



17<sup>th</sup> October 2014

**Ms Swati Sharma**

Department of Planning & Environment  
23-33 Bridge Street,  
Sydney, NSW 2000

Dear Ms Sharma,

Thank you for your email dated 30<sup>th</sup> September 2014 requesting additional information during or post exhibition for Capital II Wind Farm - Modification 2. Our response to your queries and requests is as follows:

- 1) *A simple diagram overlay for Figure 16 of the Capital II Wind Farm EA (page 63) showing the proposed extensions to turbine blades (showing maximum proposed length of blades and that the maximum height of the structures would remain as approved).*

Please find this as Attachment 1.

- 2) *Whilst the overall tip height of the turbines would not increase as a result of the proposed modification (157 m), the modification may provide for increased horizontal views of the wind farm at the closest non-associated receptors. Some information to explain the potential level of such visual impacts should be provided and substantiated.*

There are 29 properties located within a 5km radius of Capital II, 16 of those properties are owned by wind farmers. The remaining 13 properties not owned by wind farmers range in distance from 2.55km to 4.56km to the nearest WTG location.

A visual impact assessment was completed as part of the Environmental Assessment for Capital II. As part of this assessment, a viewpoint (WF03) was assessed for visual impact. WF03 is located at a distance of 1.6km to the nearest WTG location and is included as Attachment 2 for reference. It can be concluded from this viewpoint, a 6m blade increase at this distance (1.6km) is unlikely to have any perceivable impact on horizontal views at non-associated receptors.

At a distance of 2.55 km (the closest non-associated receptor) the additional 6m would not be perceivable relative to the approved blade length and therefore have no impact on horizontal views at non-associated receptors.

- 3) *Whilst attachment 2 (ecological assessment) states that "the surveys on Capital found that 97% of all bird observations were below 20 metres", the remaining 3% should be addressed in the ecological assessment, including the species likely to be above the 20 metres. Also, information to address potential impacts on bats must be included.*

Dr Kevin Mills has provided further analysis including the 3% of bird observations above 20 metres and this has been included as Attachment 3.

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Dr Mills has provided data that determines 2% of observations were recorded at heights between 20-50 metres and that 1% of observations were recorded at heights above 50 metres. At heights of 31 and 43 metres above the ground (the difference in blade base height between the approved and proposed modification) there is no difference in the range of birds that fly between both of these zones. Between 20m-31m and 20m-43m, 2% of observations took place, so regardless of the modification in blade length there is the same impact.

The methods used for bat monitoring at wind farms cannot make any accurate statements about the exact heights at which bats fly. Monitoring occurs at ground level and the detection distance is approximately 20 metres. It is therefore not possible to examine the percentage of bats that fly between 20m-31m and 20m-43m. It is noted that there is a well established absence of bat habitat at the proposed wind farm site.

As part of the Environmental Assessment for Capital II an assessment of bat fauna concluded that bat activity is low in the project area. From the ten species that were recorded around the operational wind farm, none were considered in any threat category, with the exception of the Eastern Bentwing Bat that contributed to 0.4% of the activity. The turbine areas at the Capital II Wind Farm are mainly in two groups in open pasture, so it can be expected that there would not be a high level of bat activity throughout the year in this area. A 7-part test of significance of potential impacts of the proposal revealed that no local population of the threatened species recorded in the project area would be impacted by the proposal.

It is also worth noting that prior to the commencement of construction of Capital II Wind Farm, the proponent must prepare and submit for the approval of the Director General, a bird and bat adaptive management program which takes account of bird/bat monitoring methods identified in the current editions of AusWEA best practice guidelines.

If you require any further information please do not hesitate to contact me.

Kind Regards,

A handwritten signature in black ink that reads "David Griffin".

