Central Eléctrica da Namaacha, SA

ESIA Addendum

Environmental and Social Impact Assessment

41104276
November 2023

Public

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ESIA Addendum

Environmental and Social Impact Assessment

Public

Project no. 41104276

Our Ref. No. 41104276

Date: November 2023

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Executive summary

The EIA for the Central Eléctrica da Namaacha (CEN) Windfarm Project located in Maputo Province, Mozambique ("the Project") was submitted to MITADER in November 2020 and further modified in January 2022. The Project was thereafter approved by the Ministry of Land and Environment (MTA) in March 2022 subject to payment of an Environmental Licensing fee.

WSP Golder (WSP), a wholly owned affiliate of WSP Global Inc., was appointed by Central Eléctrica da Namaacha (CEN), SA to conduct a gap analysis of the EIA against International Finance Corporation (IFC) Environmental and Social Performance Standards (2012), applicable World Bank Environmental Health and Safety (EHS) Guidelines, and Good International Industry Practice (GIIP), and to then close out these identified gaps.

This addendum should be read in conjunction with the EIA by Matos, Fonseca and Associados Ltd (November 2020, modified in 2022) and aims to align the EIA report with the IFC PS. The list below provides a summary of corrective actions taken to align the EIA report with IFC PS and furthermore references where and how these gaps and actions have been closed out.

Corrective Actions

IFC PS 1

- An environmental and social policy and ESMS framework must be included in the EIA/ EMP.

  Status: The key requirements for development of an ESMS has been included in Section 4 of the EMP. CEN will need to modify their internal ESMS to be project specific for the Namaacha WEF project.

- Based on the response provided to MITADER on the EIS, it is acknowledged that no formal consultation was undertaken with the local population/ affected communities during the EIA process.

  Status: Proof of engagement with affected communities has since occurred and was included in the final approved EIA (See the final 2022 EIA).

- A Stakeholder Engagement Plan (SEP) must be developed for the Project.

  Status: CEN has developed a bespoke SEP that is being implemented by the project.

- A Grievance Redress Mechanism (GRM) which is project specific and adequately aligns with the local social context (vulnerable groups presence, low literacy levels, etc.) is required.

  Status: A project-specific GRM is included in the SEP.

IFC PS 2

- The EMP must include measures which address fair treatment, non-discrimination and equal opportunity of workers. Reference should also be made to contractual arrangements, employment relationship on vulnerable groups, safe and healthy work environments, workers' rights (including grievance mechanism) and organisational structures. The International Labour Organisation (ILO) standards and World Bank Environmental Health and Safety Guidelines should also be

referenced where appropriate. Due consideration should also be taken of workers engaged by third parties.

Status: An updated EMP was developed and is provided in Annexure 1.

IFC PS 3

- The management measures included in the EIS report recommend the implementation of a Waste Management Plan (WMP) by the Contractor to provide pollution prevention techniques. An integrated WMP should be prepared to take into account the internationally accepted waste hierarchy i.e., avoid > reduce > re-use > treat/dispose and detail the roles and responsibilities for all employees, contractors and suppliers to accomplish the CEN's project environmental objectives.

  Status: A WMP is part of the updated EMP.

- The environmental acoustics assessment as part of the EIS addresses PS3 Clause 11 (i) and (iii) with baseline measurements; however, the measurements are not appropriate for the purpose of the study. Therefore, there is a need to perform additional monitoring and propose measures to revalidate or revise EIA assumptions.

  Status: A detailed noise impact study was developed, as well as an acoustic modelling, assuming two turbine operational designs being considered for the project. The report summarising this assessment is included in Annexure 2.

IFC PS 4

- A Health and Safety Plan should be developed for the Project which includes, and references affected communities and vulnerable groups.

  Status: An updated Health and Safety Plan is included on the updated EMP.

- The EIS assesses impacts on community's health, safety and security, such as increased dust and noise levels due to an increase in traffic, accident risk next to the construction site and deterioration of roads which will pose a safety risk to motorists. However, there is no consideration for the community's potential exposure to road accidents, mainly on the locals, who are not accustomed to heavy traffic (including abnormal extra-dimension loads) and construction activities of this nature.

  Status: An updated Health and Safety Plan (HSP) was developed which address in detail and include the development of a community health and safety plan (including a traffic management plan) by the construction/ contractor company to minimise accidents and incidents resulting from road works and construction activities during the construction phase. The updated HSP is included on the updated EMP.

- In accordance with GIIP, the design, construction, operation, and decommissioning of the structural elements or components of the project, should take into consideration safety risks to third parties or Affected Communities.

  Status: The updated EMP incorporated the risks associated with the design, construction, operation, and decommissioning of the structural elements or components of the project.

- A guideline for development of an ERP must be included under the ESMP. The ERP must be developed in collaboration with Affected Communities, local government agencies, and other relevant parties, in preparation to respond effectively to emergency situations, especially when their participation and collaboration are necessary to respond to such emergency situations.

Status: A guideline for development of an ERP is part of the updated EMP.

IFC PS 5

- A Compensation Framework Plan (CFP) must be prepared for the Project. A CFP will need to be developed for those households who will temporally lose their stand crops and will have no access to their field crops during the construction phase.

  Status: The project is currently developing a Resettlement Plan Resettlement Action Implementation Plan that is aligned with the Mozambiquan regulations and PS 5 requirements.

- A Stakeholder Engagement Plan (SEP) must be prepared for the Project. Recommendation is made for project's proponent conduct a stakeholder engagement meeting with the main affected partied of the project prior to any activities takes place.

  Status: CEN has developed a bespoke SEP that is being implemented by the project.

- A Resettlement Policy Framework must be prepared for the Project. A RPF needs to be developed, for those households affected by an increase of noise level, above the permissible level, during projects operation phase.

  Status: The project is currently developing a Physical Socioeconomic Survey Report under the Mozambiquan resettlement process. This takes the place of an RPF and will inform the future Resettlement Action Implementation Plan that will be prepared. The resettlement process will be fully aligned with both the Mozambiquan regulations and PS 5 requirements.

IFC PS 6

- In 2019, IWS conducted a specialist gap analysis of the bird and bat studies that were conducted for the EIA. A key issue identified by IWS (2019) was the presence of a large colony of *Miniopterus* bats (estimated at 14 000 to 16 000 individuals) roosting in an abandoned building, approximately 12 km to the south of the study area. It is noted that no additional bat data on this population/roost site data have been presented or are available for review for this gap analysis. Accordingly, no new information is available to determine the biodiversity importance of this population/roost site, assess potential impacts, and develop effective management options.

  Status: A bat monitoring study and respective report was undertaken by Arcus. This report is included in Annexure 2.

- It is noted that this general shortcoming in bird and bat baseline data remains relevant.

  Status: A year-long bat monitoring study was undertaken by Arcus. The report summarising the results of this monitoring is included in Annexure 2. Four seasons of bird monitoring was also conducted by Chris Van Rooyen Consulting. The report summarising this monitoring is also included in Annexure 2.

- A bat and bird monitoring plan were presented in Annexure 3 of the EIA. The plan sets out a recommended monitoring programme for the pre-construction, construction and operational phases of the Project. It is noted that the monitoring plan has not been updated to include the corrective actions that were recommended in the IWS (2019) gap analysis.

  Status: A year-long bat monitoring study was undertaken by Arcus. The report summarising the results of this monitoring is included in Annexure 8. Four seasons of bird monitoring was also

conducted by Chris Van Rooyen Consulting. The report summarising this monitoring is also included in Annexure 2.

- An additional concern raised by IWS (2019) is the general shortcoming of the bird and bat baseline studies, and that these do not meet the South African guideline requirements for the protection of birds and bat from wind energy farms.

  Status: A year-long bat monitoring study was undertaken by Arcus. The report summarising the results of this monitoring is included in Annexure 2. Four seasons of bird monitoring was also conducted by Chris Van Rooyen Consulting. The report summarising this monitoring is also included in Annexure 2.

