

5 July 2016

Origin Energy

Level 12,
321 Exhibition Street,
Melbourne, VIC 3000

Attention: Mr Peter Marriott, Generation Project Development Manager

Email: Peter.Marriott@originenergy.com.au;
Cara.Layton@originenergy.com.au

Reference No: 15023 / L5

**RE: Stockyard Hill Wind Farm
Landscape & Visual Assessment**

Dear Peter,

The original LVIA assessed 14 residential viewpoints and 28 public viewpoints, with photomontages being prepared at 6 residential viewpoints, and 7 public viewpoints

I have reviewed the Department's 'Further Information Request, particularly Item 2, which requests:

A revised Landscape and Visual Assessment to include:

- a. *Photomontage of proposed amendment from a minimum of three private dwellings showing both the permitted and proposed turbines, and the impact on dwellings.*
- b. *Photomontage of proposed amendment from the following locations:*
 - i. *Lake Goldsmith (360° views)*
 - ii' *Skipton Road (facing east to view the 'south' section of the wind farm)*
 - ii' *Skipton Road (facing south to view the 'east' section of the wind farm)*

Viewpoints in the public domain

The original LVIA did not include viewpoints from Skipton Road, with 12 viewpoints being selected and assessed from the road network. A viewpoint from Lake Goldsmith was assessed (and photomontage prepared) within the original LVIA. The visual impact at this location has been reduced since this time, as a result of the reduction in turbine locations in the vicinity (due to perceived risks to Brolga). There are no formal public viewpoints (e.g. lookouts or pull over areas) at Lake Goldsmith.

The 4 photomontages prepared to accompany the application to amend the Permit assist in illustrating the level of visual change as a result of the proposed amended WEF. These photomontages allow a benchmarking of the visual impacts of the amendment and form the basis of the assessment for other viewpoints for which no photomontages were prepared. The viewpoints were selected within 4km of the nearest wind turbine, as viewpoints that are in the 0-2km and 2-4km zones have the greatest potential visual impact. These viewpoints were also indicative of several different landscape unit types located within the viewshed.

There is a minimal alteration to the visual impact of the approved / amended wind turbines and the overall assessment of the visual impacts remains consistent with those discussed in the LVIA.

There seems to be no reason why the conclusion should differ with a greater number of photomontages undertaken from additional viewpoints within the public domain.

Urban Design
Landscape Architecture
Visual assessment

Suite 1103 / 408 Lonsdale Street
Melbourne 3000
Victoria Australia
Telephone: +61 3 9642 8040
Web: xurban.com.au

ABN: 18831715013

Residential viewpoints

Similarly, there also seems to be no reason why the conclusion should differ with a greater number of photomontages undertaken from additional residential properties.

DELWP do not specify which 3 private residences photomontages are requested to be prepared (e.g. out of the 6 original viewpoints or any other private residences within the vicinity). The selection of 3 viewpoints would be subject to criticism from the public during the public notice and anticipated planning panel process.

As such, not only is the preparation of 3 photomontages from residential properties considered unnecessary, they may cause anguish within the community.

The Department seems to be concerned about the potential change in impact on residential properties and therefore this concern has triggered a request for additional photomontages. This concern can be addressed in a different way by an analysis of the change in the viewing angles between the approved and amended heights and by examining the required height of vegetation to screen the wind farm from view from residential properties. This is discussed below.

Residential screening

The concern as to the change in impact on residential properties can be addressed by analysing the proposed landscaping for residential properties and if this potential screening remains effective with wind turbines that are proposed to be 180 m high.

Figure 1 shows the sightlines calculated for a wind turbine at 132.5 m in height and a wind turbine 180 m in height from a distance of two kilometres.

Figure 1 Sight lines to a wind turbine at 2km



Figure 1 demonstrates that the angle of view to a wind turbine of 132.5 m compared to the angle of view for a turbine that is 180 m high is similar. The viewing angle increases from 3.79° to 5.14° , an increase of less than 1.4° in the vertical field of view.

This slight increase in viewing angle does not impact significantly on the effective height of vegetation that is required to screen or filter views to the proposed wind turbines.

Figure 2 Vegetation heights to achieve effective screening

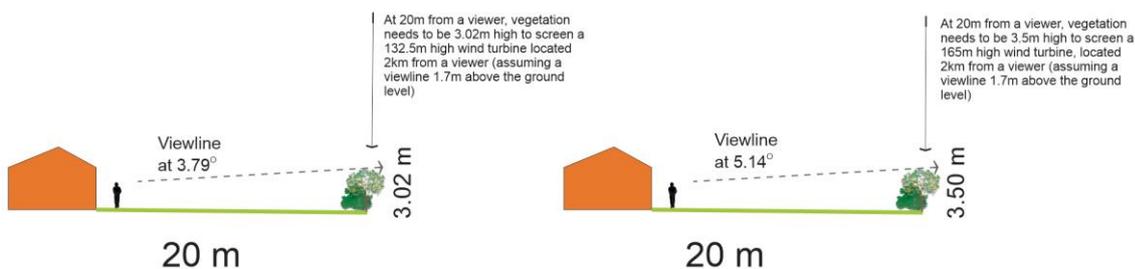


Figure 2 shows planting some 20 m from a viewing location or house. A distance of 20 m was considered adequate for fire setback and to ensure that the house perimeter was uncluttered.

The height of the planting needs to reach 3.02 m in height to screen a 132.5 m high wind turbine for a viewer with an eye level approximately 1.7 m above the ground line. This vegetative height needs to be 3.50 m to screen a 180 m high wind turbine. This increase of only 0.5 m in boundary planting height is a small height difference.

Planting would be more effective if planted closer to the house. If owners wished planting closer to the house, then this would be more effective and conversely if planting was located further away, then it would take longer to reach the greater height required to screen the view to wind turbines. The difference in height of the vegetation to achieve screening is not dissimilar, whether the vegetation is screening a 132.5 m high wind turbine or a 180 m high wind turbine.

The offer of landscape mitigation to residences up to 4 km from the nearest wind turbine is an effective solution to screening wind turbines, if such is the desire of the owner of the affected property.

The impact with and without any landscape mitigation was assessed in the LVIA and the Panel report. This assessment would not change with the proposed amendment to the heights of the wind turbines.

Conclusion

I believe that the comparison of viewing angles and the analysis of the height of screening required, demonstrates that the change in height makes little difference to the impact, nor to the landscape solution on residential viewpoints. I do not believe that additional residential photomontages are required.

Similarly, the request for further photomontages in the public domain is not necessary. The earlier analysis has clearly shown that the change in height will not make any change to the assessment of visual impact. The impact across Lake Goldsmith and from Skipton Road will remain little changed. Additional photomontages are, in my opinion, unnecessary.

The proposed alteration in wind turbine heights will result in a negligible alteration to the level of visual impact that was assessed and approved by the Panel. The change in wind turbine heights and the level of visual impact is consistent with the Panel's original decision.

If you have any queries, please do not hesitate to contact me.

Yours sincerely,

for XURBAN

A handwritten signature in black ink, appearing to read 'Allan Wyatt', with a long vertical line extending downwards from the end of the signature.

Allan Wyatt – *Landscape Architect*