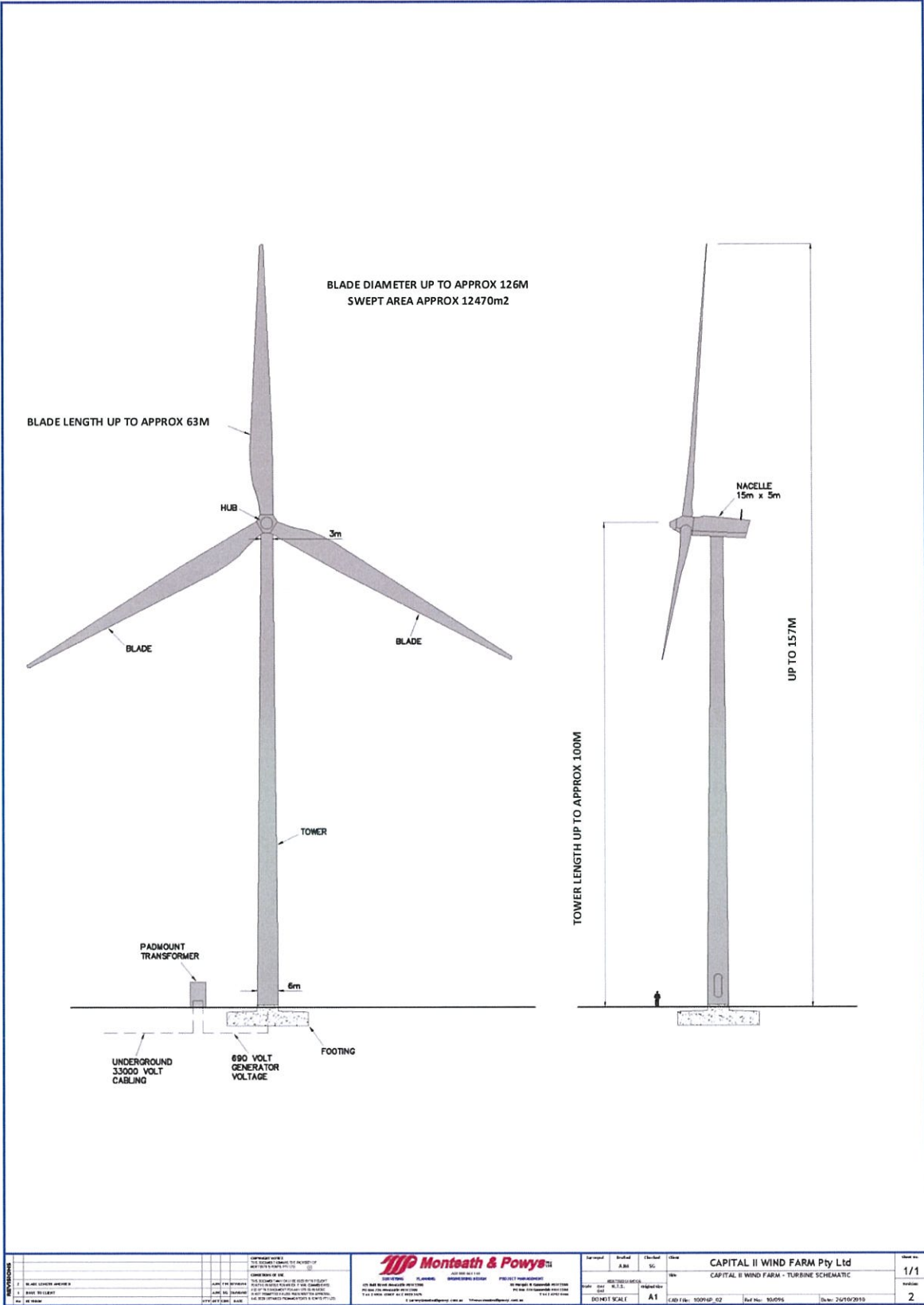
**David Griffin**

General Manager Development

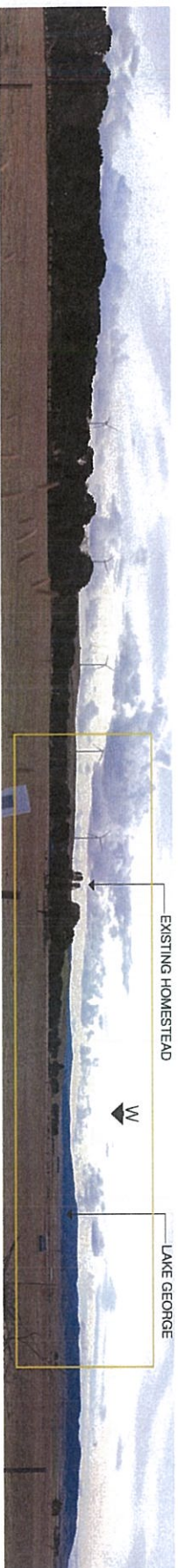
Attachment 1: Revised Figure 16 of the Capital II Wind Farm EA

Attachment 2: Visual Impact Assessment Viewpoint WF03 of the Capital II Wind Farm EA

