



# Kentbruck Green Power Hub, Victoria

Peer Review of Landscape and Visual Impact Assessment

19<sup>th</sup> February 2024 Prepared for NEOEN Australia Pty Ltd



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# Quality Assurance

File Name	Date	Details	Reviewed and Approved	
20240219_Kentbruck WF LVIA Peer Review	19/02/2023	DRAFT	Peter Haack	All.

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# 1 INTRODUCTION

#### 1.1 Scope

Peter Haack Consulting has been engaged by NEOEN Australia Pty Ltd (NEOEN) to undertake a Peer Review of the Draft Landscape and Visual Impact Assessment (LVIA) (16 March 2023) prepared by GBD Landscape Architecture (GBD), and the subsequent Final Landscape Character and Visual Impact Assessment Report (LCVIA) (30 January 2024) of the proposed Kentbruck Green Power Hub, 320 km west of Melbourne, Victoria (refer to **Figure 1**).

The intent of the Peer Review is to assess the adequacy of the Draft LVIA and to provide feedback to the proponent to guide the preparation of the Final LCVIA.

The LVIA and the LCVIA have been assessed against the requirements of the EES Scoping Requirements as well as in the context of state and local policies, as well as other assessment reports considered to be best practice.



Figure 1 – Location of Subject Site (Source: Google Earth).

#### 1.2 Qualifications and experience

Director, Peter Haack, has over 35 years' experience in the landscape and visual impact assessment of a diverse range of project types, locally, nationally and overseas, in a wide variety of settings. He has prepared assessments for EES/EIS/EIA's and presented expert evidence at planning panels and tribunals. Sectors include:

- Renewable energy
- Mining and resources
- Transport
- Residential
- Industrial
- Infrastructure.



# 2 PEER REVIEW APPROACH

This Peer Review has been undertaken in accordance with Environment Effects Act 1978 Advisory Note – Peer Review and Quality Assurance. Key considerations for the Peer Review are:

- Are the methods used appropriate and in-line with best practice and statutory guidelines?
- Are the measures proposed to limit impacts appropriate?
- Are the conclusions of the assessment reasonable?

The Peer Review was undertaken as a desktop assessment exercise utilising Google Earth and Streetview for site familiarisation as well as verification of assessed viewpoints.

To assist the desktop assessment process, viewpoint and radius maps were loaded into Google Earth Pro.

A field visit was undertaken on the 4<sup>th</sup> April 2023.

The overarching requirement which could be considered the ultimate threshold for the LVIA is the ability of it to adequately address the EES scoping requirements (refer to **Section 3**).

The main steps in the Peer Review process were:

- Review of the EES Scoping Requirements.
- Review of state policy relating to the development of wind energy projects.
- Review of the Draft LVIA for Kentbruck Green Energy Hub in relation to the following matters:
  - Method
  - Assessment of landscape character and values
  - Visual threshold distances
  - ZVI
  - Sensitive viewpoint selection
  - Assessment of visual impact for sensitive viewpoints
  - Assessment of associated infrastructure
  - Assessment of lighting, shadow flicker, glint and reflectivity
  - Assessment of cumulative impact
  - Identification of mitigation measure and consideration of their effectiveness, including proposed performance monitoring and management measures
- Preparation of preliminary recommendations
- Review of Amended Draft LVIA.
- Preparation of revised and additional recommendations
- Review of Final LVIA
- Preparation of Peer Review report

To allow for direct referencing between this Peer Review and the LVIA, the review section is structured in the same order as the LVIA report.



# 3 THE PROPOSED PROJECT

Between the preparation of the Draft LVIA and the Final LCVIA, the components of the proposal have changed slightly, and these are reflected in the description. The key changes from a landscape and visual perspective are:

- The total Project area was approximately 7,500 hectares (ha) and is now 8,370ha.
- The total number of wind turbines was a maximum of 118 and is now a maximum of 105 (refer to *Figure 2*).

Previous Review Commentary/Recommendation for Draft LVIA

No comments.

Review Commentary/Recommendation for Final LCVIA

No comments.



*Figure 2 – Proposed site layout and key elements (Source: GBD).* 



# 4 EES REQUIREMENTS

The EES requirements for the LVIA are outlined in *Scoping Requirements for Kentbruck Green Power Hub Environment Effects Statement (January 2020).* 

#### 4.1 Key issues

The Minister's decision to require an EES included the following key issues of relevance to landscape and visual matters for the EES to examine:

- effects on the local visual amenity values, including for non-neighbouring landholders;
- effects from a cumulative perspective, including on threatened flora and fauna, *social and amenity* values, with particular consideration of the currently operating and already approved wind farm projects in the region.

#### 4.2 Scoping requirements for evaluation objectives

The scoping requirement sets out the following structure for each draft evaluation objective.

**1**. Identify key issues or risks that the project poses to achieve the draft evaluation objective.

**2**. Characterise the existing environment to underpin impact assessments having regard to the level of risk.

**3**. Assess the likely effects of the project on the existing environment and evaluate their significance.

**4**. Present design and mitigation measures that could substantially reduce and/or mitigate the risk of significant effects. An assessment of residual effects (post mitigation) and their significance will be required to illustrate the effectiveness of the proposed mitigation measures.

**5**. Propose performance objectives and management measures to evaluate whether the project's effects are maintained within permissible levels and propose contingency approaches if they are not.

The description and assessment of effects must not be confined to the immediate area of the project but must also consider the potential of the project to impact on nearby environmental values, including areas impacted through transport route upgrades.

#### 4.3 Landscape and visual specific objectives

The objectives specific to landscape and visual assessment are contained within Section 4.4 - Landscape and visual.

