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The EWT's perspective on Wind Energy Development

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The Endangered Wildlife Trust (EWT) is dedicated to conserving threatened species and ecosystems in east and southern Africa to the benefit of all people.

The EWT recognises that South Africa is currently heavily dependent on energy from fossil fuel resources, notably coal, which contribute to global carbon dioxide emissions. We furthermore recognise the commitments made by South Africa, under the UNFCCC Paris Convention to reduce carbon emissions by 2050. We therefore support an urgent shift to a more diverse energy mix in South Africa, provided that this leads to a decrease in the consumption of fossil fuels, a reduction in the extraction of non-renewable resources, and does not result in new or additional forms of ecologically unsustainable environmental degradation and risk.

The demand for energy is increasing globally and Wind Energy Facilities (WEFs) are considered a viable option for renewable energy production. There are, however, concerns over the impacts of wind farms on wildlife in three key areas aspects: the disturbance or displacement of species from their habitats due to the construction of the associated WEF infrastructure; bird and bat collisions with turbine blades; and collisions and electrocutions on energy infrastructure associated with WEFs.

This concern is compounded by the potential cumulative impacts of ongoing wind energy developments posing a direct risk to collision-prone species across sensitive areas, and an amplified level of disturbance and loss of habitat for wildlife in areas that overlap with WEFs. This risk is particularly pertinent and concerning for threatened birds such as vultures, eagles, cranes, and bustards, that are long-lived and reproduce slowly, where small increases in mortality rates, such as fatalities associated with WEFs, can impact heavily on the survival and persistence of local populations.

The Endangered Wildlife Trust (EWT) acknowledges the growing urgency required to address the potential negative cumulative impact of high-risk WEFs, particularly on collision-prone and/or highly localised species. In addition, very little is known about the impact of these developments on terrestrial species, and we encourage urgent research to quantify potential WEF impacts. With escalating energy demands across South Africa, and a rising desire for cleaner energy, we acknowledge the need to work with renewable energy developers to ensure the construction of environmentally friendly WEFs; to enhance conservation in and around WEFs; and to develop effective measures to significantly reduce and prevent fatalities and disturbance on both operational and planned WEFs. This requires a high level of engagement between research institutions, conservation organisations, species specialists and wind energy developers, as well as continuous monitoring and applied research to understand the dynamics and impacts of this rapidly advancing energy sector on wildlife in order to develop innovative solutions to reduce and rapidly adapt to these impacts.

The EWT believes that some of the impacts of WEFs can be avoided and reduced using suitable remedial actions and mitigation measures. Accordingly, we recommend that the following measures must be considered and implemented to ensure minimum impact of wind energy on wildlife:

1. **Avoid WEF development in high collision risk and highly sensitive areas**
    - We recommend, from the outset, that WEFs are not constructed in areas of high risk for collision-prone raptor species such as the Cape Vulture, Verreaux's Eagle, Martial Eagle, Secretarybird, and Black Harrier, as well as large bird species including the Ludwig's Bustard, Lesser Flamingo, Great White Pelican, and the three indigenous crane species. These No-Go sites should include high "bird traffic" areas in core breeding, foraging, and migration habitat such as wetlands, mountain ridges, nesting, and roost sites. The same applies to any threatened terrestrial species that are confined to specific habitats, such as Riverine Rabbits and Karoo Dwarf Tortoises.
    - A Cape Vulture turbine collision risk map and assessment tool is currently being developed. When operational, this Cape Vulture collision risk assessment tool must be applied to proposed WEF developments to establish high, and low, collision risk areas to reduce and prevent turbine collisions. This tool, similar to the Verreaux's Eagle Risk Assessment (VERA), is planned for completion by October 2021. We are also working with the University of Cape Town to develop a collision risk map and assessment tool for the Martial Eagle.
    - The national Environmental Screening Tool (EST) must be used to generate site-specific reports and will inform known and predicted threatened species presence. All highly sensitive areas identified using this online tool should be considered as No-Go areas for development. Further prospective WEF development assessments must follow the Terrestrial Animal Species Protocol and the Species Environmental Assessment Guideline (as gazetted on 30 October 2020).