- The main criticism of the bird study is the inadequate effort with regard to the time spent on the site, specifically with regard to the vantage point watches. The resultant conclusions are therefore not based on adequate baseline data to make confident conclusions.

  Status: Four seasons of bird monitoring was also conducted by Chris Van Rooyen Consulting. This included vantage point observations for 12 hours per vantage point, four times per year. The report summarising this monitoring is also included in Annexure 2.

- A Biodiversity Management Plan (BMP) for the Project was not available for review, and it is assumed such a plan has not yet been compiled.

  Status: Revised biodiversity measures have been included in the EMP. Additionally, CEN are commissioning a Biodiversity Action Plan (BAP) to align with the requirements of PS 6 for critical habitat.

- A Critical Habitats Assessment (CHA) was not undertaken for the Project. Land cover and vegetation units are not aligned, fully described or classified as natural and modified habitat.

  Status: A CHA was undertaken under the scope of this Addendum and is included in Annexure 2.

- A full ecosystem services review, including prioritisation of identified services, and impact assessment has not been conducted.

  Status: A detailed ecosystem services review was undertaken under the scope of this Addendum and is included in Annexure 2.

IFC PS 7

- Not applicable

IFC PS 8

- An adequate impact assessment on the tangible and intangible cultural heritage (and recommendation of suitable mitigation measures) has not been provided in the EIA. The EIA must assess whether the project will affect intangible aspects such as beliefs, rituals and ceremonies as there is a Church within the project area.

  Incorporated in this addendum: A detailed cultural heritage survey and assessment was undertaken under the scope of this Addendum and is included in Annexure 2. Note that the church in the DUAT is no longer in use.

1.0 INTRODUCTION

This report consists of an Addendum to the existing Environmental Impact Assessment (EIA, 2020) for the proposed Namaacha Wind Power Farm (NWPF), a Wind Energy Facility (WEF) of an approximate capacity of 120 MW (the "Project") to be installed in an area of 855.12 ha, located near the town of Namaacha, 50 km West of Maputo, Mozambique, and in close proximity to the border with South Africa and Eswatini (Swaziland).

The Project consists of the installation of 20 wind turbines, which will be distributed over an area of approximately 855.12 ha. with a total power generation capacity of 120 MW.

The Namaacha WEF has two possible operational designs, with two different turbine layouts, which include:

- A WEF comprising 21 Nordex N163 5.9 MW wind turbines with a 118 m hub height.
- A WEF comprising twenty Goldwind 165 6.0 MW wind turbines with a hub height of120 m.

The Project was developed grounded in the need to supply current energy deficits in the southern regions of Mozambique and SADC (Southern African Development Community) in order to meet growing national needs and export to the regional market, particularly within the framework of the African Electricity Market. The Project will also contribute towards the country's goals for the integration of renewables in energy production and decarbonisation of the economy.

Due to Mozambique's high wind energy potential, the Project falls within an area optimal for wind energy in the southern region of the country. According to Electricidade de Moçambique (EDM), there is no electricity generation centre in the region where the Project is located.

Matos, Fonseca & Associados, Moçambique Lda. was appointed by CEN, SA to undertake the local Environmental Impact Assessment (EIA) process on their behalf. The Project has been classified as a Category A project (under the Regulation on the Environmental Impact Assessment Process (Decree No. 54/2015)) which requires a full EIA to be executed. As part of the full EIA process, an EIS report is required which has been completed, submitted, and approved by the Ministry of Land and Environment (MTA) in March 2022 (Ref. No. 65/MTA/183/GM/220/22). Note that the approved EIA assessed a WEF of 63 MW in design. Since this time, the Project has been redesigned to include larger turbines, although the same number and location of turbines is planned. CEN engaged with MTA to determine if a revised EIA would be required given this design change. CEN was advised that the original approval could be amended without the need for a revised EIA, and that the only a letter notifying MTA of the change would need to be submitted.

WSP Africa (WSP), a wholly owned affiliate of WSP Global Inc., was appointed by Central Eléctrica da Namaacha (CEN), SA to conduct a gap analysis of the EIA against International Finance Corporation (IFC) Environmental and Social Performance Standards (2012), applicable World Bank Environmental Health and Safety (EHS) Guidelines, and Good International Industry Practice (GIIP), and to then close out these identified gaps.

This addendum compiles the required elements to close out the gaps identified by WSP. Note that this addendum is only required to meet lender requirements, and as such, previously approved EIA will stand to meet national requirements, following the advice received by MTA described above. This addendum is not a standalone assessment and should therefore be read in conjunction with the EIA prepared by Matos, Fonseca and Associados Ltd (November 2020, modified in 2022).

2.0 IDENTIFICATION OF THE PROPONENT AND CONSULTANT RESPONSIBLE FOR THE EIS AND ADDENDUM

2.1 Proponent

The proponent of the Project is Central Eléctrica da Namaacha, S. A. (CEN), a shareholder formed by Globeleq Africa Ltd (Globeleq) in partnership with Source Energia, and are currently developing the Namaacha Wind Power Farm Project

The project proponent contact details are listed below:

Table 1. Proponent details

Environmental Assessment Practitioner	
Company name	Central Eléctrica da Namaacha (CEN), SA
Contact Person	Pedro Coutinho
Address	JAT IV, Av. Zedequias Manganhela, 6 andar, Maputo – Moçambique
Telephone	+258 (21) 321806
Fax	+258 (21) 321806
E-mail	ppcoutinho@source.capital

2.2 Consultant

2.2.1 EIA Consultant

CEN appointed Matos, Fonseca & Associados, Moçambique, Estudos e Projectos, Lda.to undertake the Environmental Impact Assessment (EIA) required to support the proposed activities in 2020, which was modified in 2022.

The EIA consultant contact details are provided below.

Table 2: EIA Consultant details

Environmental Assessment Practitioner	
Company name	Matos, Fonseca & Associados, Moçambique, Estudos e Projectos, Lda
Contact Person	Margarida Fonseca
Address	Avenida Patrice Lumumba, 747, 1º, Porta 3, Maputo – Moçambique
Telephone	+258 (21) 493465
Mobile	+258 841612071
E-mail	mfonseca@mfassociados.pt

The team that developed the EIA in 2020 (further modified in 2022) is listed below:

Table 3: EIA Study Team

Team Member	Role/Responsibility
Redacted	Project Director and General Coordinator Waste and Effluent Management Environmental Management Air Quality Public Participation Process
Redacted	General Management and Coordination Ecology - Fauna Land and Resource Use Public Participation Process
Redacted	Support on Project Management Socio-Economic Waste Management
Redacted	Cultural Heritage
Redacted	Air Quality and Noise
Redacted	Stakeholder Engagement Public Participation Process
Redacted	Field Work Stakeholder Engagement Public Participation Process
Redacted	Surface Water and Groundwater Geology
Redacted	Climate Surface Water
Redacted	Socioeconomics Air Quality
Redacted	GIS Soils Land and Resources Use, and Landscape
Redacted	GIS Modelling
Redacted	Geology and Groundwater Soils Socioeconomics
Redacted	Ecology - Mammal fauna
Redacted	Ecology – Flora and Vegetation
Redacted	Ecology - Avifauna
Redacted	Ecology - Avifauna

Team Member	Role/Responsibility
Redacted	Ecology – Field Assistant
Redacted	Ecology - Chiroptera
Redacted	Ecology - Herpetofauna
Redacted	Ecology – Thematic Cartography

2.2.2 ESIA Addendum Consultant

CEN appointed WSP Golder as an independent Environmental Assessment Practitioner (EAP) to undertake a Gap Analysis on the existing Environmental Impact Assessment (EIA) and the required specialist studies prepared by Matos, Fonseca & Associados, Moçambique, Estudos e Projectos, Lda in 2020 (modofied in 2022). Based on the Gap Analysis, additional specialist studies were undertaken to support the ESIA Addendum in alignment with the IFC Performance Standards (PS).

WSP Golder is a member of the world-wide WSP group of companies, offering a variety of specialized engineering and environmental services.

