47, R48, R50 and R53, remove turbines RYP93, RYP94, RYP95, RYP96, RYP97, RYP98, RYP99, and RYP101. This measure also reduces the high magnitude impacts at public viewpoints VP34 and VP35.

3.5.2 Southern Cluster (LVIA Figure 28b)

This cluster of residences have potential views to the north of wind turbines and are generally shielded from powerline visual impacts.

Residence	Distance	LVIA Assessment	OHD Comments	Photomontage
R63	1907m.	Low	Moderate-Low	-
R90	2518m.	Low (nil)	Moderate	-
R98	2629m.	Moderate-Low	Agree	-
R100	2845m.	Low	Moderate-Low	-

Photomontage at PM1 on Coolalie Road is the closest photomontage.

3.5.3 South Eastern Cluster (LVIA Figure 28b)

Generally this cluster has views south west toward wind turbines. R56 has some additional impacts from proposed powerlines.

Residence	Distance	LVIA Assessment	OHD Comments	Photomontage
R56	1172m	High-Moderate	Agree	60
R101	2200m	Low	Low-Moderate	-
R153	2988m	Low (nil)	Low	58

Mitigation Measures: Remove turbine RYP145 to significantly reduce the very high magnitude impact on the residence and curtilage of R56.

3.5.4 Southern Intermediate Cluster (LVIA Figure 28b)

This cluster, with the exception of R68, is situated in a well vegetated saddle with views of wind turbines to the north-north west and also to the south. All locations are affected by proposed powerline infrastructure.

Residence	Distance	LVIA Assessment	OHD Comments	Photomontage
R68	2225m	High-Moderate	High	65
	Powerlines 200m	High	High	-
R102	2439m	Moderate-Low	Moderate	-
	Powerlines 658m	Low	Agree	-
R315	2179m	Low	Moderate-Low	-
	Powerlines 1800m	Low-Nil	Agree	-

Mitigation Measures: If after consideration of other factors relocation of the 330kV powerline is possible, extend the alternative powerline route 4 west and northwest by approx. 3km. placing the 330kV line in the gully between R68 and R66 approx. 650m southwest of R68 to reduce impact on R68 and R102.

3.5.5 Eastern Intermediate Cluster (LVIA Figure 28b)

This cluster is located east of the long chain of wind turbines at around 2000m. Some impacts also associated with powerlines to the south-west.

Residence	Distance	LVIA Assessment	OHD Comments	Photomontage
R45	1710M	Moderate-Low	Moderate	55
	Powerlines 1730m	Nil	Low (assumes Alt 3)	-
R111	2312m	Moderate-Low	Agree	-
R170	1901m	Low	Moderate	-
	Powerlines 1730m	Low (nil)	Low (assumes Alt 3)	-

Mitigation Measures: R45 appears to be predominantly screened by intervening topography and vegetation with only small sections of the blades likely to be visible. Provide additional vegetative screening if and where appropriate to R45 to screen turbine RYP86 and RYP87 if the turbine nacels are visible.

3.5.6 North Eastern Cluster (LVIA Figure 28a)

This cluster is situated east of the main ridge with views of turbines to the west. I anticipate this cluster will be more affected than generally indicated in the LVIA due to the proximity and number of turbines within 5km in three 60 degree cumulative sectors. Direct access and photomontages for R24 and R28 were not available however the proponent has provide site photographs and suitable wireframe models which have been used for our assessment.

Residence	Distance	LVIA Assessment	OHD Comments	Photomontage
R24	2014	Low	Moderate-Low (due to, cumulative magnitude and factors)	-
R28	2143	Low	Moderate (due to cumulative and magnitude factors)	-
R112	2487	Moderate	Agree	-
R113	2550	Low	Moderate-Low (due to cumulative and magnitude factors)	-

Mitigation Measures: Based on the wireframes provided the removal of turbines RYP48 and RYP49 are warranted to reduce very high magnitude impacts on R24, and R28.The removals will reduce the impacts below the Moderate threshold. In the case of R24 the removal of both turbines will reduce the cumulative affected views into less than 2 sixty degree sectors.

3.5.7 Northern Cluster (LVIA Figure 28a)

This cluster is located to the north-east of the main turbine group with potential views to the south and west of the wind turbines.

