Ombepo Energy (Pty) Ltd

Submitted to: Ombepo Energy (Pty) Ltd
Attention: Mr. Israel Shihepo
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Namibia

REPORT:

COMPLIANCE REPORT FOR THE OMBEPO 10 MW AC WIND FARM, !KARAS REGION, NAMIBIA

PROJECT NUMBER: ECC-43-493-REP-02-D

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DATE: 30 NOVEMBER 2023

ECC ENVIRONMENTAL COMPLIANCE CONSULTANCY

TITLE AND APPROVAL PAGE

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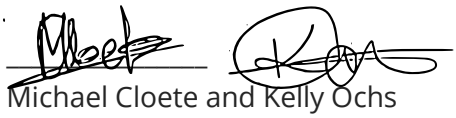

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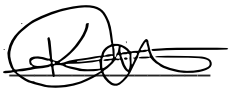

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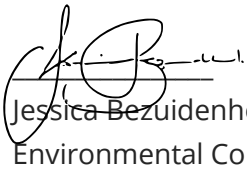

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ABBREVIATIONS

Abbreviation	Description
%	percent
AC	alternate current
CO	carbon monoxide
DEA	Directorate of Environmental Affairs
ECB	electricity control board
ECC	Environmental Compliance Consultancy
ECC	environmental clearance certificate
EHS	environmental health and safety
EIA	environmental impact assessment
EMF	Electromotive Force
EMP	environmental management plan
HIV/AIDS	human immunodeficiency virus / acquired immunodeficiency syndrome
ICNIRP	Commission of Non-Ionizing Radiation Protection
IEEE	Institute of Electrical and Electronics Engineers
IFC	International Finance Corporation
InnoSun	InnoSun Energy Holdings (Pty) Ltd
IPP	independent power producer
ISO	International Organization for Standardization
kV	kilovolts
Ltd.	Limited
m	metre
MEFT	Ministry of Environment, Forestry and Tourism
MSDS	material safety data sheets
MW	megawatts
MVA	megavolt ampere
No	Number
NOx	nitrogen oxides
Ombepo	Ombepo Energy (Pty) Ltd
PCB	Polychlorinated Biphenyls
PM	particulate matter
PPE	personnel protective equipment
Pty	proprietary
PV	photovoltaic
Reg	registration
SO_2	sulphur dioxide
STDs	sexually transmitted diseases
VOC	Volatile Organic Compounds

1 INTRODUCTION

1.1 BACKGROUND INFORMATION

InnoSun Energy Holding (Pty) Ltd (herein referred to as the 'Proponent' or 'InnoSun') is the largest independent power producer (IPP) that was established in Namibia in 2012. Innosun is specialised in the development, construction, operation and maintenance of renewable generation plants making use of solar and wind technologies. Currently, InnoSun operates four solar photovoltaic (PV) plants and one wind farm in Namibia.

Ombepo Energy (Pty) Ltd is 95% owned by InnoSun and 5% by Lüderitz Town Council (LTC). Ombepo is operating a 10 MW wind farm on a Seal site within the Lüderitz Townlands, !Karas Region. Three wind towers were constructed which was approximately 80 m in length, with three blades and turbines each. The project is vital to the energy security, sustainable and renewable green energy development for Namibia with potential to produce the entire electricity consumption for the Town of Lüderitz.

An Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) was compiled by Risk- Based Solutions cc and submitted in August 2015, in order to support the application for an environmental clearance certificate for a 10 MW AC wind park. The environmental management plan (EMP) was approved for the wind park (Appendix A) in line with the approved environmental clearance certificate. The environmental clearance certificate was renewed by the Ministry of Environment, Forestry and Tourism (MEFT) on 04 February 2021 (ECC-01216) (Appendix B).

Figure 1 provides a locality map of the existing 10 MW AC wind farm, Lüderitz, !Karas Region.

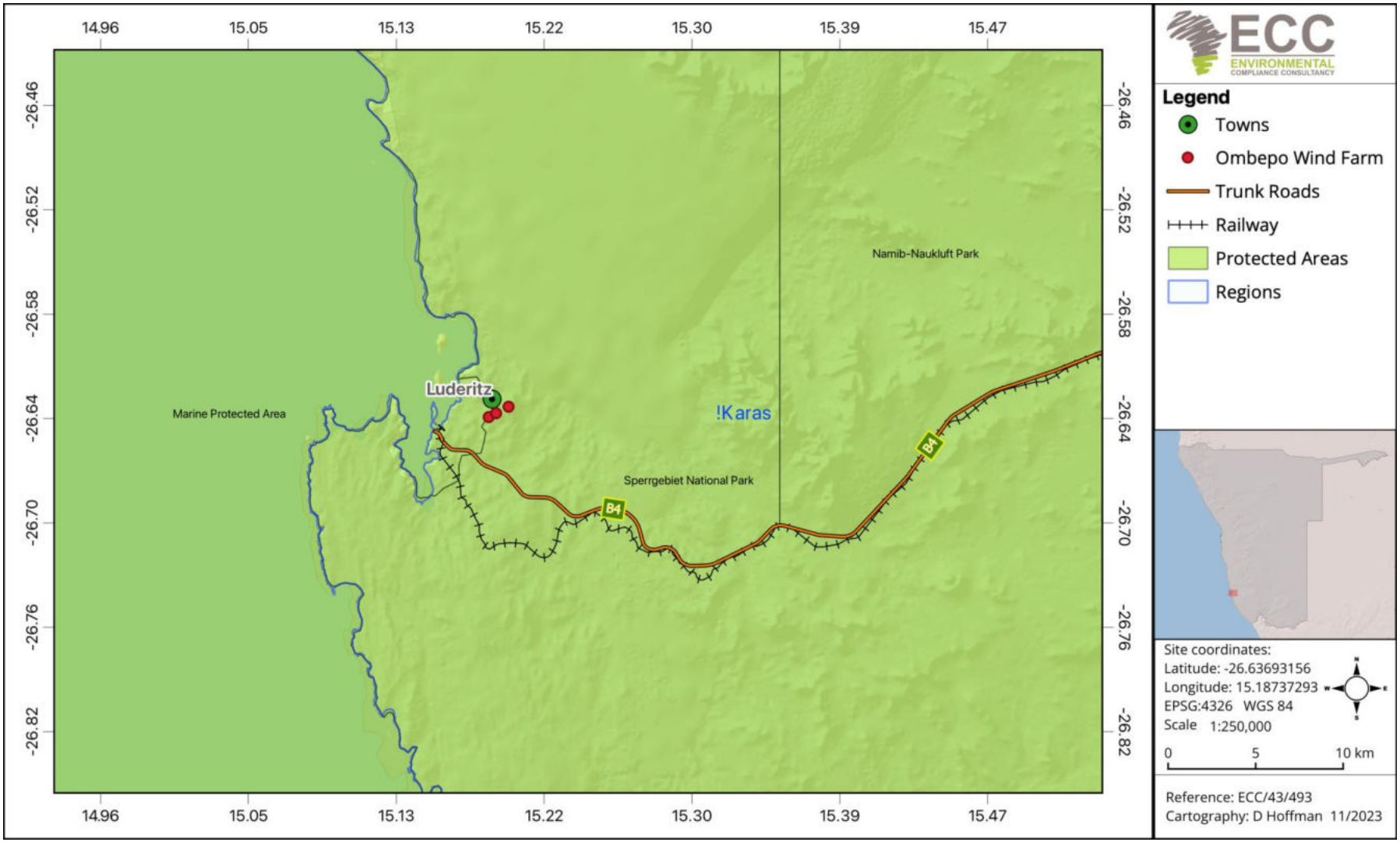

Figure 1 – Locality map of the existing 10 MW AC wind farm, Lüderitz, !Karas Region

1.2 PURPOSE OF THIS DOCUMENT

Environmental Compliance Consultancy (ECC) has been engaged by InnoSun, on behalf of Ombepo Energy (Pty) Ltd, to prepare the application to renew the environmental clearance certificate for the wind farm. The Proponent currently holds a valid environmental clearance certificate for the Ombepo wind farm. As part of this application, an environmental compliance desktop audit and physical audit (site visit) (Appendix C) has been undertaken to determine the status of compliance with the EMP from February 2021 to October 2023. The site visit by ECC's environmental control officer was conducted on the 13th of November 2023.

1.3 PROPONENT DETAILS

The Proponent's details are set out in Table 1.

Table 1 – Proponent details

Contact	Postal Address	Email Address	Telephone
Mr. Israel Shihepo Asset Manager	P.O. Box 27527 Windhoek Namibia	ishihepo@innosun.org	Tel: +264 61 254 700

1.4 ENVIRONMENTAL ASSESSMENT PRACTITIONER

Environmental Compliance Consultancy (ECC) (Reg. No. 2022/0593) has prepared this renewal report and on behalf of the Proponent.

This report has been authored by employees of ECC, who have no material interest in the outcome of this report, nor do any of the ECC team have any interest that could be reasonably regarded as being capable of affecting their independence in the preparation of this report. ECC is independent from the proponent and has no vested or financial interest in the project, except for fair remuneration for professional fees rendered based upon agreed commercial rates. Payment of these fees is in no way contingent on the results of this report or the assessment, or a record of decision issued by Government. No member or employee of ECC is, or is intending to be, a director, officer, or any other direct employee of The Proponent. No member or employee of ECC has, or has had, any shareholding in the Proponent.

All compliance and regulatory requirements regarding this report should be forwarded by email or posted to the following address:

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2 BACKGROUND TO THE PROJECT

Ombepo Energy (Pty) Ltd is a Namibian registered company striving towards generation of renewable power in Namibia. The Atlantic Ocean often brings harsh winds to Namibian coastal towns such as Lüderitz. This created an opportunity to develop a wind farm providing benefits such as energy security, reduced energy reliance on neighbouring counties, sustainable and renewable energy which will in turn reduce Namibia's carbon footprint. Ombepo Energy (Pty) Ltd was granted a Generation License No. G-149-010615-25 by the Electricity Control Board (ECB) within the provisions of the Electricity Act, 2007, (Act No. 4 of 2007).

The EMP is the binding document to which a clearance certificate is granted to a proponent to carry out a proposed activity. This document is subjected to periodically auditing as the activities transitions throughout the Project phases. The EMP is audited in order to monitor the progress of the project and ensure that all measures stipulated in the document are met and effectively adhered to as required by the Department of Environmental Affairs (DEA). In an event where the project activities alter, the EMP is required to be amended accordingly.

2.1 RENEWAL ACTIVITIES

The following is the activities associated with the pre-construction, construction, operational and closure stages of the wind farm that could potentially have an impact on the biophysical and social environments:

- Operational phase – wind energy generation and maintenance (For 25 years)
- Decommissioning and closure phase – decommissioning (After 25 years) / upgrade of facility

3 ENVIRONMENTAL COMPLIANCE AUDIT

3.1 SITE ACTIVITIES

3.1.1 MONITORING AND REPORTING

ECC compiled an operational health, safety and environmental report to demonstrate the compliance of the proponent and its employees with their EMP during the period of 2021 and 2022. The report is available in Appendix D. A physical audit occurred early in November 2023. This enables the proponent to comply to all legal standards by pointing out areas of non-compliance and allowing them to take immediate action on implementing corrective actions.

3.1.2 ACTIVITIES CARRIED OUT FOR THE PERIOD OF FEBRUARY 2021 TO OCTOBER 2023

The following activities were undertaken for the period February 2021 – October 2023:

- Energy generation;
- Wind farm operation and
- Maintenance of wind turbine blades, maintenance and equipment shed and overall site.

3.2 ENVIRONMENTAL MANAGEMENT PLAN AND AUDITING

The approved EMP covers all adverse environmental impacts, including any additional potential impacts that may result from the Ombepo wind farm. The EMP provides the technical details for each mitigation, monitoring and institutional measure, including the impact(s) to which it relates and the conditions when required, together with designs, equipment descriptions and operating procedures as granted.

3.3 COMPLIANCE AUDIT FINDINGS

This section outlines the findings of environmental audits (physical or desktop) during the period of review of the Ombepo wind farm. It addresses obligations in terms of the key Acts that govern the activities on site, the commitments made in the EMP, and present the findings and recommended corrective actions where applicable (Table 2, Table 3 and Table 4).

The EMP therefore:

- Identifies all operation activities that could cause environmental damage (aspects and potential impacts) and provides a summary of actions required;
- Identifies institutions responsible for ensuring compliance with the EMP and provides their contact information;
- Provides standard procedures to avoid, minimise and mitigate the identified negative environmental impacts and to enhance the positive impact of the proposed activities on the environment;
- Forms a written record of procedures, responsibilities, requirements and rules for contractor/s, their staff and any other person who must comply with the EMP;

- Ensure zero pollution incidents; protect local flora, fauna, and water resources; and water use and other natural resources effectively and efficiently;
- Provides a monitoring and auditing programme to track and record compliance and identify and respond to any potential or actual negative environmental impacts;
- Provides a monitoring programme to record any mitigation measures that are implemented;
- Ensure that regular environmental audits are carried out by an experienced environmental control officer where appropriate; and
- Once operations have ceased, any impacts shall be rehabilitated.

3.4 ISSUES OF NON-COMPLIANCE

The overall compliance to the EMP was scored 96.43%. It should be noted that the guard stationed at the gate of the Project site travels more than 250 m to use the lavatory. General waste was gathered and burned in an isolated area of the site with the approval from local authority. These issues were raised during the on-site audit on the 13th of November 2023 and the Proponent has since rectified this non-compliance.

4 EMP COMPLIANCE AUDIT

Table 2, Table 3 and Table 4 provides an overview of the compliance with EMP requirements as depicted in the approved EMP for the construction, operational and decommissioning phase of the Ombepo wind farm (Appendix A).

Table 2 – Pre-construction and construction phase of EMP compliance audit

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
1) All activities	– Management and monitoring	– Social and environmental performance	– Ensure that all aspects related to the EMP are implemented during the preconstruction and construction phase. – Hold regular site meetings/inspections. Make provision in the minutes of the meetings for reporting on all aspects of the EMP related to the construction of the wind farm.	– Compliant	– All activities were undertaken in accordance with the EMP from the pre-construction to the construction phase.
2) All activities	– Consultation and disclosure	– Social and environmental performance	– Maintain open and direct lines of communication between the Employer (Ombepo Energy (Pty) Ltd, Contractor and I&APs with regards to environmental matters. – Consult with project affected communities in a structured and culturally appropriate manner.	– Compliant	– Potentially affected communities have been provided with a platform to address concerns

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			Consultation should be "free" (of external manipulation, interference or coercion, and intimidation), "prior" (timely disclosure of information) and "informed" (relevant, understandable and accessible information). – Adequately incorporate project affected communities' concerns.		throughout operations.
3) All activities	– Grievance mechanisms	– Social and environmental performance	– Ensure a mechanism for receiving and resolving any concerns and grievances related to the project's social and environmental performance during the construction phase. – Address concerns promptly and transparently and in a culturally appropriate manner.	– Compliant	– A platform was provided to address concerns from affected communities throughout operations. – No concerns or grievances related to the project have been made during the report period.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
4) All activities	– Training including awareness and inductions	– Social and environmental performance	– Train employees and contractors in matters related to the project's social and environmental performance, Namibia's regulatory requirements. – Ensure adequate environmental awareness training for all senior site personnel. – Give environmental induction presentations to all site personnel prior to work commencement.	– Compliant	– The Proponent provided training and awareness to staff relating to environmental impacts and mitigation measures, the contents of the EMP and emergency training.
5) All activities	– Labour and working conditions	– Social and Environmental Performance	– Establish, maintain and improve the worker-management relationship. Base the employment relationship on equal opportunity and fair treatment and no discrimination to be allowed. – Comply with Namibia's labour and employment laws and prevent unacceptable forms of labour, i.e. harmful child and forced labour.	– Compliant	– Relationships among workers have been managed successfully and Namibian labour regulations have been adhered to.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Promote safe and healthy working conditions and the protection and promotion of worker health. – Prepare a Human Resource Policy and document and communicate the Working Conditions and Terms of Employment. – Respect Collective Agreements and the right of workers to organize and bargain collectively. – Prepare a retrenchment plan – Implement a grievance mechanism.		– There have been no complaints recorded during the reporting period.
6) All activities	– Employment and procurement opportunities	– Socio-economic	– Ensure local recruitment (of registered contractors or qualified and certified personnel, registered and certified with the appropriate statutory as per Electricity Control Board (ECB) licensee duty) and procurement to maximize benefit to region.	– Compliant	– No evidence of non-compliance was identified during the reporting period.
7) All activities	– Occupational health and safety	– Social and environmental performance	– Prepare and submit an Emergency Preparedness and Response Plan – Adhere to all Namibian health and safety regulations. – Occupational health and safety training to be provided to all employees.	– Compliant	– The National health and safety regulations have been adhered to.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Ensure that qualified first aid can be provided to all employees. – Ensure that qualified first aid can be provided at all times. – Provide and ensure the active use of Personal Protective Equipment (PPE).		
8) All activities	– Community health and safety	– Social and environmental performance	– Prevent communicable disease (e.g sexually transmitted diseases (STDs) such as HIV/AIDS transmission): provide surveillance and active screening and treatment of employees; prevent illness among employees in local communities (through health awareness and education initiatives); ensure ready access to medical treatment, – confidentiality and appropriate care, particularly with respect to migrant workers; and promote immunisation.	– Compliant	– No evidence of non-compliance was recorded during the reporting period.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
9) All activities	– Unauthorised public access	– Community safety	– Use gate on the access road(s) and the entire site must be fenced off. – Wind farm should not be accessible to anyone from the public. – Notice or information boards relating public safety hazards and emergency contact details should be put up at gate(s) and at the wind farm. – Create a viewpoint area, possibly including an information centre, for the public/tourists if required.	– Compliant	– This component of the EMP has been adhered to during the reporting period.
10) All activities	– Construction of wind farm	– Change in land use from "conservation" to "industrial"	– Restrict construction activities to demarcated area; all other areas will be regarded as "no go" zones in order to minimise the impact on the surrounding land; – Adhere to the regulations, rules, procedures, current and future regional and local land use plans.	– Compliant	– The Proponent maintained all construction activities within the Project site. – All regulations and procedures were adhered to.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
11) Wind farm layout planning	– Wind farm layout	– Visual	– Minimise the presence of secondary structures: minimise number of access roads and bury intra-project power lines. – Adhere to the regulations, rules, procedures, current and future regional and local land use plans.	– Compliant	– There is no evidence of non-compliance.
12) Wind farm sitting and layout	– Electromagnetic interference (aviation radar and telecommunications)	– Community health and safety	– Aviation radar: o Consider the designs of the components; o Investigate the use of radar-absorbent surface treatments (to minimise electrical disturbance); o Consider the geometric layout and location of the wind farm in relation to air traffic routes; o Consider radar design alterations, i.e. relocation of the affected radar, radar blanking of the affected area, or use of alternative radar systems to cover the affected area. – Telecommunication systems: o Avoid direct physical interference of point-to-point communication systems; o Modify the existing areial;	– Compliant	– All actions and mitigation measures have been adhered to as practically possible.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			o Install a directional antenna; o Boost the signal by installing an amplifier. – Television broadcasts: o Site the wind farm away from the line-of-sight of the broadcaster transmitter; o Make use of more non-mettalic material in the construction of the wind farm.		
	– Configuration of wind farm	– Species (birds and bats) injury, disturbance (and potential alteration of behaviour), or mortality.	– Wind farm turbines to be grouped (rather than spreading widely).	– Compliant	– The Proponent ensured the grouping of the turbines to prevent a wider range to be impacted.
	– Aircraft navigation safety (potential collision or the alteration or flight paths)	– Community Safety	– Consult the air traffic authorities so that the installation of the wind farm will conform to air traffic safety regulations regarding wind farm if any regulations exist.	– Compliant	– The Proponent ensured that all air traffic safety regulations are adhered to.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
13) All activities	– Construction camp – I assumed that it will only be (tented) temporary camp and that no building etc. will be constructed.	– Disturbance of fauna and flora and habitat alteration	– The planning and design to ensure minium impact to the environment. – No trees or natural vegetation may be removedfor the making of fires. – No animal may be injured, fed, trapped, hunted or harmed in any way. – No off-road driving will be allowed. – No trespassing on adjoining properties is allowed and no livestock, game or vegetation are to be interfered with.	– Compliant	– The Proponent will continue to ensure mitigation measures are in place as per the EMP.
		– Pollution of biophysical environment (air, soil and water)	– No fires will be allowed, unless a specific area has been identified and set aside by the ER for the cooking of food. – Vehicle maintenance/servicing/washing not to be allowed anywhere on site/at the camp. – Portable toilets to be provided and used at the camp. – Sanitary wastewater to be releasedinto a French drain system. – Use bio-degradable detergents on site. – Enforce proper waste (hazardous and non-hazardous) management practices (as per Waste Management Plan)	– Compliant	– No issues of non-compliance were recorded during the reporting period.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Waste and litter to be disposed of in scavenger and weatherproof bins and the refuse to be collected by the contractor and disposed of at least once a week.		
		– Occupational Health and Safety	– No fires will be allowed, unless a specific area has been identified and set aside by the ER for the cooking of food. – Ensure that employees are trained in the use of appropriate firefighting equipment and ensure that such equipment is on hand at all times. – Comply with all safety regulations regarding electricity supply. – Supply potable water for human consumption and other domestic uses; conduct chemical testing of water samples on a monthly basis (if applicable). – Make suitable arrangements, as far as practicable, for the maintenance of health, the prevention and overcoming of	– Compliant	– This component of the EMP has been adhered to.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			outbreaks of disease and of adequate first aid services. – Ensure that security arrangements are in place.		
14) Site preparation	– Clearing of areas for construction	– Disturbance of fauna and flora and habitat alteration	– Restrict construction activities to previously demarcated areas; all other areas will be regarded as "no go" zones in order to minimize the impact on the surrounding land. – Minimise the removal of native plant species; no vegetation may be removed/damaged without direct instruction. – No off-road driving will be allowed. – No animal may be injured, fed, trapped, hunted or harmed in any way.	– Compliant	– No evidence of non-compliance to this has been reported.
		– Soil erosion	– Sediment mobilization and transport: reduce or prevent soil erosion (schedule activities to avoid heavy rainfall periods; contour and minimize length and steepness of slopes; mulching to stabilize exposed areas; re- vegetate areas promptly; and design channels and ditches for post-construction flow).	– Compliant	– The Proponent maintained efficient strategies during the construction phase of the Project.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Structural (slope) stability: provide effective short-term measures for slope stabilization, sediment and subsidence control until long-term measures (during operations) can be implemented; provide adequate drainage systems to minimize and control infiltration.		
		– Possible loss of the seed bank in the topsoil	– The upper layer of soil (10-20 cm), where alluvial, to be stripped and stockpiled separately (1-2 m high piles to allow for proper aeration). Install drainage to protect the topsoil pile from (water) erosion and cover it to protect it from (wind) erosion.	– Compliant	– All pre-construction and construction activities are done in accordance with the EMP.
15) Infrastructure construction	– Increased traffic, presence and movement of machinery, and the establishment of soil stockpiles	– Air quality (dust or Particulate Matter (PM) pollution)	– Minimise the area in which the movement of construction machines will take place to reduce the effects of dust pollution. – Minimise dust from material handling sources (e.g. conveyors and bins) by using covers and/or control equipment (e.g. water suppression).	– Compliant	– All actions and mitigation measures have been adhered to as practically possible in accordance with the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Minimise dust from open area sources, including storage piles, by using control measures (install enclosures and covers, and increase the moisture content). – Avoid the excavation, handling and transport of erodible materials under high wind conditions or when a visible dust plume is present.		
	– Increased traffic/vehicle movement	– Air quality (dust or Particulate Matter (PM) pollution)	– Maintain the road surface to preserve surface characteristics (e.g. texture and roughness). – Use dust control/suppression methods, such as applying water or non-toxic chemicals to minimize dust (oil and oil by-products is not a recommended measure to control road dust).	– Compliant	– The Proponent ensured all road characteristics and dust control measures were maintained during pre-construction and construction.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
	– Increased traffic, presence and movement of machinery (exhaust from diesel engines)	– Air quality and Occupational and Community Health and Safety	– Fleet owners/operators to implement manufacturer recommended engine maintenance programs (to control vehicle emissions: Carbon Monoxide (CO), Nitrogen Oxide (NOx), Sulphur Dioxide (SO2), Particulate Matter (PM) and Volatile Organic Compounds (VOCs)).	– Compliant	– There was no evidence of non-compliance.
	– Increased traffic, movement of machinery	– Occupational and Community Safety	– Adopt best transport safety practices by implementing the following measures: emphasize safety aspects among drivers; improve driving skills and require licensing of drivers; adopt limits for trip duration; avoid dangerous routes and times of day; and use speed control devices. – Regularly maintain vehicles and use manufacturer approved parts. – Use locally sourced materials (where possible) to minimize transport distances. – Employ safe traffic control measures, including the use of traffic and safety warning signs and flag persons to warn of dangerous conditions.	– Compliant	– The Proponent maintained traffic/ vehicle safety measures during the reporting period.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
16) Assembly of wind farm components	– Working at heights	– Occupational safety	– Test integrity of structure(s) before work commences. – Implement a fall protection program (including training in climbing techniques and the use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; and rescue of fall-arrested workers). – Establish criteria for use of 100% fall protection (the system should be fitting for the wind farm structure and movements (ascent, descent, and moving from point to point)). – Install fixtures on tower components to facilitate the use of fall protection systems. – Provide an adequate work-positioning device system to workers (with connectors on positioning systems compatible with the wind farm components to which they are attached). – Ensure proper rating and maintenance of hoisting equipment and training of hoist operators.	– Compliant	– The Proponent maintained all safety procedures during construction activities that involving working at heights.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Use safety belts of not less than 15.8 mm two in one nylon or material of equivalent strength; replace rope safety belts before signs of aging or fraying of fibres become evident. – Workers to use a second (backup) safety strap when operating power tools at height. – Remove signs/other obstructions from poles/structures before work commences. – Use approved tool bags for lowering/raising tools/materials to workers on elevated structures. – Avoid conducting tower installation during poor weather conditions (especially where there is a risk lightning (strikes)		

