



Arcus Consultancy Services South Africa (Pty) Ltd
Office 220 Cube Workspace
Cnr Long Street and Hans Strijdom Road
Cape Town
8001
9 July 2019

Dear EDF Renewables,

Basic assessment for the Proposed Electrical Grid Connection and Associated Infrastructure for the San Kraal (SK) Split 1; Phezukomoya (PH) Split 1; and Hartebeesthoek (HBH) East and West Wind Energy Facilities, Eastern and Northern Cape Provinces

This letter is a confirmation that the impacts of the proposed grid connection for the above wind farms will have a negligible impact to bats.

The main potential and direct impact of grid connection lines to bats will be collision of bats with the powerline cables. These collisions will be limited to fruit bats which do not echolocate and hence may not be able to see (or hear returning echoes from) the powerline cables and avoid them, resulting in potential mortality. Insectivorous bats, which do echolocate, are able to detect powerline cables and to avoid them, making mortality unlikely. No fruit bats were observed at the proposed development sites during the pre-construction bat monitoring (carried out by Animalia between July 2015 and September 2016). Further, the distributions of fruit bat species in South Africa do not overlap with the proposed wind farms. Therefore, it is unlikely that there will be interactions between fruit bats and the grid connection lines of the proposed wind farms, eliminating the risk of mortality to fruit bats.

Indirect impacts of the grid connection relate to the alternation of habitat needed when the pylon towers are installed. This impact is low because the footprint of such development is limited. Provided that roosts are not destroyed during the construction process (for example, from blasting), no mitigation measures are required. No active bat roosts were found during the pre-construction bat monitoring and therefore the risk of destroying roosts is low.

Based on the above, it is unlikely that the proposed grid connection route for the four proposed wind farms will impact bats to a degree that will preclude its development. The grid connection routes are therefore approved from a bat perspective.

Yours Sincerely,

Jonathan Aronson
Senior Ecologist

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Specialisms

- Ecological Impact Assessments
- Pre-construction and Operational monitoring at wind energy developments
- Data analysis and statistical assessment of ecological data
- GIS mapping and Analysis

Summary of Experience

Jonathan has 12 years of experience studying and researching bats and has presented at the International Bat Research Conference and local bat workshops. He has been at the forefront of bats and wind energy research in South Africa and has worked on more than 40 WEF projects in South Africa, Kenya, Mozambique, Zambia and the UK undertaking pre-construction monitoring, operational monitoring, impact assessments and mitigation strategy design. He is a co-author of the Good Practise Guidelines for Surveying Bats at Wind Energy Facilities in South Africa, is the lead author on the operational monitoring guidelines for bats and is a founding member of the South African Bat Assessment Advisory Panel (SABAAP). He has experience managing wind energy facility projects including developing survey strategies, implementing field surveys, data analysis and report writing. He has provided extensive input to Environmental Impact Assessments (EIA) and post-construction Environmental Management Plans (EMP) for bats.

Professional History

2019 to current - Senior Ecologist, Arcus Consultancy Services Ltd, Cape Town
2013 to 2019 - Ecology Specialist, Arcus Consultancy Services Ltd, Cape Town
2011 to 2013 - Director, Gaia Environmental Services Pty (Ltd), Cape Town
2008 to 2008 - Research Assistant, Percy Fitzpatrick Inst. of African Ornithology, Cape Town

Qualifications and Professional Affiliations

- **University of Cape Town, 2009-2010**
Msc Zoology
- **University of Cape Town, 2007**
BSc (Hons) Freshwater Biology
- **University of Cape Town, 2003-2006**
BSc Zoology
- Member of Society for Conservation Biology (2011 to present)
- South African Bat Assessment Advisory Panel (2013 to 2018)
- South African Bat Assessment Association (2013 to present)
- Professional Natural Scientist (Ecological Science) – SACNASP Registration #400238/14