Residence	Distance	LVIA Assessment	OHD Comments	Photomontage
R1	910m	High	Agree	41
R4	2627m	Low	Agree	-
R6	1349m	Low	Agree	42
R7	1403m	Low	Moderate-Low	43
R8	1534m	Low	Agree	44
R9	1632m	Low (nil)	Low	45
R10	1832m	Low	Agree	46
R11	1632m	Moderate	Agree	-
R286	2512m	Moderate	Agree	-

Mitigation measures: Removal of turbines RYP 1, RYP 2, RYP 3 and RYP151 to reduce very high magnitude impacts on R1.

3.5.8 North Western Cluster (LVIA Figure 28a)

This large cluster of residences is closely associated with the township of Rye Park. Views of turbines generally to the east, north-east and south-east depending on individual residence configurations. Generally the residences appear more affected that indication in the LVIA. I anticipate this cluster will be more affected than generally indicated in the LVIA due to the proximity and number of turbines within 3km of a large number of residences with associated cumulative impacts in three 60 degree sectors.

Residence	Distance	LVIA Assessment	OHD Comments	Photomontage
R15	2416m	High-Moderate	Agree	69
R18	1993m	Moderate	High-Moderate	49
R19	1609m	Moderate	High-Moderate	-
R20	1874m	Moderate	Agree	48
R22	1847m	Moderate-Low	Moderate	50
R26	1667m	Moderate-Low	Moderate	67
R29	1759m	Moderate-Low	Moderate	-
R65	1909m	Low	Agree	62
R131	2171m	High-Moderate	High	-
R132	2469m	High-Moderate	High	-
R204	2670m	Moderate-Low	Moderate	-
R266	2059m	Moderate-Low	High-Moderate	63
R267	2498m	Moderate-Low	High-Moderate	-
R268	2516m	Moderate-Low	High-Moderate	-
R271	2752m	High-Moderate	Agree	-
R328	2211m	High-Moderate	High	51

Mitigation Measures: Removal of turbines RYP4, RYP5, RYP6, RYP7, RYP9, RYP11, RYP12, RYP16, RPY18, RYP21, RYP26, RYP 28, RYP 29, RYP 133 and RYP 134 to reduce the very high magnitude impacts on all residences in the cluster.

3.5.9 Rye Park Township (LVIA Figure 28c)

The township of Rye Park is situated generally 3100m from the nearest group of turbines. The residences form two groups, one east of Yass Street and those slightly further away and more elevated around or along Kershaw Street. This table covers those east of Yass St and the LVIA covers the second group in Residential Precinct 13 (RP13) noted at the end of this table.

Residence	Distance (Approx.)	LVIA Assessment	OHD Comments	Photomontage
R188	3100m	Moderate-Low	Moderate	-
R230	3100m	Moderate-Low	Moderate	-
R199	3100m	Moderate-Low	Moderate	-

R179	3100m	Moderate-Low	Moderate	-
R269	2671m	Moderate-Low	Moderate	-
R270	2703m	Moderate-Low	Moderate	-
R325	3100m	Moderate-Low	Moderate	-
R177	3100m	Moderate-Low	Moderate	-
A34	3100m	Low	Moderate-Low	-
A35	3100m	Moderate	Agree	-
A36	3200m	Moderate-Low	Moderate	-
RP13	2355m	Moderate	Agree	37

Mitigation Measures: The increased viewer numbers, elevated viewing locations, the sensitivity level indicated by the RU5 village zoning and the high number of east facing elevated viewing locations within the village further contribute to the justification of the removal of turbines RYP16, RPY18, RYP28, RYP29, RYP32, RYP133 and RYP134 as previously suggested for the North Western Cluster. In addition removal of RYP21, RYP26, RYP32, RYP34, RYP37, RYP43, RYP44, RYP45, RYP47, and RYP144, would reduce the overall impacts on Rye Park Village to a more acceptable level.

3.5.10 Central Western Cluster (LVIA Figure 28a)

This small cluster has views generally to the north and east of wind turbines. R38 is also affected by close views at around 650m of the 330kV powerline. I anticipate R38 will be more affected than indicated in the LVIA due to the proximity and number of turbines within 2km and the potential associated cumulative impacts in up to four 60 degree sectors. The proposed removal of RPY38 and relocation of RPY37 appears to have increased the setback from R38.