#### Draft evaluation objective

To minimise and manage potential adverse effects for the community with regard to landscape and visual amenity.

#### Key issues

• Potential effects on significant landscape values and landforms in the vicinity of the project, especially national parks, other reserves and areas identified for their landscape values.



- Potential for nearby residents / communities to be exposed to significant effects to the visual amenity, including blade glint and shadow flicker, from project infrastructure.
- Potential cumulative impacts of other operating and approved wind farms on landscape values of the region.

#### **Existing environment**

- Characterise the landscape character, features and values of the project area and its environs.
- Identify public and private view sheds to and from the project and characterise visual values of the area, including dark skies.
- Identify the components of the project that may result in a significant visual amenity effect including turbines, powerlines and on-site quarry.
- Identify viewsheds in which the project site features, including from nearby residences (where permitted), public lookouts, tourist attractions, roads and key vantage points in the vicinity.
- Identify existing built features within the landscape (e.g., 500 kV powerlines) and their impact on the existing landscape and visual setting.

#### Likely effects

- Assess the landscape and visual effects of the project, including on public and private views, and effects of blade glint and shadow flicker on neighbouring dwellings and communities. Use photomontages and other visual techniques to support the assessment.
- Assess the potential for cumulative impacts associated with the development of the project in the context of existing built infrastructures and nearby operating and proposed/approved wind farms or other developments.

#### Design and mitigation

• Outline and evaluate any potential design and siting options that could avoid and minimise potential effects on landscape and visual amenity of neighbouring residences and communities and additional management strategies that may further minimise potential effects.

#### Performance objectives

• Describe proposed measures to manage residual effects on landscape and visual amenity values, including in the context of potential rehabilitation and restoration work following decommissioning.

# 5 REVIEW OF REPORT SECTION 1 - EXECUTIVE SUMMARY

This section summarises the findings of the Final LCVIA Report.

Review Commentary/Recommendation for Final LCVIA

No comment - refer to specific section comments.



# 6 REVIEW OF REPORT SECTION 2 – INTRODUCTION AND EES SCOPING REQUIREMENTS

#### 6.1 Report Section 2.1 – Introduction

This section includes key references and guidelines drawn upon in the undertaking of the Final LCVIA Report.

Review Commentary/Recommendation for Final LCVIA

No comment.

#### Report Section 2.2 - Previous Studies

This section outlines the process leading up to the preparation of the Final LCVIA, including the PLVIA.

Review Commentary/Recommendation for Final LCVIA

No comment.

#### 6.2 Report Section 2.3 – EES Scoping Requirements for Kentbruck Green Power Hub Environmental Effects Statement, January 2020

The report clearly sets out in Table 2 the key issues to be addressed as part of the EES Scoping Requirements and the relevant report section where each issue is addressed.

With regard to flicker and blade glint, a separate study by GHD is referenced.

Previous Review Commentary/Recommendation for Draft LVIA

No comment.

Review Commentary/Recommendation for Final LCVIA

No comment.

# 7 REVIEW OF REPORT SECTION 3 – METHODOLOGY AND REPORT STRUCTURE

#### 7.1 Report Section 3.1 – Methodology

The methodology and terminology used is consistent with relevant technical guidelines as well as those employed by other practitioners with experience in the preparation of LVIAs for wind farms.



No comment.

Review Commentary/Recommendation for Final LCVIA

No comment.

#### 7.2 Report Section 3.2 - Site Inspections

This section includes the dates for site inspections and photography.

Review Commentary/Recommendation for Final LCVIA

With five separate site inspections undertaken, it indicates that the author would be thoroughly familiar with the site and its setting.

#### 7.3 Report Section 3.3 – Report Structure

The report structure is logical.

#### Previous Review Commentary/Recommendation for Draft LVIA

The only comment I make is regarding Section 7 - Panorama and aerial photograph, and Section 8 – Landscape Character Assessment. It may be useful to combine these sections so that the descriptive text for landscape directly relates to relevant images of the landscape character and typologies.

Review Commentary/Recommendation for Final LCVIA

These sections remain separate, but the suggested changes are not considered crucial to the assessment results.

# 8 REVIEW OF REPORT SECTION 4 – PROJECT LOCATION AND DESCRIPTION

The description of the project is generally sound and numerous relevant examples of the components of the project found on other completed projects in the broader region are provided.

Previous Review Commentary/Recommendation for Draft LVIA

The following useful information for the wind turbines is not provided:

- Potential hub height.
- Potential blade swept area.
- The total area of land that the wind farm occupies.



Given the unusual (for Australia) location of the wind farm within a pine plantation, it may also be helpful to convey somewhere, perhaps on Diagram 1, the typical height of the existing mature pine trees and the likely blade clearance above the canopies.

Additionally, an indication of the extent of vegetation clearing for each wind turbine would be useful, although it is noted that the clearings would typically be screened from view by the surrounding pine plantation.

#### Review Commentary/Recommendation for Final LCVIA

Hub height and swept area have been provided, however, the blade length and the height of lowest point of the blade above ground level has not been provided.

Numerous images showing examples of the components of the Project are provided. These are very helpful, allowing the reader to understand the how the Project will sit whin the setting.

# 9 REVIEW OF REPORT SECTION 5 - VIEWSHED

The report has adopted offset distances to illustrate and determine potential visual effect. For key viewing locations, including residences, a distance of up to 5km from the closet wind turbine has been applied:

"Assessment of key view locations (including dwellings) up to 5km from the wind turbines."

I note that the GBLD LVIA for Boco Rock Wind Farm which had a blade tip height of 152m, also applied a viewshed distance of 5km for a moderate to high level of visibility (refer to *Figure 3*)

The vertical field of view occupied by the proposed 270m high wind turbines would result in visual dominance, or high visibility, for up to 6km – i.e., greater than 2.5 degrees of the vertical field of view. This would then reduce to potentially dominant, or moderate to high, in distances between 6km and 10km.