Pre-Construction Bat Monitoring and Environmental Impact Assessments

Project Experience

- Pienaarspoort Wind Energy Facility (ABO Wind renewable energies (Pty) Ltd).
- Nuweveld Wind Energy Facility (Red Cap Energy (Pty) Ltd).
- Banna Ba Phifu Wind Energy Facility (WKN Windcurrent SA (Pty) Ltd).
- Choje Wind Farm (Wind Relic (Pty) Ltd).
- Kwagga Wind Energy Facility (ABO Wind renewable energies (Pty) Ltd).
- Wind Farm in Zambia (SLR Consulting).
- Namaacha Wind Farm (Consultec).
- Beck Burn Wind Farm. Post-construction Monitoring. (EDF Energy).
- Paulputs Wind Energy Facility (WKN Windcurrent SA (Pty) Ltd).
- Putsonderwater Wind Energy Facility (WKN Windcurrent SA (Pty) Ltd).
- Zingesele Wind Energy Facility (juwi Renewable Energies (Pty) Ltd).
- Highlands Wind Energy Facility (WKN Windcurrent SA (Pty) Ltd).
- Kap Vley Wind Energy Facility (juwi Renewable Energies (Pty) Ltd).
- Universal and Sonop Wind Energy Facilities (JG Afrika).
- Kolkies and Karee Wind Energy Facility (Mainstream Renewable Power South Africa).
- Komsberg East and West Wind Energy Facility (African Clean Energy Developments Pty Ltd).
- Pofadder Wind Energy Facility (Mainstream Renewable Power South Africa).
- Elliot Wind Energy Facility (Rainmaker Energy).
- Spitskop West Wind Energy Facility (RES Southern Africa/Gestamp).
- Spitskop East Wind Energy Facility (RES Southern Africa).
- Patryshoogte Wind Energy Facility (RES Southern Africa).
- Swartberg Wind Energy Facility (CSIR).
- Clover Valley and Groene Kloof Wind Energy Facility (Western Wind Energy).

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Operational Bat Monitoring Studies

- West Coast One Wind Energy Facility. Post-construction Monitoring (Aurora Wind Power (RF) (Pty) Ltd).
- Fazakerly Waste Water Treatment Works. Post-construction Monitoring. (United Utilities).
- Gouda Wind Energy Facility (Blue Falcon 140 (Rf) Pty Ltd)
- Hopefield Wind Farm (Umoya Energy).

Ecological Surveys

- Killlean Wind Farm. Bat acoustic surveys including a driven transect and commissioning of bat detectors for this proposed site in Scotland, UK. (Renewable Energy Systems Ltd).
- Maple Road, Tankersely. Bat acoustic surveys including a walked transect for this proposed site near Barnsley, UK (Rula Developments).

Due Diligence

- Due Diligence of Bat Monitoring at the Excelsior, Golden Valley and Perdekraal Wind Farm (IBIS Consulting).
- Due Diligence of Bat Monitoring at the Copperton Wind Energy Facility (SLR Consulting).
- Due Diligence of Bat Monitoring at the Roggeveld Wind Farm (IBIS Consulting).
- Due Diligence of Bat Monitoring at the Kangas, Excelsior and Golden Valley Wind Farms (ERM).

Amendment Applications

- Ukomeleza Wind Energy Facility (CES - Environmental and social advisory services).
- Great Kei Wind Energy Facility (CES - Environmental and social advisory services).
- Motherwell Wind Energy Facility (CES - Environmental and social advisory services).
- Dassiesridge Wind Energy Facility (CES - Environmental and social advisory services).
- Great Karoo Wind Energy Facility (Savannah Environmental (Pty) Ltd).
- Gunstfontein Wind Energy Facility (Savannah Environmental (Pty) Ltd).
- Komserberg East and West Wind Energy Facilities (Aurecon South Africa (Pty) Ltd).
- Soetwater Wind Energy Facility (Savannah Environmental (Pty) Ltd).
- Karusa Wind Energy Facility (Savannah Environmental (Pty) Ltd).
- Zen Wind Energy Facility (Savannah Environmental (Pty) Ltd).

Peer Review

- Peer Review for Three Bat Monitoring Reports for the Bokpoort II Solar Developments (Golder Associates)
- Peer Review of Operational Monitoring at the Jeffreys Bay Wind Farm, including updating the operational mitigation strategy for bats (Globeleq South Africa Management Services (Pty) Ltd).
- Oyster Bay Wind Energy Facility. Reviewing a pre-construction bat monitoring study and providing input into a stand-alone study (RES Southern Africa).
- Review and design mitigation strategies for bats at the Kinangop Wind Park, Kenya (African Infrastructure Investment Managers).