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
17) Power transmission and distribution	– Underground cables (Wind farm to transformer station; transmission lines)	– Habitat alteration and Occupational and Community Health	– Restrict excavation activities to previously demarcated areas; all other areas will be regarded as "no go" zones in order to minimize the impact on the surrounding land. – Ensure that all excavations are properly performed and in accordance with Occupational, Health and Safety (OH&S) regulations. – Restrict trench excavation to a pace that matches cable installation and backfill. No more than 300 m of open trench to exist at any time.	– Compliant	– All per-construction and construction activities are in accordance with the EMP.
18) Power transmission and distribution	– Habitat alteration	– Bird and bat collisions and electrocutions	Align transmission corridors to avoid critical habitats. – Maintain 1.5 m spacing between or cover energized components and grounded hardware. – Consider the installation of underground transmission and distribution lines (sensitive areas). – Install visibility enhancement object (marker balls, bird deterrents, or diverters).	– Compliant	– All per-construction and construction activities are in accordance with the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
19) Power transmission and distribution	– Electric Magnetic and Fields (EMF)	– Occupational and Community Health	– Ensure that average and peak exposure levels remain below the reference levels developed by the Commission of Non-Ionizing Radiation Protection (ICNIRP). – Reduce the EMF (from power lines, substations, or transformers) by applying engineering techniques (if levels are expected or confirmed above the recommended levels): shielding with specific metal alloys; burying transmission lines; increasing the height of the transmission towers; or modifications to size, spacing and configuration of conductors.	– Compliant	– No evidence of non-compliance was recorded during the reporting period.
20) Power transmission and distribution	– Hazardous materials management	– Pollution of biophysical environment (soil and water)	– Minimize the use of SF6 (greenhouse gas). – The use of PCBs has largely been discontinued (see IFC EHS Guidelines for Electric Power Transmission and Distribution for the management of PCBs should it be used). – All activities, Hazardous materials management.	– Compliant	– The Proponent complied with this component of the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
21) Power transmission and distribution	– Live power lines	– Occupational Health and Safety	– Allow only trained/certified employees to install, maintain, and repair electrical equipment. – Deactivate and properly ground live power distribution lines before work is conducted on, or close to, distribution lines. – Ensure that live-wire work is conducted by qualified workers and in accordance to the specific safety and insulation standards. – Do not approach an exposed energized or conductive part (even if the worker is trained) unless: the person is properly insulated from the energized part (e.g. gloves) and vice versa; the worker is properly isolated and insulated from any other conductive part (live-line work). – Implement a Health and Safety Plan, detailing specific training, safety measures, personal safety devices and other precautions, where maintenance and operation is required within minimum setback distances.	– Compliant	– The Proponent maintained all occupational health and safety procedures during pre-construction and construction phase.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
22) Power transmission and distribution	– Working at heights on poles/structures	– Occupational Health and Safety	– See Assembly of wind farm components, working at heights.	– Compliant	– The Proponent maintained all safety procedures during construction activities that involving working at heights.
23) Power transmission and distribution	– EMF	– Occupational Health and Safety	– Prepare and implement an EMF Safety Program containing information on: potential exposure levels in the workplace and the use of personal monitors; training of workers to identify EMF levels and hazards; the identification and establishment of safety zones (areas acceptable for public exposure vs. those with expected elevated EMF levels and that only properly trained workers may access); action plans dealing with potential or confirmed exposure of levels that exceed those developed by the	– Compliant	– All pre-construction and construction activities are done in accordance with the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			ICNIRP and Institute of Electrical and Electronics Engineers (IEEE).		
24) Power transmission and distribution	– Electrocution	– Community health and safety	– Use signs, barriers, and education to prevent public contact with potentially dangerous equipment. – Ground conducting objects installed near power lines.	– Compliant	– No evidence of non-compliance was recorded during the reporting period.
25) All activities	– Water management	– Resource use / depletion of natural resources	– Implement a water conservation program, promoting the continuous reduction in water consumption and achieving savings in water pumping, treatment and disposal costs, commensurate with the magnitude and cost of water use.	– Compliant	– Water conservation practices and programs are in place as per the EMP.
26) All activities	– Hazardous materials management – Maybe this can come out; important, but	– Social and environmental performance	– Establish hazardous materials management priorities (based on hazard analysis of risky operations). – Avoid, or minimize the use of hazardous materials.	– Compliant	– Hazardous were identified and handled as safely as

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
	more to do with overall hazardous materials management		– Prevent uncontrolled releases of hazardous materials to the environment or uncontrolled reactions that may result in fire or explosion. – Make use of engineering controls (containment, automatic alarms and shut-off systems); implement management controls (procedures, inspections and training, communication and drills) to address residual risks not prevented or controlled through engineering controls.		possible as per the EMP.
27) All activities	– Hazardous materials management (of mainly fuels and lubricating and hydraulic oils for construction and operating vehicles and equipment; substation transformer	– Pollution biophysical environment (soil and water)	Implement prevention and control measures for the use, handling and storage of hazardous materials: – Materials transfer: regularly inspect, maintain and repair fittings/pipes/hoses; make use of drip trays/other drip containment measures at connection/possible overflow points; – Overfill protection: use trained filling operators; install gauges on tanks to measure the volume inside; make use of dripless hose connections (vehicle tanks) and fixed connections (storage tanks);	– Compliant	– Pollution and hazardous control measures were in place during the pre-construction and construction phase.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
	insulating oil; other chemicals used during – Wind farm construction, including concrete admixture chemicals such a surface-active agents, plasticizers and form release oil (mineral); equipment coolants and maintenance chemicals such as solvent cleaners and paints)		use a catch basin/drip tray around the fill pipe to collect spills; – Reaction, fire, and explosion prevention: hazardous materials to be stored in marked containers and separate (from non-hazardous materials); incompatible hazardous materials (acids, bases, flammables, oxidizers, reactive chemicals) to be stored in separate areas and with containment facilities separating material storage; smoking or working with open flames not to be permitted in the presence of these substances; limit access to hazardous waste storage areas and clearly label and demarcate the area; conduct regular inspections of the areas and document the findings; prepare and implement spill response and emergency plans; train employees in the use of appropriate firefighting equipment and ensure that such equipment is on hand at all times. – Train workers on the correct transfer and handling of fuels and chemicals and the response to spills.		

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Immediately report and clean up any accidental hydrocarbon spill: Spill-Sorb, Drizzat Pads, Enretech Powder or Peat Moss can be used to clean up small spills; in case of larger spills, the spill together with the polluted soil should be removed and disposed of at e.g. a biological remediation site.		
28) All activities	– Hazardous materials management	– Occupational health and safety	– Implement hazard communication and training programs (including information on Material Safety Data Sheets (MSDS)) to make employees aware of workplace chemical hazards and how to respond to these. – Provide and ensure the active use of Personal Protective Equipment (PPE).	– Compliant	– The appropriate PPE is used throughout the reporting period.
29) All activities	– Waste management solid	– Air quality	– Avoid the open burning of waste (whether hazardous, or non-hazardous).	– Compliant	– No evidence of non-compliance has been recorded during the pre-construction and

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
					construction phase.
30) All activities	– Waste management: non-hazardous and hazardous	– Pollution of biophysical environment	– Prepare and submit a Waste Management Plan before construction commences. The generation of waste should be avoided or minimized as far as practicable; where it cannot be avoided, but has been minimized, waste should be recovered and reused; where waste cannot be recovered/reused, it should be treated, destroyed and disposed of in an environmentally sound manner. – Institute and maintain good housekeeping and operating practices; littering is not allowed. – Non-hazardous and hazardous waste to be collected and stored separately: – Non-hazardous waste to be transported to and disposed at an approved waste disposal site. – Hazardous waste: recycle petroleum (fuels and lubricants) waste products and collect and recycle batteries and print cartridges. The remainder to be	– Compliant	– A specific waste management was in place as per the EMP during this phase.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			transported to a recognized hazardous waste disposal site.		
31) All activities	– Waste management sanitary	– Pollution of biophysical environment	– Portable toilets (1 toilet per 30 employees; preferred 1:15) to be provided on the site; contents to be collected by an approved contractor and disposed of at an approved sewage site.	– Compliant	– The Proponent has complied with this component of the EMP.
32) All activities	– Wastewater management	– Pollution of biophysical environment	– Ensure that the discharge of process wastewater and/or sanitary wastewater and/or wastewater from utility operations and/or storm water to land conform to the regulatory requirements.	– Compliant	– No evidence of non-compliance has been recorded during the pre-construction and construction phase.
33) All activities	– Wastewater management - storm water management	– Soil erosion	– Regular inspection and maintenance of permanent erosion and runoff control features.	– Compliant	– No evidence of non-compliance has been recorded during the pre-construction

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
					and construction phase.
34) Rehabilitation	– Rehabilitation	– Social and environmental performance	– Remove all equipment, waste, temporary structures, etc. from the camp and work sites. – Reshape all disturbed areas to their original contours. – Cover disturbed areas with previously collected topsoil and spread evenly. – Manually rip disturbed areas, where compaction has taken place, and cover the areas with previously collected topsoil. – Replant any previously removed native plant species in disturbed areas; – Adhere to the regulations, rules, procedures, current and future regional and local land use plans.	– Non-applicable	– This aspect has not been triggered during the reporting period.

Table 3 – Operational phase EMP audit

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
1) All activities	– Management and monitoring	– Social and environmental performance	– Ensure that all aspects related to the EMP are implemented during the operations phase. Adhere to the regulations, rules, and procedures as well as current and future regional and local and use plans.	– Compliant	– The Proponent adhered to this component of the EMP and will continue to do so as per the EMP.
2) All activities	– Consultation and disclosure	– Social and environmental performance	– Consult with project affected communities in a structure and culturally appropriate manner throughout the operations phase. Consultation should be "free" (of external manipulation, interference or coercion, and intimidation), "prior" (timely disclosure of information) and "informed" (relevant, understandable and accessible information). – Adequately incorporate project affected communities' concerns.	– Compliant	– The Proponent ensured that a communication record is available to keep track of any consultation and all stakeholders are adequately informed.
3) All activities	– Grievance mechanisms (EP 6)	– Social and environmental performance	– Ensure a mechanism for receiving and resolving any concerns and grievances related to the project's social and environmental performance during the operations phase.	– Compliant	– The Proponent has grievances record on-site.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Address concerns promptly and transparently and in a culturally appropriate manner.		
4) All activities	– Training including awareness and inductions	– Social and environmental performance	– Train employees and contractors in matters related to the project's social and environmental performance, Namibia's regulatory requirements, and the requirements of the IFC Performance Standards. – Ensure adequate environmental awareness training for all personnel. – Give environmental induction presentations to all new personnel prior to work commencement.	– Compliant	– The Proponent provided training and awareness to staff associated with environmental impacts and mitigations, the EMP and emergency training.
5) All activities	– Labour and working conditions	– Social and environmental performance	– Establish, maintain and improve the worker-management relationship. Base the employment relationship on equal opportunity and fair treatment and no discrimination to be allowed. – Comply with Namibia's labour and employment laws and prevent unacceptable forms of labour, i.e. harmful child and forced labour.	– Compliant	– Professional relationships have been strengthened and Namibian labour regulations have been complied with.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Promote safe and healthy working conditions and the protection and promotion of worker health. – Document and communicate the Working Conditions and Terms of Employment. – Respect Collective Agreements and the right of workers to organize and bargain collectively.		
6) All activities	– Employment and procurement opportunities	– Socio-economic	– Ensure local recruitment (of registered contractors or qualified and certified personnel, registered and certified with the appropriate statutory as per Electricity Control Board (ECB) licensee duty) and procurement to maximize benefit to region.	– Compliant	– The Proponent ensured that local recruitment is done fairly and according to the legal provisions in the Labour Act as set out in the EMP.
7) All activities	– Occupational health and safety	– Social and environmental performance	– Adhere to all Namibian health and safety regulations. – Occupational health and safety training to be provided to all employees. – Ensure that qualified first aid can be provided to all employees. – Ensure that qualified first aid can be provided at all times.	– Compliant	– The National health and safety regulations have been adhered to during the reporting period.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Provide and ensure the active use of Personal Protective Equipment (PPE).		
8) All activities	– Community health and safety	– Social and Environmental Performance	– Prevent communicable disease (e.g sexually transmitted diseases (STDs) such as HIV/AIDS transmission): provide surveillance and active screening and treatment of employees; prevent illness among employees in local communities (through health awareness and education initiatives); ensure ready access to medical treatment, confidentiality and appropriate care, particularly with respect to migrant workers; and promote immunisation.	– Compliant	– The Proponent will continue to comply with this component of the EMP.
9) All activities	– Unauthorised public access	– Community safety	– Use gate on the access road(s) and the entire site must be fenced off. – Wind farm should not be accessible to anyone from the public. – Notice or information boards relating public safety hazards and emergency contact details should be put up at gate(s) and at the wind farm.	– Compliant	– No evidence of non-compliance has been recorded.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Create a viewpoint area, possibly including an information centre, for the public/tourists.		
10) All activities	– Increased traffic/vehicle movement	– Air quality (dust or Particulate Matter (PM) pollution)	– Maintain the road surface to preserve surface characteristics (e.g. texture and roughness). – Use dust control/suppression methods, such as applying water or non-toxic chemicals to minimize dust (oil and oil by-products is not a recommended measure to control road dust).	– Compliant	– The Proponent ensured the maintenance of the road characteristics.
11) All activities	– Increased traffic/vehicle movement (exhaust from diesel engines)	– Air quality and Occupational and community health and safety	– Fleet owners/operators to implement manufacturer recommended engine maintenance programs (to control vehicle emissions: Carbon Monoxide (CO), Nitrogen Oxide (NO_x), Sulphur Dioxide (SO_2), Particulate Matter (PM) and Volatile Organic Compounds (VOCs)).	– Compliant	– Regular engine maintenance was carried out to control vehicle emissions.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
12) All activities	– Increased traffic/vehicle movement	– Occupational and community safety	– Adopt best transport safety practices by implementing the following measures: emphasize safety aspects among drivers; improve driving skills and require licensing of drivers; adopt limits for trip duration; avoid dangerous routes and times of day; and use speed control devices. – Regularly maintain vehicles and use manufacturer approved parts. – Use locally sourced materials (where possible) to minimise transport distances. – Employ safe traffic control measures, including the use of traffic and safety waning signs and flag persons to warn of dangerous conditions.	– Compliant	– The Proponent maintained traffic or vehicle safety measures throughout the operational phase.
13) All activities	– Storm water management	– Attraction of species (birds and bats) to the area due to open water and subsequent injury, disturbance,	– Implement appropriate storm water management measures so as to avoid the presence of open water in the area.	– Compliant	– There is a stormwater management plan in place as per the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
		or mortality of species.			
14) Operational wind farm	– Wind farm components	– Species injury, disturbance (and potential alteration of behavior), or mortality	– Implement monitoring programmes to study the potential impact(s) of the wind farm on birds and bats.	– Compliance	– Avifauna specialists have been consulted and the appropriate mitigations are in place for potential impacts on bird and bat species.
	– Hazardous waste management	– Pollution of biophysical environment (soil and water)	– Wind farm to be equipped with oil absorption and collection systems.	– Compliant	– There is no evidence of non-compliance