For example, the recent My Fyans LVIA (Urbis) used applied a 4km radius for the visually dominant zone for a 200m high WT and undertook an assessment of an indicative range of sensitive VPs up to 12kms, with all residential viewpoints within 8km being assessed based on the effects of surrounding screening vegetation. The Willatook LVIA (Landform) applied a 6km radius for the visually dominant zone for 250m high wind turbines.



#### Table 13 - Viewshed Descriptors

Distance from turbine	Potential Viewshed Descriptors
>15km	Wind turbines less distinct and tending to become indistinct with increasing distance. Some blade movement visible but less discernable with increasing distance.
	Partially discernable but generally indistinct within viewshed (potentially resulting in <b>Low</b> level visibility).
10km – 15km	Wind turbines visible but tending to become less distinct depending on the overall extent of view available from the potential receptor location. Movement of blades may be discernable where visible against the skyline.
	Potentially noticeable within viewshed (potentially resulting in <b>Low</b> level visibility).
5 – 10km	Wind turbines clearly visible in the landscape but tending to become less dominant with increasing distance. Movement of blades discernable.
	Noticeable but less dominant within viewshed (potentially resulting in Low to Moderate level visibility).
1 – 5km	Wind turbines would generally dominate the landscape in which the wind turbine is situated. Potential for high visibility depending on the category of receptor, their location, sensitivity and subject to other visibility factors.
	Potentially dominant within viewshed (potentially resulting in <b>Moderate to</b> <b>High</b> level visibility).
<1km	Wind turbines would dominate the landscape in which they are situated due to large scale, movement and proximity.
	Dominant and significant within viewshed (potentially resulting in <b>High</b> level visibility).

Figure 3 - Table 13 – Viewshed Descriptors (Source: GBLD LVIA for Boco Rock Wind Farm)

#### Previous Review Commentary/Recommendation for Draft LVIA

Given the height of the proposed wind turbines, it is my opinion that the visually dominant zone be extended to approximately 7km and the representative range of residential viewpoints should be assessed up to 10kms from the Project,

Additionally, the levels of visibility in Section 10 should be adjusted accordingly.

#### Review Commentary/Recommendation for Final LCVIA

Assessment of key viewing locations has been undertaken up to 10km from the wind turbines.

The levels of visibility in Section 10 have been adjusted accordingly.

## 10 REVIEW OF REPORT SECTION 6 - LEGISLATIVE AND

#### PLANNING FRAMEWORKS

#### 10.1 Report Sections 6.1 to 6.7 – Planning Policies and Legislation

The report has undertaken a comprehensive review of State, and local government legislation, policy and guidelines relating to wind farms as well as well as policy relating to landscape values and places of significance.



No comment.

Review Commentary/Recommendation for Final LCVIA

No comment.

#### 10.2 Report Sections 6.8 & 6.9 - Landscape Assessment Studies

Relevant landscapes of state and regional significance within the viewshed of the project, and their associated view lines, are identified and summarised, based on the Coastal Spaces Landscape Assessment Study (2006) and the South West Landscape Assessment Study (June 2013).

#### Previous Review Commentary/Recommendation for Draft LVIA

The inclusion of a relevant extract from the landscape units map from the Coastal Spaces Landscape Assessment Study may be helpful (refer to *Figure 4*)

Otherwise, it is my opinion that the report has undertaken a comprehensive review of the physical and cultural attributes of the landscape of the setting as captured in strategic assessment documents.



*Figure 4 – South West Victoria - Landscape Character Types and Areas (Source: Coastal Spaces Landscape Assessment Study)* 



Review Commentary/Recommendation for Final LCVIA

The relevant description extracts and the landscape units map from the Coastal Spaces Landscape Assessment Study have been included.

# 11 REVIEW OF REPORT SECTION 7 – PANORAMIC PHOTOGRAPHS AND AERIAL IMAGES.

A comprehensive selection of ground level view panoramas has been provided. The annotations are particularly helpful in identifying landscape features and locations, as well the location of the project components.

However, this section seems to contain information that may sit better elsewhere when the character of the setting is being described or the impacts of the project discussed.

Additionally, while the aerial photography may be helpful in identifying features of the landscape or where project components are situated, an elevated oblique view is not how the landscape or project is, or will, be perceived by the majority and it may mislead some readers as to how visible the project will be.

#### Previous Review Commentary/Recommendation for Draft LVIA

Consider combining the panorama and aerial photographs into Section 8 – Landscape Character Assessment so that the descriptive text for landscape directly relates to relevant images of the landscape character and typologies.

Additionally, where they relate to a specific assessed sensitive viewpoint, and where they indicate the extent of the project within the view, consider incorporating them into Section 10 - Key Views and Visual Effects.

Consider adding an explanation that the aerial photo views do not convey typical views of the project and that vegetation would be effective in screening views to the project from many ground-based locations.

#### Review Commentary/Recommendation for Final LCVIA

The Landscape Character Area map (Section 8 - Figure 23 in the LCVIA) is still located after the character photos in Section 7 which reference the actual Landscape Character Areas. This doesn't change the findings, but it doesn't help readability.

An explanation has been added to explain that the aerial photo views do not convey typical views of the project from publicly accessible viewpoints.



# 12 REVIEW OF REPORT SECTION 8 – LANDSCAPE

# CHARACTER ASSESSMENT

#### 12.1 Report Section 8.1 – Landscape Character Area

The description of what constitutes landscape character is accurate.

#### Previous Review Commentary/Recommendation for Draft LVIA

A map identifying the location and extent of each unit and the location of wind turbines, would be helpful in understanding the relationship between the project and the different landscape settings.

