BIRDS & BATS UNLIMITED

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NAMAS WIND FARM GRID CONNECTION (KLEINSEE, NORTHERN CAPE):
APPLICATION FOR AMENDMENT OF THE ENVIRONMENTAL AUTHORISATION
AVIAN SPECIALIST COMMENT – 2021

1. Introduction

This specialist comment is relevant to the proposed (2021) amendments for the grid connections for the authorised Genesis **Namas** Wind (Pty) Ltd's Wind Farm near Kleinsee and its likely impact on the avian community. Avian impacts along the grid connection from the Gromis Substation to the Namas and Zonnequa wind farms were assessed in 2017-2018 (Simmons and Martins 2018) and several priority bird species that may be impacted by the wind farm were found to use the area.

The original layout proposed and amended by Genesis Namas Wind (Pty) Ltd, was part of the impact assessment undertaken in 2017-2018 and that was approved and given environmental Authorisation in 2019. This proposed (2021) amendment addresses:

1. Amendment of the co-ordinates of the substation/ switching station positions to be in line with the amended Facility EAs.
2. Amendment of the corridor width from the authorised 300m to 600m (to be 300m east and west of the 400 kV line). AEP only catered for a 300m grid corridor to the west of the planned 400kV line, whereas all indications are that Eskom might want them to construct the 132 kV line/s to the east of the 400 kV line.
3. The corridor/ envelope around Gromis MTS to be expanded to allow entry to the 132 kV yard from the north.

These are treated in the same order below. First, we summarise our report on the risks to birds here.

2. Risks to birds in the original alignment and corridor width for the Namas and Zonnequa Wind Farm grid connections

The risks to birds with the original (and now authorised) alignment can be summarised as follows (Simmons and Martins 2018):

- Up to date (SABAP2) bird atlas data indicates that the area proposed for the development of the grid infrastructure supports a low diversity of 48 bird species.
- Our own records, focussed on the proposed Namas Wind Farm and the 300m grid infrastructure corridor in a drought period, found only 45 species in 12 months of monitoring. Allowance for this was made based on our experience of bird diversity and abundance in arid areas to give a more realistic assessment of avian diversity at other times.
- This included 8 collision-prone species of which 3 were red-listed: Ludwig's Bustard *Neotis ludwigii* (ranked 10th in the top 100), Secretarybird *Sagittarius serpentarius* (12th) and Lanner Falcon *Falco biarmicus* (ranked 22nd). Thus, negative impacts on birds may occur.

Power lines kill, on average, 1.05 birds per kilometre of line per year in South Africa, particularly bustards (Shaw 2015) and could, thus, impact the raptors and bustards that frequent the area.

- The annual passage rate of the collision-prone species on the WEF and the 300m corridor (0.13 birds per hour), and Red Data birds alone (0.01 birds per hour) was fortunately very low. The low passage rates of the priority birds suggest the probability of direct impacts for these species is likely to be low and they are less likely to show displacement from the proposed lines. Increased rainfall may change these findings if bustards and raptors are attracted into the site.
- One area of high-risk is likely within the 300m corridor proposed for the development of the grid infrastructure where it crosses the Buffels River. This section of the double-circuit 132kV power line will require bird diverters along its entire span.

Wherever high and medium-risk areas occur, mitigations should include:

- aligning the two lines (132 kV and 400 kV) and staggering the pylons of the two adjacent lines (i.e. the proposed Strandveld-Gromis 132kV double-circuit power line and the 400kV Eskom power line to be constructed in the near future) to reduce bustard fatalities (Simmons, et al. in prep);
- all on-site electrical connections should be buried underground;
- all new overhead pylons must be made bird-friendly to reduce electrocutions.