Residence	Distance	LVIA Assessment	OHD Comments	Photomontage
R38	1737M (modified)	High-Moderate	Agree	53
	Powerlines 650m	Low	Moderate -Low	53
R75	2704M	Low (nil)	Moderate- Low	-

Mitigation Measures: Removal of turbines RYP 67 would remove the very high magnitude impact on R38. Due to the elevated viewing location of R38 above the 330kV powerline 650m to the west, an extension of the proposed alternative powerline route 2 approximately 1000m north through the saddle 350m east of Sinai Hill and on to the base of RYP 141, would increase the setback of the 330kV powerline from R38 to approximately 1300m. The associated cumulative impacts of the 330kV powerline and the sense of enclosure created by turbines in up to four 60 degree sectors will however remain.

3.6 Conclusion and Recommendations

In summary we consider that the Final LVIA meets the most of the requirements of the DGR's and the relevant guidelines. The major discrepancy is the lack of public consultation in a form that would contribute to the assessment of the visual character and scenic quality.

The Synthesis of Table 16 the LVIA '*Visual Impact Grading Matrix'* appears to lack reliable quantifiable outcomes, however in most instances we agree with the assessments that flow from

the matrix. The assessment does clearly and accurately reflect the visibility within the 10 km view shed and the visibility is broken down into a series of informative layers for further analysis. The powerline infrastructure has overall low or negligible impacts. There are however a few locations where, subject to meeting other environmental constraints, it may be possible to adjust the 330kV powerline route to reduce impacts on none associated residences.

Dominance due to the elevated location of the turbines compared to the viewer locations is a significant issue for the Rye Park proposal as most viewing locations, both public and private are in the order of 70m to 100m below the base levels of the turbine towers. This enhances the skyline intrusion and this enhanced dominance effect has been considered in creating this set of recommendations. At Rye Park the lineal form of the turbine layout significantly increases the length of the interface with rural residential properties, resulting in an elevated number of affected properties on the fringe of the proposed development.

Our overall assessment shows that within the 3km assessment zone the comparative number of residences identified at each level of assessment are,

	High	***High-Moderate***	***Moderate***	***Moderate to Low***	***Low***
Final LVIA assessment	3	14	9	20	24
OHD assessment	9	14	24	12	11

This comparison is not unexpected given that we consider the synthesis of table 16 has some shortcomings and our rating of the effect of increased relative height and dominance appears to exceed the rating values used in the LVIA. As a result we have proposed a range of mitigation measures for each cluster of residences. In several clusters both magnitude and cumulative impacts are significant.

Cumulative impacts are difficult to reduce meaningfully without significant changes to complete turbine layout or removal of whole developments. Reduction in impacts due to magnitude and location of individual turbines is more easily managed and also contributes to a reduction in cumulative impact by addressing the closest and often most significant turbine elements.

Based on the assessment above we consider that:

- at this stage a more meaningful public consultation process is unlikely to significantly change the assessment as the LVIA has reached a wide range of justifiable conclusions;
- due to the topography and proposed turbine layout, reduction of impacts on key residences will similarly reduce both the cumulative impacts and the impacts on adjacent public viewing locations, and
- the removal or mitigation of the 40 turbines noted in Section 3.5 above would reduce the overall impacts to an acceptable level.

Edward O’Hanlon RAIA

Director

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Assessment Documents

This assessment and the recommendations are based on the following documents

- *Rye Park Wind Farm Environmental Assessment (EA)*

  Epuron: July 2012

- *Rye Park Wind Farm Amended Environmental Impact Statement (Amended EIS)*

  Comparison of Current and EA 2013 Infrastructure. Maps 1-9, April 16

- *Final Landscape and Visual Impact Assessment (LVIA)*

  Green Bean Design: April 2016

- *Draft NSW Planning Guidelines – Wind Farms 2011*

  NSW Dept of Planning & Infrastructure: December 2011

- *Wind Farms and Landscape Values-National Assessment Framework*

  Under the auspices of the Council of National Trusts and Auswind: 27 June 2007

- *1:25,000 topographical and ortho photo maps.*
  - *8628-1N Rye Park*
  - *8628-1S Tangmangaroo*
  - *8628-2N Yass*
  - *8728-4N Bevendale*
  - *8728-4S Dalton*
  - *8728-3N Jerrawa*
  - *1:50,000 Topographical and Ortho photo maps*
  - *8729-S Crookwell*
  - *8629-S-Boorowa*

  NSW Land and Property Management Authority 2011

- *Wireframe and 3d topographical models for residences R24, R28 and R113*

  Green Bean Design: August 2016

Wind Farms and Landscape Values

National Assessment Framework

Final Version 27 June 2007

Australian Government funded this project through the Australian Greenhouse Office,
Department of the Environment and Water Resources.