#### Review Commentary/Recommendation for Final LCVIA

A map identifying the location and extent of each unit and the location of wind turbines has been included.

#### 12.2 Report Section 8.2 – Landscape Character Assessment

The description of the criteria that define landscape character in report Table 4 are accurate and based on recognised references.

#### Previous Review Commentary/Recommendation Draft LVIA

As mentioned previously, the incorporation of images of the landscape would help convey the landscape character of each unit to the reader.

#### Review Commentary/Recommendation Final LCVIA

Although it doesn't impact the findings, the incorporation of images of each landscape character type would help the reader.

#### 12.3 Report Section 8.3 & 8.4 - Landscape Sensitivity and Landscape Sensitivity Assessment

The relative level of sensitivity for each landscape type has been considered against the criteria in Table 4 of the report. Sensitivity levels range from negligible, where the characteristics of the landscape will not be visibility altered, to high, where visually dominant alterations, which may be difficult to ameliorate, may occur to the landscape.

The seven Landscape Character Areas (LCA) have been assessed against each of the criteria, with an overall rating given.

I recognise that there is a degree of subjectivity in undertaking this exercise, however, in my opinion, I would make the following changes to the overall rating of the followings LCA's:

- LCA3 Glenelg River is closer to an overall rating of high, than a rating of moderate high to high, as assessed in the report. This is primarily due to landcover, with a rating of



moderate, and intervisibility, with a rating of moderate to high, being rated lower than they should be, in my opinion.

- LCA4 Glenelg Estuary and Oxbow Lake is closer to an overall rating of moderate high to high, than a rating of medium to medium high, as assessed in the report. This is primarily due to the relatively complex patterning and landform of the estuarine lake system, which in my opinion, is higher than an individual criterium rating of low to moderate.
- LCA6 Open Pasture is closer to an overall rating of low to low to moderate, than a rating of medium, as assessed in the report. This is primarily due to landform and scale being rated as moderate, as opposed to low to moderate in my opinion, and rarity being rated as low to moderate, as opposed to low in my opinion.

#### Previous Review Commentary/Recommendation for Draft LVIA

It is my opinion that the overall sensitivity ratings for LCA3, LCA 4 and LCA6 be reviewed and updated, if deemed appropriate.

#### Review Commentary/Recommendation for Final LCVIA

- LCA3 Glenelg River has been given an overall rating of high,
- LCA4 Glenelg Estuary and Oxbow Lake has been given an overall rating of moderate high.
- LCA6 Open Pasture has been given a rating of low to moderate.

#### 12.4 Report Section 8.5 – Landscape Values

The landscape values described here relate to the values of the existing community and users and it should be clarified that this assessment is separate to the assessment of aboriginal cultural values which are subject to separate specialist studies. However, the report notes broader cultural values that are reflected in planning policy.

#### Previous Review Commentary/Recommendation for Draft LVIA

Consider adding a reference to specific cultural heritage studies which may identify values.

#### Review Commentary/Recommendation for Final LCVIA

A reference to has been made to the Glenelg River and Ramsar Sites which are recognised at a National Level.

Section has been renumbered as Section 8.6, as recommendation

#### 12.5 Report Section 8.6 - Landscape Sensitivity

It is slightly confusing that there are two report sections titled Landscape Sensitivity, one in Section 8.3 as previously discussed, and the other in Section 8.6.

I assume that the latter Section 8.6 is a summary of overall landscape sensitivity and should possibly come before Section 8.5 - Landscape Values.



Relocate Section 8.6 Landscape Sensitivity to before Section 8.5 Landscape Values and retitle as Summary of Landscape Sensitivity Assessment, or similar.

#### Review Commentary/Recommendation for Final LCVIA

Section 8.6 Landscape Sensitivity Summary has been moved before Section 8.5 Landscape Values (now Section 8.6 Landscape Values).

#### 12.1 Report Section 8.7 – Significant Landscape Overlay Landscape Characteristics Review

This section undertakes a review of the objectives of the three relevant SLOs in the Glenelg Shire Council Planning Scheme (the Planning Scheme) - SLO1, SLO2 and SLO3 – against the findings of the report.

Where within the response a particular visual outcome is stated, such as - "Views toward wind turbines from the section of ocean beach within SLO1 would be screened by sand dunes running parallel to the beach" – it would be helpful to demonstrate this through refence to the Zone of Theoretical Visibility (ZTV) analysis mapping in report section 9, or relevant photo simulations or wireframe overlays, such as report Appendix D – Wireframes, WF4.

Otherwise, the review and response to the specific objectives of the SLO's appears comprehensive.

#### Previous Review Commentary/Recommendation for Draft LVIA

Consider referencing to ZTV analysis mapping and relevant photo simulations and wireframes.

#### Review Commentary/Recommendation for Final LCVIA

The suggested changes have not been made but are not considered crucial to the assessment results.

# 13 REVIEW OF REPORT SECTION 9 - ZONE OF THEORETICAL VISIBILITY (ZTV)

#### 13.1 Report Section 9.1 & 9.2 - ZTV and ZTV Methodology

The description of what constitutes the ZTV and the methodology for the preparation of a ZTV analysis is consistent with guidelines and best practice.

Figure 25 is a bundled ZTV analysis for hub height and Figure 26 is a bundled analysis for blade tip height. Both analyses are consistent with best practice.

Figures 27 and 28 provide useful examples of the effect of distance on views towards wind turbines.



No comment.

Review Commentary/Recommendation for Final LCVIA

No comment.