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
	– Electromagnetic interference (television broadcasts)	– Community and healthy safety	– Install a higher quality or directional antenna or relocate/direct the antenna towards an alternative broadcast transmitter; or install an amplifier; or construct a new repeater station if a wide area is affected.	– Compliant	– The Proponent has adhered to this condition as per the EMP.
15) General maintenance	– Cleaning of panels to prevent dust and insect build-up	– Resource use/depletion of natural resources	– Ensure all wash water is recycled. Ensure there are no leaks from all taps, pipes and fittings.	– Compliant	– All water containers and equipment work efficiently, and no leaks were reported.
	– Periodic painting of tower structures	– Pollution of biophysical environment (soil and water)	– Conform to ISO 12944:1998 Paints and varnishes - Corrosion protection of steel structures by protective paint systems- Part 4: Types of surface and surface preparation.	– Compliant	– There was no evidence of non-compliance.
	– Working at heights	– Occupational safety	– Test integrity of structure(s) before work commences. – Implement a fall protection program (including training in climbing techniques and the use of fall protection measures; inspection, maintenance, and replacement	– Compliant	– The Proponent ensured all procedures during operational activities that

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			of fall protection equipment; and rescue of fall-arrested workers). – Establish criteria for use of 100% fall protection (the system should be fitting for the tower structure and movements (ascent, descent, and moving from point to point)). – Install fixtures on tower components to facilitate the use of fall protection systems. – Provide an adequate work-positioning device system to workers (with connectors on positioning systems compatible with the tower components to which they are attached). – Ensure proper rating and maintenance of hoisting equipment and training of hoist operators. – Material of equivalent strength; replace rope safety belts before signs of aging or fraying of fibres become evident. – Workers to use a second (backup) safety strap when operating power tools at height. – Remove signs/other obstructions from poles/structures before work commences.		required working at heights.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Use approved tool bags for lowering/ raising tools/materials to workers on elevated structures. – Avoid conducting maintenance during poor weather conditions (especially where there is a risk lightning strikes).		
16) Power transmission and distribution	– Electric and Magnetic Fields (EMF)	– Occupational and community health	– Ensure that average and peak exposure levels remain below the reference levels developed by the Commission of Non-Ionizing Radiation Protection (ICNIRP). – Reduce the EMF (from power lines, substations, or transformers) by applying engineering techniques (if levels are expected or confirmed above the recommended levels): shielding with specific metal alloys; burying transmission lines; increasing the height of the transmission towers; or modifications to size, spacing and configuration of conductors.	– Compliant	– All operational activities are done in accordance with the EMP to ensure occupational and community health at all times.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
17) Power transmission and distribution	– Hazardous materials management (insulating oils / gases (Polychlorinated Biphenyls (PCB) and Sulphur hexafluoride ((SF6) and fuels)	– Pollution of biophysical environment (soil and water)	– Minimize the use of SF6 (greenhouse gas). – The use of PCBs has largely been discontinued (see IFC EHS Guidelines for Electric Power Transmission and Distribution for the management of PCBs should it be used). – All activities, Hazardous materials management. – Wood preservatives? Needed?	– Compliant	– All measures to reduce Namibian carbon footprint were maintained. – The waste management plan was complied with during the reporting period.
18) Power transmission and distribution	– Live power lines	– Occupational health and safety	– Allow only trained/certified employees to install, maintain, and repair electrical equipment. – Deactivate and properly ground live power distribution lines before work is conducted on, or close to, distribution lines. – Ensure that live-wire work is conducted by qualified workers and in accordance to the specific safety and insulation standards. – Do not approach an exposed energized or conductive part (even if the worker is trained) unless: the person is properly insulated from the energized part (e.g.	– Compliant	– The Proponent maintained all occupational health and safety procedures during the operational activities.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			gloves) and vice versa; the worker is properly isolated and insulated from any other conductive part (live-line work). – Implement a Health and Safety Plan, detailing specific training, safety measures, personal safety devices and other precautions, where maintenance and operation is required within minimum setback distances		
19) Power transmission and distribution	– Working at heights on poles/structures	– Occupational health and saftey	– See general park maintenance, working at heights.	– Compliant	– The Proponent maintained all safety procedures during operational activities that involved working at heights.
20) Power transmission and distribution	– EMF	– Occupational health and safety	– Prepare and implement an EMF Safety Program containing information on: potential exposure levels in the workplace and the use of personal monitors; training of workers to identify EMF levels and hazards; the identification and establishment of safety zones (areas	– Compliant	– There was no evidence of non-compliance.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			acceptable for public exposure vs. those with expected elevated EMF levels and that only properly trained workers may access); action plans dealing with potential or confirmed exposure of levels that exceed those developed by the ICNIRP and Institute of Electrical and Electronics Engineers (IEEE).		
21) Power transmission and distribution	– Electrocution	– Community health and safety	– Use signs, barriers, and education to prevent public contact with potentially dangerous equipment. – Ground conducting objects installed near power lines.	– Compliant	– There is a site safety sign designed to inform and warn employees and the community about potentially dangerous equipment.
22) All activities	– Water Management	– Resource use/ depletion of natural resources	– Implement a water conservation program, promoting the continuous reduction in water consumption and achieving savings in water pumping, treatment and disposal costs, commensurate with the magnitude and cost of water use.	– Compliant	– Water conservation programs are in place as per the EMP.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
23) All activities	– Hazardous materials management	– Pollution biophysical environment (soil and water)	– Implement prevention and control measures for the use, handling and storage of hazardous materials. – Train workers on the correct transfer and handling of fuels and chemicals and the response to spills. – Immediately report and clean up any accidental hydrocarbon spill: Spill-Sorb, Drizzat Pads, Enretech Powder or Peat Moss can be used to clean up small spills; in case of larger spills, the spill together with the polluted soil should be removed and disposed of at e.g. a biological remediation site.	– Compliant	– All hazardous materials are stored in safe bunded containers on an impermeable surface.
		– Occupational health and safety	– Implement hazard communication and training programs (including information on Material Safety Data Sheets (MSDS)) to make employees aware of workplace chemical hazards and how to respond to these. – Provide and ensure the active use of Personal Protective Equipment (PPE).	– Compliant	– All staff members are properly trained and have the required PPE to ensure health and safety on-site
24) All activities	– Waste management solid	– Air quality	– Avoid the open burning of waste (whether hazardous, or non-hazardous).	– Compliant	– General waste was previously gathered and

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
					burned with the approval from the local authority. This has since been rectified.
25) All activities	– Waste management non-hazardous and hazardous	– Pollution of biophysical environment	– As per Waste Management Plan. – Institute and maintain good housekeeping and operating practices; littering is not allowed. – Non-hazardous and hazardous waste to be collected and stored separately: – Non-hazardous waste to be transported to and disposed off at an approved waste disposal site. – Hazardous waste: recycle petroleum (fuels and lubricants) waste products and collect and recycle batteries and print cartridges. The remainder to be transported to a recognized hazardous waste disposal site, with prior permission from the site operator / owner.	– Compliant	– No evidence of non-compliance has been recorded during the reporting period.
26) All activities	– Waste management sanitary	– Polluton biophysical environment	– Portable toilets (1 toilet per 30 employees; preferred 1:15) to be provided on the site; contents to be collected by an approved	– Compliant	– This component of the EMP has been adhered to.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			contractor and disposed of at an approved sewage site. Unless there will be a sewage plant?		
27) All activities	– Wastewater management	– Pollution biophysical environment	– Ensure that the discharge of process wastewater and/or sanitary wastewater and/or wastewater from utility operations and/or storm water to land conform to the regulatory requirements.	– Compliant	– A wastewater management plan is available on-site.

Table 4 - Decommissioning and closure phase EMP audit

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
1) Decommissioning and closure	– Decommissioning	– Social and environmental performance and visual	– Isolate (electrically) the wind farm from the substation. – Disassemble the steel tower sections and cut off at the top of the foundation concrete; rehabilitate the hardstand area. – Remove all above-ground substation infrastructure and re-use, recycle or dispose of it. – Conduct a site contamination assessment; remove any contaminated material and dispose of at an appropriate disposal facility.	– Non-applicable	– This aspect has not been triggered during the reporting period. – This will be applied should the Project undergo a decommissioning phase.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments
			– Break up foundations in the substation and remove for disposal. – Dig up below-ground substation infrastructure and remove. – Conduct a validation survey to ensure that all contaminated material at the substation has been removed; remove any contaminated material and dispose of at an appropriate disposal facility. – Rehabilitate access tracks not required for ongoing land use activities. – Remove all other equipment, waste, etc. from the area. – Reshape all disturbed areas to their original contours. – Cover disturbed areas with previously collected topsoil and spread evenly. – Manually rip disturbed areas, where compaction has taken place, and cover the areas with previously collected topsoil. – Replant any previously removed native plant species in disturbed areas.		
2) Closure	– Loss of jobs and income	– Socio-economic	– Implement a skills training programme during the operations phase.	– Non-applicable	– This aspect has not been triggered yet.

Activity/ Process	Aspect	Impact	Management/mitigation measures	Compliance	Comments

5 CONCLUSION

No complaints were recorded during the reporting period. All proposed activities shall be carried out in compliance with the relevant requirements and conditions of the granted licence in accordance with the approved EMP. It is recommended that the Proponent continues to adhere to all environmental legislation and company standards to ensure that best practical environmental protection continues as the project progresses. Further recommendation includes annual operational health, safety and environmental reports to be continually updated throughout operations by an independent environmental practitioner.

APPENDIX A – EXPLORATION ENVIRONMENTAL MANAGEMENT PLAN

APPENDIX B – CURRENT ENVIRONMENTAL CLEARANCE CERTIFICATE

ECC – 01216 Serial: atohIO1216

REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

ENVIRONMENTAL CLEARANCE CERTIFICATE

ISSUED

In accordance with Section 37(2) of the Environmental Management Act (Act No. 7 of 2007)

TO

Ombepo Energy (Pty) Ltd
P. O. Box 27527, Windhoek

TO UNDERTAKE THE FOLLOWING LISTED ACTIVITY

Operations and Management of a 10MW Wind Farm on Seal Site at Lüderitz, //Karas Region

MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM
Private Bag 13306
WINDHOEK, NAMIBIA
16 FEB 2021
ENVIRONMENTAL COMMISSIONER
REPUBLIC OF NAMIBIA

Issued on the date: 2021-02-04
Expires on this date: 2024-02-04

(See conditions printed over leaf)

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ECC –

CONDITIONS OF APPROVAL

1. This environmental clearance is valid for a period of 3 (three) years, from the date of issue unless withdrawn by this office
2. This certificate does not in any way hold the Ministry of Environment and Tourism accountable for misleading information, nor any adverse effects that may arise from these activities. Instead, full accountability rests with the proponent and its consultants
3. This Ministry reserves the right to attach further legislative and regulatory conditions during the operational phase of the project
4. All applicable and required permits are obtained and mitigation measures stipulated in the EMP are applied particularly with respect to management of ecological impacts.
5. Strict compliance with national heritage guidelines and regulations is expected throughout the life-span of the proposed activity, therefore any new archaeological finds must be reported to the National Heritage Council for appropriate handling of such.

APPENDIX C – EMP COMPLIANCE SITE VISIT CHECKLIST (2023)

APPENDIX D – OPERATIONAL HEALTH, SAFETY AND ENVIRONMENTAL REPORTS 2020 - 2022

Ombepo Energy (PTY) LTD

Vol. 3 of 3 – Environmental Management Plan (EMP) Report for the Proposed Penguin (5MW) and Seal (5MW) Wind Farm, Lüderitz Townlands, **KARAS REGION**

November 2014

2 Schutzen Street
P. O. Box 86524
WINDHOEK NAMIBIA

Prepared By

Risk-Based Solutions cc

The Consulting Arm of Foresight Group Namibia (PTY) LTD

Our Investments and Consultancy Portfolio / Specialisation:

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Statement of Qualification of the Environmental Assessment Practitioner (EAP)

Dr. Sindila Mwiya has been the Environmental Assessment Practitioner (EAP) for this project in accordance with the provisions of the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 under the Environmental Management Act (EMA), 2007, Act No. 7 of 2007. Dr. Sindila Mwiya is highly qualified, with more than ten years of professional experience in mining, petroleum, property development, applied environmental management, cleaner production, environmental management, geoenvironmental engineering and geotechnical engineering fields.

He has worked as an Environmental Assessment Practitioner (EAP), Project Manager, Lecturer (University of Namibia), External Examiner/ Moderator (Polytechnic of Namibia), Technical Consultant (RBS / FGN), National Technical Advisor (Directorate of Environmental Affairs, Ministry of Environment and Tourism – Cleaner Production Component) and Chief Geologist for Engineering and Environment Division, Geological Survey of Namibia, Ministry of Mines and energy. He has supervised and continue to support a number of MSc and PhD research programmes and has been a reviewer on international, national and regional researches, plans, programmes and projects with the objective to ensure substantial local skills development for sustainable natural resources development, management, and for development policies, plans, programmes and projects financed by governments, private investors and donor organisations. He has provided extensive technical support and has played a significant role in the development of the Namibian Environmental Management Act, 2007, (Act No. 7 of 2007) as well as Environmental Impact Regulations, 2012 that came in force in February 2012.

Among his academic achievements, Dr Sindila Mwiya is a holder of a PhD (Geoenvironmental Engineering - *Development of a Knowledge-Based System Methodology (KBSM) for the Design of Solid Waste Disposal Sites in Arid and Semiarid Environments (Namibia)*), MPhil/PG Cert and BEng (Hons) (Engineering Geology and Geotechnics), qualifications from the University of Portsmouth in the United Kingdom. During the 2004 Namibia National Science Awards, organised by the Namibian Ministry of Education, and held in Windhoek, Dr. Sindila Mwiya was awarded the Geologist of the Year for 2004, in the professional category.

Furthermore, as part of his professional career recognition, Dr. Sindila Mwiya is a life member of the Geological Society of Namibia, Consulting member of the Hydrogeological Society of Namibia and a Professional Engineer registered with the Engineering Council of Namibia.

WINDHOEK, NOVEMBER 2014

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EXECUTIVE SUMMARY

1. Introduction

The Environmental Management Plan (EMP) provides a detailed plan of action required in the implementation of the mitigation measures for minimising and maximising the identified negative and positive impacts respectively. The EMP also provides the management actions with roles and responsibilities requirements for implementation by the Ombepo Energy (PTY) LTD through the contractor who will be undertaking the activities from preconstruction to decommissioning of the proposed wind energy project. The EMP gives commitments including financial and human resources provisions for effective implementation of the EMP and management of the likely environmental liabilities during and after the proposed wind energy project. Regular assessments and evaluation of the environmental liabilities during the operational stage will need to be undertaken and will ensure adequate provision of the necessary resources towards good environmental management at various stages of the project development.

2. Summary of the EMP

Based on the assessment of both negative and positive impacts undertaken for the proposed wind energy project, a number of high positive and localised negative impacts have been identified. Overall, positive impacts of the proposed project development outweigh the localised high negative ones at local, regional, national and global levels. Mitigation measures for the negative impacts have been proposed and management strategies are provided in this Environmental Management Plan (EMP Vol. 3 of 3) for the following development stages:

(i) Preconstruction;

(ii) Construction;

(iii) Operational;

(iv) Decommissioning and Closure.

3. Ombepo Energy Actions and Responsibilities

The implementation of the EMP by the Ombepo Energy (PTY) LTD as a part of the management of the impacts covers the entire lifecycle (preconstruction, construction, operational, decommissioning and closure stages) of the proposed project activities. All the responsibilities to ensure that the recommendations of this EMP Report are executed accordingly, rest with the **Ombepo Energy (PTY) LTD.** The company must provide all appropriate resource requirements for the implementation of this EMP. It is the responsibility of **Ombepo Energy (PTY) LTD** to make sure that all members of the workforce including subcontractors are aware of the provisions of this EMP Report and its objectives.

1. PROJECT BACKGROUND

1.1 Introduction

Ombepo Energy (PTY) LTD is in the process of developing two (2) wind parks totalling 10MW situated within the Lüderitz Townlands in the Karas Region. The proposed wind parks are the Penguin Wind Farm (5MW) and the Seal Wind Farm (5MW). Ombepo Energy (PTY) LTD is a Joint Venture (JV) company owned by Lüderitz Town Council (LTC) and InnoSun Energy Holding (PTY) LTD.

The proposed project is important to the energy security, sustainable and renewable green energy development for Namibia. The proposed wind farms will be able to produce the entire electricity consumption for the Town of Lüderitz which now stands at around 11MW. Details on the opportunity as well as global trends on renewable wind energy are presented in the Scoping Report Vol. 1 of 3 (Annex 1).

The proposed wind parks exceeds the 1 MW energy projects that can be undertaken without a full Environmental Assessment. The results of the Environmental Impact Assessment are presented in the EIA Report Vol. 2 of 3. This EMP Report Vol. 3 of 3

1.2 Project Location

The proposed Ombepo Energy (PTY) LTD wind parks totalling 10MW are situated within the Lüderitz Townlands in the Karas Region (Figs. 1.1 and 1.2). The following is the summary of the proposed wind parks:

- ✓ Penguin Wind Farm (5MW): Situated to the north of Lüderitz Townlands boundaries (Site 1);
- ✓ Seal Wind Farm (5MW): Situated to the east of Lüderitz Townlands boundaries (Site 2).

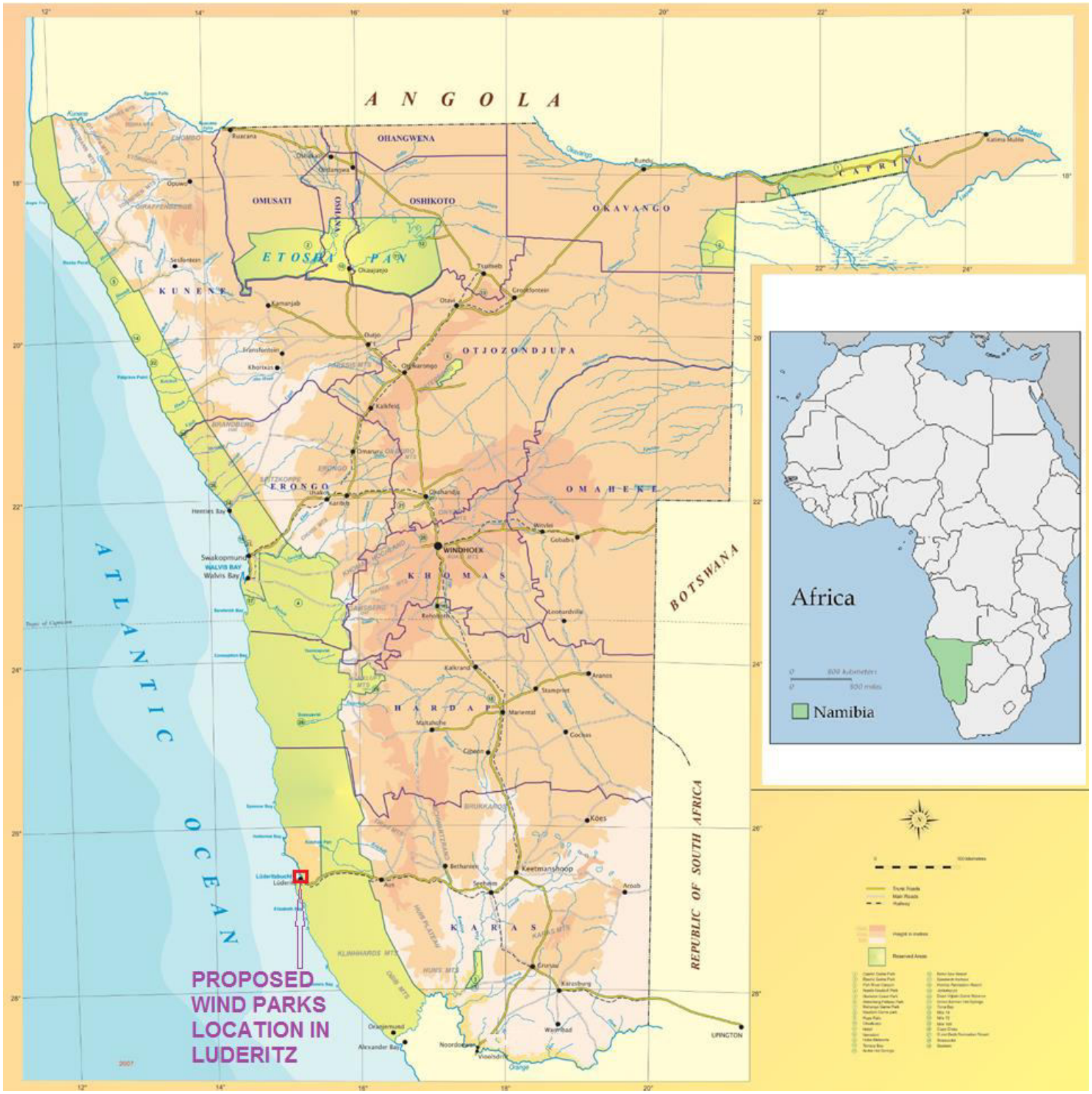

Figure 1.1: Regional location of the proposed Wind Park, Lüderitz (Source: https://maps.google.com.na).