Attachment 3: Dr Kevin Mills



<b>REVISIONS</b> 1. BLADE LENGTH APPROX 2. BLADE DIAMETER 3. BLADE LENGTH 4. BLADE DIAMETER		<b>COMPANY DETAILS</b> THE COMPANY DETAILS SET FORTH IN THIS DOCUMENT ARE THE PROPERTY OF MONTATH & POWYS LTD.		<b>Monteath &amp; Powys</b> CONSULTING ENGINEERS 100 RIVER STREET, BRISTOL, AVON, GL1 2JF, ENGLAND TEL: 01274 383838 FAX: 01274 383839 WWW.MONTATHANDPOWYS.CO.UK		Drawn: A.B.M. Checked: S.C. Date: 10/10/2013	Project: CAPITAL II WIND FARM PLY LTD Title: CAPITAL II WIND FARM - TURBINE SCHEMATIC	Sheet No: 1/1 Issue: 2
Date: 10/10/2013 By: S.C.		Date: 10/10/2013 By: S.C.		Date: 10/10/2013 By: S.C.		Scale: A1 CAD File: 1009UP_02	Ref No: 10095 Date: 26/10/2013	



Viewpoint WF03: Lakoonna start of proposed wind farm



Photograph cropped from Viewpoint WF03.

VIEWPOINT WF03		DESCRIPTION:	COMMENTS:
Location	Western Leg Road	View from Western Leg Road near the entry to an existing property Lakoonna, looking in a westerly direction towards Lake George. The Lake George Range can be seen in the background of the photograph. The land in the foreground of the photograph has been largely cleared for grazing providing extensive, unimpeded views in a westerly and northwesterly direction towards Lake George and the Lake George Range.	From this viewpoint the northern group of proposed wind turbines would be visible. The turbines are proposed to be sited on the low lying land on the edge of Lake George approximately 1.2km west of the main homestead. The visual sensitivity from this viewpoint has been assessed as moderate and the visual impact has been assessed as moderate resulting in an overall visual impact of moderate.
Coordinates	S 35 04.510 E 149 30.016		
Elevation	693m		
LCU	Taylor's Creek Catchment		
Viewing Distance (to nearest proposed turbine)	1.6km		
Landuse	Rural Grazing Land		
Visual Sensitivity	Moderate		
Potential Visual Impact	Moderate		

## **RESPONSE TO LETTER FROM DEPARTMENT OF ENVIRONMENT AND PLANNING REGARDING INFORMATION OF BIRDS AT CAPITAL WIND FARM**

**Kevin Mills & Associates**

**October 2014**

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Following the application by Infigen Energy to modify the approved wind turbines on the Capital II wind farm, the Department of Environment and Planning sought further information; the following is an extract from their letter.

“Whilst attachment 2 (ecological assessment) states that “[t]he surveys on Capital found that 97% of all bird observations were below 20 metres”, the remaining 3% should be addressed in the ecological assessment, including the species likely to be above the 20 metres. Also, information to address potential impacts on bats must be included.”

The Attachment 2 referred to is our letter of June 2014, which summarised out bird survey results on the Capital Wind Farm in 2004 and 2010. The relevant extract from the 2010 report is provided here at Appendix 1.

The few birds that fly above 20 metres can be divided into those that fly individually and those that flock. The former includes the Wedge-tailed Eagle and Australian Raven, while the latter includes the Sulphur-crested Cockatoo.

The following conclusions are made in relation to the above matters.

- No threatened bird species were recorded flying or are likely to be flying above 20 metres.
- The few species that were recorded above 20 metres are common and widespread species.
- At 31 and 43 metres above the ground (the difference in blade tip height) there is no difference in the range of birds that fly between both of these zones. Between 20m-31m and 20m-43m, 2% of observations took place, so regardless of the modification in blade length there is the same risk of bird strike.
- Birds of prey are often mentioned as being susceptible to blade-strike. This appears to be based largely on overseas experience of poorly placed wind turbine arrays. Observations locally suggest that birds of prey readily avoid the rotating blades. For example, it is not unusual to see Wedge-tailed Eagles flying amongst rotating turbines.
- The following condition of consent applies to Capital II: “prior to the commencement of construction the proponent must prepare and submit for the

approval of the director general a bird and bat adaptive management program which takes account of bird/bat monitoring methods identified in the current editions of AusWEA best practice guidelines” It is understood that the first bird surveys will take place next week (beginning 13<sup>th</sup> October 2014).