#### 13.2 Report Section 9.3, 9.4, 9.5, 9.6 & 9.7 - Visibility

The report outlines four factors that have an influence on visibility, these being:

- Distance between view location and wind turbine;
- Directional movement (travelling toward or away from wind turbines);
- Relative position and backdrops; and
- Climatic and atmospheric conditions.

These factors are described in detail in the following report sections 9.4, 9.5, 9.6 and 9.7. It is a minor detail, but these may be better numbered as subsections to 9.3, e.g., 9.3.1 etc.

With regard to climatic and atmospheric conditions, I note that the base photos for the preparation of photo simulations were taken on a cloudy day and that the photo simulations were adjusted to show a clear sky. It would be useful to quote the long-term meteorological observations for a nearby location, such as Portland Airport, which show that cloudy days significantly outnumber clear days (approximately 160 to 40). <u>Climate statistics for Australian locations (bom.gov.au)</u>

Overall, the description of considerations and conclusions made are sound.

#### Previous Review Commentary/Recommendation for Draft LVIA

Consider incorporating meteorological data to support the discussion on visibility due to climatic and atmospheric conditions.

#### Review Commentary/Recommendation for Final LCVIA

Meteorological data to support the discussion on visibility due to climatic and atmospheric conditions has been included.

#### 13.1 Report Section 9.8 – Commercial Plantations

Given the significant role that that pine plantations play in screening views, the report correctly identifies that the harvesting and replanting operations are ongoing, and that this will have an impact the level of visibility. Given the typical lifecycle of a coupe of pine trees is approximately 30 to 35 years, which is similar to the lifespan of the project, it may be helpful to include a plan identifying the proposed harvesting and replanting program.

#### Previous Review Commentary/Recommendation for Draft LVIA

If available from the plantation manager, consider incorporating a map showing proposed programming of plantation harvesting and replanting.



Review Commentary/Recommendation for Final LCVIA

The suggested changes have not been made but are not considered crucial to the assessment results.

#### 13.2 Report Section 9.9 - Skyline Views

This section identifies that while there are features in the long-distance skyline, the skyline surrounding the project does not contain distinctive or prominent features and is generally simple and uniform. It recognises that the project may result in some loss of landscape value.

Previous Review Commentary/Recommendation for Draft LVIA

No comment.

Review Commentary/Recommendation for Final LCVIA

No comment.

# 14 REVIEW OF REPORT SECTION 10 - KEY VIEWS AND

#### **VISUAL EFFECTS**

#### 14.1 Report Sections 10.1, 10.2 & 10.3 – Introduction, Sensitivity of Visual Receivers and Magnitude of Visual Effects and Sections 10.5 to 10.13

The referenced assessment guideline and the description of the approach and the categories used to define viewer sensitivity (report Table 15) are best practice. The determination of the magnitude of visual effects (report Tables 16 and 17), are logical and sound.

As discussed previously in my review of report Section 5, it is my opinion that the height of the proposed wind turbines, which are almost double that of the 144m height of the Murra Warra Wind Farm example shown in Figure 28 of the report, will result in them being potentially dominant in the view well beyond 5km from the viewpoint. This factor would have implications for the magnitude of effect distance criteria contained in report Table 16.

Also, as previously mentioned in my review of report Section 5, it is my opinion that the assessment of sensitive receptors, particularly residences, should extend beyond the 5km as assessed in this section of the report.

From a report structure perspective, it may be helpful for the assessment of each viewpoint, such as 10.4 - Views from Nelson Township, and the following assessments 10.5 to 10.13, to be sub sections of an overarching section such as "Detailed Viewpoint Assessment".

Also, where photo simulations exist, a refence to the relevant figure number would be helpful.

With regards to the detailed assessment of the public viewpoints, it is my opinion that the magnitude of effects is too low for some locations, resulting in a lower overall level of effect. Refer to the following discussion.



*Views from Nelson township* – Magnitude of effects is assessed as low. In my opinion, based on the photo simulations, it is moderate to high at the residential edge. However, based on my site visit, views are limited throughout much of the township. Perhaps this is a blended assessment rating for all viewpoints in the township?

*Views from Nelson estuary* - Magnitude of effects is assessed as low. In my opinion, based on the photo simulations, it is moderate to high. However, the lower rating may also be as a result of the duration of the effect, i.e., viewers traversing the area rather than being static for a longer period of time.

**Inland lake track** - Magnitude of effects is assessed as moderate. In my opinion based on the photo simulations it is high. However, I do acknowledge that from the beach that dunes screen views. Perhaps this is a blended assessment rating for all viewpoints in this broader area? Additionally, the lower rating may also be as a result of the duration of the effect, i.e., viewers traversing the area rather than being static for a longer period of time.

*Swan Lake campsite* - Magnitude of effects is assessed as moderate. In my opinion based on the photo simulations it is high.

Where the duration of effect influences the overall magnitude rating, it would be useful to include this in the description of the individual viewpoint impacts.

#### Previous Review Commentary/Recommendation for Draft LVIA

Consider the vertical degree of visual prominence based on a 270m high wind turbine and review the magnitude of effects and implications for the overall visual effect rating.

Provide references to relevant photo simulations.

Consider providing a discussion on duration of effect where it significantly reduces or increases the level of magnitude.

#### Review Commentary/Recommendation for Final LCVIA

The vertical degree of visual prominence based on a 270m high wind turbine has been considered.

Relevant photo simulations have been referenced.

A discussion on magnitude / effect has been included.

#### 14.2 Report Section 10.14 – Views from uninvolved dwellings.

As discussed previously, it is my opinion that the assessment of high sensitivity viewpoints should extend beyond 5km from the project. This factor would potentially have implications for the magnitude of effect distance criteria contained in report Table 28.

