



## Office of Environment & Heritage

Neville Osborne  
Team Leader - Energy  
Resource Assessments  
Department of Planning and Environment  
23-33 Bridge Street  
SYDNEY NSW 2000

Your reference: MP 10\_0135 MOD 2  
Our reference: DOC 14/252195  
Contact: Virginia Thomas 6229 7105

Attention: Anna Timbrell - [anna.timbrell@planning.nsw.gov.au](mailto:anna.timbrell@planning.nsw.gov.au)

Dear Neville

### RE: Modification 2 for Capital II Wind Farm.

Thank you for the invitation to make a submission on the modification application for Capital II Wind Farm. The Office of Environment and Heritage (OEH) has reviewed the documentation in terms of potential impacts on biodiversity, and provides the following submission.

OEH does not consider that the documentation adequately analyses the impacts of the modification proposal on avifauna "particularly noting flight characteristics of species", as requested by the Department of Planning and Environment (DPE), nor does it consider impacts on bats. An increase in rotor swept area (RSA) of 22% and extension of blades down to 31 metres above ground may increase the impact on at-risk flying fauna including threatened species, raptors, migratory species, bats and waterbirds. Longer turbine blades may produce greater blade-tip speeds or vortices which may influence bird and bat strike.

Infigen has recently commissioned survey and monitoring of at-risk species in the Capital / Woodlawn Wind Farms area, including raptors and waterbirds on Lake George. OEH advises that the results of those projects would be beneficial in informing the current proposal at Capital II. OEH considers that Infigen should use the research already conducted to provide a detailed risk assessment of the potential impacts on all at-risk birds and bats, including impacts of turbines near cliff-tops on raptors, and impacts of turbines near the lake shoreline on waterbirds. OEH has attached detailed comments on at-risk species in Attachment 1 for your information.

OEH recommends that the Modification application requires a detailed risk assessment of potential impacts on all at-risk birds and bats to enable adequate assessment of the proposal.

OEH has been liaising with Infigen staff on bird and bat monitoring matters and is happy to continue doing this. Please contact Virginia Thomas if you have any queries relating to this submission, on the telephone number above or at [Virginia.thomas@environment.nsw.gov.au](mailto:Virginia.thomas@environment.nsw.gov.au).

Yours sincerely

*Allison Treweek* 29/10/14

**ALLISON TREWEEK**  
**Senior Team Leader, Planning - South East**  
**Regional Operations and Heritage**  
**OFFICE OF ENVIRONMENT AND HERITAGE**

### **Fauna Species at Rotor Swept Area (RSA) height**

Attachment 2 of the Modification application contains the comment that “97% of all bird observations were below 20 metres” at Capital Wind Farm, and concludes that there is not likely to be any appreciable difference in the potential strike hazard by enlarging the RSA and lowering the blade height to 31m.

OEH is aware of at least twenty-seven bird species flying at RSA height at Capital and Woodlawn (results from carcass searches, BLA July 2014 and BLA October 2014):

Nankeen Kestrel	Yellow-tailed Black-Cockatoo
Brown Falcon	Sulphur-crested Cockatoo
Wedge-tailed Eagle	Eastern Rosella
Spotted Nightjar	Corella spp.
Australian Pelican	Crimson Rosella
Australian Shelduck	Galah
White-faced Heron	Laughing Kookaburra
Grey Teal	Australian Magpie
Eurasian Coot	Raven spp.
Silvereye	Australasian Pipit
White-throated Needletail	Common Bronzewing
Dusky Woodswallow	Common Starling
Willie Wagtail	Eurasian Skylark
Black-faced Cuckoo-shrike	

Four species of bats have also been recorded from carcass searches at Capital and Woodlawn, so clearly fly at RSA:

White-striped Freetail Bat  
Gould's Wattled Bat  
Southern Forest Bat  
Little Forest Bat

Potential impacts to these species and any others known to fly at or above 31m should be addressed in the Mod application. Particular attention should be given to the following groups.

### **Raptors**

Impacts on raptors are of particular concern as they are top-order predators, providing an essential role in the ecosystem. Raptors have a higher risk of collision with turbines as they may fly very fast, fly at RSA, and may glide or soar on thermal updrafts.

Nine diurnal raptor species have been recorded at Capital WF (KM&A 2010; BL&A July 2014):

Brown Falcon	Peregrine Falcon
Brown Goshawk	Wedge-tailed Eagle
Collared Sparrowhawk	White-bellied Sea Eagle
Little Eagle	Whistling Kite
Nankeen Kestrel	

In particular, OEH considers greater consideration should be given to the potential impacts of proposed turbines near cliff-tops on raptors. BLA (July 2014) recorded four Wedge-tailed Eagles, two Whistling Kites, two Brown Falcons and one Nankeen Kestrel using the updraft



from the cliff to soar around on the same afternoon, in the vicinity of the northern Capital II turbines .

### **Waterbirds**

Many of the Capital II turbines will be close to the lake shore and an increase in RSA and lowering of blade height may impact on waterbirds. Lake George can be a significant refuge for waterbirds in times of drought. During waterbird monitoring at Lake George (BLA July 2014) approximately 10,500 waterbirds of 12 species were recorded:

Australian Pelican	Hardhead
Australian Shelduck	Masked Lapwing
Australian Wood Duck	Pacific Black Duck
Banded Lapwing	Red-necked Avocet
Black Swan	Silver Gull
Grey Teal	White-faced Heron

Pink-eared Duck and Freckled Duck have also been recorded at Lake George (BLA July 2014).

Some of these species (e.g. Australian Shelduck, White-faced Heron and Australian Pelican) have been recorded flying at RSA within the Capital/Woodlawn area. Waterbirds that migrate, form flocks or fly at night may be particularly susceptible to blade-strike adjacent to Lake George. Large waterbirds such as Black Swan and Australian Pelican may be at greater risk of collision with turbines adjacent to wetlands due to reduced agility and large distances required for take-off. An analysis of the potential increase in risk to these species should be provided.

### **References**

Brett Lane & Associates (July 2014), Capital Wind Farm Waterbird and Raptor Monitoring. Report No. 9142 (6.0). Unpublished report for Infigen Energy Limited.

Brett Lane & Associates (October 2014), Capital and Woodlawn Wind Farms – Comparison of Pre and Post-Construction Bird Utilisation Data. Report No. 9142 (7.1). Unpublished report for Infigen Energy Limited.

Kevin Mills & Associates (2010), Flora and Fauna Assessment Final Report - Capital Wind Farm Stage 2, Southern Tablelands, NSW. Unpublished report for Infigen Energy.

American Wind Wildlife Institute (AWWI). 2014. Wind turbine interactions with wildlife and their habitats: a summary of research results and priority questions. Viewed 25/10/14 at <<http://awwi.org/resources/summary-of-wind-wildlife-interactions-2/#section-summary-of-windwildlife-interactions>>.