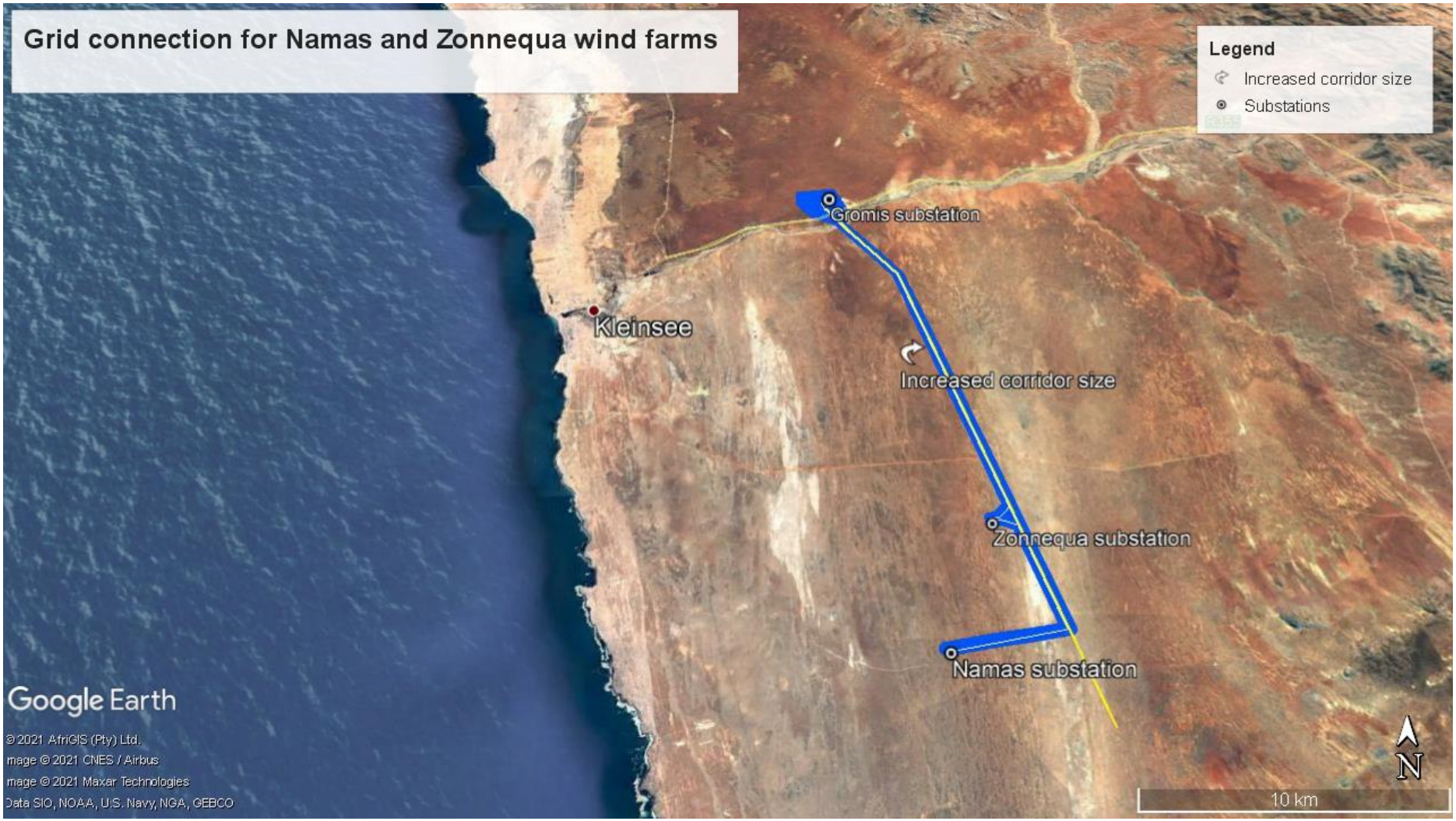

Figure 1: The change in the proposed 132 kV grid connections: (i) corridor width (300m to 600 m) to the Gromis substation (top), and (ii) the increased size of the corridor into the Gromis substation.

2.1 Changes to the position of the Namas and Zonnequa substation

This amendment changes the position of the substations to within the authorised facility. This will not change the impacts to the avifauna given that Birds & Bats Unlimited's previous report (Simmons and Martins 2018) found no negative issues with the placement of the wind farm boundaries or facilities within it.

2.2 Changes to the corridor width

The new amendment proposes that the width of the approved corridor increases from 300m to 600m in width for the length of line from the Gromis substation to the Zonnequa on-site substation (blue in Figure 1). Given that the power line exporting the energy from the two wind farms will still lie adjacent, and the pylons staggered, to the proposed 400 kV line, the risk to birds, particularly the collision-prone bustards will not change. This is because the alignment next to the proposed 400 kV line will remain (whatever side it is placed – east or west) and that provides increased visibility of the two lines from the staggered pylon effect and the addition of bird diverters to both lines will increase visibility, and decrease avian risks, further.