However, overall, the description of each residential viewpoint is thorough, and the conclusions reached logical. Based on a review of the three provided photo simulations, it is my opinion that for Dwelling R5, where the magnitude of effects is assessed as moderate, that this viewpoint be rated as high.

Although the photo simulations are referenced, additional photography, either ground based or aerial showing the setting of the residence, would assist in conveying the attributes of the existing landscape condition.



Consider the vertical degree of visual prominence based on a 270m high wind turbine and review the magnitude of effects and implications for the overall visual effect rating.

Consider including additional imagery of the existing condition of the viewpoint.

#### Review Commentary/Recommendation for Final LCVIA

The vertical degree of visual prominence based on a 270m high wind turbine has been considered.

Detailed assessment of viewpoints extends out to 10km from the closest wind turbine.

Imagery has not been included, but this does not influence the report findings.

# 14.3 Report Section 10.13 (should be 10.14) – Summary of the dwelling visual effect (within 5km of wind turbines) – Now Section 10.6 – The Summary of the dwelling visual effect (within 10km of wind turbines)

The summary in the Draft LVIA quantifies the level of visual effect for residences within the 5km viewshed. This was expanded in the Final LCVIA to 10km.

The explanation made regarding how the residences were assessed where access to private land was not possible, and the conservative assumptions applied to the findings, are sound and logical.

The impact of transmission lines on residential viewpoints are pre-emptively introduced in this report section, before they are discussed in report sections 10.16 and 10.17.

#### Previous Review Commentary/Recommendation for Draft LVIA

Consider including the discussion of impacts of powerlines on residences within the relevant powerline section.

#### Review Commentary/Recommendation for Final PCVIA

The detailed assessment was expanded in the Final LCVIA to 10km.

The discussion of powerlines is included in the following powerline section.

# 14.4 Report Section 10.14 (should be 10.15) – Summary of the dwelling visual effect (beyond 5km of wind turbines).

An assessment of impacts on residences beyond 5km has not been undertaken as the report finds that distance will reduce their visibility and existing vegetation in the landscape is likely to block or screen views.

As discussed previously, it is my opinion that the assessment of high sensitivity viewpoints should extend beyond 5km from the project.



Consider expanding the detailed residential viewpoint assessment beyond 5km for a range of representative dwellings, i.e., not all need to be done, but focus on those with the highest level of visibility.

#### Review Commentary/Recommendation for Final LCVIA

Residences within 10km have been included in the detailed viewpoint assessment.

#### 14.5 Report Section 10.15 (should be 10.16) – Visual Absorption Capability (VAC) – VAC now not included

The report briefly describes Visual Absorption Capability (VAC) and assess the capability of the landscape setting to absorb change. I support the definition of the landscape of the setting as having a moderate to high level of VAC.

Once again transmission lines are pre-emptively introduced in this report section, before they are discussed in report sections 10.16 and 10.17.

#### Previous Review Commentary/Recommendation for Draft LVIA

Consider including the discussion of impacts of powerlines on residences within the relevant powerline section.

#### Review Commentary/Recommendation for Final LCVIA

Not relevant.

# 14.6 Report Sections 10.15 (should be 10.16) and 10.16 (should be 10.17) – Overhead 275kV transmission lines – Now Sections 10.18 – Ancillary Infrastructure items and 10.19 - Preferred overhead 275kV transmission line route (along the Portland Nelson Road corridor)

The powerline easement is assessed at a high level. However, given the density and height of vegetation throughout the setting of the much of the alignments, and the relatively minor scale of the components of the transmission line in comparison to the wind turbines, the assessment is adequate and the findings supportable.

#### Previous Review Commentary/Recommendation for Draft LVIA

Consider including a reference to report Plates 6 and 7 to convey the appearance of the power poles.

#### Review Commentary/Recommendation for Final LCVIA

References to the relevant plates has not been made, but this does not influence the findings.



# 15 REVIEW OF REPORT SECTION 11 - NIGHT LIGHTING

The report assesses the current night lighting setting and the proposed level of lighting for the project. However, although mentioned in report section 4.6 – Aviation Obstacle Lighting, no mention is made here that there is no requirement for aviation lighting. Given this is likely to be a key concern for some, it may be useful to reinforce here that it is not a consideration in terms of night lighting impacts.

Previous Review Commentary/Recommendation for Draft LCVA

Consider reinforcing that there is no requirement for aviation obstacle lighting.

Review Commentary/Recommendation for Draft LCVA

Confirmation has been included that aviation lighting is not required.

# 16 REVIEW OF REPORT SECTION 12 - CUMULATIVE IMPACT

#### 16.1 Report Sections 12.1, 12.2 & 12.3 – What is Cumulative Assessment? Other wind farm developments (regional locality) & The Project and other wind farm visibility

The draft evaluation objectives of the EES scoping requirement "To minimise and manage potential adverse effects for the community with regard to landscape and visual amenity" requires the assessment of:

- "Potential cumulative impacts of other **operating** and **approved** wind farms on landscape values of the region."

Taking this direction, wind farms proposals, such as current offshore proposals, such as VIC Offshore Wind Farm which has been noted in the cumulative assessment, should not be considered as they may never proceed as their approval is not a certainty.

Guidance from other jurisdictions, for example "Assessing the cumulative landscape and visual impact of onshore wind energy developments" – Nature Scot (2021) recommend that a cumulative impact assessment should consider:

- Existing development, either built or under construction;
- Approved development, awaiting implementation; and
- Proposals awaiting determination within the planning process with design information in the public domain. Proposals and design information may be deemed to be in the public domain once an application has been lodged, and the decision-making authority has formally registered the application.

Regarding the assessment of operating wind farms, the report identifies projects in the broader region, as far as Willatook (approved but not yet under construction) and Macarthur (operating) approximately 60km to the east.