The team that developed the content for this ESIA Addendum is listed below:

Table 4: EIA Addendum Team

Team Member	Role/Responsibility	Organization
Redacted	Project Director and Senior Reviewer	WSP Group Africa (Pty) Ltd
Redacted	Project Manager and Environmental Specialist	WSP Group Africa (Pty) Ltd
Redacted	Environmental Specialist	WSP Golder (Mozambique)
Redacted	Environmental Specialist	WSP Golder (Mozambique)
Redacted	Socioeconomics Specialist	WSP Group Africa (Pty) Ltd
Redacted	Biodiversity Specialist	WSP Group Africa (Pty) Ltd
Redacted	Cultural Heritage Specialist	WSP UK
Redacted	Cultural Heritage Specialist	Independent Consultant
Redacted	Noise Specialist	WSP Group Africa (Pty) Ltd
Redacted	Bat Specialist	Arcus Consulting
Redacted	Bird Specialist	Chris Van Rooyen Consulting
Redacted	Bird Specialist	Chris Van Rooyen Consulting

2.3 EIA Period

The EIA commenced in May 2017 and was completed in November 2020 (modified in January 2022). The Project was initially technically developed between April 2017 and October 2019.

The gap analysis on the EIA was undertaken by WSP Golder in October 2022 and the required specialist studies and ESIA Addendum report writing were carried out from January to September 2023.

3.0 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

Refer to section 3.0 of the EIA (2022).

4.0 GENERAL ASPECTS OF THE EIA METHODOLOGY

4.1 Framework

Refer to section 4.0 of the EIA (2022).

4.2 Definition of Study Area

Refer to section 4.0 of the EIA (2022).

4.3 Structure of EIA

Refer to section 4.0 of the EIA (2022).

4.4 Terms of Reference

Refer to section 4.0 of the EIA (2022).

4.4.1 Project Activities

Refer to section 4.0 of the EIA (2022).

4.4.2 Objectives and Specialist Studies

Refer to section 4.0 of the EIA (2022).

5.0 NEED AND DESIRABILITY

5.1 Regional context

Refer to section 5.0 of the EIA (2022).

5.2 Project objective

Refer to section 5.0 of the EIA (2022).

5.3 Contribution to GHG reduction

Refer to section 5.0 of the EIA (2022).

5.4 Summary of the environmental advantages

Refer to section 5.0 of the EIA (2022).

6.0 PROJECT DESCRIPTION

6.1 Location

The proposed Namaacha Wind Energy Farm (WEF) is located in southern Mozambique, close to the South Africa and Swaziland borders, in the Libombos mountains, Namaacha district, 50 km west of Maputo province, in Mozambique. The site covers an area of approximately 857 ha. The site encompasses natural vegetation with a few isolated homesteads comprising of between one and five houses. Within 2 km of the proposed boundary there is also some agricultural areas and villages.

Maputo province is the most southern of Mozambique's provinces. It is bordered to the North by the Gaza province, the Indian Ocean and the city of Maputo to the East, the South African province of KwaZulu-Natal to the South, and Swaziland and Mpumalanga province of South Africa to the West.

The district of Namaacha, which is located in the Centre Interior part of Maputo Province, is bordered to the North by the district of Moamba, to the West with South Africa and Swaziland, to the South and South-East with the district of Matutuíne and to the East with the district of Boane. The district headquarters is in the village of Namaacha. The Project area is outside the Namaacha municipality area

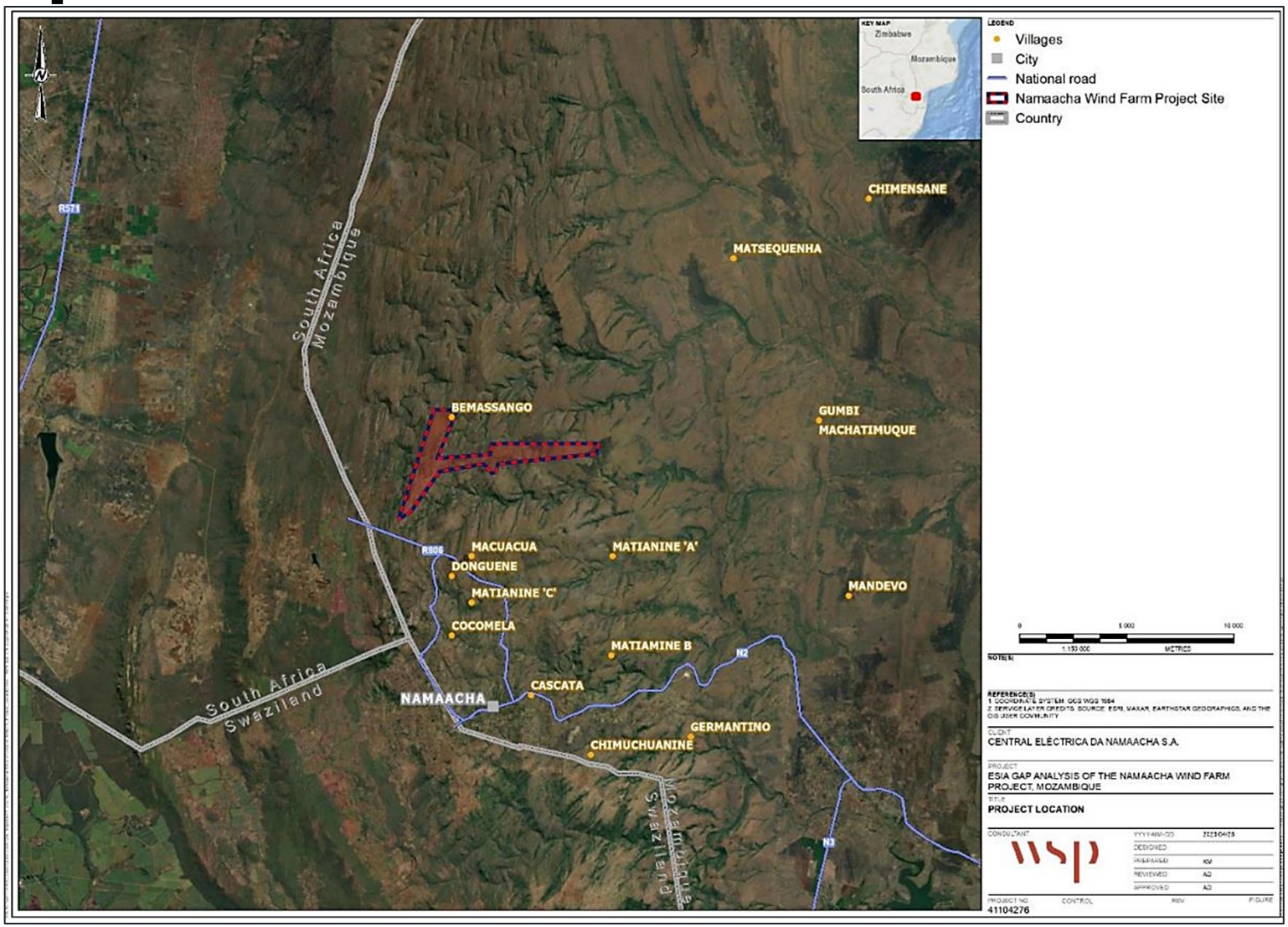

Figure 1: Locality map

6.2 Description of the Activity

The WEF consists of the installation of wind turbines, which will be distributed over an area of approximately 855.12 ha. with a total power generation capacity of 120 MW. The facility is expected to produce approximately 340 GWh per year.

WEF has two possible operational designs, with two different turbine layouts, which include:

- A WEF comprising 21 Nordex N163 5.9 MW wind turbines with a 118 m hub height.
- A WEF comprising twenty Goldwind 165 6.0 MW wind turbines with a hub height of 120 m.