National Assessment Framework (NAF)

Summary Table

This table provides a summary of steps contained in the NAF. Compliance with the NAF requires that a proponent address the components of the detailed framework which follows, not just this table.

	STEP 1: Assess the Landscape Values		STEP 2	STEP 3	STEP 4
	1A: Preliminary Landscape Assessment	1B: Full Landscape Assessment	Describe & Model the Wind Farm in the Landscape	Assess the Impacts of the Wind Farm on Landscape Values	Respond to Impacts
	Input to proponent's site selection / pre-feasibility process	*Input to proponent's environmental assessment process*			
Purpose	**To undertake a preliminary landscape assessment that will inform site selection / pre-feasibility.**	**To document the landscape values associated with the wind farm site and surrounding area, and to evaluate the significance of these values.**	**To provide reliable, objective data (including visual assessment) that can inform assessment of impacts in Step 3 and assist communities to understand the development and its potential impacts on landscape values.**	**To assess, in a rigorous and transparent manner, the likely impacts of the proposed wind farm on the identified landscape values.**	**To develop and test measures to respond to the identified negative impacts of the wind farm on landscape values.**
Tasks	1A.1 Desktop review 1A.2 Seek information from local authority 1A.3 Identify potential community and stakeholder interests 1A.4 Site survey 1A.5 Preliminary assessment of landscape values	1B.1 Define the study area for assessment, including the zone of visual influence 1B.2 Landscape character analysis 1B.3 Natural and cultural values analysis 1B.4 Involve communities and stakeholders in identifying landscape values 1B.5 Document values and analyse significance	2.1 Describe the development 2.2 Model the development 2.3 Prepare a visual assessment report	3.1 Seek community input to potential impacts 3.2 Identify and describe impacts 3.3 Identify potential cumulative impacts 3.4 Identify other relevant factors 3.5 Evaluate impacts	4.1 Changes to location or siting of the wind farm or ancillary infrastructure 4.2 Layout and design considerations 4.3 Minor changes and mitigation measures 4.4 Recommend changes to the development
Consult-ation	*Understand community values; scope potential stakeholders (direct community involvement recommended)*	*Involve community stakeholders in identifying landscape values (direct community involvement essential)*	*View points selected for visual modelling of the wind farm should relate to an understanding of community values of the landscape (direct community involvement recommended)*	*Seek community input to describe impacts (direct community involvement essential)*	*Involve communities in negotiating and reviewing measures to avoid, minimise or mitigate landscape impacts. (direct community involvement essential)*
Required outputs	Statement of Preliminary Landscape Assessment	A detailed report on the landscape values of the wind farm site and surrounding area	Description / depiction of the wind farm in the landscape and a visual assessment report	An interim assessment of impacts report	Final impacts report, including proposed management and mitigation measures

Step 1A is intended to contribute to the proponent's pre-feasibility assessment. Steps 1B to 4 represent a process of detailed investigation that would form part of the proponent's formal application for regulatory approval (in some cases the detail of matters such as close-to-viewer mitigation measures may be resolved as a condition of approval, rather than pre-approval). While the Steps represent a logical sequence of action, it is likely in practice that work undertaken in one step may lead to refinement or review of a previous step.

STEP 1B: Full Landscape Assessment

This Step is an assessment of the significance of landscape values, using various techniques including direct contact with community members, contributes to and forms part of the detailed investigations of ensuing steps 2-4.

Purpose

To document the landscape values associated with the wind farm site and surrounding area, and to evaluate the significance of the values.

Assessment of landscape significance will need to be made in context, by both understanding the surrounding area (potentially to the extent of visibility) and also by way of comparison of the landscape with other places.

Landscape values ought to be assessed in the absence of the proposed development. That is, as far as possible, landscape values that exist prior to the development being proposed should be sought and documented.

Values are not necessarily transferable from one landscape or one community to another. Reports on the value or significance of similar landscapes elsewhere must not be relied upon as the sole source of information about landscape values.

Objectives

1. Understand and document the range of landscape values relating to the wind farm site and surrounding area.
2. Involve communities and stakeholders in identifying landscape values.
3. Identify characteristics (natural and cultural) of the landscape that express or embody important values.
4. Evaluate the strength and significance of the identified values of the proposed wind farm site and surrounding landscape.
5. Identify, in a preliminary manner, those elements valued in the landscape which might be affected by the wind farm proposal.

Consultation

Direct community input is essential in this step.