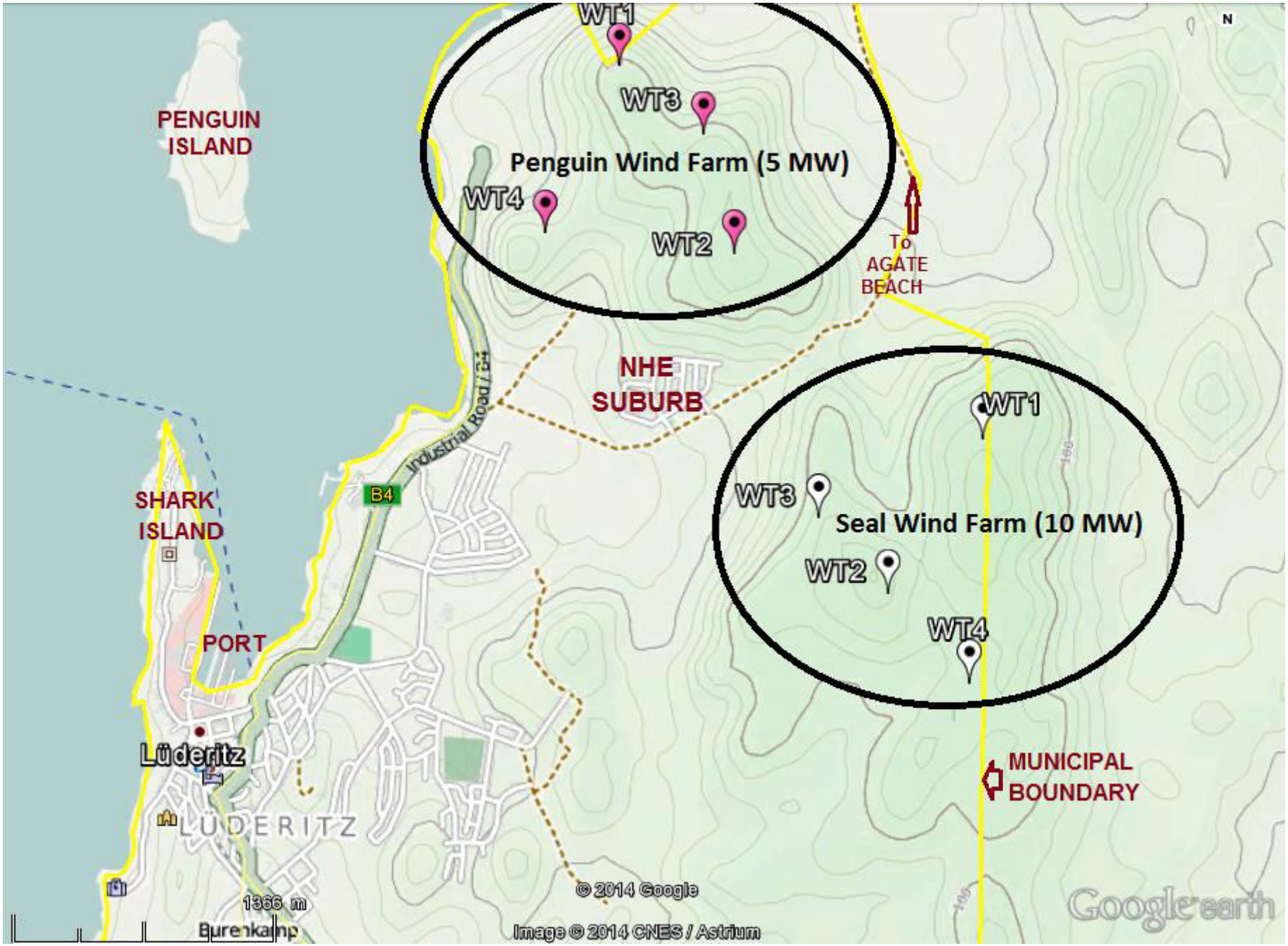

Figure 1.2: Detailed location of the proposed Seal and Penguin Wind Parks (Source: https://maps.google.com.na).

Table 1.1: Initial location coordinates of the individual turbines as shown in Fig. 1.2.

Site Name	Turbine No.	masl	GPS coordinates	
Penguin Wind Farm 5MW	WT1 pink	113	26°36'52.36"S	15°10'33.65"E
	WT2 pink	130	26°37'24.15"S	15°10'55.27"E
	WT3 pink	119	26°37'03.87"S	15°10'49.52"E
	WT4 pink	78	26°37'20.38"S	15°10'19.51"E
Seal Wind Farm 5MW	WT1 white	147	26°37'55.91"S	15°11'41.65"E
	WT2 white	139	26°38'21.45"S	15°11'23.87"E
	WT3 white	126	26°38'08.88"S	15°11'11.09"E
	WT4 white	122	26°38'36.28"S	15°11'38.92"E

RECOMMENDATION:

(i) The number of turbines per site shall be reduced from four (4) to two (2). The actual turbine locality to be removed / retained will depend on the sensitivity of the local area to be assessed by the proponent /Environmental Control Officer/ Consultant / suitable in-house resources person supported by the fauna and flora specialist consultant / local experts before undertaking detailed site-specific activities (implementing the actual physical disturbance of the land surface) such as creating access routes and selection of actual location of each turbine;

(ii) Avoid establishing wind turbines at the proposed WT3 (Penguin) and WT1 (Seal) turbine sites as these sites are close to known active brown hyena den sites;

(iii) Avoid access routes servicing the turbines to be constructed past the known active brown hyena den sites – i.e. WT3 and WT1 areas at Penguin and Seal Wind Farm sites, respectively.

2. THE EMP FRAMEWORK

2.1 Summary of the EMP Objectives

The Environmental Management Plan (EMP) provides a detailed plan of action required in the implementation of the mitigation measures for minimising and maximising the identified negative and positive impacts respectively.

The EMP gives commitments including financial and human resources provisions for effective management of the likely environmental liabilities for the entire lifecycle (preconstruction, construction, operational, decommissioning and closure stages) of the proposed project activities.

Regular assessments and evaluation of the environmental liabilities must be undertaken and will ensure adequate provision of the necessary resources towards good environmental management at various stages (preconstruction, construction, operational, decommissioning and closure) of the proposed project activities of the proposed project development.

2.2 Specific Key Mitigation Measures

Based on the findings of the EIA study contained in the Vol. 2 of 3 Report, the following specific mitigations covering the preconstruction, construction, operational, decommissioning and closure for the proposed wind parks (Penguin Wind Farm (5MW) and the Seal Wind Farm (5MW)) by Ombepo Energy (PTY) LTD:

(i) Mitigation measures to minimise visual impacts (Table 2.1);

(ii) Mitigation measures to minimise noise / sound impacts (Table 2.2);

(iii) Mitigation measures to minimise stroboscopic effects (Table 2.3);

(iv) Mitigation measures to prevent habitat destruction (Table 2.4);

(v) Mitigation measures to prevent faunal destruction (Table 2.5);

(vi) Mitigation measures to enhance positive socioeconomic impacts for Lüderitz Community (Table 2.6);

(vii) Mitigation measures to minimise negative socioeconomic impacts for Lüderitz Community (Table 2.7);

(viii) Mitigation measures for ground components including geology, water and construction materials (Table 2.8);

(ix) Mitigation measures to minimise health and safety impacts (Table 2.9).

Table 2.1: Mitigation measures to minimise visual impacts.

Description	Visual effects on its surroundings are actually a subjective impression which, besides observer's perception, can also depend on the type of landscape and its specific visual characteristics. The turbines will be about 100 m high and they will be visible as far as port area and all around the Town Lüderitz. It has also been concluded that the planned disposition of wind turbines, although originally based on wind source assessment, will not disturb the landscape characteristics, but will create a specific visual identity for the Town of Lüderitz that may eventually and over time become a tourist attraction.
Extent	The colour, height and the number of wind turbines, as well as their interaction with the character of the landscape, may impact on visual resources all around Lüderitz.
Duration	The duration of the likely impacts will be permanent for the duration of the project life cycle.
Intensity	The level of impacts on the surrounding environment including the associated infrastructure will be minimally. This would include very little contribution to obstruction, dust, noise and other associated disturbances in the area mainly during the construction and operational stages.
Mitigation	Although very little could be done to shield the view of the turbines because of the open and flat desert landscape and the height of the turbine, few other measures could be undertaken to improve the attractiveness of the site. Much of the measures that could be adopted are very much dependent on the design and siting of the wind farm, as well as public perception. The following is the summary of the mitigation measures: **Preconstruction:** • Consider the landscape character and the visual impacts of the turbines from all relevant viewing angles; • Minimise the presence of secondary structures: avoid fencing the site, minimise access roads, and bury intra-project power lines; • Identify a "zone of flicker" (using modelling software) to appropriately site the wind farm. **Construction:** • Turbine type, height, colour and direction of rotation must be kept uniform; • Wind turbines are to be painted a light gray or pale blue (dependent on air navigational marking regulations) and with a non-reflective coating to avoid reflection from the towers; • Avoid using graphics or lettering on the turbines. **Operation and Maintenance:** • Minimise the presence of secondary structures: remove inoperative turbines. **Decommissioning:** • Remove all infrastructure and reclaim, or rehabilitate the project site.
Frequency of Occurrence	Throughout the life cycle of the proposed project.
Probability	High likelihood
Significance	Before or without mitigation: **Very High, and** after mitigation: **High**
Status of the impact	Negative - The turbines will be about 100 m high and they will be visible all around the Town of Lüderitz
Legal Requirements	Electricity Act, 2007, (Act No. 4 of 2007), Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1995), the Environmental Management Act, 2007, (Act No. 7 of 2007) and the Equator Principles.
Degree of Confidence in Predictions	The photomontage technique allows accuracy levels of around 98%.

Table 2.2: Mitigation measures to minimise noise / sound impacts.

Description	The noise emitted by wind turbines can be mechanical or aerodynamic in nature; the machinery in the nacelle generates mechanical noise, whereas the movement of air around the blades and tower causes aerodynamic noise (i.e. the swishing sound). Aerodynamic noise, in turn, may include low frequency, impulsive low frequency, tonal, and continuous broad band. However, technological developments have gone a long way in addressing noise pollution from wind turbines.
Extent	Most modern turbines have very low noise effects equivalent to the noise of an air condition in a room, hence the extent of the impact will be localised.
Duration	The duration of the likely impacts will be permanent for the duration of the proposed project life cycle.
Intensity	The level of impacts on the surrounding environment including the associated infrastructure will be minimally. This would include very little contribution to the background noise and other associated disturbances in the area mainly during the construction and operational stages.
Mitigation	The following are key mitigation measure: • National or international acoustic design standards for wind turbines should be adhered to; • Wind farms should be properly sited, i.e. not in close proximity to residences, schools or hospitals; and • The use of variable speed turbines or pitched blades (resulting in lower rotational speed) may control broadband noise.
Frequency of Occurrence	Throughout the life cycle of the proposed project.
Probability	Low likelihood
Significance	Before or without mitigation: **Very Low and** After mitigation: **Low**
Status of the impact	Negative – The overall noise / sound impacts of the proposed project on the surrounding environment will be very low
Legal Requirements	Electricity Act, 2007, (Act No. 4 of 2007), Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1995), the Environmental Management Act, 2007, (Act No. 7 of 2007) and the Equator Principles.
Degree of Confidence in Predictions	The photomontage technique allows accuracy levels of around 98%.

Table 2.3: Mitigation measures to minimise stroboscopic effects.

Description	The stroboscopic effect can be described as “sun light chopping” through rotating blades. Every time a rotating blade passes in front of the sun light, its shadow is reported on the ground and moves at the same speed as the rotor’s angular velocity. The size of this area depends on the angle between the sun and the ground. At the sunrise or at the sunset, the sun is close to the horizon line and its shadow effect will be quite important. On the contrary, in the middle of the day, the sun is high in the sky and its shadow will be small.
Extent	By taking into consideration the likely sunny hours, typical weather patterns throughout the year as well as the location of any likely affected area with respect to the proposed wind farm, overall extent of the likely negative impact is likely to be localised.
Duration	The duration of the likely impacts will be permanent for the duration of the project life cycle but variable depending on the sunny days, weather patterns and location.
Intensity	The level of impacts on the surrounding environment including the associated infrastructure will be minimally.
Mitigation	Adherence to national or international design standards for wind turbines and other engineering solutions such as colour and variable speeds. Site layout must reflect the sound / noise modelling results and recommendations.
Frequency of Occurrence	Throughout the life cycle of the proposed project but variable depending on the sunny days, weather patterns and location.
Probability	Low likelihood
Significance	Before or without mitigation: **Low** After mitigation: **Very Low**
Status of the impact	Negative - But variable depending on the sunny days, weather patterns and location of the affected area in and around Lüderitz.
Legal Requirements	Electricity Act, 2007, (Act No. 4 of 2007), Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1995), the Environmental Management Act, 2007, (Act No. 7 of 2007) and the Equator Principles.
Degree of Confidence in Predictions	The flicker modelling results allows accuracy levels of around 98%.

Table 2.4: Mitigation measures to prevent faunal destruction.

Description	Faunal disturbance will vary depending on the scale/intensity of the development operation and associated and inevitable infrastructure.
Extent	**1.** Access routes - Localised disruption/destruction of the habitat and thus consequently fauna associated directly with the actual routes. This however, would be a relatively small area with localised implications. **2.** Wind turbine sites - Localised disruption/destruction of the habitat and thus consequently fauna associated directly with the actual sites. This however, would be a relatively small area – depending on scale of operations – with localised implications. **3.** Infrastructure – i.e. transmission lines, etc. Localised disruption/destruction of the habitat and thus consequently fauna associated directly with the actual sites.
Duration	**1.** Access route(s) - The duration of the impact is expected to be permanent along the route(s). This however, would be a relatively small area(s) with localised implications. **2.** Wind turbine sites - The duration of the impact is expected to be permanent at the sites. This however, would be a relatively small area with localised implications. **3.** Infrastructure - i.e. transmission lines, etc. - The duration of the impact is expected to be permanent at the sites. This however, would be a relatively small area(s) with localised implications.
Intensity	**1.** Access route(s) - The actual sites where construction of the route(s) would be located would be permanently altered. This however, would be a relatively small area(s) with localised implications. **2.** Wind turbine sites - The actual wind turbine sites would be permanently altered. This however, would be a relatively small area with localised implications. **3.** Infrastructure - i.e. transmission lines, etc. - The areas associated with the transmission line infrastructures would be permanently altered. This however, would be a relatively small area(s) with localised implications. The areas adjacent the wind turbine sites and other associated infrastructure should not be significantly affected. This however, would depend on control over the contractors during the road building, construction phase(s), but should be limited to localised implications. Areas not directly affected by the wind turbine sites and associated infrastructure although within the immediate area would be affected minimally. This would include dust, noise and other associated disturbances in the area, but be limited to the construction periods.
Mitigation	General **1.** Limit the development to the actual wind turbine sites and associated infrastructure only and avoid affecting adjacent areas – i.e. minimise the overall impact. **2.** Avoid development and associated infrastructure in sensitive areas – e.g. brown hyena den sites (WT3 – Penguin and WT1 – Seal); flamingo flight paths – i.e. Penguin Wind Farm sites. This would minimise the negative effect on the local environment especially unique species potentially affected by these proposed developments. **3.** Avoid placing access routes (roads and tracks) trough sensitive areas – e.g. brown hyena den sites (WT3 – Penguin and WT1 – Seal). **4.** Avoid driving randomly through the area (i.e. “track discipline”), but rather stick to permanently placed roads/tracks – especially during the construction phase. This would minimise the effect on localised potentially sensitive habitats in the area.

Table 2.4: *Cont.*

Mitigation Measures (Cont.)	**5.** Stick to speed limits of maximum 30km/h as this would result in fewer faunal road mortalities. Speed humps could also be used to ensure the speed limit. Lower speeds would also minimise dust pollution. **6.** Remove (e.g. capture) unique fauna and sensitive fauna before commencing with the development activities and/or species serendipitously located during the construction period and relocate to a less sensitive/disturbed sites in the immediate area. **7.** Prevent and discourage the setting of snares (poaching), illegal collecting of veld foods (e.g. tortoises, etc.), indiscriminate killing of perceived dangerous species (e.g. snakes, etc.) as this would diminish and negatively affect the local fauna – especially during the development phase(s). **8.** Rehabilitation of the disturbed areas – i.e. initial development access route "scars" and associated tracks as well as associated infrastructures. Preferably workers should be transported in/out to the construction sites on a daily basis to avoid excess damage to the local environment (e.g. poaching, etc.). Such rehabilitation would not only confirm the company's environmental integrity, but also show true local commitment to the environment. **9.** Initiate a suitable waste removal system (i.e. remove all waste generated during the construction phase; mobile latrines on site) to the official Lűderitz landfill site as this often attracts wildlife – e.g. black-backed jackal, crows, gulls, etc. – which may result in human-wildlife conflict issues. **10.** Investigate the idea of employing an Environmental Officer during the construction phase(s) to ensure compliance and minimise the overall impact on the fauna and the environment. Tracks **11.** Implement erosion control. Although rain is limited in the Lűderitz area, access routes up steep gradients could result in erosion. Avoid constructing tracks up steep gradients; incorporate erosion furrows (runoff sites) and humps along tracks to channel water off the tracks to minimise erosion problems. **12.** Plan, design and develop one access route track servicing all the wind turbines at each site and avoid multiple access routes. This would minimise the overall effect of tracks on the local environment and could result in less erosion issues and better control of access to the various sites. **13.** Avoid tracks in the vicinity of the known brown hyena den sites at both the Penguin (WT3) and Seal (WT1) Wind Farm areas – See Figure 12 for the location of the general den sites. **14.** Control and/or limit access to the wind turbine areas (i.e. close off – lock – access routes) as this would increase activities on the hill areas with potential negative impacts on the fauna associated with these areas. Transmission Lines **15.** Overhead transmission lines feeding the proposed wind turbines would have to have bird avoidance attachments (e.g. coils, flappers, lights, etc.) to prevent power line sensitive bird collisions.

Table 2.4: *Cont.*

Mitigation Measures (Cont.)	Wind Turbines **16.** The following are recommendations to mitigate potential bird-turbine mortalities: (i) Installation of light reflective discs on the rotating components of the turbines to increase visibility; (ii) Coating of the rotating components of the turbines with reflective paint to increase visibility; (iii) Reduce the number of turbines from four (4) to two (2) thereby minimising the birds exposure – Penguin Wind Farm; (iv) Avoid establishing wind turbines at the Penguin Wind Farm site as this site could potentially lead to numerous bird-turbine mortalities as it is located on various flight paths to-from the Agate Beach Pan and sewerage works; (v) Investigate more/alternative sites in the general Seal Wind Farm area, especially S and SW of the existing proposed turbines, as this site is viewed as less sensitive for birds (See Figure 25); (vi) Implement and fund a long term monitoring programme to determine bird-turbine mortalities and alternative mitigations once operational. **17.** The following are recommendations to mitigate potential brown hyena-turbine conflict: (i) Avoid establishing wind turbines at the proposed WT3 (Penguin) and WT1 (Seal) turbine sites as these sites are close to known active brown hyena den sites; (ii) Avoid access routes servicing the turbines to be constructed past the known active brown hyena den sites – i.e. WT3 and WT1 areas at Penguin and Seal Wind Farm sites, respectively; (iii) Implement and fund a long term monitoring programme to determine brown hyena den site use and turbine disturbances once operational.
Frequency of occurrence	Expected to be a “once off” issue affecting the selected site(s). Further wind turbine developments and associated infrastructures (should this become necessary) throughout the area would however increase the frequency of occurrence.
Probability	Definite (100%) negative impact on fauna, especially birds and bats (?), is expected at the Penguin Wind Farm site as well as the access route(s) and associated infrastructure, especially transmission lines. This however, would be much localised and cover only a small area and should avoid sensitive areas. Highly Probable (75%) negative impact on fauna is expected in the general areas especially during the construction phase(s) as a result of noise, increased activities, etc. Probable (50%) negative impact on fauna is expected from the infrastructure (tracks/transmission lines, etc.). Precautionary principle (e.g. avoid unique habitat features as well as adhering to the proposed mitigating measures would minimise this) would decrease the significance of these potential impacts.
Significance	Before mitigation: **High** After mitigation: **Medium** to **Low**
Status of the impact	Negative Localised unique species – e.g. birds (flamingos; Palaearctic migrants, etc.) and brown hyena (den site disturbances) – would bear the brunt of this proposed development, but be limited in extent and only permanent at the actual development site(s); access routes and infrastructure sites.
Degree of confidence in predictions	As an ecologist I am sure of the above mentioned predictions made and would suggest that the mitigation measures be implemented to minimise potentially negative aspects regarding the local fauna in the area.

Table 2.5: Mitigation measures to prevent flora destruction.