The proposed project components include the following:

- Wind turbines (height of approximately 120m from the base to the hub, with a rotor diameter of approximately 150 m) and concrete foundations;
- Substation (consisting of a panel with 275 kV equipment and a transformer within a fenced-off area);
- Internal power cable network (underground 30 kV cables connecting each wind turbine to the substation);
- Control building (with office, warehouse, and ablutions);
- Access roads; and
- Associated infrastructure (including overhead transmission line connecting the facility to the national grid).

6.2.1 General layout

The main components of a modern utility-scale wind turbine are illustrated in Figure 2. When the wind blows around the blades, the shape of the blades creates aerodynamic lift and drag. These forces are used to generate torque, which causes the blades to spin the rotor on its axis, creating mechanical power that is converted into electricity in a generator housed in the nacelle (Council of Canadian Academics, 2015).

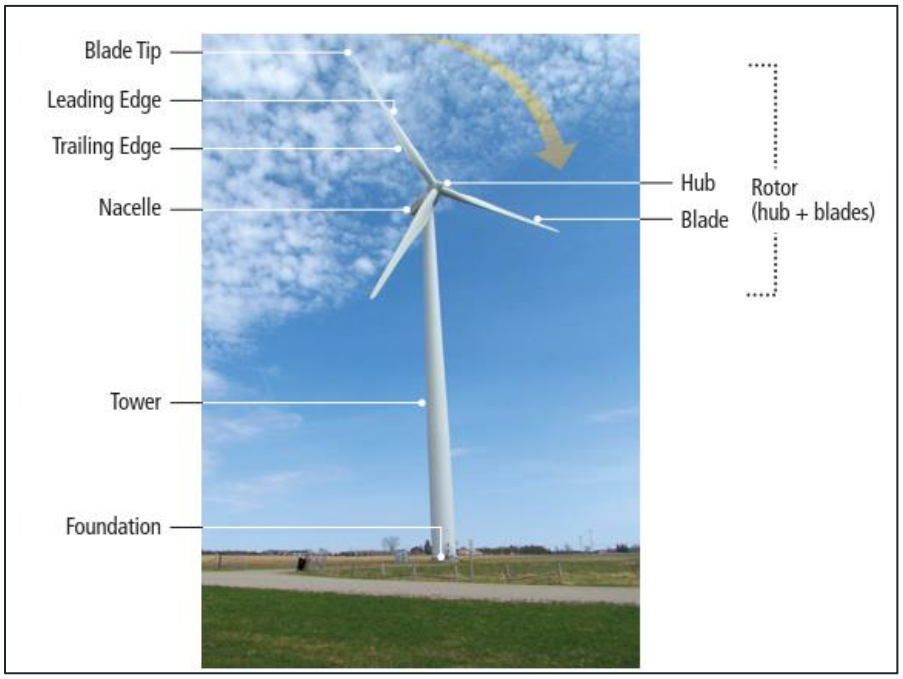

Figure 2. Components of a typical wind turbine (Council of Canadian Academics, 2015)

The electricity generated by the wind turbines is passed through a step-up transformer and then transmitted via either underground or overhead cables to a central substation, which connects the wind energy facility to a high voltage network. Wind turbines are designed to operate automatically with minimal maintenance for approximately 20-25 years.

6.2.2 General characteristics of wind turbines

The details of the Namaacha WEF operational designs, are outlined in Table 5. The wind turbine coordinates and foundation heights for the operational design using the Nordex N163 turbines and the Goldwind 163 turbines, are presented in Table 6 and Table 7, respectively. A map indicating the locations of the wind turbines for both operational designs is presented in Figure 3.

Table 5: Summary of the Namaacha WEF turbines

Turbine Make and Model	Nordex N163	Goldwind 165
Extent	857 ha	857 ha
Capacity	Up to 123.9 MW (5.9 MW per turbine)	Up to 120 MW (6 MW per turbine)
Number of Turbines	21	20
Turbine Hub Height	118 m	120 m
Rotor Diameter	163 m	165 m
Sound Power Level (at 10 m/s)	109.2 dB(A)	111.6 dB(A)

Table 6: Siting of the Nordex N163 wind turbines

Nordex N163 Wind Turbines					
ID	**Latitude [decimal degree][a]**	**Longitude [decimal degree][a]**	**Easting [m][b]**	**Northing [m][b]**	**Base elevation [m][c]**
WP1	-25.89691	31.98114	397942.19	7135335.97	483.11
WP2	-25.89143	31.98420	398244.02	7135945.27	475.67
WP3	-25.88592	31.98720	398540.25	7136558.18	496.64
WP4	-25.88231	31.99126	398943.62	7136961.12	522.33
WP5	-25.87880	31.99691	399507.41	7137354.43	475.80
WP6	-25.87760	32.00211	400027.48	7137491.41	463.13
WP7	-25.87686	32.00728	400544.74	7137577.41	468.66
WP8	-25.87641	32.01249	401066.17	7137630.96	452.24
WP9	-25.87567	32.01761	401578.84	7137716.55	396.32
WP10	-25.87477	32.02270	402087.87	7137820.47	478.55
WP11	-25.87491	32.02806	402624.31	7137808.95	514.62
WP12	-25.87438	32.03324	403143.68	7137870.71	490.66
WP13	-25.87384	32.03849	403668.55	7137934.71	509.18
WP14	-25.87340	32.04370	404190.30	7137987.25	501.67
WP15	-25.87306	32.04890	404711.04	7138028.47	445.19
WP16	-25.87238	32.05399	405221.08	7138107.47	480.08
WP17	-25.87143	32.05904	405725.71	7138216.31	417.68
WP21	-25.87159	31.98921	398729.90	7138146.71	399.77
WP22	-25.86613	31.99196	398999.99	7138753.64	481.00
WP23	-25.85975	31.99400	399199.38	7139462.36	467.97
WP24	-25.85791	31.99871	399669.30	7139669.08	371.84

Notes:

.1 World Geodetic System (WGS84) Ellipsoid, Unprojected Lat/Long.
.2 WGS84 Ellipsoid, Universal Transverse Mercator (UTM) Projection System, Zone 36S.
3 Height of the base of the turbine above mean sea level; i.e. this is ground level and does not incorporate the height of the turbine.

Table 7: Siting of the Goldwind 165 wind turbines

Nordex N163 Wind Turbines					
ID	**Latitude [decimal degree][a]**	**Longitude [decimal degree][a]**	**Easting [m][b]**	**Northing [m][b]**	**Base elevation [m][c]**
WP1	-25.89691	31.98114	397942.19	7135335.97	483.11
WP2	-25.89143	31.98420	398244.02	7135945.27	475.67
WP3	-25.88592	31.98720	398540.25	7136558.18	496.64
WP4	-25.88231	31.99126	398943.62	7136961.12	522.33
WP5	-25.87880	31.99691	399507.41	7137354.43	475.80
WP6	-25.87760	32.00211	400027.48	7137491.41	463.13
WP7	-25.87686	32.00728	400544.74	7137577.41	468.66
WP8	-25.87641	32.01249	401066.17	7137630.96	452.24

Nordex N163 Wind Turbines					
ID	**Latitude [decimal degree][a]**	**Longitude [decimal degree][a]**	**Easting [m][b]**	**Northing [m][b]**	**Base elevation [m][c]**
WP9	-25.87567	32.01761	401578.84	7137716.55	396.32
WP10	-25.87477	32.02270	402087.87	7137820.47	478.55
WP11	-25.87491	32.02806	402624.31	7137808.95	514.62
WP12	-25.87438	32.03324	403143.68	7137870.71	490.66
WP13	-25.87384	32.03849	403668.55	7137934.71	509.18
WP14	-25.87340	32.04370	404190.30	7137987.25	501.67
WP15	-25.87306	32.04890	404711.04	7138028.47	445.19
WP16	-25.87238	32.05399	405221.08	7138107.47	480.08
WP17	-25.87143	32.05904	405725.71	7138216.31	417.68
WP21	-25.86934	31.99006	398812.75	7138396.77	434.81
WP22	-25.86406	31.99318	399120.58	7138983.61	485.11
WP23	-25.86001	31.99700	399500.12	7139435.75	444.95

Notes:

(a) World Geodetic System (WGS84) Ellipsoid, Unprojected Lat/Long.
(b) WGS84 Ellipsoid, Universal Transverse Mercator (UTM) Projection System, Zone 36S.
(c) Height of the base of the turbine above mean sea level; i.e. this is ground level and does not incorporate the height of the turbine.

