

31 November 2018

Jorge Van Den Brande
Planning Officer
NSW Independent Planning Commission
Level 3, 201 Elizabeth Street
Sydney NSW 2000

Subject:

Dear Jorge,

See attached Coppabella Wind Farm's response to the outstanding items that were discussed in the meeting on the 29th October 2018.

If you have any further queries, please feel free to ask.

Sincerely,

Tom Nielsen
Development Manager
Coppabella Wind Farm Pty Ltd

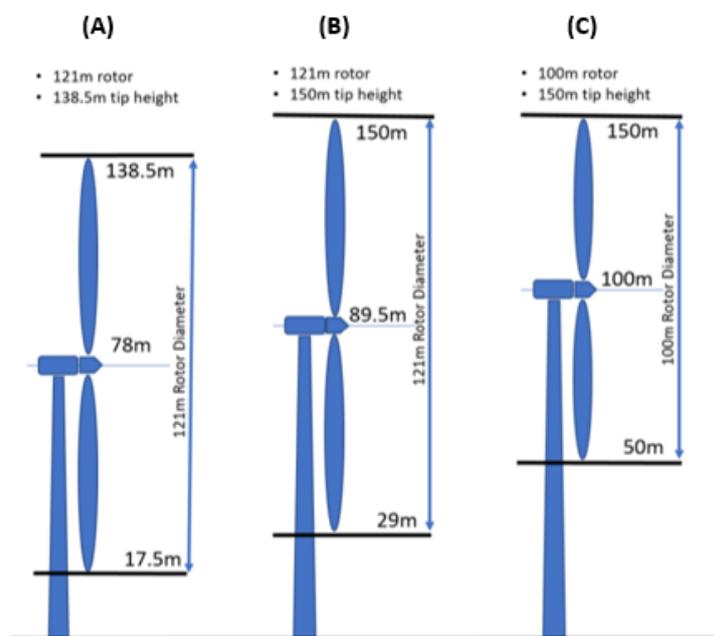


Clarification on Rotor Swept Area

The maximum wind turbine dimensions in the original approval was as specified in the SSD Assessment Report (Feb 2016) as:

“Maximum tower heights (to blade tip) of 150 m, with a hub height between 78m and 100m, and blade lengths between 45 m and 60.5 m.”

As such, several wind turbine configurations are possible within these sets of limits. Examples of this are displayed below and these set the basis for evaluation against the proposed wind turbine in the modification application:



Configurations (A) and (B) were utilised in assessing the potential impacts on birds and bats of the modification from the maximum rotor size under the approval (121m) to the rotor size for the wind turbine being planned for installation (140.3). Configuration (C) was utilised in the original Visual Impact Assessments (VIAs) and has therefore been utilised to assess any potential changes in visual impacts in the updated VIAs.

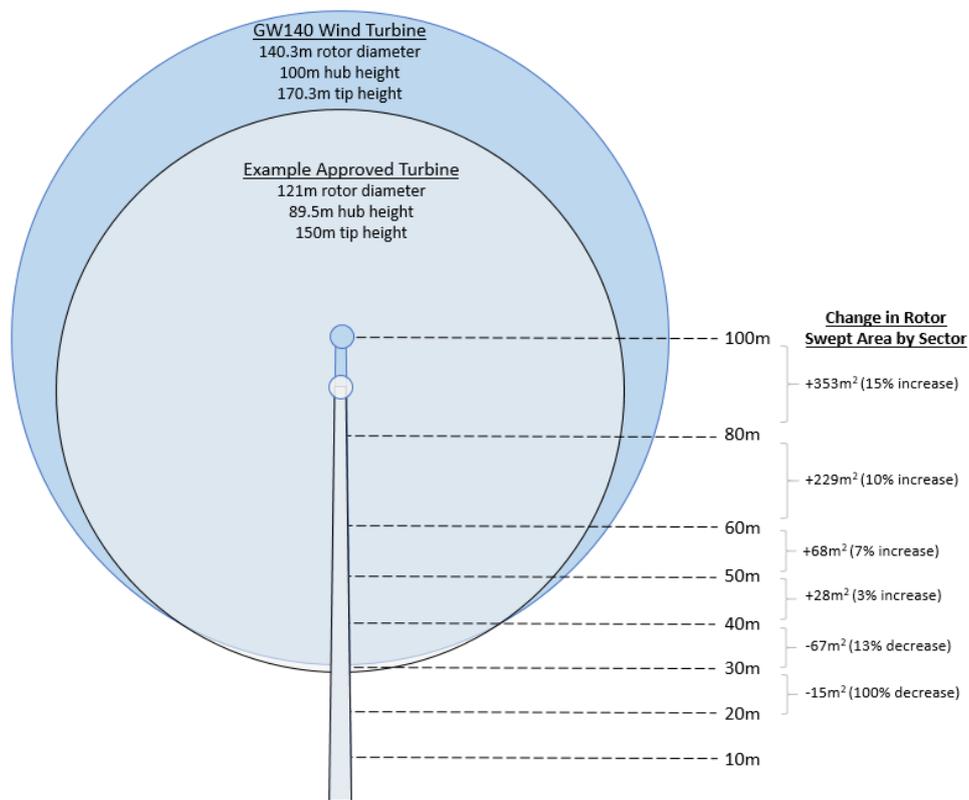
It was noted by the IPC Panel that an approved rotor swept area of 13,478m² had been incorrectly referenced in the Modification Application. This number was the result of a calculation error in the Assessment of Modifications on Birds and Bats (BLA 2017) that has since been updated and corrected (BLA 2018) in the *Response to Biodiversity and Heritage Submissions* ([link](#)). See Table 1 from this updated report on the following page.