The landscape assessment process should actively seek input from identified communities and stakeholders to represent the diversity of views held.

Tasks

Note: the tasks listed below do not necessarily occur in the sequence shown; completion of some may require refinement or further development of earlier tasks.

PRACTICE NOTES

See also Practice Notes for Step 1A

1B.1 Define the study area for assessment, including the zone of visual influence

The proponent will define the study area for assessment, including zone of visual influence (ZVI, or 'seen area') mapping, demonstrating the potential visibility of the wind farm in the landscape.

Separate ZVI calculations should be run for the overall height of turbines (to blade tip) and for height to the hub/nacelle.

Viewshed mapping should be undertaken early in a project to assist professionals and communities to identify locations from which the development will be visible, and to assist in determining the appropriate boundaries for the study area.

1B.2 Landscape character analysis

The proponent will:

- complete an inventory of the natural and cultural landscape character of the proposed wind farm site and surrounding area relevant to understanding community-held values of the place, including:
  - identification of vegetation type and cover;
  - landform scale and physical features;
  - current land use and built structures;
  - water features;
  - forces of change in the landscape (natural and human-induced);
  - views and viewing experiences.
- undertake a site survey and prepare detailed documentation of the existing character (e.g. photographs, mapping, description).

Information gathered in Step 1A should be used to inform this inventory.

The proponent should also identify and review additional secondary materials (e.g. landscape,

Landscape character analysis should be undertaken for the entire study area. This may involve more detailed resolution of the study area boundaries than provided in Step 1A.

DPI (2004) suggest that in landscape character analysis, "descriptions must strike a balance between factual statements about the components that make up the landscape, and more evocative statements about its character".

Visual arts and literature sources may assist in describing the characteristics of a landscape that may be valued by communities.

		cultural and natural heritage studies) which assist in understanding the landscape of the study area.	
1B.3	Natural and cultural values analysis	The proponent should obtain relevant ecological, Indigenous, historic and other heritage studies for the wind farm site and surrounding area (including those being undertaken for the current proposal) to inform understanding of landscape values. An analysis of historic landscape character and past land uses may also be undertaken.	
1B.4	Involve communities and stakeholders in identifying landscape values	As part of the consultation and engagement plan developed for the project (*Auswind Best Practice Guidelines, 3.2.1*) the proponent will develop a detailed approach to facilitating the identification of community-held landscape values which includes: • further refinement of the community stakeholder list developed in Step 1A; and • identification of opportunities for communities and stakeholders to be involved in describing and evaluating landscape values and significance of the proposed wind farm site and surrounding area. The proponent will provide a range of opportunities for stakeholders and communities to identify and describe the values they hold about landscapes. These opportunities should be readily accessible by the local community and relevant stakeholder groups (see resources below for development and design of consultation and engagement program). They should also, where possible, be undertaken as part of a broader community engagement program for the wind farm development. The proponent should also examine the nature and strength of values within each community and the aggregated values at a local, regional, state and national scale.	*Various techniques can be used to establish community-held values about landscapes. However preference should be given to techniques that include direct contact with community members.* *Care needs to be taken to identify the range of communities and community sectors that may have particular associations with the landscape. It is not just the 'local community' that may have associations with a landscape. Nor can it be assumed that only people living within the viewshed of the wind farm will have an interest that should be recognised and explored.* *It may be important to consult with relevant communities to determine the best ways for them to be involved, considering their resources, priorities and cultural protocols. Different methods may be needed for different stakeholders and communities. For example, seeking input from non-resident land owners is likely to require a different approach compared with consulting with local government representatives.* *Information also needs to be provided to communities about the place, including its historical development, cultural heritage and natural values, as these will contribute to the community-held values of the landscape.*
1B.5	Document values and analyse significance	The proponent will detail the values of the wind farm site and surrounding area based on the above information, potentially including descriptions of social, aesthetic (including visual, scenic) and other cultural and natural values. The proponent will undertake an assessment of the significance of identified values including: • an analysis comparing the values of the landscape with other similar paces within the region, state and / or nation; and • consideration of: - the strength and importance of the values within the community who holds them; and - the extent to which values are likely to be held across communities or cultural groups (e.g. at local, regional, state,	*Documented values will take into account those beyond the wind farm site.* *The occurrence or depiction of a landscape in art, literature or tourism materials may provide information relevant to understanding the extent of recognition of landscape values across communities.* *The application of various assessment matrices may be useful in rating significance, for example:* *Visual / scenic preference matrices, including scenic quality ratings (e.g. Lothian, A, 2005; Caboolture Shire Council and Queensland Government, 2002);* *Aesthetic value rating (e.g. Lennon and Townsey 2004)* *However, measures such as public preference modelling, scenic quality ratings and surrogate assessments of community-held values, if they are to be relied upon, must be demonstrated to*

national, international scales).