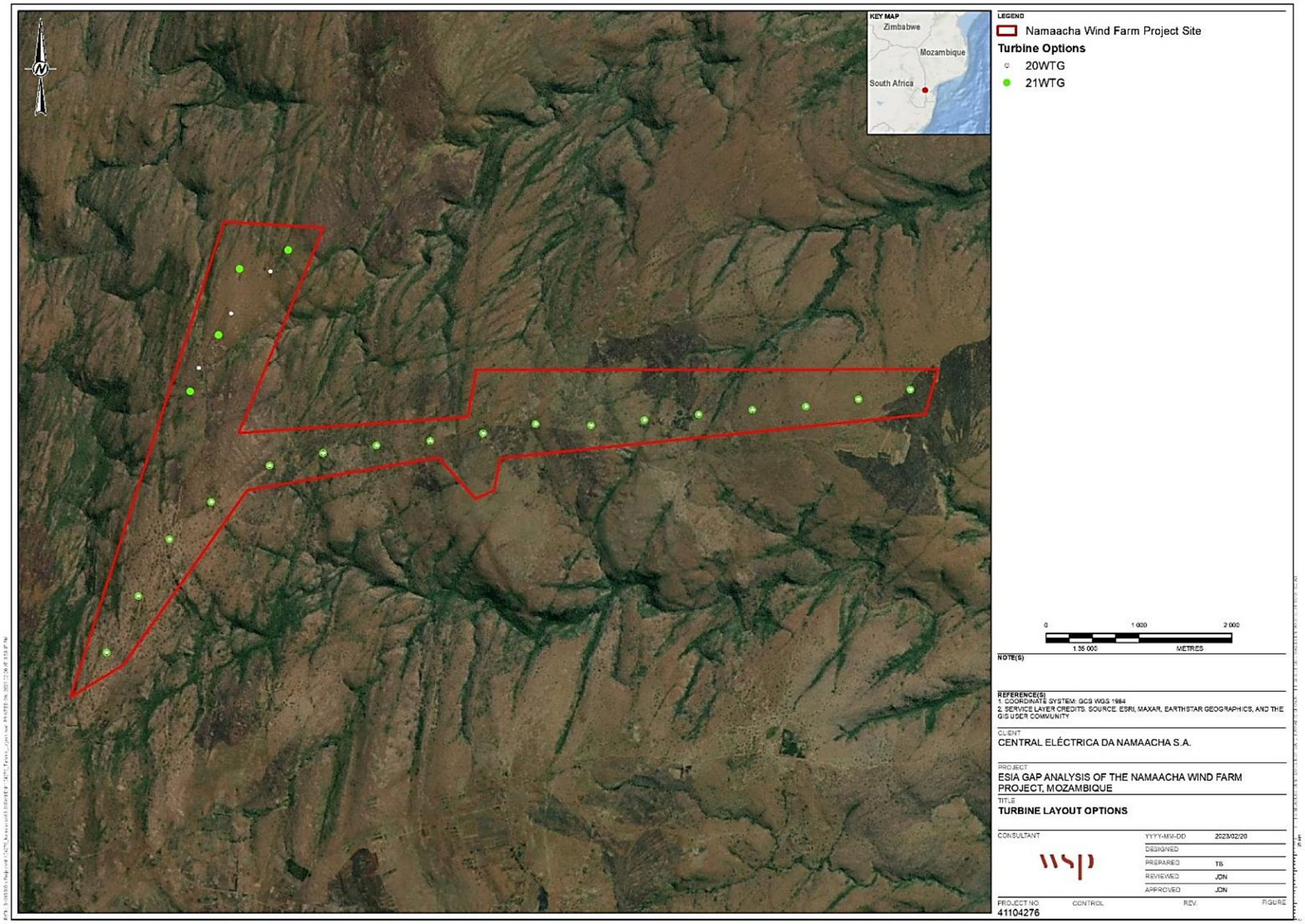

Figure 3: Turbine layouts

6.2.3 Platform for assembling wind turbine

Refer to section 6.2.3 of the EIA (2022).

6.2.4 Internal electricity grid

Refer to section 6.0 of the EIA (2022).

6.2.5 Access route

Refer to section 6.2.5 of the EIA (2022).

6.2.6 Substation

Refer to section 6.2.6 of the EIA (2022).

6.2.7 Earthworks

Refer to section 6.2.7 of the EIA (2022).

6.3 Project schedule

The construction phase is expected to start in the first or second quarter of 2024 (depending on Financial Close) and it will last for 15 months.

The expected operational phase (lifetime) of the WEF is 25 years.

6.4 Investment

Refer to section 6.0 of the EIA (2022).

6.5 Construction Phase

6.5.1 Introduction

Refer to section 6.5.1 of the EIA (2022).

6.5.2 Laydown area and camp

Refer to section 6.5.2 of the EIA (2022).

The workforce for construction will be housed within existing accommodations in the Namaacha community. No purpose built construction camp will be constructed to support the project.

6.5.3 Civil engineering works

Refer to section 6.5.3 of the EIA (2022).

6.5.4 Assembly of wind turbines

Refer to section 6.5.4 of the EIA (2022).

6.5.5 Construction of the substation

Refer to section 6.5.5 of the EIA (2022).

6.5.6 Effluents, wastes and emissions

Refer to section 6.5.6 of the EIA (2022).

6.5.7 Rehabilitation

Refer to section 6.5.7 of the EIA (2022).

6.5.8 Employment

The estimated labour force for the project is 400 during construction, for both skilled and unskilled jobs, which will be hired by a number of different Contractors (civil construction, electromechanics, transport, assembly). During operations, the employment for the WEF is expected to be approximately 20 people.

The Project will encourage employment of women; however, it is recognised that attaining enough qualified women in these positions may be a challenge given the labour market in Mozambique. For this reason, a target of 20% female employment will be implemented.

6.5.9 Materials

Refer to section 6.0 of the EIA (2022).

6.6 Operational Phase

6.6.1 Introduction

Refer to section 6.6.1 of the EIA (2022).

6.6.2 Automatic command system

Refer to section 6.6.2 of the EIA (2022).

6.6.3 Accesses

Refer to section 6.6.3 of the EIA (2022).

6.6.4 Effluents, waste and emissions

Refer to section 6.6.4 of the EIA (2022).

6.6.5 Employment

Refer to section 6.6.5 of the EIA (2022).

6.6.6 Materials

Refer to section 6.6.6 of the EIA (2022).

6.7 Decommissioning Phase

Refer to section 6.7 of the EIA (2022).

6.8 Alternatives

Refer to section 6.8 of the EIA (2022).

7.0 RECEIVING ENVIRONMENT

7.1 Methodology

Refer to section 7.1 of the EIA (2022).

7.2 Climate

Refer to section 7.2 of the EIA (2022).

7.3 Climate Change

Refer to section 7.3 of the EIA (2022).

7.4 Geology, Geomorphology and Hydrogeology

Refer to section 7.4 of the EIA (2022).

7.5 Surface Water Resources

Refer to section 7.5 of the EIA (2022).

7.6 Soil and Use Capacity

Refer to section 7.6 of the EIA (2022).

7.7 Land Use

Refer to section 7.7 of the EIA (2022).

7.8 Ecology

7.8.1 Methodology

Refer to section 7.8 of the EIA (2022). Two additional ecological baseline monitoring campaigns for birds and bats were also carried out to supplement the ecological data presented in the 2022 EIA.

A pre-construction bird monitoring campaign was undertaken from 2022 to 2023 to better characterise the baseline conditions with respects to birds near the site. The fieldwork consisted of four seasonal surveys conducted over a period of 8 months and include transects (both driven and walked), vantage point observations and incidental observations. Details on this monitoring are included in the *Bird Monitoring Report* prepared by Chris Van Rooyen Consulting that is included in Annexure 2.