However, catchment mapping has not been undertaken for operating wind farms of the Portland Wind Farm at Cape Bridgewater, Cape Nelson and Cape Sir William Grant, the closest being approximately 20km to the east southeast.

The report describes the types of cumulative impact, but, in my opinion, there is insufficient mapping analysis to support the conclusions, which I find to be logical and sound.

#### Previous Review Commentary/Recommendation for Draft LVIA

Confirm the requirements for which projects should be assessed. Given the status of the VIC Offshore Wind Farm, it is my opinion that it should not be included in the assessment. However, if it is, distance catchments for it should be included in the analysis maps.

Additionally, where overlap between wind farms occur within a 10km radius, quantification (as a bundled analysis) should occur to demonstrate how many turbines are visible from a given location.

#### Review Commentary/Recommendation for Final LCVIA

The 10km visual catchment overlap between the project and the Cape Bridgewater wind turbines of the Portland Wind Farm has been mapped on Figure 31.

#### 16.2 Report Section 12.4 - Offshore wind farm projects

Refer to above review of report Sections 12.1, 12.2 and 12.3.

# 17 REVIEW OF REPORT SECTION 13 – PRE-CONSTRUCTION AND CONSTRUCTION

All construction activities have been assessed at a high level to demonstrate their relatively short-term impact. I consider the findings to be appropriate.

#### Previous Review Commentary/Recommendation for Draft LVIA

Consider referencing report Section 4.7 - On-site quarry, as the impacts of this potentially longer-term component (up to 2 years), has been addressed there.

Review Commentary/Recommendation for Final LCVIA

Report Section 4.7 - On-site quarry has been referenced.



# 18 REVIEW OF REPORT SECTION 14 - TYPICAL WIND FARM

# MITIGATION STRATEGIES

The Report outlines widely recognised measures for on-site and off-site screening, as well as siting of project components to minimise visual intrusion.

The report notes that non-involved residences within 5km of a wind turbine with a resulting high level of impact may require the offer of an off-site amelioration plan.

Previous Review Commentary/Recommendation for Draft LVIA

No comment.

Review Commentary/Recommendation for Final LCVIA

No comment.

# 19 REVIEW OF REPORT SECTION 15 - CONCLUSIONS

The report conclusion clearly summaries the assessment findings.

#### Previous Review Commentary/Recommendation for Draft LVIA

Incorporate any amendments to the findings resulting from the Peer Review as well as a reconsideration of visual thresholds and the levels of visual prominence of 270m high wind turbines.

Review Commentary/Recommendation for Final LCVIA

Any comments on the Draft LVIA of higher priority from the Peer Review have been incorporated in the Final LCVIA.

## 20 REVIEW OF REPORT APPENDIX A - PHOTOMONTAGE

#### AND WIREFRAME METHODOLOGY

The description of the process for the capture of imagery as well as the preparation of 3D models and photo matching is consistent with best practice as well as Planning Panel and VCAT guidelines.

However, the methodology notes that:

"Photomontages prepared from the public view locations have been digitally enhanced to replace sky backgrounds recorded during site photography with blue backgrounds. The blue-sky enhancement presents a maximum contrast between wind turbines and sky; however, wind turbines have been modelled and coloured to represent shading in accordance with the time of day the panorama



photograph was taken. Blue sky enhancements have been undertaken at the request of the Technical Reference Group."

It is my opinion that this direction from the TRG is incorrect and does not represent best practice or the predominant atmospheric conditions. Met data shows that cloudy conditions are likely to occur three times more than clear conditions. If this change was to be made, then new photography should have been taken on a clear day.

Additionally, it is apparent in the images that the brightness and contrast are not quite right.

It is crucial that the process of photo simulation preparation is accurate and free from unnecessary manipulation to ensure the credibility of the proponent and the trust of the target viewer.

#### Previous Review Commentary/Recommendation for Draft LVIA

Reinsert the original photo simulations in the report and reinforce in the text that cloudy atmospheric conditions are typical for the area.

#### Review Commentary/Recommendation for Final LCVIA

The original photo simulations have been inserted and the images are more realistic.

# 21 REVIEW OF REPORT APPENDIX B – PUBLIC PHOTOMONTAGES

The photo simulations demonstrate views to the project from key sensitive viewing locations.

#### Previous Review Commentary/Recommendation for Draft LVIA

Reinsert the original photo simulations in the report and reinforce in the text that cloudy atmospheric conditions are typical for the area.

Review Commentary/Recommendation for Final LCVIA

The original photo simulations have been inserted.

# 22 REVIEW OF REPORT APPENDIX C – DWELLING

#### PHOTOMONTAGES

I note that no 40 degree views have been prepared for the residential viewpoints as they have been for the public locations.

It is my opinion that in an A4 type report format, this type of view more accurately conveys the scale of the wind turbines within a setting, as opposed to the panorama type views which need to be displayed at a much larger size, such as A1.



Include a 40 degree view photo simulation for each residential viewpoint with a panoramic view.

Review Commentary/Recommendation for Final LCVIA

A 40 degree view photo simulation for each residential viewpoint has been included.

# 23 REVIEW OF REPORT APPENDIX D - WIREFRAMES

The wireframes are useful in demonstrating how the project will not be seen from key sensitive viewing locations.

It is my opinion that for locations, such as wf5 and wf12, where the blade tips protrude above ground level, that the wireframes should be overlaid on a photo to confirm that the relatively low coastal vegetation dunes in fact provide screening.

Previous Review Commentary/Recommendation for Draft LVIA

Provide some representative images of wireframes overlaid on photos where the blades protrude above ground level.

#### Review Commentary/Recommendation for Final LCVIA

Representative images of wireframes overlaid on photos where the blades protrude above ground level have been included.