The proponent may also inform the assessment of significance by considering:

- the extent to which the value or combination of values is special or particular to this landscape;
- the extent of recognition of the place for its landscape characteristics across geographic and cultural boundaries;
- the length of time that this landscape can be demonstrated to have been valued by a community or communities.

be relevant to the landscape of the study area and the communities who value it.

See also…

General

Macaulay Land Use Research Institute (n.d.). Review of Existing Methods of Landscape Assessment and Evaluation. http://www.macaulay.ac.uk/ccw/task-two/index.html

Ramsay, J. and Paraskevopoulos, J. *More than meets the eye: identifying and assessing aesthetic value, Report of the Aesthetic Value workshop held at the University of Melbourne 27 October 1993.*Australian Heritage Commission Technical Workshop Series No. 7.

Scottish Natural Heritage and Countryside Agency, 2002. *Landscape Character Assessment – Guidance for England and Scotland.* Countryside Agency Publications.

Specific jurisdictions

Forestry Commission Tasmania 1990, *A Manual for Forest Landscape Management*, Forestry Commission, Hobart.

Leonard and Hammond, 1984. *Landscape Character Types of Victoria*. Forests Commission Victoria.

Department of Primary Industries (DPI), 2004. *Landscape Analysis and Visual Modelling. The development of an innovative methodology for ant Analysis of Significant Landscapes*. Primary Industries Research Victoria, Werribee, Victoria.

Lothian, A, 2005. *Landscape quality assessment of the South Australian coast*. Department of Primary Industries and Resources, South Australia.

Caboolture Shire Council and Queensland Government*,* 2002. Scenic Amenity of Caboolture Shire, Caboolture Shire, Queensland.

Lennon, J. and Townseay, M. 1998. *Integration of data for National Estate aesthetic values studies*, Queensland CRA/RFA Steering Committee.

Consultation & community engagement
Web based resources:

International Association for Public Participation @ http://www.iap2.org/ . The International Association for Public Participation, working through its members, helps organizations and communities around the world improve their decisions by involving those people who are affected by those decisions.

The "Public Participation Toolbox" @ chppm-www.apgea.army.mil/risk/PDF/toolbox.pdf, provides a good overview of the usefulness of different research and consultation techniques.

Tools for Consultation planning:

City of Melbourne Consultation Guidelines 2001 outlines planning tools and approaches to community engagement.

Department of Sustainability & Environment (Vic) "Effective Engagement" resource kit 2005

Industry Examples:

Leading Practice Sustainable Development Program for the Mining Industry: Community Engagement & Development, Department of Industry, Tourism & Resources 2006

Community Consultation for Waste Management & Recycling Facilities, Government of South Australia 2003

Required outputs	The proponent will produce a detailed report on the landscape values of the wind farm site and surrounding area that: • describes (in words, maps and images) the natural and cultural characteristics and associated values of the landscape of the wind farm site and surrounding area; • identifies the community-stakeholder groups for whom the landscape is or might be held in high regard, including those involved in contributing values to the study; • describes places or features in the landscape, views and viewing experiences, characteristics or associations, that are valued by communities; • evaluates the significance of landscape values, and identifies elements of local, state or national significance; and • provides maps and other graphic material to support the description of landscape values.	
Reporting to stakeholders	The proponent may choose to confirm the landscape values identified by seeking either open public or targeted input from stakeholders on the findings of this step. The findings of Step 1B will be reported to stakeholders as part of Step 2. There is no mandatory requirement for public review of this step. The findings of Step 1B will made publicly available for comment in conjunction with reports prepared for Steps 2-4 (e.g. during public comment on the complete environmental assessment process).	*Reporting to stakeholders at the conclusion of this step is **desirable**.* *Proponents are encourage provide information about the values identified through this Step with local authorities, State agencies or community organisations (e.g. National Trust), which may choose to lodge or register the information to inform future work understanding the values of the area.*
Questions to consider	*[Decisions about the acceptability of the proposal should not arise in this step, as Step 1A determined whether to proceed with the full investigation, which involves following all of steps 1B to 4 in their entirety.]*	