A pre-construction bat monitoring campaign was undertaken to monitor bat activity across the area of interest encompassed by the proposed wind farm as well as the broader study area, where relevant for potential roosting bats for a period of 12 months. Details on this monitoring are included in the *Bat Pre-Construction Monitoring Report* prepared by Arcus Consulting that is included in Annexure 2.

7.8.2 Protected and sensitive areas

Refer to section 7.8.2 of the EIA (2022).

A Critical Habitats Assessment was also carried out by WSP to evaluate if there would be any habitats affected by the Project that would be considered critical habitat as defined by IFC's Performance Standard 6. This assessment is included in Annexure 2.

The Project is situated entirely within the Goba Conservancy, which is part of the Lebombo Transfrontier Conservation Area (TFCA). While indicated on TFCA maps as a protected area, it is not statutorily designated as a protected area in Mozambique. It is instead a focus area for community conservation areas (allowed land uses include concessions for tourist activities, and sustainable use of natural resources - depending on a management plan). which will be given effect by recently adapted legislation on the protection, conservation and sustainable use of biodiversity.

7.8.3 Flora and vegetation

Refer to section 7.8.3 of the EIA (2022).

7.8.4 Fauna

7.8.4.1 Freshwater fish

Refer to section 7.8.4.1 of the EIA (2022).

7.8.4.2 Amphibians

Refer to section 7.8.4.2 of the EIA (2022).

7.8.4.3 Reptiles

Refer to section 7.8.4.3 of the EIA (2022).

7.8.4.4 Birds

Refer to section 7.8.4.4 of the EIA (2022) for the results of the original monitoring campaign.

Details on the sensitive bird species observed in supplemental monitoring campaign conducted in 2022 and 2023 are included in the *Bird Monitoring Report* prepared by Chris Van Rooyen Consulting that is included in Annexure 2.

7.8.4.5 Mammals

Refer to section 7.8.4.5 of the EIA (2022).

7.8.4.6 Bats

Refer to section 7.8.4.6 of the EIA (2022) for the results of the original monitoring campaign.

Details on the sensitive bat species observed in supplement monitoring campaign conducted in 2022 and 2023 are included in the *Bat Pre-Construction Monitoring Report* prepared by Arcus Consulting that is included in Annexure 2.

7.8.5 Conflicts with Wildlife

Refer to section 7.8.5 of the EIA (2022).

7.8.6 Ecosystem Services

Refer to section 7.8.6 of the EIA (2022). For a prioritisation of the identified ecosystem services, see the Ecosystem Services Assessment included in Annexure 2.

7.8.7 Critical Habitats

Refer to Annexure 2 for a comprehensive assessment of Critical Habitats within the Area of Influence.

7.9 Air Quality

Refer to section 7.9 of the EIA (2022)

7.10 Waste Management

Refer to section 7.10 of the EIA (2022).

7.11 Noise

WSP conducted a revised noise assessment of the Project's area of influence. As part of the revised assessment, the noise sensitive receptors from the 2022 EIA were supplemented by conducting a review of satellite imagery to identify any potential additional structures that may have been constructed since the original assessment that would indicate the presence of additional people living in the area not previously assessed. A reconnaissance survey of these structures was then carried out in July 2023 to verify habitation. Details on the current verified noise sensitive receptors are provided in the *Environmental Acoustic Specialist Study* included in Annexure 2.

7.12 Archaeological and Cultural Heritage

WSP conducted a revised cultural heritage field survey for the Project's area of influence in 2023.This included a site walk-over to identify potential tangible cultural heritage, as well as consultation with local communities to inform potential intangible cultural heritage. Details on the baseline conditions related to cultural heritage are provided in the *Cultural Heritage Specialist Study* included in Annexure 2.

7.13 Demography, Settlement, Society, Health and Economy

Refer to section 7.13 of the EIA (2022).

7.14 Landscape

Refer to section 7.14 of the EIA (2022).

8.0 BASELINE STATUS WITHOUT PROJECT IMPLEMENTATION

Refer to section 8.0 of the EIA (2022).

9.0 IDENTIFICATION AND EVALUATION OF ENVIRONMENTAL IMPACTS

9.1 Methodology and Criteria for Analysis and Evaluation of Impacts

9.1.1 Methodology

The impact assessment was compiled with reference to the baseline environment, summarised in Section 7.0. The baseline considered resources within an Area of Direct Influence (ADI) aligned with the core baseline study area and an Area of Indirect Influence (AII) aligned with the wider study area. The ADI is defined as the geographic area where the effects of the direct physical impacts of the project materialise. Direct impacts are associated with vegetation and clearance and any groundworks, i.e., associated with underground cables, access routes, wind turbine foundations and associated facilities. The AII is defined as the surrounding area where indirect impacts will occur, resulting from the direct impacts within the ADI. Indirect impacts are associated with changes to the environmental setting, such as from visual disturbance, increase in traffic-related noise or dust, from the movement of people, machinery and equipment. Secondary impacts include demographic changes resulting from Project-driven influx and people seeking employment opportunities and indirect benefits.

This assessment was carried out for the construction, operational and decommissioning phases of the proposed Project. The key definitions used in the assessment methodology are provided below in Table 8, Table 9, Table 10 and Table 11, with further detail available in the MFA EIA. The same assessment methodology was used in the approved national EIA (MFA, 2022) as well as the revised specialist assessments carried out by WSP for this addendum.

Table 8: Description of impact

Descriptor	Scale	Explanation
Nature of Impact	Positive	Impact that represents an improvement of the baseline situation or introduces a positive change.
	Negative	Impact that represents an adverse change from the baseline situation or introduces an undesirable factor.
	Direct	Impact arising directly from activities that are an integral part of the project (e.g., new infrastructure).
	Indirect	Impact that arises indirectly from activities that are not an integral part of the project (e.g., noise due to the movement of vehicles and machinery).
	Secondary	Secondary or change-induced impact due to the Project (e.g. employment opportunities due to material and labour requirements).

Descriptor	Scale	Explanation
Scope	Site	The impact will be limited to the Project site.
	Local	The impact will be limited to the local area.
	Regional	The impact will be limited to the region.
	National	The impact will be national.
	International	The impact will be international.
Duration	Temporary	The impact is expected to be very short-lived (days) and/or intermittent/occasional.
	Medium-term	The impact is expected to be short term (0-5 years).
	Long-term	The impact will prevail over the life of the project. It will disappear when the project ends operations, i.e., deactivated (normally >15 years)
	Permanent	Impact that causes a permanent and irreversible change in the affected recipient or resource.
Probability	Unlikely impact	Not likely to happen.
	Likely	There is a possibility that the impact will occur.
	Very likely	It is very possible that the impact will happen.
	Certain	The impact will occur regardless of any preventative measures.
Reversibility	Immediate	The impact is immediately reversible.
	Reversible	The impact is reversible within 2 years after the cause of the impact is removed.
	Irreversible	The activity will lead to an impact that in all practical terms will be permanent.