2.4 The corridor around Gromis MTS to be expanded to allow entry to the 132 kV yard from the north.

The habitat immediately to the north of the Gromis substation is highly altered and compromised by mining activities and, as such, holds no importance to the local avifauna. Thus, the widening of the corridor to accommodate a line from the north will not impact the impact to the avifauna in the area.

Table 1. A quantification of the change in impacts to the main, collision-prone Red Data species (especially bustards) and other priority birds likely to be impacted by the proposed routing re-alignment for the power lines from the Namas to Zonnequa substations. (The other amendments are not considered because there are no changes expected).

Power line infrastructure 300m to 600m corridor Operational Phase - Authorised Impacts vs Proposed Amendment impacts
Nature: Neutral due to equal size of the corridor extent (either 300 m east of west of the proposed 400 kV power line) for the priority bird groups identified as at risk.

The nomadic Ludwig's and Kori Bustards are the most likely to be impacted by overhead power lines, while the Secretarybird and possibly other collision-prone raptors such Black Harriers may be impacted, however more due to the disturbance caused on the ground during the construction phase of the grid infrastructure.				
	Authorised		**Proposed Amendment**	
	Without mitigation	**With mitigation**	**Without mitigation**	**With mitigation**
Extent	**1**	**1**	**1**	**1**
Duration	**4**	**4**	**4**	**4**
Magnitude	**8**	**6**	**8**	**6**
Probability	**4**	**4**	**4**	**4**
Significance (E+D+M)P	52 (Medium-high)	44 (Medium)	52 (Medium high)	44 (Medium)
Status (+ve or –ve)	Negative	Negative	Negative	Negative
Reversibility	Medium for raptors High for collision-prone bustards	Medium for all raptors. Medium for collision-prone bustards because of their propensity for impacting even marked power lines	Medium for all raptors. Medium-high for collision-prone bustards because of their propensity for hitting power lines	
Irreplaceable loss of species?	No, the raptors are infrequent in this area and rarely hit power lines. Thousands of bustards are killed on power lines per year in South Africa (Shaw et al, 2015) so every effort must be made to reduce this high mortality.	Bustards need more attention to reduce fatalities, or a local loss of species could occur. Mitigations are therefore essential.	Thousands of bustards are killed on power lines per year in South Africa (Shaw et al, 2015) so every effort must be made to reduce this high mortality.	Bustards need more attention to reduce fatalities, or a local loss of species could occur. Mitigations are therefore essential. **The best mitigation, in this case, is to stagger the pylons of the new line and place the 132 kV as close as possible to the proposed 400 kV line.**
Can impacts be mitigated?	Yes, by staggering the position of pylon towers of adjacent or parallel power lines could reduce bustard mortality by > 60%	Yes, by staggering adjacent power line towers (for bustards) and marking all future	Yes, with staggered pylons as explained above	Yes, with staggered pylons as explained above the bustard

	and by marking all future power lines with bird diverters as they are constructed.	lines as they are constructed (for raptors).		fatality rate can be reduced

Mitigation for power lines:

There are four classes of mitigation for birds in terms of the grid infrastructure development between the Namas and Zonnequa Wind Farm:

(i) re-position the lines to avoid high- or medium-risk areas for birds on both sites and between them;

(ii) add bird diverters or spirals (diurnal and nocturnal) to all new lines, as they are constructed (this reduce impacts between 50% and 92% depending on the species);

(iii) where existing lines occur (or are planned e.g. Gromis-Juno 400 kV from the south), construct the proposed double-circuit 132kV power line adjacent to the lines and **stagger the pylons to reduce bustard deaths**; and

(iv) bury the lines internally within the WEF site. This would be preferable outside the site too, but we understand this is potentially too expensive.

Note that the corridor width change itself (300 m to 600m) will bring minimal impacts to birds, since only 300m will be used as the servitude for the new line.

Residual impacts:

After mitigation, direct mortality through collision, or area avoidance, by the species identified above may still occur and further research and mitigation measures should be suggested. This can only be undertaken in conjunction with a systematic monitoring programme.

The previous mitigations outlined in Simmons and Martins' (2018) Avian Assessment report, particularly the staggered pylon mitigation (Pallet, Simmons and Brown in prep) should be applied, as the possibility of reducing the impacts with bird diverters is minimal for the Red Data bustards at the proposed Namas to Zonnequa grid connection.

In conclusion, we find no changes to the originally authorised alignments and corridors in terms of any increased impact to the avifauna.

For all other suggested amendments there will be no negative effect on the collision-prone birds and thus no objections to the proposed changes.

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