**Appendix 1**  
**Extracts from report by KMA (2010)**

Targeted bird counts at 12 counts spread throughout the Capital Wind Farm site undertaken in 2004 and 2010 recorded 893 observations of 49 species over a total observation time of 20.8 hours. The results of these surveys are provided in **Table 3**.

**Table 3**  
**Summary of bird survey data**

Count No.	Time (mins)	No. species	Height Class (No. of birds)				
			Ground	<10m	10-20m	20-50m	>50m
2004							
1	60	12	4	13	5	1	3
2	60	9	9	9	2	2	-
3	50	9	5	10	4	2	-
4	40	8	18	6	-	-	-
5	30	8	12	2	2	-	3
6	60	11	14	4	2	2	-
7	45	12	6	7	3	1	-
8	30	12	11	5	2	1	-
9	60	18	1	19	3	1	-
2010							
1	360	21	na	184	7	6	-
2	300	22	na	176	40	2	2
3	150	16	na	250	18	4	-
All Sites	1245 mins 20.8 hrs	49 -	90	685 (87%)	88 (10%)	22 (2%)	8 (1%)

The results of the bird surveys indicate that of the 893 individual bird observations, 87% were observed below 10 metres in height. Few birds fly higher than 50 metres from the ground, representing less than one percent of observations (8 birds out of 893 observations). Larger birds of prey are the main birds seen at higher levels. The only species observed flying above 50 meters in the current study was the Wedge-tailed Eagle. Those species previously observed flying above 50 metres were the Wedge-tailed Eagle and Australian Raven (KMA 2005).

**Bird Survey Results****Location: Whole of area associated with Capital Wind Farm Stage 2.****Date: 28.04.10****Time: 09.30 to 15.30 (6 hours)**

<b>Species</b>	<b>0-10 m</b>	<b>10-20 m</b>	<b>20-50 m</b>	<b>&gt;50 m</b>
Australasian Grebe	2 (dams)			
Australasian Pipit	20			
Australian Kestrel		1		
Australian Magpie	15	2		
Australian Raven	13	2	1	
Australian Shelduck	2 (dams)			
Australian Wood Duck	64 (dams)			
Brown Falcon	2			
Common Starling*	183			
Crested Pigeon	11			
European Goldfinch*	1			
Flame Robin	Pair			
House Sparrow*	1			
Magpie-lark	2			
Pacific Black Duck	40 (dams)			
Sulphur-crested Cockatoo			5	
Superb Fairy-wren	3			
Welcome Swallow		2		
White-faced Heron	1			
Willie Wagtail	2			
Yellow-rumped Thornbill	5			

**Location: Whole of area associated with Capital Wind Farm Stage 2.****Date: 29.04.10****Time: 10.30 to 15.30 (5 hours)**

<b>Species</b>	<b>0-10 m</b>	<b>10-20 m</b>	<b>20-50 m</b>	<b>&gt;50 m</b>
Australasian Grebe	6 (dams)			
Australasian Pipit	17			
Australian Magpie	44			
Australian Raven	12			
Australian Wood Duck	67 (dams)			
Chestnut Teal	2 (dam)			
Common Starling*		160		
Crested Pigeon	1			
Diamond Firetail	5			
European Goldfinch*	5			
Flame Robin	4			
Galah	18			
Grey Fantail	1			
Grey Teal	2 (dam)			
Little Raven	50	40	2	
Magpie-lark	4			
Pacific Black Duck	6 (dams)			

Silvereye	20	
Superb Fairy-wren	4	
Wedge-tailed Eagle		2
Willie Wagtail	9	
Yellow-rumped Thornbill	4	

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**Location: Whole of area associated with Capital Wind Farm Stage 2.**

**Date: 14.05.10**

Time: 10.00 to 12.30 (2.5 hours)

<b>Species</b>	<b>0-10 m</b>	<b>10-20 m</b>	<b>20-50 m</b>	<b>&gt;50 m</b>
Australasian Pipit	25	4	2	
Australian Kestrel		1		
Australian Magpie	96		2	
Australian Raven	6			
Australian Wood Duck	32 (dam)			
Black-fronted Dotterel	1 (dam)			
Brown Falcon	1			
Common Starling*	164	30		
Galah	65			
House Sparrow*	1			
Little Raven	6			
Magpie-lark	5			
Pacific Black Duck	2 (dam)			
Welcome Swallow	7	12		
Willie Wagtail	2			
Yellow-rumped Thornbill	2	1		

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