	Representative turbine within permit specifications *	Modification (March 2017)	Total extent of change
No of turbines	79	75	Reduction of four turbines (5%)
Rotor radius	60.5 metres	70.15 metres	Increase by 9.65 metres
Max upper RSA (tip)	150 metres	Up to 171 metres	Increase up to 21 metres
Lower Minimum RSA	29.0 m	30.7 m	Lift height of minimum RSA up to 1.7 metres
Total Rotor Swept Area / turbine (m ²)	11,485 m ²	15,460 m ²	Increase by 3,960 m ² (+34%)
Total Rotor Swept Area for wind farm (m ²)	907,266.36	1,159,489	Increase by 252,222 m ² (+28%)

Rotor Swept Area at Various Heights

The IPC Panel raised a query on the basis for different percentage changes in rotor swept area (RSA) at different height sectors. By evaluating these height sectors individually, the potential impacts on bird species that frequent these heights can be better understood. As is noted in the BLA 2018 report, studies from eleven wind farms in south-eastern Australia reported that "the percentage of birds observed below 40 metres was on average 96%".

For the assessment of swept area changes at the different height sectors, approved wind turbine configuration (B) was utilised as the basis for comparison. This represents the combination of the largest rotor and highest tip height possible under the original approval. For a visual representation, of the changes in RSA at various heights, see below.



These calculations are captured in Table 3 of the BLA 2018 report:

Height range (m)	RSA of 121 m diam (29.0-150) (m2)	RSA of 140.3 m diam (30.7-171.0) (m2)	Change in RSA (m2)	Incremental % change in RSA
0-10				
10-20			-	
20-30			- 15	-100%
30-40	506	439	- 67	-13%
40-50	815	843	28	3%
50-60	991	1,059	68	7%
60-80	2,278	2,507	229	10%
80-100	2,409	2,762	353	15%
100-120	2,264	2,772	509	22%
120-140	1,770	2,540	770	43%
140-160	452	1,975	1,523	337%
160-180	-	562	562	Increase
Total	11,485	15,460	3,961	34%

The report also notes that if the modified wind turbine was compared against configuration (A) as introduced earlier (which has the largest approved rotor and lowest approved RSA height), then the increase in the lower swept height ground clearance of the modified wind turbine (from 17.5m to 30m) would result in less risk to 20% of all bird flights between 20-30m.