Table 9: Magnitude of impact and vulnerability of the receiving environment

Descriptor	Definition	Scale	Explanation
Impact Magnitude	Describes the expected intensity of change to the resource/receiver as a result of the impact	Negligible impact	Impact is minimal and will have no effect on the receiving environment.
		Reduced	The impact is reduced and will result in the processes

Descriptor	Definition	Scale	Explanation
			continuing in an altered form. Reduced environmental changes. No involuntary resettlement. Good information and high awareness of potential environmental factors influencing impact. High degree of confidence.
		Moderate	The impact is moderate, and processes will be significantly changed and may be temporarily halted. Moderate environmental changes. Involuntary resettlement and limited economic displacement. Reasonable amount of information and relatively good perception of potential environmental factors influencing impact. Reasonable degree of confidence.
		High	The impact is high and results in the complete destruction of patterns and permanent interruption of processes. Destruction of rare or endangered species. Devaluation of the character or quality of important historical, archaeological, architectural or aesthetic resources or the character of a community. Negative effects on vulnerable or disadvantaged communities. Involuntary resettlement and substantial economic displacement. Limited information and limited insight into potential environmental factors influencing impact. Low degree of confidence.
Sensitivity	The importance of the environmental attribute in question, the distribution of change in time and space. The	Low	Disturbance of degraded areas, with little conservation value or unimportant as a resource for humans. Affected species are not listed or protected. The importance of an environmental

Descriptor	Definition	Scale	Explanation
	magnitude of the change and the feasibility in which that change was predicted or measured		resource or attribute is based on knowledge, technical or scientific or appreciation of the characteristics of critical resources.
		Medium / Average	Disturbance of areas with conservation value at the local or regional level or with potential use for humans. Audience segments recognize the importance of an environmental feature or attribute. Public recognition can take the form of support, conflict or opposition. Public action can be expressed formally or informally. The environment is susceptible to change.
		High	Disturbance of areas with regional or national conservation value and important human resource. The importance of an environmental feature or attribute is recognized by law, plans or policy statements from government agencies or private groups. The environmental resource affected is significant. The environment is sensitive to change.

Table 10: Impact significance matrix

Significance		Sensitivity		
Magnitude		**Low**	**Medium**	**High**
	Negative impacts			
	Insignificant	Insignificant	Negligible	Negligible
	Reduced	Negligible	Reduced	Moderate
	Moderate	Reduced	Moderate	High
	High	Moderate	High	High
	Positive impacts			

	Reduced	Negligible	Reduced	Moderate
	Moderate	Reduced	Moderate	High
	High	Moderate	High	High

Table 11: Description of the degrees of significance of impacts

Impact Rating	Description
Negative impacts	
Insignificant	The receiving environment will not be affected by the activity. Impacts do not require further assessment.
Negligible	The effect of an activity on the receptive environment is not significant enough to be observed. Impacts do not need to be minimized and are not a concern in decision-making processes.
Reduced	Detectable changes in the baseline situation are expected, in addition to natural variations, but difficulties, degradation or damage to the function and value of the resource/receptor are not expected. The significance of impacts is within the applicable parameters.
Moderate	Moderate significance indicates that an impact may reach the threshold of legal limits. Substantial impacts that could result in lasting changes to the baseline are anticipated. These impacts are a priority in minimizing, in order to prevent or reduce the significance of the impact.
High	A high degree of significance means that legal limits or standards have been exceeded or impacts of high magnitude have occurred in highly sensitive environments or affected people. Residual impacts with high significance can be considered a fatal project failure. High residual impacts must be further avoided or minimized, in order to avoid severe impacts on the receiving environment.
Positive impacts	
Reduced	Impacts of reduced significance are noticeable, but do not permanently and radically improve the receiving environment, or benefit those affected. There is compliance with all standards and legislation.
Moderate	Positive impacts are felt and results in measurable improvements relative to baseline. There is compliance with all standards and legislation.
High	Impacts of high significance that provide substantial benefits where large improvements are felt over an extended period of time. There is compliance with all standards and legislation.

9.1.2 Activities potentially generating impacts

The activities potentially generating an environmental or social impact that have been assessed are discussed in section 9.1.2 of the 2022 EIA.

As a summary, the activities identified in each of the phases are the following:

- Project Construction:
  - Installation of laydown area
  - Land clearance and preparation of the area
  - Construction of accesses
  - Opening and closing trenches for installing electrical cables between wind turbines and the substation
  - Assembly of the various electrical equipment of the WEF
  - Execution of platforms for assembling wind turbines
  - Concreting of foundation blocks for wind turbine towers
  - Transport and assembly of wind turbines (tower, cabin and blades)
  - Construction of the command building/substation
  - Movement of people, machines and vehicles assigned to the works
  - Transportation of different materials for construction
  - Restoration/landscape integration of the intervened areas
- Project Operation
  - Operation of the WEF, with electricity production
  - Maintenance and repair of equipment (including substation) and accesses.
- Decommissioning of the Project
  - Dismantling of the WEF
  - Transportation of equipment and materials
  - Landscape restoration

9.2 Criteria for Quantification of Areas Directly Affected

See section 9.2 of the 2022 EIA.

9.3 Climate and Climate Change

See section 9.3 of the 2022 EIA.

9.4 Geomorphology, Geology and Hydrogeology

See section 9.4 of the 2022 EIA.

9.5 Surface Water Resources

See section 9.5 of the 2022 EIA.

9.6 Soil and Use Capacity

See section 9.6 of the 2022 EIA.

9.7 Land Use

See section 9.7 of the 2022 EIA.

A Protected Area (PA) was identified during the updated CHA by WSP namely the Lebombo Transfrontier Conservation Area - Goba Conservancy. Therefore, impacts to the PA from a landscape/visual perspective have been captured here.

9.8 Ecology

9.8.1 Construction phase

9.8.1.1 Flora and vegetation

See section 9.8.1.1 of the 2022 EIA. See Tables 9.33 – 9.38 for details of assessment and mitigation measures.

9.8.1.2 Fauna (excluding Birds and Bats)

This section replaces section 9.8.1.2 and Tables 9.39, 9.40, 9.42, 9.43, 9.44 and 9.45 from the 2022 EIA.

The expected impacts on fauna resulting from the execution of this project will mainly result from activities that cause loss of habitat and increase in disturbance. The two tables below summarise the expected impacts and proposed mitigations.

Table 12: Removal of vegetation cover

Ecology - Fauna			
The removal of vegetation cover is planned in the areas where the wind turbine platform, cable trenches and accesses are to be placed. However, it is expected that the fauna species will find similar habitats in adjacent areas.			
Project Phase	Construction		
Nature of Impact	Direct; Negative		
Scope	Local		
Probability	Certain		
Duration	Short term		
Reversibility	Reversible		
	Impact before mitigation	**Mitigation measures**	**Residual impact**

Ecology - Fauna			
Magnitude	Moderate	1. Carry out landscape restoration as soon as practical after the end of construction activities on the land that has been affected by the works (e.g. construction laydown areas). Only native species should be used for restoration.	Insignificant
Sensitivity	Low		Low
Classification of Significance	Reduced		Insignificant

Table 13: Installation of the laydown area and the temporary deposit of soils and materials

Ecology - Fauna			
Temporary destruction of habitat for the fauna from the installation of the laydown area and the temporary deposit of soils and materials			
Project Phase	Construction		
Nature of Impact	Direct; Negative		
Scope	Local		
Probability	Certain		
Duration	Short term		
Reversibility	Reversible		
	Impact before mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Reduced	No mitigation proposed.	Reduced
Sensitivity	Low		Low
Classification of Significance	Negligible		Negligible

9.8.1.3 Bats

This section the discussion of bats with section 9.8.1.2 and specifically Tables 9.41 from the 2022 EIA.

Wind farms have the potential indirectly impact bats through the modification of habitats, which includes roost destruction, roost disturbance, and potential displacement from foraging areas and/or commuting routes.

Direct impacts pose the greatest risk to bats and, in the context of the project, habitat modification impacts should be present, although is not anticipated to pose a significant risk because the project footprint is considered to be small with an abundant availability of suitable/undisturbed natural habitat within the broader region. No confirmed roosting sites have been located within the project boundaries, besides a large roost located approximately 10.2 km south of the site, occupied by a bat species (*Miniopterus natalensis*) that does not appear to significantly use the study area, according to monitoring data obtained to date.

The potential impacts on bats during the construction phase relate to two pathways: disturbance (i.e. physical presence and emissions) and habitat modification. Both are assessed in the tables below.