2. **Operational mitigation for collisions and other considerations**

The EWT supports the use of all possible and relevant operational tools and technology to minimise potential impacts at operational facilities.

- There is growing evidence that demonstrates the effectiveness of painting wind turbine blades black[1], improving their visibility and thus significantly reducing large bird collisions with turbines on operational wind farms. In concert with the turbine collision risk mapping, we will work with developers to use this mitigation tool, and any other proven tools on new WEF developments.
- There may be significant risk to biodiversity on-site during construction and operation of WEFs. Developers must put in place measures to mitigate these impacts in line with best practices for construction in remote sites.

[1] The idea of a single black blade paired with two white blades is based on ex situ experiments by Hodos (2003)1. The hypothesis is that this could reduce collision risk by increasing the visibility of the rotating blades and reducing "motion smear". Contrasting coloured blades (e.g. some black, some white) may also be more visible against different backgrounds (e.g. black will be more visible in overcast conditions, while white may be more visible against dark terrain). This approach has been tested in the field in Smøla, Norway (Stokke et al. 20172 May 20193). Since this approach has yielded promising results, we recommend the same method, or as close as possible, be tested in South Africa – i.e. just one blade is painted.

3. Important considerations for the placement of new WEFs
    - WEF infrastructure has a considerable footprint – including roads, power lines, and meteorological masts – which increases its potential impact on biodiversity. Thus, WEF development must follow established mitigation methods to ensure that the impacts of all the associated infrastructure are addressed proactively.
    - Generation sites and areas impacted by associated infrastructure must be be limited to areas of low ecological importance.
    - While the EWT appreciates that placement of WEFs is limited by the renewable resource (mostly wind or solar radiation) and proximity to electricity grid substations, it is imperative that avoidance is prioritised in terms of the placement of new developments and that these take cumulative impacts into consideration. This includes the WEF infrastructure itself and associated infrastructure.
    - Developments should only be authorised if they fall outside of the boundaries of protected areas (including but not limited to nature reserves, national parks, Ramsar sites) and Important Bird and Biodiversity Areas (IBAs), including species-specific buffer zones around these areas.

4. Management recommendations and the mitigation of impacts
    - Developers must adhere to all recommendations made by biodiversity specialists. These may include the provision for no-go areas, species-specific conservation actions, and additional monitoring requirements.
    - Developers should further mitigate potential impacts by incorporating various design and operational mechanisms that minimise the overall impact of the facility, including but not limited to overall construction footprint, road design, road length and the overall electrical infrastructure design and magnitude.
    - The EWT supports the diligent and thorough Environmental Impact Assessment process following the Mitigation Hierarchy, and subsequent Record of Decision (RoD) process.
    - Certain landscape features must be avoided where developments will have a high visual impact or where intervisibility issues mean that developments erode eco-tourism potential or pose an aesthetic risk to landmark features, being proximal to protected areas or other landmarks.

In addition, the EWT supports a net positive impact[2] approach, following the Mitigation Hierarchy, where WEF developers should aim to deliver ecosystem / habitat improvement on or near sites where they are operational. Impacts must be balanced by meaningful and appropriate social and environmental gains.

The EWT supports the role of renewable wind energy in establishing a balanced energy mix in South Africa, provided that this is done in a responsible manner, taking cognisance of the ecological and environmental impacts of such developments, and reducing these as far as possible. As with any development, this should be undertaken within the framework of legislation, global best practice, and should adopt the Precautionary Principle wherever information is lacking, or uncertainties persist. Doing so will contribute to South Africa's growing energy needs while minimising impact on the environment.

[2] Net Positive Impact (NPI) on biodiversity is a target for project outcomes in which the impacts on biodiversity (i.e. the variety of ecosystems and living things) caused by the project are outweighed by the actions taken to avoid and reduce such impacts, rehabilitate affected species/landscapes, and offset any residual impacts.