Feasibility Studies

- Feasibility assessment for four potential wind farms in the Northern Cape (ABO Wind renewable energies (Pty) Ltd).
- Feasibility assessment for four potential wind farms in Mozambique (Ibis Consulting (Pty) Ltd).
- Assessment of the Feasibility of a Wind Farm in the Northern Cape (juwi Renewable Energies (Pty) Ltd).
- Assessment of the Feasibility of a Wind Farm in the Eastern Cape (WKN Windcurrent SA (Pty) Ltd).

Research Projects

- Darling National Demonstration Wind Farm Project. Designed and implemented a research project investigating bat fatality in the Western Cape.

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Publications

- Aronson, J.B., Shackleton, S., and Sikutshwa, L. (2019). Joining the puzzle pieces: reconceptualising ecosystem-based adaptation in South Africa within the current natural resource management and adaptation context. Policy Brief, African Climate and Development Initiative.
- MacEwan, K., **Aronson, J.**, Richardson, E., Taylor, P., Coverdale, B., Jacobs, D., Leeuwener, L., Marais, W., Richards, L. South African Bat Fatality Threshold Guidelines for Operational Wind Energy Facilities – South African Bat Assessment Association (1st Edition).
- **Aronson, J.B.** and Sowler, S. (2016). Mitigation Guidance for Bats at Wind Energy Facilities in South Africa.
- **Aronson, J.B.**, Richardson, E.K., MacEwan, K., Jacobs, D., Marais, W., Aiken, S., Taylor, P., Sowler, S. and Hein, C (2014). South African Good Practise Guidelines for Operational Monitoring for Bats at Wind Energy Facilities (1st Edition).
- Sowler, S. and S. Stoffberg (2014). South African Good Practise Guidelines for Surveying Bats in Wind Energy Facility Developments - Pre-Construction (3rd Edition). Kath Potgieter, K., MacEwan, K., Lötter, C., Marais, M., **Aronson, J.B.**, Jordaan, S., Jacobs, D.S, Richardson, K., Taylor, P., Avni, J., Diamond, M., Cohen, L., Dippenaar, S., Pierce, M., Power, J. and Ramalho, R (eds).
- **Aronson, J.B.**, Thomas, A. and Jordaan, S. 2013. Bat fatality at a Wind Energy Facility in the Western Cape, South Africa. *African Bat Conservation News*31: 9-12.

Workshops, Seminars, Conferences and Courses

- Conference on Wildlife and Wind Energy Impacts, Stirling, August 2019.
- GenEst Carcass Fatality Estimator Workshop, Stirling, August 2019.
- GenEst Carcass Fatality Estimator Workshop, Kirstenbosch Research Centre (KRC), October 2018.
- The Ecosystem Approach and Systems Thinking Course, United Nations Environment Programme.
- Bats and Wind Energy Workshop, The Waterfront Hotel & Spa, Durban, July 2016.
- Why Carbon Footprinting Makes Business Sense, African Climate and Development Initiative Seminar, September 2016.
- The Age of Sustainable Development Course, The SDG Academy, 2016.
- Planetary Boundaries and Human Opportunities Course, The SDG Academy, 2015.
- Endangered Wildlife Trust (EWT) Bats and Wind Energy Training Course, October 2013.
- Ecological Networks Course, Kirstenbosch Research Centre (KRC), July 2013.
- Social and Economic Network Analysis Course, online via Stanford University, 2013.
- Social Network Analysis Course, online via University of Michigan, 2013.
- Introduction to Complexity Science Course, online via Santa Fe Institute, 2013.
- Introduction to Spatial Analysis using R, Kirstenbosch Research Centre (KRC), May 2013.
- Google Geo Tools for Conservation, University of Cape Town, February 2013.
- Endangered Wildlife Trust (EWT) Bats and Wind Energy Training Course, January 2012.
- 15th International Bat Research Conference, Prague, August 2010.
- Statistical Modelling Workshop for Biologists, University of Cape Town, September 2010.
- ESRI Virtual Campus Online GIS Courses, 2010.
- WAYS/ScholarShip IT Workshop: Remote Sensing and GIS Course, March 2009.