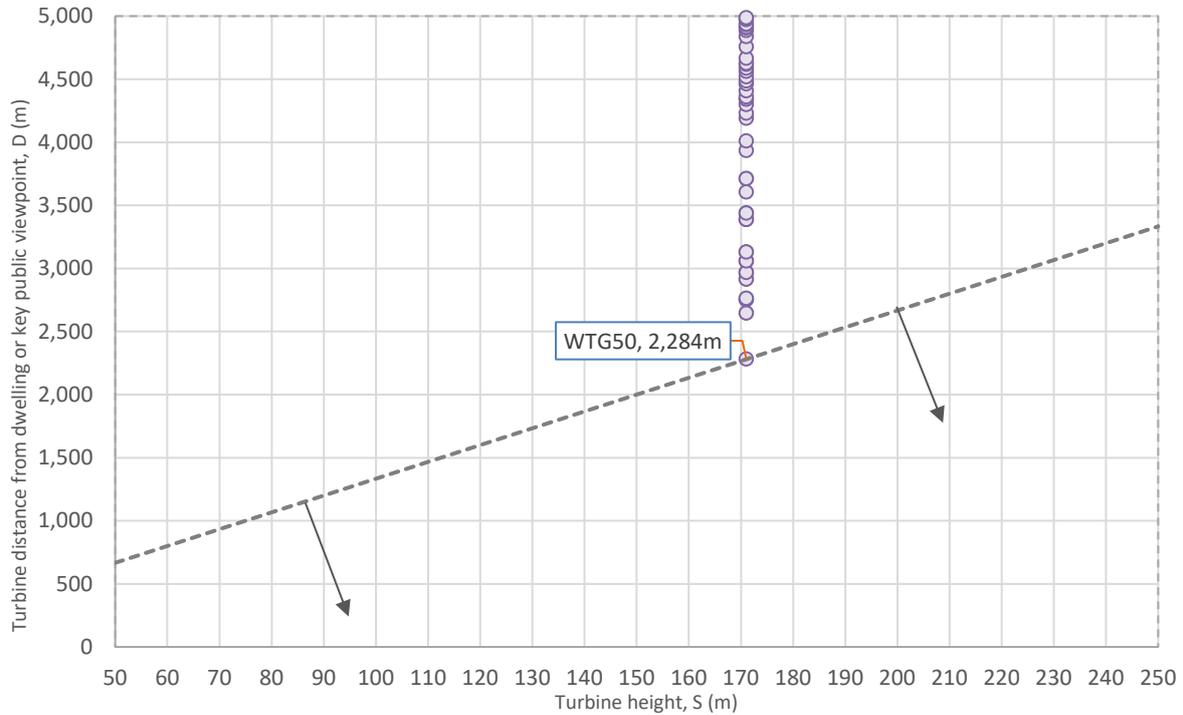
The conclusion of the updated report remains unchanged that *"the impacts of the proposed modified turbine design are not of conservation concern"*.

Residence Co4

The project has been in negotiations for a neighbour agreement with the owner of residence Co4 for over a year. A letter from the landowner to the DPE supplied last year is attached for reference (personal details redacted). While the residence has not been lived in for many years, the project is still treating it as an inhabited dwelling and will ensure compliance is met, while also offering visual screening (these screening rights are not being waived through the proposed neighbour agreement). If a neighbour agreement is unable to be secured, up to five wind turbines can be programmed to automatically turn off during specified non-dominant wind directions that would otherwise result in potential non-compliance (known as sector management). This will ensure noise compliance with the 35dB baseline at this residence. This will be an automated and auditable process (controlled via the site SCADA system) and is permitted under the proposed Conditions of Consent.

It was raised by the panel that Co4 may fall below the line on the distance tool contained within the NSW Wind Energy: Visual Assessment Bulletin. For a 171m tip height, the line on the distance tool indicates a 2,280m distance limit for warranting further consideration. The approved wind turbine location for WTG 50 is located 2,284 from Co4, and thus it is acknowledged that this residence falls very close to this line. For reference, the wind turbines within 5km of Co4 have been added onto the distance tool chart on the following page.

Figure 2. Preliminary Assessment Tool 1 indicating potential visual impacts for further detailed consideration



There has been some ambiguity around how to apply the Visual Assessment Bulletin to project modifications; as the bulletin sets out preliminary assessment tools primarily intended for the siting of new wind turbines. For this project, while the bulletin has been considered, the Visual Impact Assessment has focused on the change of impacts to nearby residences when comparing the modified and approved project dimensions. For Co4, there was no change in impact rating, and only two additional turbine blade tips would be visible across the project as a result of the increased turbine dimensions. The property was originally being considered as a host landowner for the original Yass Valley Wind Farm with turbines originally proposed to be located on the large hills to the North of the residence. These turbines were subsequently removed which has resulted in the hills (without turbines) now providing substantial screening from the turbines directly to the North.

The Visual Impact Assessment concluded that the wind farm modification would not introduce elements that are any more prominent or out of character with the approved Coppabella Wind Farm project, and that the modifications would result in an overall low-level change in visibility and a largely unchanged visual impact rating to that of the approved project.

Vegetation Mapping

Detailed mapping of the various vegetation types across the wind farm can be found in the Revised Vegetation Mapping on the Major Projects website ([link](#)).