Description	Floral disturbance will vary depending on the scale/intensity of the development operation and associated and inevitable infrastructure.
Extent	**1.** Access routes - Localised disruption/destruction of the habitat and thus consequently flora associated directly with the actual routes. This however, would be a relatively small area with localised implications. **2.** Wind turbine sites - Localised disruption/destruction of the habitat and thus consequently flora associated directly with the actual sites. This however, would be a relatively small area – depending on scale of operations – with localised implications. **3.** Infrastructure – i.e. transmission lines, etc. Localised disruption/destruction of the habitat and thus consequently flora associated directly with the actual sites and service tracks.
Duration	**1.** Access route(s) - The duration of the impact is expected to be permanent along the route(s). This however, would be a relatively small area(s) with localised implications. **2.** Wind turbine sites - The duration of the impact is expected to be permanent at the sites. This however, would be a relatively small area with localised implications. **3.** Infrastructure - i.e. transmission lines, etc. - The duration of the impact is expected to be permanent at the site. This however, would be a relatively small area(s) with localised implications.
Intensity	**1.** Access route(s) - The actual sites where construction of the route(s) would be located would be permanently altered. This however, would be a relatively small area(s) with localised implications. **2.** Wind turbine sites - The actual wind turbine sites would be permanently altered. This however, would be a relatively small area with localised implications. **3.** Infrastructure - i.e. transmission lines, etc. - The areas associated with the transmission line infrastructures would be permanently altered. This however, would be a relatively small area(s) with localised implications. The areas adjacent the wind turbine sites and other associated infrastructure should not be significantly affected. This however, would depend on control over the contractors during the road building, construction phase(s), but should be limited to localised implications. Areas not directly affected by the wind turbine sites and associated infrastructure although within the immediate area would be affected minimally. This would include dust and other associated disturbances in the area, but be limited to the construction periods.
Mitigation	**General** **1.** Limit the development to the actual wind turbine sites and associated infrastructure only and avoid affecting adjacent areas – i.e. minimise the overall impact. **2.** Avoid development and associated infrastructure in sensitive areas – e.g. areas with high densities of succulents; lichens, etc. This would minimise the negative effect on the local environment especially unique species potentially affected by these proposed developments. **3.** Avoid driving randomly through the area (i.e. “track discipline”), but rather stick to permanently placed roads/tracks – especially during the construction phase. This would minimise the effect on localised potentially sensitive habitats (and flora) in the area. **4.** Stick to speed limits of maximum 30km/h as this would minimise dust pollution potentially affecting important species such as lichens. **5.** Remove unique and sensitive flora (e.g. all *Lithop*, *Aloe* sp., etc.) before commencing with the development activities and relocate to a less sensitive/disturbed sites in the immediate area should these occur at the proposed development sites during the construction period. **6.** Prevent the illegal collection of unique flora – e.g. *Lithop*, *Aloe* sp., various other succulents with a potential horticultural potential.

Table 2.5: *Cont.*

Mitigation **(*Cont.*)**	**7.** Rehabilitation of the disturbed areas – i.e. initial development access route "scars" and associated tracks as well as associated infrastructures. Preferably workers should be transported in/out to the construction sites on a daily basis to avoid excess damage to the local environment (e.g. illegal collection of unique flora, etc.). Such rehabilitation would not only confirm the company's environmental integrity, but also show true local commitment to the environment. **8.** Eradicate all invasive alien plant species (e.g. *Nicotiana glauca*) encountered in the proposed development areas. **9.** Investigate the idea of employing an Environmental Officer during the construction phase(s) to ensure compliance and minimise the overall impact on the flora and the environment. **Tracks** **10.** Implement erosion control. Although rain is limited in the Lüderitz area, access routes up steep gradients could result in erosion. Avoid constructing tracks up steep gradients; incorporate erosion furrows (runoff sites) and humps along tracks to channel water off the tracks to minimise erosion problems. **11.** Plan, design and develop one access route track servicing all the wind turbines at each site and avoid multiple access routes. This would minimise the overall effect of tracks on the local environment and could result in less erosion issues and better control of access to the various sites. **12.** Control and/or limit access to the wind turbine areas via the established tracks as this would increase activities on the hill areas with potential negative impacts on the flora associated with these areas. **Transmission Lines** **13.** The service tracks associated with the overhead transmission lines feeding the proposed wind turbines should avoid sensitive areas and comply with the General Recommendations as stated above. **Wind Turbines** **14.** The precise location of the proposed wind turbines should be moved slightly one-way-or-another – i.e. local site selection to favour flora – dependent on local flora to have the least impact on the flora at each site.
Frequency of occurrence	Expected to be a "once off" issue affecting the selected site(s). Further wind turbine developments and associated infrastructures (should this become necessary) throughout the area would however increase the frequency of occurrence.
Probability	Definite (100%) negative impact on flora is expected in the actual wind turbine sites and associated infrastructure. This however, would be much localised and cover only a small area and should avoid sensitive areas. Probable (50%) negative impact on flora is expected from the infrastructure (tracks, etc.). Precautionary principle (e.g. avoid unique habitat features as well as adhering to the proposed mitigating measures would minimise this) would decrease the significance of these potential impacts.
Significance	Before mitigation: **High and** After mitigation: **Medium** to **Low**
Status of the impact	Negative: Localised unique habitats with associated flora would bear the brunt of this proposed development, but be limited in extent and only permanent at the actual development site(s); access routes and infrastructure sites.
Degree of confidence in predictions	As an ecologist I am sure of the above mentioned predictions made and would suggest that the mitigation measures be implemented to minimise potentially negative aspects regarding the local flora in the area.

Table 2.6: Mitigation measures to enhance positive socioeconomic impacts for Lüderitz Community.

Potential Positive Impacts	Enhancement Measures
1. Direct economic impact would arise from employment opportunities for unskilled or semi-skilled workers. 2. Indirect economic impact would arise from the creation of employment opportunities when local products and services are sourced for the construction stage. Local economy could be boosted, diversified and local services and products better utilised. Lüderitz Town Council (LTC) efforts to diversify the local economy and attract investors may be more successful as the town becomes more attractive to investors 3. Induced economic impact would arise from products and services purchased by employees and contractors with the increased availability of money broadening the economic base and boosting the economy of the town. 4. Contribution to Namibia's Development Goals and Vision 2030 through the provision of employment and the improvement of the quality of life	The developer: ✓ Could stipulate a preference for local contractors in its tender policy. Preference to local contractors should still be based on competitive business principles and salaries and payment to local service providers should still be competitive ✓ Could develop a database of local businesses that qualify as potential service providers and invite them to the tender process. ✓ Should scrutinise tender proposals to ensure that minimum wages were included in the costing. ✓ Could stipulate that local residents should be employed for temporary unskilled/skilled and where possible in permanent unskilled/skilled positions as they would reinvest in the town's economy. However, due to low skills levels of the local population, the majority of skilled positions would be filled with people from outside the area. ✓ To ensure that potential employees are from the area, they need submit proof of having lived in the area for a minimum of 5 years. ✓ Ensure that contractors adhere to Namibian Affirmative Action, Labour and Social Security, Health and Safety laws. This could be accomplished with a contractual requirement stipulating that monthly proof should be submitted indicating payment of minimum wages to workers, against their ID numbers, payment of social security and submission of affirmative action data. ✓ Business could be encouraged to cater for the needs of employees to increase the spending of wages locally.
1. Opportunities for training and skills development. Studies has shown that a large proportion of employees are under financial stress due to financial mismanagement	✓ Promising employees could be identified and training and skills development programme could be initiated. ✓ Basic financial skills should be included in the induction programme for unskilled and semi-skilled workers, as this would make the benefits of their salary packages meaningful to them.

Table 2.7: Mitigation measures to minimise negative socioeconomic impacts for Lüderitz Community.

Potential Negative Impacts	Mitigating Measures
1. In-flux of workers employed by contractors as well as a potential influx of job seekers, resulting in potential mushrooming of informal settlements. 2. This could also lead to the disruption of family structures and social networks. 3. Potential harmful interaction between workers employed form outside the area and the local residents.	✓ The employment of local residents and local companies should be a priority. To ensure that potential employees are from the area, they need submit proof of having lived in the area for a minimum of 5 years. ✓ Providing information such as the number and types of jobs available, availability of accommodation facilities and rental costs and living expenses, could make potential job seekers wary of moving to the area. ✓ Addressing unrealistic expectations about large numbers of jobs would be created. ✓ Compounds should be established in close consultation with LTC; ✓ Compounds should consider provision of equipment for recreational activities such as dart boards, board games, pool, tennis table, DSTV, Internet access, Daily newspapers, Lounge area, barbeque area and facilities, canteen, Gym and exercise equipment, Kitchen area and facilities for the preparation of food, tea or coffee and laundry services ✓ Employees should be encouraged and assisted to visit family on regular basis and subsidised transport could be provided when employees go on leave. ✓ When employees contracts are terminated or not renewed, contractors should transport the employees to their hometowns within two days of their contracts coming to an end.
Increased risk of HIV/Aids. Multiple and concurrent casual partnerships are relatively common in urban as well as rural areas. This contributes to the rapid spread of infections. Poverty and unemployment have contributed to sexual intercourse becoming a commodity exchanged for services and goods. There is an increased risk that migrant workers would ignore the consequences of casual sexual relationships.	✓ Tender documents could stipulate that contractors have HIV/Aids workplace policies and programmes in place and proof of implementation should be submitted with invoicing. ✓ Develop strategies in coordination with Lüderitz Town Council (LTC) and local NGO's to protect the local communities, especially young girls. ✓ Employ local residents and local companies as far as possible.
Increased crime rates often associated with alcohol and drug abuse. This could be the result of unsuccessful jobseeker needing to find alternative source of income or could be the result of contract workers living in or near the town.	✓ Contract companies could submit a code of conduct, stipulating disciplinary actions where employees are guilty of criminal activities in and around the vicinity of the town. Disciplinary actions should be in accordance with Namibian legislation. When a worker is dismissed the employer should transport the worker to his/her hometown within two days of being dismissed. The contractor needs to provide proof these actions. ✓ Contract companies could implement a no-tolerance policy regarding the use of alcohol and workers should submit to a breathalyser test upon reporting for duty daily.
Increase traffic, especially heavy vehicles, using public roads and safety concerns	✓ Request that the Roads Authority erect warning signs of heavy construction vehicles on affected public roads. ✓ Ensure that drivers adhere to speed limits and that speed limits are strictly enforced. ✓ Ensure that vehicles are road worthy and drivers are qualified. ✓ Train drivers in potential safety issues.

Table 2.8: Mitigation measures ground components including geology, water and construction materials.

Description	The influences and impacts of the proposed project activities on the ground components including geology, water and construction materials.
Extent	The extent of the likely negative impacts as a result of the proposed project activities on the ground components will be localised and in particular will affect the immediate ground components within the specific areas that will be used for access road and installation of turbines. This however, would be a relatively small area with localised implications.
Duration	The duration of the likely impacts will be permanent and beyond the duration of the proposed project.
Intensity	The level of impacts is likely to be high to moderate within the immediate environment and low in the surrounding areas.
Mitigation	1. Limit the operation to a specific site and avoid sensitive areas (hyenas dens and protected flora). This would sacrifice the actual area for other adjacent rocky areas and thus minimise the effect on fauna and flora associated with these areas. 2. Avoid placing dumping sites, overburden/storage sites and associated infrastructure in sensitive areas. This would minimise the negative effect on the local environment. 3. Avoid driving randomly through the area (i.e. “track discipline”), but rather stick to permanently placed roads/tracks. 4. All solid and liquid wastes generated because of the proposed project activities shall be reduced, reused, or recycled to the maximum extent practicable. Burial of waste on anywhere is not allowed and all waste must be disposed at the Lüderitz Municipal Waste Disposal site; 5. No littering in the site area including access roads; 6. Packaging, oil cans, and all other forms of litter must be removed; 7. Trash may not be burned or buried, except at approved sites under controlled conditions in accordance with the municipal regulations; 8. Disposal of wastewater into any public stream is prohibited; 9. All appropriate permits must be obtained before the implementation of the proposed wind energy project activities for both the Penguin and Seal sites. 10. Rehabilitation of all the disturbed areas and associated tracks must be undertaken.
Frequency of occurrence	During the preconstruction and construction stages
Probability	(0.5) Likely to occur during preconstruction and construction stages.
Significance	Before for the negative impacts mitigation: **High to Medium** and after mitigation **Medium to Low**
Status of the impact	Negative
Legal requirements	Minerals Act, Water Act Resources Management Act, 2004, Environmental Management Act 2007 and all related Energy,
Degree of confidence in predictions	The geological and geotechnical specialist who undertook the study and contribution to the above assessment is sure of the recommendations with a confidence level of 80%.

Table 2.9: Mitigation measures to minimise health and safety impacts.

Description	Hazards associated with the construction, operation and decommissioning of a wind farm covers the integrity or structural safety of project infrastructure, human and fire safety, public access, and emergency situations The health and safety issues associated with the proposed project include the following: ✓ Occupational Health and Safety such as working at heights ✓ Community health and safety such as aircraft navigation safety, blade throw, electromagnetic interference, as well as public access
Extent	The extent of the health and safety impacts will be localised.
Duration	The duration of the likely impacts will be permanent for the duration of the proposed project life cycle.
Intensity	The level of impacts on the surrounding environment will vary depending on the stage of the proposed project development. Occupational health and safety impacts maybe high during construction and low during operation while community health and safety may be low during the construction phase and medium to high during the operational stage.
Mitigation	The following are key mitigation measure: ✓ **Physical hazards:** Follow national and international regulatory and guidelines provisions, use of correct Personal Proactive Clothing at all times, training programme, as well as the implementation of a fall protection program (IFC, 2007c); ✓ **Aircraft Navigation Safety**: Anti-collision lighting has been recommended to be installed and the towers and blades can be marked; ✓ **Blade throws**: o Notice or information boards to alert the public of the potential risk should be put up at the gate(s) and at the wind farm; o Wind turbines should be regularly maintained; o Wind turbines could be equipped with vibration sensors to detect an imbalance in the rotor blades and, should it be required, shut down the turbine (IFC, 2007c); and o Safety setbacks of around 300 m, depending on the turbine height and the speed, size, shape and weight of the rotor blades, can be implemented (Taylor and Rand, 1991; Larwood, 2005; IFC, 2007c). ✓ Should impacts to **telecommunication systems** the following control and prevention measures can be implemented: o Avoid direct physical interference of point-to-point communication systems through careful siting of the wind turbines; o Modify the existing aerial; o Install a directional antenna (AWEA, 2004b; IFC, 2007c); and o Boost the signal by installing an amplifier (URS, 2004; IFC, 2007c). ✓ Should impacts to **television broadcasts** be experienced, the following control and prevention measures can be implemented: o The turbines can be sited away from the line-of-sight of the broadcaster transmitter; and o Use can be made of non-metallic turbine rotor blades. ✓ Should interference occur during the operational phase of the proposed wind farm, the following control and prevention measures could be implemented: o A higher quality or directional antenna can be installed or the antenna can be relocated or directed towards an alternative broadcast transmitter; o An amplifier can be installed; or o New repeater station can be constructed if a wide area is affected (AWEA, 2004b; IFC, 2007c).

Table 2.9: *Cont.*

Mitigation *(Cont.)*	✓ Some of the public access management measures that may be considered in an event of vandalism occurring are: o Very strong locks and steel doors into the turbines must be installed and turbine tower ladders should not be accessible to anyone from the public should they wish to climb the towers; o Control access to the wind farm through using gates on the access road(s) if required; o The entire site, or individual turbines, can be fenced off; the use of fencing would, however, be dependent on the impact on the visual resources and/or cost; and o Notice or information boards relating to public safety hazards and emergency contact details to be put up at the gate(s) and at the wind farm.
Frequency of Occurrence	Vary depending on the stage of the proposed project development
Probability	Occupational health and safety impacts **high likelihood** during construction and **low likelihood** during operation while community health and safety **low likelihood** during the construction phase and **medium to high likelihood** during the operational stage.
Significance	• **BEFORE OR WITHOUT MITIGATION:** Occupational health and safety impacts **high** during construction and **low** during operation while community health and safety **low** during the construction phase and **medium to high** during the operational stage. • **AFTER MITIGATION:** Occupational health and safety impacts **low** during construction and **very low** during operation while community health and safety **very low** during the construction phase and **low** during the operational stage.
Status of the impact	Negative – The overall occupational health and safety and community health and safety impacts of the proposed project for the whole lifecycle of the project will be low
Legal Requirements	Labour Act, 2007 (Act No. 11 of 2007)
Degree of Confidence in Predictions	80% based on the Occupational Health and Safety and Community Health and Safety Impacts Assessment undertaken in the EIA Study Report Vol. 2 of 3

2.2 Other General Mitigation Measures

2.2.1 Overview

The following the summary of the general mitigation measures covering preconstruction, construction, operational, decommissioning and closure for the proposed wind parks (Penguin Wind Farm (5MW) and the Seal Wind Farm (5MW)) by Ombepo Energy (PTY) LTD:

- ✓ General mitigation guidance;
- ✓ Natural environmental management guidance;
- ✓ Vehicle use and access guidance;
- ✓ Control of gust guidance;
- ✓ Health and safety guidance;
- ✓ Preventing pollution and dangerous working conditions guidance;

- ✓ Saving water guidance;
- ✓ Disposal of waste guidance;
- ✓ Religious, cultural, historical and archaeological objects guidance;
- ✓ Dealing with environmental complaints guidance.

2.2.2 General Mitigation Guidance

(i) The Environmental Rules apply to EVERYBODY. This includes all permanent, contract, or temporary workers as well as any other person who visits the wind farm area. Any person who visits the wind farm area will be required to adhere to the company Environmental Code of Conduct;

(ii) The Site Manager will issue warnings and will discipline ANY PERSON who breaks anyone of the Environmental Rules and Procedures. Repeated and continued breaking of the Rules and Procedures will result in a disciplinary hearing and which may result in that person being asked to leave the site permanently;

(iii) The ENVIRONMENT means the whole surroundings around us. The environment is made-up of the soil, water, air, plants and animals; and those characteristics of the soil, water, air, plant and animal life that influence human health and wellbeing;

(iv) If any member of the WORK FORCE does not understand, or does not know how to keep any of Environmental Rule or Procedure, that PERSON must seek advice from the ENVIRONMENTAL CONTROL OFFICER (ECO), SITE MANAGER or CONTRACTOR. The PERSON that does not understand must keep asking until she/he is able to keep to the all the Environmental Rules and Procedures.

2.2.3 General Mitigation Measures

2.2.3.1 Natural Environmental Management Guidance

- ✓ Never feed, tease or play with, hunt, kill, destroy or set devices to trap any wild animal (including birds, reptiles and mammals), livestock or pets. Do not bring any wild animal or pet to the wind farm area;
- ✓ Do not pick any plant or take any animal out of the wind farm area EVER. You will be prosecuted and asked to leave the project area;
- ✓ Never leave rubbish and food scraps or bones where it will attract animals, birds or insects. Rubbish must be thrown into the correct rubbish bins or bags provided;
- ✓ Protect the surface material by not driving over it unnecessarily;
- ✓ Do not drive over, build upon, or camp on any sensitive habitats for plants and animals;

- ✓ Do not cut down any part of living trees / bushes for firewood;
- ✓ Do not destroy bird nest, dens, burrow pits, termite hills etc or any other natural objects in the area.

2.2.3.2 Vehicle Use and Access Guidance

- ✓ Never drive any vehicle without a valid licence for that particular vehicle and do not drive any vehicle that appears not to be road-worthy;
- ✓ Never drive any vehicle when under the influence of alcohol or drugs;
- ✓ DO NOT make any new roads without permission. Stay within demarcated areas;
- ✓ Avoid U-Turns and large turning circles. 3-point turns are encouraged. Do not ever drive on rocky slopes or vegetated dune areas;
- ✓ Stay on the road, do not make a second set of tracks and do not cut corners;
- ✓ DO NOT SPEED - keep to less than 60 km per hour on the tracks and site roads;
- ✓ No off-road driving is allowed;
- ✓ Vehicles may only drive on demarcated roads;
- ✓ Adhere to speed limits and drive with headlights switched on along any gravel road.

2.2.3.3 Control of Dust Guidance

- ✓ Do not make new roads or clear any vegetation unless instructed to do so by your Contractor or the Environmental Control Officer / Site Manager;
- ✓ Try to disturb the surface of the natural landscape as little as possible.

2.2.3.4 Health and Safety Guidance

- ✓ Drink lots of water every day, but only from the fresh water supplies;
- ✓ Take the necessary precautions to avoid contracting the HIV/AIDS virus;
- ✓ Only enter or exit the wind farm area at the demarcated gates / or road;
- ✓ Always keep the access area as you found them;
- ✓ Any damage to any existing infrastructure in the area must be report to the Environmental Control Officer / Project Manager who will then inform the owner of any damage with all the repairs done to the satisfaction of the owner or Environmental Control Officer;
- ✓ Never enter any area that is out of bounds, or demarcated as dangerous or wander off without informing or permission of team leader;

- ✓ Report to your Contractor or the Site Manager if you see a stranger or unauthorised person in the wind farm area;
- ✓ Do not remove any vehicle, machinery, equipment or any other object from the wind farm area /site without permission of your Contractor or the Site Manager;
- ✓ Wear protective clothing and equipment required and according to instructions from your Contractor or the Site Manager;
- ✓ Never enter or work in the wind farm area when under the influence of alcohol or drugs.

