

28 July 2016

Alain Morry  
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Dear Alain

**Comments on the implications of changing the hardware specifications of the proposed Suurplaats Wind Farm for the anticipated avian impacts of this development**

This is to confirm that as the bird specialist contracted to do the pre-construction monitoring of birds at the proposed Suurplaats Wind Farm, I have been asked to comment on the implications for bird impacts of possible changes in the specifications of the turbines selected from those stipulated in the Environmental Authorisation for the project.

I am a qualified ornithologist and a SACNASP registered bird specialist with >20 years of experience in the field of avian impact assessment. I have been the appointed, supervising bird specialist on the Suurplaats Wind Farm project since the start of pre-construction monitoring at the site in 2011, including additional survey work done in the area after the completion of the standard 12-month study period, culminating in the final pre-construction bird monitoring report (Jenkins, A.R., du Plessis, J., Colyn, R., Cooke, P-J, & Benn, G. 2015. Suurplaats Wind Energy Facility: avian impact risk assessment and mitigation scheme. Report to Moyeng Energy).

The currently approved specifications for the project include a total of up to 400 x 1.8-3.0 MW turbines, each with a hub height of up to 100 m, and with a rotor diameter of up to 90 m. The revised proposal is for fewer but larger (4.0 MW) turbines, with a higher hub height and a longer rotor diameter (Table 1).

While the effect of the increase in hub height is unclear (given the paucity of information in the published literature detailing the relationship between turbine height and bird impacts), the proposed change in rotor diameter increases the rotor swept area per turbine – which is a good proxy for the inherent avian collision risk posed by each turbine - by about 90%. However, the decrease in the number of turbines means that there is a net reduction in the aggregate rotor swept area of about 11% (Table 1).

In summary, the proposed changes in turbine specifications alone probably reduce the overall anticipated impact of the Suurplaats Wind Farm on the local avifauna, and there is no reason why these changes should require any alteration to the existing avian impact assessment, the Environmental Authorisation, or associated recommendations for avian impact mitigation that might inform the EMPr.

**Table 1.** Proposed changes in the specifications and layout of the Suurplaats Wind Farm, and implications of these changes for the existing avian impact assessment and the related environmental management program.

Approved project specifications	New project specifications	Net effect on predicted impacts	Required changes to impact assessment	Required changes to EMPr
400 turbines	187 turbines	53% fewer turbines – less disturbance, habitat loss, reduced collision risk	None	None
Up to 100 m hub-height	Up to 120 m hub-height	Turbines 20% higher – unknown, although possibly greater collision risk for higher-flying birds	None	None
90 m rotor diameter	132 m rotor diameter	90% increase in rotor swept area per tower	None - fewer towers means aggregate rotor swept reduced by 11%	None
Steel turbine columns	Concrete turbine columns	None?	None	None

Note that ongoing pre-construction monitoring of birds at the site will ultimately inform the final turbine layout of the project.

Yours sincerely



Andrew Jenkins