# 24 SUMMARY OF FINDINGS

It is my opinion that the Final LCVIA is well presented, written and structured and the findings sound and supportable.

In summary, with regards to the adequacy of the LVIA in response to the key considerations of the Peer Review:

- Are the methods used appropriate and in-line with best practice and statutory guidelines? Yes.
- Are the measures proposed to limit impacts appropriate? Yes.
- Are the conclusions of the assessment reasonable? Yes.

Peter Haack...... 19<sup>th</sup> February 2024 Registered Landscape Architect #619 - FAILA



# APPENDIX A - CV

#### Peter Haack – Landscape & Visual Impact Assessment CV

Registered Landscape Architect #619, FAILA

#### Qualifications

Bachelor of Landscape Architecture, RMIT University, Diploma of Applied Science (Amenity Horticulture), University of Melbourne

#### **Professional Experience**

Urbis – Director and Studio Lead Director 2008 – 2021 EDAW/AECOM – Senior Associate and Principal 1995 – 2008 Loder and Bayly Consulting Group – Consultant and Associate 1985 -1995

After over 30 years working in some of Australia's leading planning and design consultancies, I have established my own practice, focussing on advisory and expert evidence.

My projects have positioned me to be one of the country's most experienced landscape architects and urban designers. I have a passion for highly creative design solutions that improve functional, aesthetic, social and environmental outcomes.

For more than 35 years, I have led private and public sector landscape architecture, urban design and landscape planning projects – including transport, energy infrastructure and major renewal projects, conducting visual assessments of wind farms, and developing open space strategies and park master plans.

I led the urban and public realm reference design for the Melbourne Metro Rail project, one of Victoria's largest public transport projects; the urban design and landscape architecture for the Peninsula Link Freeway and the preparation of a master plan for Living Links, an environmental and recreational corridor in the Dandenong Creek catchment, which received an award from the Australian Institute of Landscape Architects.

#### Contact

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#### Relevant Projects Renewable Energy

Mt Fyans Wind Farm, VIC **Bulgana Wind Farm, VIC** Mokoan Solar Farm, VIC Naring Solar Farm, VIC King Island Wind Farm, TAS Taralga Wind Farm, NSW Clifton Beach Wind Farm, WA Crookwell II Wind Farm NSW Mt Bryan Wind Farm, SA Black Springs Wind, NSW Bannister Wind Farm, NSW Starfish Hill Wind Farm, SA Tungketta Hill Wind Farm, SA Berrybank Wind Farm, VIC Waterloo Wind Farm, SA SA Planning Wind Farm Assessment Guidelines, SA Woolnorth Wind, TAS Portland Wind Energy Project, VIC

#### Transport

Melbourne Metro Rail Project, VIC West Gate Tunnel Project, VIC Frankston Bypass Project (PenLink), VIC State Highway 19, NZ Inland Rail Project, NSW Scoresby Freeway (Eastlink), VIC



#### Infrastructure

Optus and Telstra Mobile Deployment, NSW, VIC, QLD **Brunswick Terminal Station, VIC** Nowingi Long Term Waste Facility EES, VIC SNI Interconnector Powerline, SA, NSW, VIC Eastern Gas Pipeline EES, VIC and NSW Northern Tasmanian Gas Pipeline, TAS Waverley Park HV Powerline Undergrounding, VIC Energy from Waste Facility, NSW Brunswick Terminal Station, VIC Golden Plains Peak Power Station, VIC Lilydale Treatment Facility, VIC Cape Jervis to Yankalilla Powerline, SA Maryvale Mine - Morwell River Diversion, VIC

Emerald - Cockatoo Pipeline, VIC Apollo Bay Treatment Plant, VIC OneWeb Satellite Base Station, QLD OZ Minerals Powerline, SA

#### **Urban and Other Development**

Northern Beaches Hospital, NSW Biasin Flinders Estate, VIC Smith's Beach Estate, WA Iwasaki Resort, QLD Campbells Stores Redevelopment, NSW 12 Coppin Grove, Hawthorn, VIC Portsea Inclinator, VIC Barwon Prison, VIC Barwon Prison, VIC 329 Point Nepean Road, Rosebud, VIC 101 Miller Street, North Sydney, NSW JC Decaux Signage Rollout, NSW RMIT University Signage, Melbourne, VIC City of Sydney Art Project, NSW Ravenswood Development SLO, VIC

#### Relevant Projects cont' Energy and Resources

PNG LNG Project, PNG Fingerboards Mineral Sands, VIC Wimmera Mineral Sands, VIC Wafi Golpu Project, PNG Kanmantoo Copper, SA Port Campbell Gas Storage, VIC Minerva Offshore Gas, VIC Northern Murray Basin Project Mineral Sands, VIC Jimblebar Mining Project, WA Williams United Gold Mining Project, VIC **Big Hill Mine Project, VIC** Carshalton Gold Mine, VIC Fosterville Gold Expansion, VIC Yandera Copper Mine, PNG Fosterville Gold Mine, VIC Cowal Gold Mine, VIC Gorgon LNG, WA WIM150 Mineral Sands, VIC Area C Mine, WA Donald Mineral Sands, VIC Sepon Mine, Laos Mt Arthur Coal, NSW McPhillamys Gold Project, NSW Wambo Coal Mine, NSW Vickery Coal Mine, NSW

#### **Other Sectors**

Portarlington Safe Harbour, VIC Tasmanian Hydro Lakes Assessment, TAS Webb Dock Extension, VIC Southern Fertilizer Facility, VIC Moura Urea Facility, QLD Eulie Piggery, NSW Wallacia Memorial Park, NSW Wanless Recycling Park, QLD