2.2.3.5 Preventing Pollution and Dangerous Working Conditions Guidance

- ✓ Never throw any hazardous substance such as fuel, oil, solvents, etc. into streams or onto the ground;
- ✓ Never allow any hazardous substance to soak into the soil;
- ✓ Immediately tell your Contractor or Environmental Control Officer / Site Manager when you spill, or notice any hazardous substance being spilled anywhere in the wind farm area;
- ✓ Report to your Contractor or Environmental Control Officer / Site Manager when you notice any container, which may hold a hazardous substance, overflow, leak or drip;
- ✓ Immediately report to your Contractor or Environmental Control Officer / Site Manager when you notice overflowing problems or unhygienic conditions at the ablution facilities;
- ✓ Vehicles, equipment and machinery, containers and other surfaces shall be washed at areas designated by the Contractor or Environmental Control Officer/ Site Manager;
- ✓ If you are not sure how to transport, use, store or dispose any hazardous substance - ASK your Contractor or Environmental Control Officer / Site Manager for advice.

2.2.3.6 Saving Water Guidance

- ✓ Always use as little water as possible. Reduce, reuse and re-cycle water where possible;
- ✓ Report any dripping or leaking taps and pipes to your Contractor or Environmental Control Officer or Site Manager;
- ✓ Never leave taps running. Close taps after you have finished using them.

2.2.3.7 Disposal of Waste Guidance

- ✓ Learn to know the difference between the two main types of waste, namely:
    - General Waste; and
    - Hazardous Waste.
- ✓ Learn how to identify the containers, bins, drums or bags for the different types of wastes. Never dispose of hazardous waste in the bins or skips intended for general waste or construction rubble;
- ✓ Never burn or bury any waste on the wind farm area;
- ✓ Never overfill any waste container, drum, bin or bag. Inform your Contractor or the Environmental Control Officer / Site Manager if the containers, drums, bins or skips are nearly full;
- ✓ Never litter or throwaway any waste on the site, in the field or along any road. No illegal dumping;
- ✓ Littering is prohibited.

2.2.3.8 Religious, Cultural, Historical and Archaeological Objects Guidance

- ✓ If you find any suspected religious, cultural, historical or archeologically object or site around the wind farm area, you must immediately notify your Contractor or Environmental Control Officer **/** Site Manager;
- ✓ Never remove, destroy, interfere with or disturb any religious, cultural, historical or archaeological object or site around the wind farm area.

2.2.3.9 Dealing with Environmental Complaints Guidance

- ✓ If you have any complaint about dangerous working conditions or potential pollution to the environment, immediately report this to your Contractor or the Environmental Control Officer **/** Site Manager;
- ✓ If any person complains to you about noise, lights, littering, pollution, or any other harmful or dangerous condition, immediately report this to your Contractor or the Environmental Control Officer / the Site Manager.

3. ROLES AND RESPONSIBILITIES

3.1 Introduction

This section contains the roles and responsibilities with respect to the Environmental Management Plan (EMP) for the preconstruction, construction, operational, decommissioning and closure for the proposed wind parks (Penguin Wind Farm (5MW) and the Seal Wind Farm (5MW)) by Ombepo Energy (PTY) LTD. A generic organisation structure for Ombepo Energy (PTY) LTD with respect to the roles and responsibilities for implementation of this EMP is shown in Fig. 3.1.

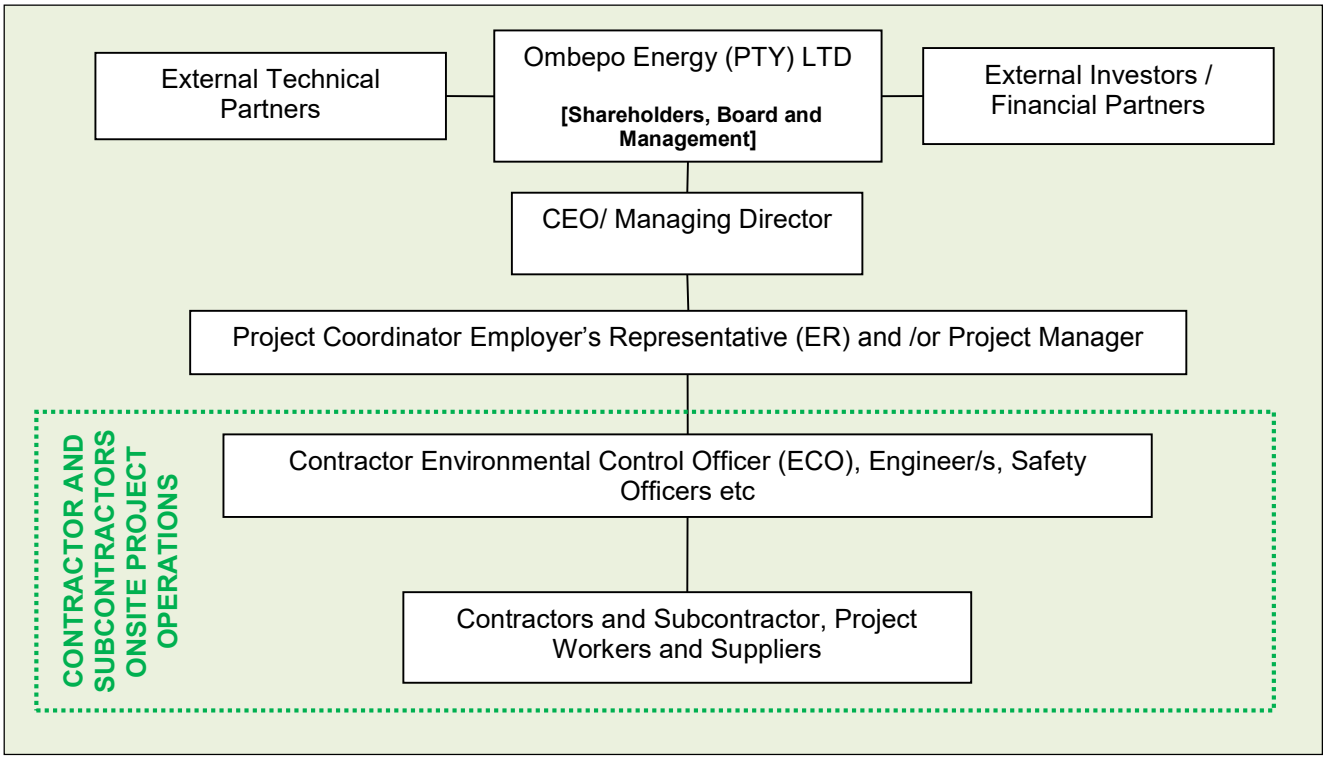

Figure 3.1: Ombepo Energy (PTY) LTD organisational structure for the proposed Penguin Wind Farm (5MW) and the Seal Wind Farm (5MW)) wind farm project with respect to this implementation of the EMP.

3.2 Roles and Responsibilities

3.2.1 Employer's Representative (ER) / Project Manager

Ombepo Energy (PTY) LTD is to appoint an **Employer's Representative (ER)** with the following responsibilities:

- ✓ Act as the Employer's (Ombepo Energy (PTY) LTD) on-site project manager and implementing agent;
- ✓ Appoint the Environmental Control Officer (ECO);
- ✓ Ensure that the Employer's responsibilities are executed in compliance with the relevant legislation and the EMP;

- ✓ Ensure that all the necessary environmental authorisations and permits have been obtained;
- ✓ Assist the Contractor in finding environmentally responsible solutions to challenges that may arise (with input from the ECO);
- ✓ Should the ER be of the opinion that a serious threat to, or impact on the environment may be caused by the construction operations, he/she may stop work; the Employer must be informed of the reasons for the stoppage as soon as possible;
- ✓ The ER has the authority to issue fines for transgressions of basic conduct rules and/or contravention of the EMP;
- ✓ Should the Contractor or his/her employees fail to show adequate consideration for the environmental aspects related to the EMP, the ER can have person(s) and/or equipment removed from the site or work suspended until the matter is remedied;
- ✓ Report to the Employer on the implementation of this EMP on site (with input from the ECO and/or independent environmental auditor);
- ✓ Maintain open and direct lines of communication between the Employer, ECO, Contractor and Interested and Affected Parties (I&APs) with regards to environmental matters; and
- ✓ Attend regular site meetings and inspections.

3.2.2 Environmental Control Officer (ECO)

The **Environmental Control Officer (ECO)** has the following responsibilities:

- ✓ Assist the ER in ensuring that the necessary environmental authorisations and permits have been obtained;
- ✓ Assist the ER and Contractor in finding environmentally responsible solutions to challenges that may arise;
- ✓ Conduct environmental monitoring as per EMP requirements;
- ✓ Recommend on the issuing of fines for transgressions of basic conduct rules and/or contraventions of the EMP to the ER;
- ✓ Advise the ER on the removal of person(s) and/or equipment not complying with the specifications of the EMP;
- ✓ Carry out regular site inspections (on average once per week) of all construction areas with regards to compliance with the EMP; report any non-compliance(s) to the ER as soon as possible;
- ✓ Organise for an independent internal audit on the implementation of and compliance to the EMP to be carried out half way through the construction period; audit reports to be submitted to the ER;

- ✓ Organise for an independent post-construction environmental audit to be carried out;
- ✓ Continuously review the EMP and recommend additions and/or changes to the EMP document;
- ✓ Monitor the Contractor's environmental awareness training for all new personnel coming onto site;
- ✓ Keep records of all activities related to environmental control and monitoring; the latter to include a photographic record of the construction and environmental control and rehabilitation process, and a register of all major incidents; and
- ✓ Attend regular site meetings.

3.2.3 Contractor

The responsibilities of the **Contractor** include:

- ✓ Comply with the relevant legislation and municipal by-laws;
- ✓ Preparation and submission (to Ombepo Energy (PTY) LTD) of the following Management Plans:
    - Environmental Awareness Training and Inductions;
    - Emergency Preparedness and Response;
    - Waste Management, and;
    - Health and Safety.
- ✓ Ensure adequate environmental awareness training for senior site personnel;
- ✓ Environmental awareness presentations (inductions) to be given to all site personnel prior to work commencement; the ECO is to provide the course content and the following topics, at least but not limited to, should be covered:
    - The importance of complying with the relevant Namibian, International and Best Practice Legislation;
    - Roles and Responsibilities, including emergency preparedness;
    - Basic Rules of Conduct (Do's and Don'ts);
    - EMP: aspects, impacts and mitigation;
    - Fines for Failure to Adhere to the EMP;
    - Health and Safety Requirements.
- ✓ Record keeping of all environmental awareness training and induction presentations, and;

- ✓ Attend regular site meetings and environmental inspection.

3.2.4 Construction Supporting Teams

The installation of the wind turbines during the construction stage will require an array of specialist teams working very closely with their suppliers and core Ombepo Energy onsite operations team. The following is a summary of some of the specialists that will be required during the construction phase as part of the team of contractors:

- ✓ Turbine Suppliers and Commissioner, Mechanical and Crane Contractors, Electrical Contractors and Civil/Structural Contractors, each with their respective Sub-contractors and Suppliers, would report directly to the Employer's Representative (ER), acting as the onsite Project Manager.

4. ENVIRONMENTAL PERFORMANCE MONITORING

4.1 Overview

The monitoring process of the EMP performances for the proposed wind energy project is divided into two parts and these are:

(i) Monitoring activities and effects to be undertaken by the Environmental Control Officer (ECO);

(ii) Preparation of an Environmental Monitoring Report covering all activities related to the Environmental Management Plan throughout the life cycle of the proposed wind energy project to be undertaken by the Environmental Control Officer (ECO).

Ombepo Energy (PTY) LTD will be required to report to the Ministry of Environment and Tourism the environmental performances for every six (6) months or as may be required / provided for in the conditions of the Environmental Clearance Certificate. The reporting process will form part of the ongoing environmental monitoring programme. Environmental monitoring programme is part of the EMP performances assessments and will need to be compiled and submitted as determined by the regulators. The process of undertaking appropriate monitoring as per specific topic and tracking performances against the objectives and documenting all environmental activities is part of internal and external auditing to be coordinated by the Environmental Control Officer (ECO) / External Consultant / Suitable qualified in-house resource person. Tables 4.1 – 4.9 outline the type of information that shall need to be recorded on a regular by the Environmental Control Officer (ECO) as part of the monitoring process of the activities and the effects.

The second part of the monitoring of the EMP performance will require a report outlining all the activities related to effectiveness of the EMP at the end of the proposed wind farm to be undertaken by the Environmental Control Officer (ECO). The types of the data sets to be used in the preparation of such a report are outlined in Tables 4.1 - 4.9. The objective will be to ensure that corrective actions are reviewed and steps are taken to ensure compliance for future EIA and EMP implementation. The report shall outline the status of the environment and any likely environmental liability after completion of the proposed project. The report shall be submitted to the Ministry of Environment and Tourism via the Ministry of Mines and Energy or Electricity Control Board and will represent the final closure and fulfilment of the Environmental Contract conditions to be signed between the Ministry of Environment and Tourism and the Ombepo Energy (PTY) LTD.

Table 4.1: Monitoring of environmental performance implementation / environmental awareness training.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
Is there an Environmental awareness training programme?					
How many people have been given environmental awareness training?					
Is a copy of the EMP on site?					
How effective is the awareness training? Do people understand the contents of the EMP? Where are the weaknesses? Ask 3 people at random various questions about the EMP.					

Table 4.2: Monitoring of environmental performance for the temporal and permanent structures.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
Are the temporal and permanent structures positioned to avoid sensitive potential sensitive sites?					
Has new infrastructure been created? If so, what, and how well planned / built with respect to environment?					
Have toilets been provided? Where are they situated?					
Do receptacles for waste have scavenging animal proof lids?					
What litter is there – who is littering?					
Are there facilities for the disposal of oils / etc and how often is it removed to an approved disposal site?					
Is there evidence of oil / diesel spills? Bunding or not?					
What fuel source is being provided for cooking?					
Housekeeping					

Table 4.3: Environmental data collection.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
Are records being kept?					
Birds' mortality records as result of collision with the turbine?					
Birds nesting activities around the turbines area / wind Farm?					
Noise level?					
Air Quality?					
Have archaeological sites been found / disturbed / described?					
Other key environmental data sets?					

Table 4.4: Health and safety.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
Is there First Aid Kit containing anti-histamines etc?					
Are dangerous areas clearly marked off?					
Do vehicles appear to maintain the recommended speed limits?					
Do vehicles drive with headlights on along the gravel roads at all times?					

Table 4.5: Recruitment of labour.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
What labour source is used?					
How has the recruitment practice been done?					

Table 4.6: Management of the natural habitat and surficial materials management.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
Has there been any development done on or very close sensitive areas?					
Has anyone been caught with plants or animals in their possession?					
Has there been wilful or malicious damage to the environment?					
Has topsoil / seed bank layer been removed from demarcated development areas and appropriately stored?					

Table 4.7: Tracks and off-road driving.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
Are existing tracks used and maintained?					
What new tracks have been developed and are they planned?					
What evidence is there of off-road driving? Who appears to be responsible?					
Are corners being cut, what type of turning circle are there? Three point turns vs. U turns?					
Have unnecessary tracks been rehabilitated and how well?					
Comments					

Table 4.8: Management of surface and groundwater.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
How is potable water supplied and how often? Position of tanks?					
Is water being wasted?					
Is there any leakage from pipes or taps?					
Has casing been left when boreholes hit water and have any records of water strikes been kept? Were water samples taken and RWL measured?					

Table 4.9: Public relations.

Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
Have any complaints been made about the wind farm construction and or operational activities by the different I&APs? If so, what, and how was the issue resolved?					

5. ENVIRONMENTAL AWARENESS

5.1 Ombepo Energy (PTY) LTD Environmental Policy

Table 5.2 summarises the environmental statement with respect to environmental commitment that Ombepo Energy (PTY) LTD will implement as part of the company environmental policy.

Table 5.1: Environmental statement.

Ombepo Energy (PTY) LTD Environmental Statement
Ombepo Energy (PTY) LTD is Committed to: ✓ Fully comply with all applicable environmental regulations in force in Namibia and the Equator Principles (the internationally agreed benchmarks for managing environmental and social objectives in project finance in emerging markets); ✓ Exercising appropriate environmental care in accordance with the provisions of the EMP. ✓ The promotion the development of open and constructive partnerships with the all the relevant stakeholders to address environmental concerns and advance necessary protection measures. ✓ The advancement of scientific knowledge to be applied to the identification and effective resolution of real environmental challenges associated with wind energy development in Namibia. ✓ Continuously encouraging Pollution Prevention (P2), Cleaner Production (CP), Waste Minimisation, Reuse and Recycling efforts. ✓ Conducting regular internal and external audits of all our operations to ensure adherence to this policy and compliance to all relevant regulations throughout the life cycle of the proposed wind energy.

5.2 Environmental Personnel Register

Table 5.2 shows the Environmental Personnel Register to be signed by every person who receives or attends the Environmental Awareness Training or who has the training material explained to him or her or in possession of the training material.

Table 5.2: Environmental personnel register.

Date	Name	Company	Signature

6. CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Conclusions

Mitigation measures for both positive and negative impacts have been proposed and management strategies are provided in this Environmental Management Plan (EMP Vol. 3 of 3) for the following development stages:

(i) Preconstruction;

(ii) Construction;

(iii) Operational;

(iv) Decommissioning and Closure.

This Environmental Management Plan (EMP) Report Vol. 3 of 3 incorporating all the constraints, relevant mitigation measures with respect to likely impacts and recommendations have been prepared for implementation by the developer / operator. This EMP implementation and monitoring activities covers all the stages of the proposed wind energy project life cycle and is inclusive of the development, construction, operation, rehabilitation and closure stages.

9.2 Recommendations

The following are the recommended actions to be implemented by the Ombepo Energy (PTY) LTD as a part of the management of the impacts through implementations of the EMP covering the entire lifecycle (preconstruction, construction, operational, decommissioning and closure stages) of the proposed project activities:

(i) The proponent must obtained all other necessary permits (Environmental Clearance Certificate), licenses (Generation License) and concerts (land and power evacuation) as may be applicable before implementation of the project (start with mobilisation and preconstruction);

(ii) The proponent must implement precautionary measures by developing and implementing measures aimed at protection the physical and biological environmental;

(iii) The proponent must contract an Environmental Control Officer/ Consultant / suitable in-house resources person to lead and further develop, implement and promote environmental culture through awareness raising of the workforce, contractors and subcontractors;

(iv) The proponent / Environmental Control Officer/ Consultant / suitable in-house resources person MUST work with local experts from the Brown Hyena Research Project in making sure that the exiting local hyena dens are not disturbed and that the communal hyena population is not exposed to potential illegal killings once the dens localities known. Den localities should not be made public or known to the contractors or local community / workers and monitoring measures and put in place;

(v) The proponent / Environmental Control Officer/ Consultant / suitable in-house resources person MUST work local with the local experts in making sure that mitigation measures to minimise the impacts on coastal birds and in particular flamingos migrating to and from Agate pan are fully implemented and monitoring measures and put in place. The following three (3) mitigation measures have been proposed in order to address the potential threats to the flamingos and other coastal birds;

(vi) Before undertaking detailed site-specific activities (implementing the actual physical disturbance of the land surface) such as creating access routes and selection of actual location of each turbine, the proponent /Environmental Control Officer/ Consultant / suitable in-house resources person should consider the sensitivity of the local area in terms of flora and fauna and must work with the fauna and flora specialist consultant / local experts before;

(vii) The proponent must provide human and financial resources, for the implementation of the proposed mitigations and effective environmental management and monitoring thereof throughout the lifecycle of the proposed project activities;

(viii) The proponent must develop a simplified environmental induction and awareness programme for all the workforce, contractors and subcontractors and where contracted service providers are likely to cause negative environmental impacts, these will need to be identified and contract agreements need to be developed with costing provisions for environmental liabilities;

(ix) The proponent must develop and implement a monitoring programme that will fit into the overall company's Environmental Management Systems (EMS);

(x) The proponent must /Environmental Coordinator / Consultant / Suitable in-house resource person must regularly (as may be required by the regulators) prepare and submitted to the regulators environmental monitoring reports.

All the responsibilities to ensure that the recommendations of this EMP Report are executed accordingly, rest with the **Ombepo Energy (PTY) LTD.** The company must provide all appropriate resource requirements for the implementation of this EMP. It is the responsibility of **Ombepo Energy (PTY) LTD** to make sure that all members of the workforce including subcontractors are aware of the provisions of this EMP Report and its objectives.

END

Wind Farm - EMP Compliance

13 Nov 2023 / Michael

Incomplete

Score	**54 / 56 (96.43%)**	Flagged items	**1**
			Ombepo Wind Farm, Luderitz
Conducted on			**13 Nov 2023 08:54 CAT**
Prepared by			**Michael**
Location			**Unnamed Road, Luderitz, Namibia (-26.6413582, 15.1774287)**

Flagged items

1 flagged

HEALTH AND SAFETY / Toilets

Are the toilets no further than 250m from the workers?

