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Proposed amendments to the environmental authorisation for the Golden Valley II Wind Energy Facility in the Eastern Cape, and the impacts on bats: TURBINE DIMENSIONS, LAYOUT AND ADDITIONAL LAND PORTION

Animalia Consultants (Pty) Ltd) undertook the pre-construction bat monitoring and impact assessment for the Golden Valley II Wind Energy Facility (WEF) in 2011 and 2012. An amended version of the preconstruction bat EIA monitoring report was compiled on 18 March 2016. Terra Wind Energy Golden Valley (Pty) Ltd wishes to undertake amendments to expand the turbine envelope, include and additional land portion and allow for use of the newer, larger turbines that are now available in the market place, and subsequently reduce the number of turbines which will change the authorised turbine layout. The original Environmental Authorisation (EA) of 132 turbines is founded on a rotor diameter of 130m and a hub height of up to 100m. The current amendment is proposing a maximum of 49 turbines with an increase to a maximum rotor diameter of 170m and a hub height of up to 130m. These changes are summarized in **Table 1** which also indicates the minimum rotor swept height above ground.

Table 1: Originally authorized as well as proposed amendments.

Aspect	Approved	Proposed
Rotor diameter	130m	Up to 170m
Hub height	100m	Up to 130m
Lowest rotor swept height above ground	35m	45m
Number of turbines	132	Up to 49

Bat activity measured during the preconstruction assessment showed a negative correlation with height, since less bat passes as well as a lower species diversity was recorded on higher microphones. The advantage of the proposed turbine dimension amendment is that it will increase the rotor swept height above ground and therefore may decrease the likelihood of impacts on bats. And even though it will result in a larger airspace of moving blades per turbine, the reduction in the number of turbines may possibly lower the probability of impacts and provides for larger movement spaces and corridors for bats. The additional land portion has

sufficient ecological similarities to the remainder of the site, therefore the passive data gathered is also informative of the new land portion for the purpose of assessing the proposed amendments. The impacts that were assessed during the EIA phase remain unchanged.

The proposed amended layout is respective of the bat sensitivity map on the original site area and also within the proposed additional land portion. It is important to note that during any possible turbine layout revisions, that all turbine base points may not be closer than 85m to any high sensitivity buffers, which ensures that all turbine blades are also outside high sensitivity buffers, based on a maximum rotor diameter of 170. This is in line with the buffer requirements of the "*South African Good Practice Guidelines for Surveying Bats at Wind Energy Facility Developments - Pre-construction: Edition 4.1. Sowler, S., Stoffberg, S., MacEwan, K., Aronson, J., Ramalho, R., Forssman, K., Lötter, C. 2017. South African Bat Assessment Association*." In the proposed amended layout all turbine base points are more than 85m from high bat sensitivity buffers, and therefore acceptable.

The mitigation and management measures specified in the amended 18 March 2016 bat preconstruction report are sufficient and remain unchanged. Except they should not be limited to specific turbines only, but rather apply to whichever turbines are identified to cause unsustainable numbers of bat mortalities during the operational monitoring study.

In summary, the proposed amendments are acceptable from a bat sensitivity perspective if the recommended mitigation measures are adhered to, and a bat mortality monitoring study is conducted for a minimum duration of 2 years during the operational phase.

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