No

Guards travel more than 250m from gate to tower 1 to use toilet.

Photo 29

ENVIRONMENTAL CONTROL OFFICER (ECO)

3 / 3 (100%)

Are adequate environmental awareness training for senior site personnel conducted?

Yes

Photo 1

Is there compliance with the relevant national legislation and the EMP?

Yes

Photo 2

Photo 3

Are appropriate actions taken if the specifications of the EMP are not adhered to?

N/A

Is there advising on the removal of person(s) and/or equipment not complying with the specifications of the EMP in consultation with the ER?

N/A

Are continuous reviews of the EMP and recommended additions and/or changes made to the document?

Yes

WASTE MANAGEMENT

10 / 11 (90.91%)

Waste Management Plan

1 / 1 (100%)

Has a waste management plan been created?

Yes

Photo 4

Photo 5

Hazardous Waste

3 / 3 (100%)

Are all heavy construction vehicles and equipment on site in possession of a drip tray?

N/A

Is all spilled concrete (wet or dry), treated as hazardous waste and disposed of by the end of each day, in the appropriate hazardous waste containers?

N/A

Are all hazardous substances like fuel or chemicals stored in containers which are stored on an impermeable surface that is bunded?

Yes

Photo 6

Can the bunded area contain 1.5 times the volume of the hazardous material to be stored in the bunded area?

N/A

Are all hazardous substances labelled and sealed?

Yes

Photo 7

Are battery systems sealed and not opened or serviced on site?

Yes

UPS only systems on site

Does the maintenance and washing of construction vehicles take place only at a designated workshop area?

N/A

Is the workshop area lined with concrete?	N/A
Sewage and Grey Water	3 / 3 (100%)

Is there evidence of sewage (black water) discharged directly onto open soil along drainage lines, or any other unspecified areas?

No

Photo 8

Is sewage removed from site on regularly and disposed of at a recognised (municipal) sewage treatment facility?

Yes

Septic tank regularly emptied as needed

Photo 9

Photo 10

Is water collected from equipment cleaning areas (grey water), left standing for long periods of time (promoting parasite and bacterial proliferation)?

N/A

If practicable, is grey water used for dust suppression or to clean equipment?

N/A

General Waste	3 / 4 (75%)
Is the construction site kept tidy at all times?	N/A

Is waste buried or burned on site?

Yes

Gathered and burned with the approval from local authority

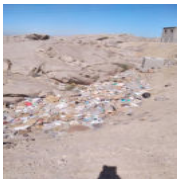

Photo 11

Photo 12

Are waste containers emptied regularly and removed from site to a recognised (municipal) waste disposal site?

Yes

Photo 13

Is recyclable waste taken to the nearest recycling depot? **N/A**

Is there a sufficient number of separate waste containers for hazardous and domestic/general waste provided on site and clearly marked as such?

Yes

Photo 14

Photo 15

Are construction labourers sensitised to dispose of waste in a responsible manner and to not litter? **Yes**

Induction material states littering is prohibited

Photo 16

HEALTH AND SAFETY	1 flagged, 17 / 18 (94.44%)
HIV/AIDS and TB Training	1 / 1 (100%)
Does the contractor approach the Ministry of Health and Social Services to co-opt a health officer, to facilitate HIV/AIDS and TB education programs periodically on site during the construction phase?	
	Yes
Road Safety	2 / 2 (100%)
Are all vehicles that transport materials to and from the site, road-worthy?	Yes

Photo 17

Do all drivers that transport materials have a valid driver's license and adhere to all traffic rules?	Yes
Are loads upon vehicles properly secured to avoid items falling off the vehicle?	N/A
Safety Around Excavated and Work Areas	1 / 1 (100%)
Are short lengths of trenches (no longer than 300 m) and box areas for services or foundations excavated so as to not allow trenches to be left unattended for more than 24 hours?	
	N/A
Are all excavation works demarcated with danger tape?	N/A
Are soil and other building material stockpiles demarcated with danger tape?	N/A
Are temporary waste stockpiles demarcated with danger tape?	N/A
Are only construction personnel allowed within these work areas?	N/A
Are 2 fire extinguishers available at the fuel storage area and are they charged?	Yes


Photo 18


Photo 19


Photo 20


Photo 21

Toilets

1 flagged, 4 / 5 (80%)

Are there separate toilets for males and females? **Yes**


Photo 22


Photo 23


Photo 24

Is there 1 toilet for every 30 females (preferred 15)? **Yes**


Photo 25


Photo 26

Is there 1 toilet for every 30 males (preferred 15)? **Yes**


Photo 27


Photo 28

Are the toilets no further than 250m from the workers? **No**

Guards travel more than 250m from gate to tower 1 to use toilet.


Photo 29

Is the adequacy of the number of toilets on sites closely monitored? **Yes**

General

9 / 9 (100%)

Are there any trees or natural vegetation removed on-site to create open fires? **No**

Do all employees have the needed PPE (hard hat, gloves, overalls, safety shoes and protective glasses)?	Yes
Is potable water provided to employees on site?	Yes

Yes potable water available on site


Photo 30


Photo 31

Is there evidence that persons smoke close to fuel storage facilities or portable chemical toilets?	N/A
Do workers drink alcohol during work hours?	N/A
Is unauthorized public access controlled?	Yes

Photo 32


Photo 33

Have criteria to facilitate 100% fall protection from structures been established?	Yes

Proof of safety protocol


Photo 34

Photo 35


Photo 36


Photo 37


Photo 38


Photo 39

Is there a regular maintenance schedule for wind equipment and structures?	Yes


Photo 40

Is maintenance during poor weather conditions (e.g. high wind speeds, lightning strikes) avoided?	Yes

DUST AND NOISE	1 / 1 (100%)
Dust	
Is a watering truck used on gravel roads with the most heavy vehicle movement, especially during dry and windy conditions?	N/A
Is there adequate ventilation available in the event of sanding or grinding work?	N/A
Are stockpiles of building materials and earth material kept moist or the surfaces stabilised?	N/A
Are the size of stockpiles of large quantities of soil, topsoil and other fine material limited?	N/A
Are awareness of ambient air quality and consideration regarding wind speed and direction taught for the undertaking of dust generating activities?	N/A
Noise	1 / 1 (100%)
Are work hours restricted to between 07h00 and 17h00 where construction involving the use of heavy equipment, power tools and the movement of heavy vehicles are less than 500m from residential areas?	N/A
Are all receptors (residents or businesses within 500m from the work areas) notified at least 2 days in advance in the event that work is necessary outside the designated working hours?	N/A
Do vehicles have regular engine maintenance programs, to control vehicle emissions?	Yes

ENVIRONMENTAL TRAINING AND AWARENESS, ENVIRONMENTAL CONSERVATION	14 / 14 (100%)
Environmental Induction (Training)	4 / 4 (100%)
Is the importance of complying with the EMP explained to workers?	**Yes**

Training material containing EMP details.

Photo 41

Is the potential environmental impacts of construction activities discussed?	**N/A**
Are employees trained on their roles and responsibilities, including emergency preparedness?	**Yes**

Training material

Photo 42

Is there an explanation of the mitigation measures that must be implemented when particular work groups carry out their respective activities?

	Yes
Is there an explanation of the specific mitigation measures within this EMP, especially unfamiliar provisions?	**Yes**
Conservation of Vegetation	3 / 3 (100%)
Is there evidence of driving beyond demarcated areas and off established roads taking place?	**No**
Is there evidence of movement of staff or visitors beyond the project site?	**No**
Is the collection of plants or wood for cooking beyond the project site strictly prohibited?	**Yes**
Conservation of Water	3 / 3 (100%)

Is water effective equipment used?	N/A
Are all leaking fittings repaired or replaced timeously?	Yes

Leaks repaired in a timely manner

Photo 43

Are brooms used to clean floors rather than hosing them down with a pipe?	Yes
Are buckets or high pressure hoses used to clean areas, equipment, or vehicles instead of a regular hose pipe?	Yes
Are the provisions contained in the Water Management Plan implemented?	N/A
Materials Camp and Lay-down Areas	2 / 2 (100%)
Are the materials camp and lay-down areas a safe distance from sensitive areas?	Yes

Equipment stored more than 500m from sensitive areas

Photo 44

Photo 45

Are the areas designated for the proposed services infrastructure used as lay-down areas as far as possible?	Yes
Conservation of Vegetation, birds and bats	2 / 2 (100%)
Is construction or movement limited to the site boundaries and demarcated areas, unless approved by a specialist?	N/A

Was an avifauna specialist consulted for practical advice on how to protect birds from collisions and electrocution on the transmission line before construction?

Yes

What mitigations are currently in place to apply the avifauna specialist's advice?

Wind turbines have red reflective tips to alert birds of the hazard

Is there appropriate stormwater management in place?	Yes

Are animals injured, fed, trapped, hunted or harmed in any way?	N/A

EMPLOYMENT/RECRUITMENT,	3 / 3 (100%)
Legislation and Recruitment	3 / 3 (100%)

Does the contractor adhere to the legal provisions in the Labour Act (see Table 1 in EMP) for the recruitment of labour (target percentages for gender balance, optimal use of local labour and SME's, etc.) in the contract?

Yes

Local personnel for labour

Has a recruitment process been developed?	**N/A**

Are the terms and conditions of their respective employment contracts (e.g., period of employment etc.) clearly explained to all jobseekers?

Yes

Are interpreters used when necessary?	**Yes**

STAKEHOLDER COMMUNICATION	4 / 4 (100%)
Communication Plan	3 / 3 (100%)
Has the contractor developed a Communication Plan?	Yes
Does the Communication Plan include how stakeholders, who require ongoing communication for the duration of the construction period, will be identified, recorded and who will manage and update these records?	Yes
Does the Communication Plan make provision for grievance mechanisms - i.e., how concerns will be lodged and recorded and how feedback will be delivered as well as further steps of arbitration in the event where feedback is deemed unnecessary?	Yes

Photo 46

General Communication Matters and Communication with Property Owners	1 / 1 (100%)
Has the ER appointed an ECO to liaise between the Contractor, stakeholders, Developer, and consultants?	N/A
Has the appointed Contractor appointed a person from the construction team to take responsibility for the implementation of all provisions of this EMP?	N/A
Does the Contractor report on the status of the implementation of all provisions of the EMP during every site meeting?	N/A
Does the Contractor list the stakeholders of the project and their contact details with whom ongoing communication would be required for duration of the contract?	N/A
Does all communication with the stakeholders take place through the ECO?	N/A
Is a copy of the EMP available at the site office and accessible to all stakeholders?	Yes

Photo 47

Photo 48

SOCIO-ECONOMIC AND MISCELLANEOUS	2 / 2 (100%)
Archaeology and Heritage Resources	1 / 1 (100%)
Has a chance find procedure been developed according to the recuirements set out in the EMP?	**Yes**
Have there been any chance finds?	**N/A**
Has any Electromagnetic Interference been reported?	**No**
Has corrosion protection paint systems been usedfor the protection of steel structures?	**Yes**


Photo 49


Photo 50


Photo 51


Photo 52

Ombepo Energy (Pty) Ltd

Submitted to: Ombepo Energy (Pty) Ltd.
Attention: Mr Alexandre Matton
13 Feld Street
P O Box 3489
Windhoek. Namibia

REPORT:

OMBEPO 10MW WIND FARM ON SEAL SITE COMBINED HEALTH, SAFETY AND ENVIRONMENTAL REPORT

PROJECT NUMBER: ECC-43-416-REP-01-D

REPORT VERSION: REV 01

PERIOD: JUNE 2023

Prepared by: ECC ENVIRONMENTAL COMPLIANCE CONSULTANCY

TITLE AND APPROVAL PAGE

Project Name:	Ombepo 10MW wind Farm on Seal Site Combined Health, Safety and Environmental Report
Client Company Name:	Ombepo Energy (Pty) Ltd.
Client Name:	Mr Alexandre Matton
Ministry Reference:	NA
Authors:	Environmental Compliance Consultancy
Status of Report:	Final for client submission
Project Number:	ECC-43-416-REP-01-D
Date of issue:	July 2023
Review Period	NA

ENVIRONMENTAL COMPLIANCE CONSULTANCY CONTACT DETAILS:

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Email: info@eccenvironmental.com

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Please note at ECC we care about lessening our footprint on the environment; therefore, we encourage that all documents are printed double sided.

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TERMS AND ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION
DEA	Directorate of Environmental Affairs
ECB	Electricity Control Board
ECC	Environmental Compliance Consultancy
ECO	Environmental control officer
EMP	environmental management plan
GL	Generation licence
HSE	Health, Safety and Environment
I&APs	Interested and affected parties
JV	Joint venture
LTC	Lüderitz Town Council
MEFT	Ministry of Environment, Forestry and Tourism
MME	Ministry of Mines and Energy
MW	Mega-Watt

1 INTRODUCTION

1.1 PROJECT BACKGROUND

Ombepo Energy (PTY) LTD was granted a Generation License No. G-149-010615-25 by the Electricity Control Board (ECB) to develop a wind generation facility in Lüderitz. The company developed a 10MW wind farm on Seal site with the future possibility of extending the wind farm to include the Penguin site. The possible future extension of the wind farm to include the Penguin site is subject to the results of the twelve (12) months environmental (Avian) monitoring that must be implemented before the possible future development of the Penguin site. Both the Seal and Penguin sites are situated within the Lüderitz Townlands in the //Karas Region. Ombepo Energy (PTY) LTD is a Joint Venture (JV) company owned by Lüderitz Town Council (LTC) and InnoSun Energy Holding (PTY) LTD.

The Project is important to the energy security, sustainable and renewable green energy development for Namibia. The proposed wind farm will be able to produce the entire electricity consumption for the Town of Lüderitz which now stands at around 7MW.

The Proponent currently holds a valid environmental clearance certificate from the 4 February 2021 to 4 February 2024 for the operation of the Ombepo wind farm. Onsite environmental compliance audits take place on a yearly basis to determine the status of compliance with the approved environmental management plan.

The proposed Ombepo Energy (PTY) LTD Seal site wind farm totalling 10MW and potential future Penguin site are both situated within the Lüderitz Townlands in the //Karas Region, Southern Namibia. See Figure 1.

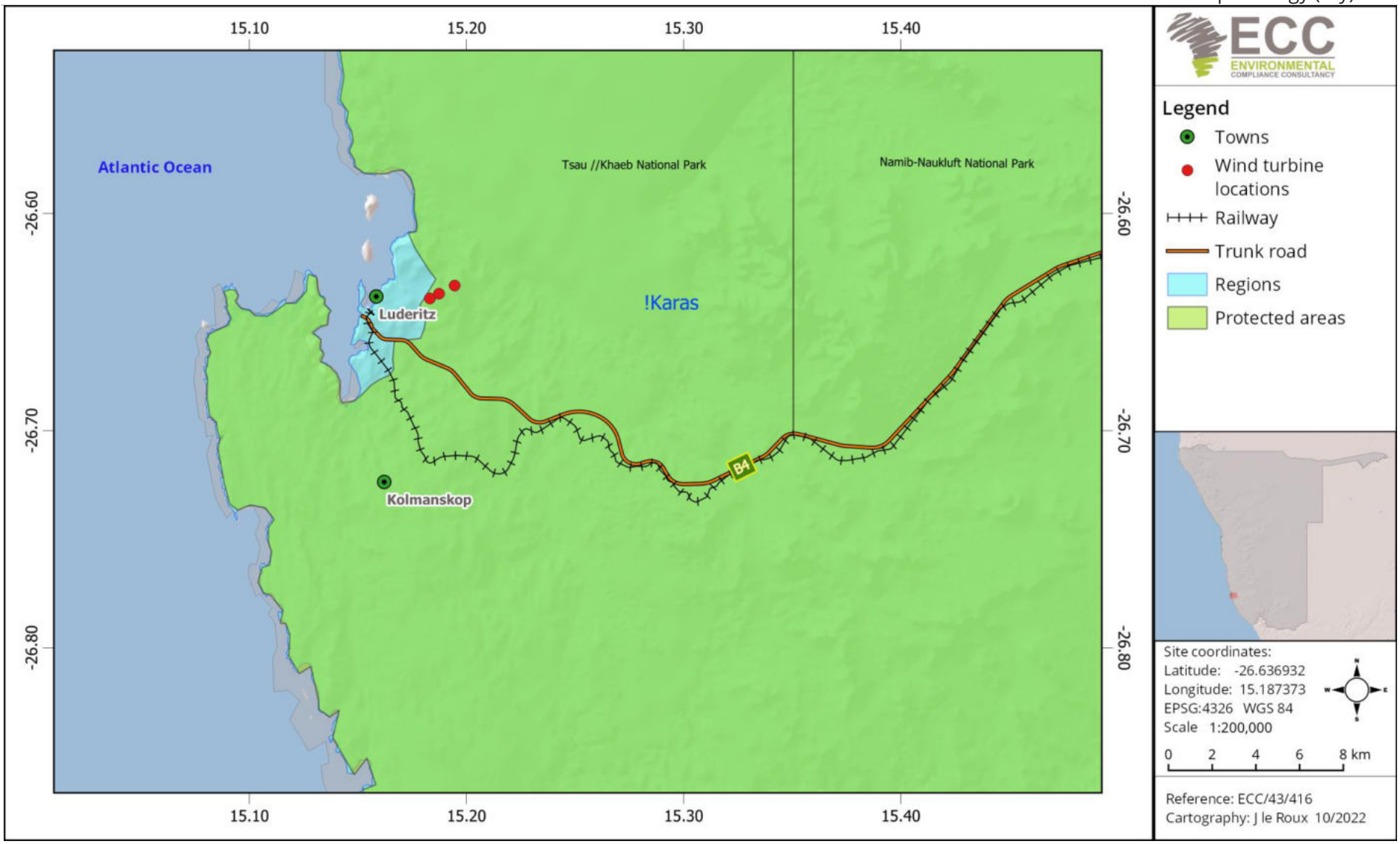

Figure 1 – Project location

1.2 THE PROPONENT OF THE PROJECT

Table 1 - Proponent's details

Company Representative:	Contact Details:
Mr Alexandre Matton	Ombepo Energy (Pty) Ltd: 2 Schutzen Str P O Box 27527 Windhoek, Namibia

1.3 PURPOSE OF THE HEALTH, SAFETY AND ENVIRONMENTAL REPORT

The purpose of this report is to report on the compliance of the Proponent and its employees with their environmental management plan (EMP). This means that the proponent and its employees should adhere to all rules, regulations and policies stipulated in their EMP. This enables the Proponent to ensure that the activities of their project do not put their employees' health and safety at risk, while also ensuring no excessive negative impacts are caused to the environment. This enables the Proponent to comply to all legal standards by pointing out areas of non-compliance and allowing them to take immediate action on implementing corrective actions. This creates a healthy and safe working environment for all the Proponent's employees and the receiving environment of the Project.

1.4 ENVIRONMENTAL ASSESSMENT PRACTITIONER

The report has been prepared by Environmental Compliance Consultancy Pty Ltd (ECC) (Reg. No. 2022/0593) on behalf of the Proponent. Authored by ECC employees with no material interest in the report's outcome, ECC maintains independence from the Proponent and has no financial interest in the Project apart from fair remuneration for professional fees. Payment of fees is not contingent on the report's results or any government decision. ECC members or employees are not, and do not intend to be, employed by the Proponent, nor do they hold any shareholding in the Project. Personal views expressed by the writer may not reflect ECC or its client's views. The environmental report's information is based on the best available data and professional judgment at the time of writing. However, please note that environmental conditions can change rapidly, and the accuracy, completeness, or currency of the information cannot be guaranteed.

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Email: info@eccenvironmental.com

2 HEALTH, SAFTEY AND ENVIRONMENTAL MONITORING PROGRAM

2.1 HSE POLICY AND REGULATIONS

The project's health, safety, and environmental monitoring were undertaken per the conditions stipulated in the Project's legally binding EMP. Ombepo Energy (Pty) Ltd has incorporated their EMP in the environmental management systems of the company, national and international environmental best practice standards for Wind operational and decommissioning planning. The monitoring results outlined in this report, therefore, outline the actions that were undertaken and implemented during the period from February 2021 to June 2022.

2.2 EMPLOYMENT STRUCTURE, ROLES, AND RESPONSIBILITIES

Table 2 outlines the roles and responsibilities of the Proponent and their employees for the operation of the wind farm.

Table 2 - Employment structure, roles, and responsibilities

ROLE	RESPONSIBILITY
Proponent	– Responsible for overall management and implementation of the EMP; – Ensure environmental policies and drafted/updated and communicated to all personnel throughout the company; – Responsible for providing the resources required to effectively run operations and comply with EMP; – Appoint all mangers needed to ensure effective running of operations and – Ensure systems for proper induction and training of personnel and contractors are in place.
Project Manager/ Employer's Representative (ER)	– Act as employer's on-site project manager and implementing agent; – Appoint the ECO; – Ensure that the employer's responsibilities are executed in compliance with the relevant legislation and the EMP; – Ensure that all the necessary environmental authorizations and permits have been obtained and are kept up-to-date; – Assist the contractor in finding environmentally responsible solutions to challenges that may arise with input from the ECO; – Should the ER be of the opinion that a serious threat to, or impact on the environment may be caused by the construction operations,

ROLE	RESPONSIBILITY
	he/she may stop work; the Employer must be informed of the reasons for the stoppage as soon as possible; – The ER has the authority to issue fines for transgressions of basic conduct rules and/or contravention of the EMP; – Should the Contractor or his/her employees fail to show adequate consideration for the environmental aspects related to the EMP, the ER can have person(s) and/or equipment removed from the site or work suspended until the matter is remedied; – Report to the Employer on the implementation of this EMP on site (with input from the ECO and/or independent environmental auditor); – Maintain open and direct lines of communication between the Employer, ECO, Contractor and Interested and Affected Parties (I&APs) with regards to environmental matters, and; – Attend regular site meetings and inspections.
Environmental Control Officer (ECO)	– Assist the ER in ensuring that the necessary environmental authorisations and permits have been obtained; – Assist the ER and Contractor in finding environmentally responsible solutions to challenges that may arise; – Conduct environmental monitoring as per EMP requirements; – Recommend on the issuing of fines for transgressions of basic conduct rules and/or contraventions of the EMP to the ER; – Advise the ER on the removal of person(s) and/or equipment not complying with the specifications of the EMP; – Carry out regular site inspections (on average once per week) of all construction areas with regards to compliance with the EMP; report any non-compliance(s) to the ER as soon as possible. – Organise for an independent internal audit on the implementation of and compliance to the EMP to be carried out halfway through the construction period; audit reports to be submitted to the ER; – Organise for an independent post-construction environmental audit to be carried out; – Continuously review the EMP and recommend additions and/or changes to the EMP document; – Monitor the Contractor's environmental awareness training for all new personnel coming onto site; and – Keep records of all activities related to environmental control and monitoring; the latter to include a photographic record of the construction and environmental control and rehabilitation process, and a register of all major incidents.

ROLE	RESPONSIBILITY
	– Comply with the relevant legislation and municipal by-laws; – Preparation and submission to Ombepo Energy (Pty) Ltd of the following Management Plans: o Environmental Awareness Training and Inductions; o Emergency Preparedness and Response; o Waste Management, and; o Health and Safety. – Ensure adequate environmental awareness training for senior site personnel; – Environmental awareness presentations (inductions) to be given to all site personnel prior to work commencement; the ECO is to provide the course content and the following topics, at least but not limited to, should be covered: o The importance of complying with the relevant Namibian, International and Best Practice Legislation; o Roles and Responsibilities, including emergency preparedness; o Basic Rules of Conduct (Do's and Don'ts); o EMP: aspects, impacts and mitigation; o Fines for Failure to Adhere to the EMP; o Health and Safety Requirements. – Record keeping of all environmental awareness training and induction presentations, and; – Attend regular site meetings and environmental inspections.
Constructing Supporting Teams	– Wind turbine and blade Suppliers, installer, mechanical and crane contractors, electrical contractors and civil / structural contractors, each with their respective subcontractors and suppliers, would report directly to the Employer's Representative (ER), acting as the onsite Project Manager

2.3 MONITORING METHODOLOGY

This reporting process forms part of the ongoing monitoring programme as part of the EMP performance assessment. The monitoring and reporting are to track performance against objectives and document all health, safety, and environmental activities. This will form part of the Project's external auditing. This report also outlines the activities related to the effectiveness of the EMP at the end of the wind farm's life to be undertaken by the ECO. This ensures that corrective actions are reviewed and where applicable used to update the existing EMP during the next ECC renewal application. This will ensure that steps are taken to ensure improved compliance for future years. This report further outlines the status of the environment and any likely environmental liability that may occur after the decommissioning of the plant.

3 OHSE PERFORMANCE MONITORING RESULTS.

3.1 Overview of activities carried out for the period January 2020-June 2022

The following activities were undertaken for the period January 2020 – June 2022:

- Energy generation.
- Wind farm operation; and
- Maintenance of wind turbine blades, maintenance and equipment shed and overall site.

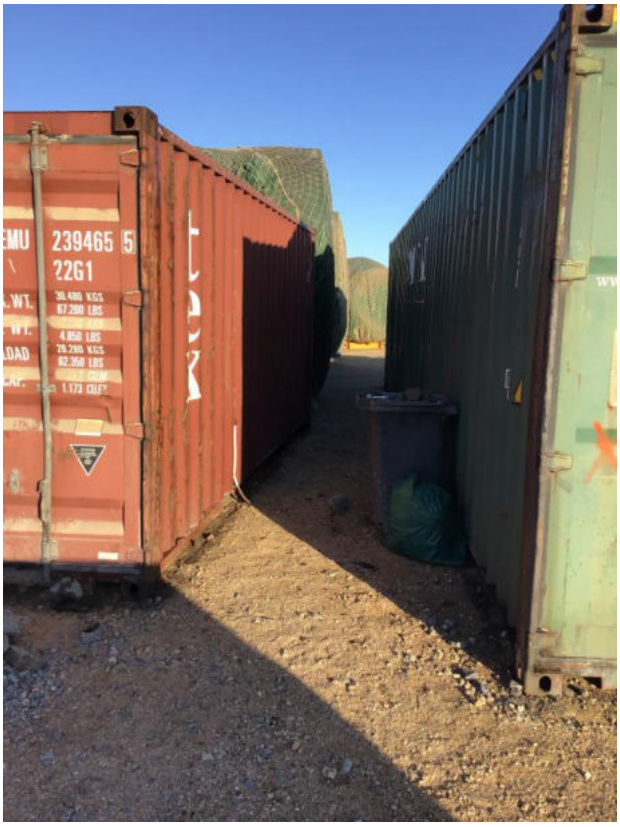

Figure 2 – Adequate collection and disposal of waste

Figure 3 – First Aid kits on site

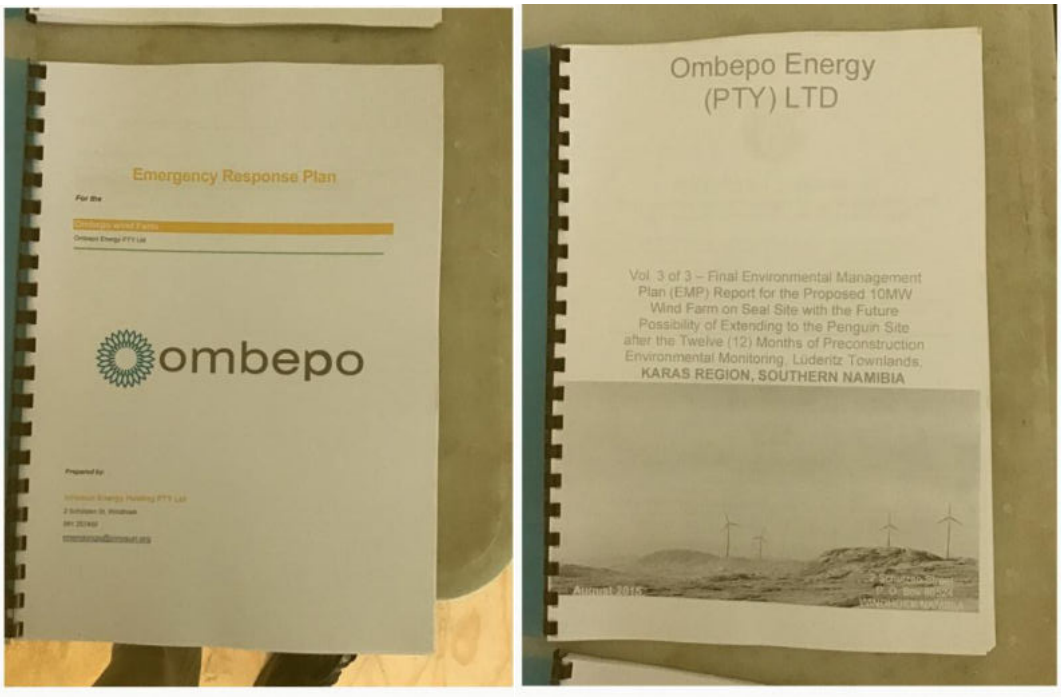

Figure 4 - Emergency response plan and latest updated EMP on site

Figure 5 - safety rules and guidelines adequately presented

Figure 6 - Valid fire hydrants on site

Figure 7 - Emergency signage

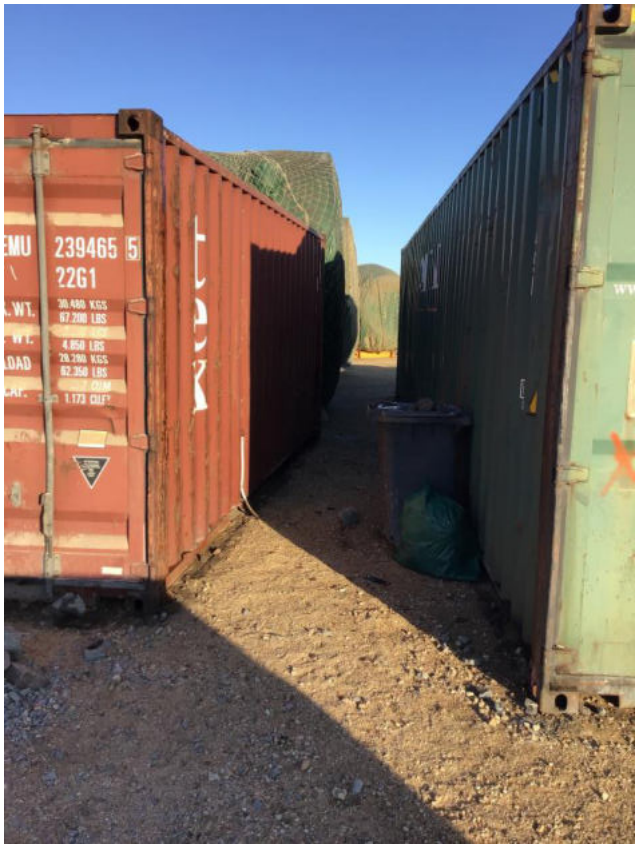

Figure 8 - Proper collection and disposal of waste

Table 3 - Monitoring of environmental performance implementation/environmental awareness training

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Is there an Environmental awareness training programme?	**Compliant**	NA	NA	NA	NA
How many people have been given environmental awareness training?	**Compliant**	NA	NA	NA	NA
Is a copy of the EMP on site?	**Compliant**	NA	NA	NA	NA
How effective is the awareness training? Do people understand the contents of the EMP? Where are the weaknesses?	**Compliant**	NA	NA	NA	NA

Table 4 - Monitoring of environmental performance for the temporal and permanent structures

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Are the temporal and permanent structures positioned to avoid sensitive potential sensitive sites?	**Compliant**	NA	NA	NA	NA
Has new infrastructure been created?	**No**	NA	NA	NA	NA

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
If so, what, and how well planned / built with respect to environment?	**Compliant**	NA	NA	NA	NA
Have toilets been provided?	**Non-Compliant**	Toilets should be provided for security, one for a male and one for a female if there are security guards of the opposite sex on site	Wynbach Security	October 2022	Pending
Where are they situated?	**Non-Compliant**	In close proximity to the guard house but away from a water stream	Wynbach Security	October 2022	Pending
Do receptacles for waste have scavenging animal proof lids?	**Compliant**	NA	NA	NA	NA
What litter is there – who is littering?	**No Litter - Compliant**	NA	NA	NA	NA
Are there facilities for the disposal of oils / etc and how often is it removed to an approved disposal site?	**Compliant - Weekly**	NA	NA	NA	NA
Is there evidence of oil / diesel spills?	**No**	NA	NA	NA	NA
Bunding or not?	NA	NA	NA	NA	NA
What fuel source is being provided for cooking?	NA	NA	NA	NA	NA
Housekeeping	**Compliant**				

Table 5 - Environmental data collection

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Are records being kept?	**Compliant**	NA	NA	NA	NA
Birds' mortality records as result of collision with the powerline?	**Compliant**	NA	NA	NA	NA
Birds nesting activities around the solar park and powerline area?	**Compliant**	NA	NA	NA	NA
Noise level?	**Compliant**	NA	NA	NA	NA
Air Quality?	**Compliant**	NA	NA	NA	NA
Have archaeological sites been found / disturbed / described?	**Compliant**	NA	NA	NA	NA
Other key environmental data sets?	**Compliant**	NA	NA	NA	NA

Table 6 - Health and safety

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Does the First Aid Kit contain antihistamines etc?	**Compliant**	NA	NA	NA	NA
Are dangerous areas clearly marked off?	**Compliant**	NA	NA	NA	NA
Do vehicles appear to maintain the recommended speed limits?	**Compliant**	NA	NA	NA	NA

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Do vehicles drive with headlights on along the gravel roads at all times?	**Compliant**	NA	NA	NA	NA

Table 7 - Recruitment labour

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
What labour source is used?	**Wynbach security**	NA	NA	NA	NA
How has the recruitment practice been done?	**According to national labour regulations**	NA	NA	NA	NA

Table 8 - Management of the natural habitat and surficial materials management

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Has there been any development done on or close sensitive areas?	**No - Compliant**	NA	NA	NA	NA
Has anyone been caught with Parks or animals in their possession?	**No - Compliant**	NA	NA	NA	NA
Has there been wilful or malicious damage to the environment?	**No - Compliant**	NA	NA	NA	NA

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Has topsoil / seed bank layer been removed from demarcated development areas and appropriately stored	**No - Compliant**	NA	NA	NA	NA

Table 9 - Tracks and off-road driving

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Are existing tracks used and maintained?	**Complaint**	NA	NA	NA	NA
What new tracks have been developed and are they planned?	**No - Complaint**	NA	NA	NA	NA
What evidence is there of off-road driving? Who appears to be responsible?	**No - Complaint**	NA	NA	NA	NA
Are corners being cut, what type of turning circle are there? Three point turns vs. U turns?	**No - Complaint**	NA	NA	NA	NA
Have unnecessary tracks been rehabilitated and how well?	**None needed to be rehabilitated**	NA	NA	NA	NA
Comments	NA	NA	NA	NA	NA

Table 10 - Management of surface and groundwater

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
How is potable water supplied and how often? Position of tanks?	**Municipal supply**	NA	NA	NA	NA
Is water being wasted?	**No - Compliant**	NA	NA	NA	NA
Is there any leakage from pipes or taps?	**No - Compliant**	NA	NA	NA	NA
Has casing been left when boreholes hit water and have any records of water strikes been kept? Were water samples taken and RWL measured?	**NA**	NA	NA	NA	NA

Table 11 - Public relations

Mitigation	Compliance	Follow-up action required	By whom	By when	Completed
Have any complaints been made about the solar park construction and or operational activities by the different I&APs? If so, what, and how was the issue resolved?	**None - Compliant**	NA	NA	NA	NA

3.2 PERMIT / AUTHORISATION REQUIREMENTS FOR OPERATION

Activity	Applicable legislation	Permitting authority	Current status
Generation Licence (GL)	Electricity Act 2007 (Act No. 4 of 2007)	Electricity Control Board through approval by Ministry of Mines and Energy (MME)	**GL issued and valid for 25 years**
Environmental clearance certificate	Environmental Management Act, 2007, (Act No.7 of 2007)	Ministry of Environment, Forestry and tourism (MEFT), Directorate of Environmental Affairs (DEA)	**ECC valid until 4 February 2024**
Land rights covering the operational solar park area	None	Private land	**Lease agreement in place**
Removal, disturbance or destruction of eggs	Nature Conservation Ordinance 4 of 1975	Ministry of Environment, Forestry and tourism (MEFT), Directorate of Environmental Affairs (DEA)	**No removals**
Removal, destruction of indigenous trees, bushes or plants within 100 meters of a stream or watercourse		Ministry of Environment, Forestry and tourism (MEFT), Directorate of Environmental Affairs (DEA)	**No removals**

3.3 NON-COMPLIANCES

The following issues of non-compliance were either reported or observed on site:

- No toilet facility for the security personnel.
- Site inductions carried out but not recorded.

3.4 CORRECTIVE ACTIONS

The corrective actions that need to be taken are listed in the table below (Reference to section 3.4 of the EMP):

Table 12 - Corrective actions proposed

Non-compliance	Corrective action
No toilet facility for the security personnel	Toilet facilities need to be provided for security personnel
Site inductions carried out but not recorded	Site inductions need to be carried recorded

4 CONCLUSION AND RECOMMENDATIONS

It is recommended that the Proponent takes more care in addressing the toilets for the security guards and site inductions carried out should be recorded. ECC also recommends placing a stair rail on the staircase shown below as it is a bit steep and could cause injury if someone were to slip and fall of the stairs.

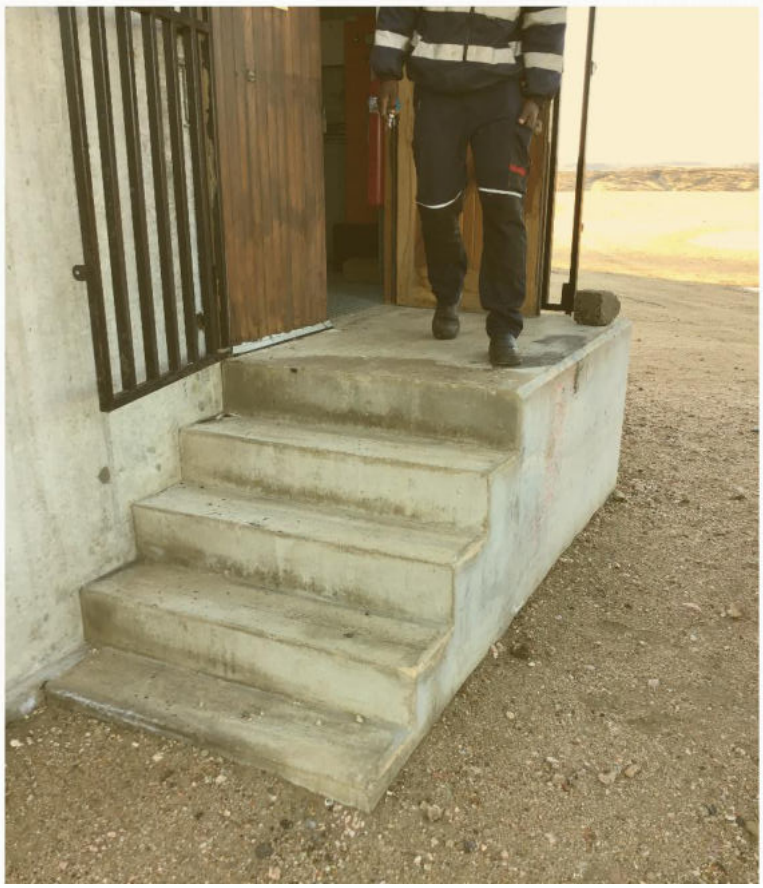

Figure 9 - Un-railed staircase

The Proponent should continue to adhere to all environmental legislation and company standards to ensure that best practical environmental protection continues as the Project activities continue.

APPENDIX A – ENVIRONMENTAL CLEARANCE CERTIFICATE

ECC – 01216 Serial: atohIO1216

REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

ENVIRONMENTAL CLEARANCE CERTIFICATE

ISSUED

In accordance with Section 37(2) of the Environmental Management Act (Act No. 7 of 2007)

TO

Ombepo Energy (Pty) Ltd
P. O. Box 27527, Windhoek

TO UNDERTAKE THE FOLLOWING LISTED ACTIVITY

Operations and Management of a 10MW Wind Farm on Seal Site at Lüderitz, //Karas Region

MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM
Private Bag 13306
WINDHOEK, NAMIBIA
16 FEB 2021

ENVIRONMENTAL COMMISSIONER

Issued on the date: 2021-02-04
Expires on this date: 2024-02-04

(See conditions printed over leaf)

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APPENDIX B – GENERATION LICENCE

ELECTRICITY CONTROL BOARD

GENERATION LICENCE

NO G-149-010615-25

Issued to

OMBEPO ENERGY (PTY) LTD

(Registration number: 2012/1143)

The ELECTRICITY CONTROL BOARD, in exercise of the powers conferred by section 20 (8) of the Electricity Act, 2007, and upon approval to grant a Generation Licence by the Minister in terms of section 20(6), hereby issues a Generation Licence to **Ombepo Energy (Pty) Ltd** to generate electricity from wind turbines at Lüderitz for the purpose of enabling a supply to be offered by suppliers to customers subject to the conditions as imposed by the Minister and set out in this Licence and the Electricity Act, 2007.

ELECTRICITY CONTROL BOARD

Jason Nandago
Chairman

Foibe L. Namene
Chief Executive Officer

APPENDIX C - ENVIRONMENTAL MANAGEMENT PLAN