Table 14: Disturbance/ displacement of bat species during the construction phase

Ecology - Bats			
Disturbance/displacement effects as a result of construction activities (noise, dust, movement, etc.)			
Project Phase	Construction		
Nature of Impact	Indirect; Negative		
Scope	Local		
Probability	Very Likely		
Duration	Medium-term		
Reversibility	Immediate		
	Impact before mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	1. Limit construction activities to daylight hours. 2. Limit construction activities in areas that are listed as High sensitivity. 3. Lighting at the Project site should be kept to a minimum during all phases, and appropriate types of	Reduced

Ecology - Bats			
Sensitivity	Medium	lighting are to be used to avoid attracting insects, and hence, bats. This includes downward facing low-pressure sodium and warm white LED lights. 4. If using explosives, pre-cutting techniques and the use of micro-retarders should be used, thus attenuating the intensity of the vibrations produced. 5. Prior to construction, a suitably qualified bat specialist should revisit the site to identify any potential new roosts, so these can be documented and monitored during the construction and operational phases of the Project - with appropriate management/mitigation measures implemented, where required.	Medium
Classification of Significance	Moderate		Reduced

Table 15: Habitat modification/destruction during the construction phase.

Ecology - Bats			
Habitat modification/destruction as a result of the removal of natural vegetation and/or suitable roosting habitat when constructing the Project infrastructure.			
Project Phase	Construction		
Nature of Impact	Indirect; Negative		
Scope	Local		
Probability	Very Likely		
Duration	Medium-term		
Reversibility	Immediate		
	Impact before mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	1. The removal of natural vegetation and man-made buildings, for the purpose of constructing project infrastructure, should be avoided in	Reduced

Ecology - Bats			
Sensitivity	Medium	all high sensitive areas, as far as possible, and reduced across the Project site in all other areas. 2. Avoid land clearance activities within 500 m of rivers and 200 m of drainage lines. 3. Avoid creation of new linear edges of forested areas from site clearance activities that could create a new pathway for bat foraging.	Medium
Classification of Significance	Moderate		Reduced

9.8.1.4 Birds

As provided in the Bird Monitoring Report included in Annexure 2, a number of priority bird species (i.e. IUCN classification Least Concern (LC) – Endangered (EN)) were recorded within the Project area during the supplemental four seasons of monitoring conducted in 2022 and 2023. These birds were as follows:

- Bateleur (*Terathopius ecaudatus*) - EN
- Martial Eagle (*Polemaetus bellicosus*) - EN
- Crowned Eagle (*Stephanoaetus coronatus*) - NT
- African Harrier-Hawk (*Polyboroides typus*) - LC
- African Hawk-Eagle (*Aquila spilogaster*) - LC
- Black Stork (*Ciconia nigra*) - LC
- Black-bellied Bustard (Korhaan) (*Lissotis melanogaster*) - LC
- Black-chested Snake Eagle (*Circaetus pectoralis*) - LC
- Black-winged Kite (*Elanus caeruleus*) - LC
- Brown Snake Eagle (*Circaetus cinereus*) - LC
- Common Buzzard (*Buteo buteo*) - LC
- Jackal Buzzard (*Buteo rufofuscus*) - LC
- Lanner Falcon (*Falco biarmicus*) - LC
- Peregrine Falcon (*Falco peregrinus*) - LC
- Shelley's Francolin (*Scleroptila shelleyi*) - LC
- Short-tailed Pipit (*Anthus brachyurus*) - LC
- Wahlberg's Eagle (*Hieraaetus wahlbergi*) - LC

No evidence of nesting sites within the Source Area was found. The presence of a Martial Eagle nest in the densely wooded valley just north of the Source Area was considered highly probable based on observed flight behaviour; while the presence of a Crowned Eagle nest in the wooded valley to the south of the Source Area was also indicated by observed flight behaviour displayed by a pair of adults.

Table 16: Displacement due to disturbance associated with the construction of the wind turbines and associated infrastructure

Ecology - Birds			
Disturbances, dust unsettling, and noise pollution during the construction phase may displace priority bird species, resulting in temporary/long-term local population reductions of these species.			
Project Phase	Construction		
Nature of Impact	Indirect; Negative		
Scope	Local		
Probability	Very Likely		
Duration	Short-term		
Reversibility	Reversible		
	Impact before mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	1. Construction activity should be restricted to the immediate footprint of the infrastructure as far as possible. Access to the remainder of the area should be strictly controlled to prevent unnecessary disturbance of priority species. 2. Measures to control noise and dust should be applied according to current best practice in the industry.	Reduced
Sensitivity	Medium-High		Medium
Classification of Significance:			
For Martial Eagles	High		Moderate
For Bateleur	High		Moderate
For Crowned Eagle	High		Moderate
For White-backed Vulture	Moderate		Reduced
For Other Priority Species	Moderate		Reduced

Table 17: Displacement of priority species due to habitat transformation associated with the construction of the wind turbines and associated infrastructure

Ecology - Birds			
Construction of the WEF and associated infrastructure could result in the loss, fragmentation, and degradation of habitats used by priority species for foraging, roosting, and/or breeding.			
Project Phase	Construction		
Nature of Impact	Indirect; Negative		
Scope	Local		
Probability	Very Likely		
Duration	Short term		
Reversibility	Reversible		
	Impact before mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	1. Removal of vegetation must be restricted to a minimum and must be rehabilitated to its former state where possible after construction. 2. Construction of new roads should only be considered if existing roads cannot be used/upgraded. 3. The recommendations of biodiversity/botanical specialist studies must be strictly implemented, especially as far as limitation of the activity footprint is concerned.	Reduced
Sensitivity	Medium-High		Medium
Classification of Significance:			
For Martial Eagles	High		Moderate
For Bateleur	High		Moderate
For Crowned Eagle	High		Moderate
For White-backed Vulture	Moderate		Reduced
For Other Priority Species	Moderate		Reduced

9.8.1.5 Ecosystem Services (ES)

The priority ES are generally tied to land cover/vegetation types and associated loss to the Project footprint (provisioning and cultural ES), which will be in effect for the lifetime of the Project, from construction through to closure.

Impacts on the supply of priority ecosystem services are expected to occur mainly during the construction phase, through construction of roads, clearing of land for installation of turbines

and other associated machinery. These activities will also limit access to ecosystems supplying priority ecosystem services for beneficiaries.

Wild Foods

Loss of approx. 37 ha of woodland/forest vegetation communities which supply wild foods due to direct loss within the project footprint may reduce the availability of foraged wild foods for local beneficiaries; in addition, access to wild food gathering areas may be restricted during construction phase (e.g. site security, fencing etc).

While this could potentially result in an impact of moderate significance for a temporary period during construction, the application of the recommended mitigation measures will reduce the predicted impact magnitude so that the residual impact is one of negligible significance.

The reduced availability of foraged wild foods for local beneficiaries and the restriction of the access to wild food gathering areas could potentially result in an impact of moderate significance for a temporary period during construction, the application of the recommended mitigation measures, as shown below will reduce the predicted impact magnitude so that the residual impact is one of negligible significance.

Table 18: Impact of loss of vegetation on availability of wild foods

Ecosystem service: Wild foods			
Loss of approx. 37 ha of woodland/forest vegetation communities to the project footprint may reduce the availability of wild foods for local beneficiaries;			
Project Phase	Construction		
Nature of Impact	Direct		
Scope	Local		
Probability	Certain		
Duration	Long term		
Reversibility	Irreversible		
	Impact before mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Reduced	4. Limit the removal of vegetation to the areas strictly necessary for the execution of the work and preserve as many trees and shrubs as possible.	Insignificant
Sensitivity	Low		Low
Classification of Significance	Negligible		Insignificant

Hunting Grounds

Similarly, while direct access to hunting grounds may be restricted during construction, it is anticipated that any access limitations would be surmountable via use of alternative traversing routes – these are not expected to present a significant challenge to beneficiaries' ability to hunt in the area. Changes in wildlife use of the LSA during construction as a result of disturbance could temporarily limit the use of the LSA for hunting wildlife for subsistence purposes, which is considered an impact of moderate significance. While direct access to hunting grounds may be restricted during construction, it is anticipated that any access limitations would be surmountable via use of alternative traversing routes.

The impacts associated with the limited access to the LSA during construction are anticipated to be of reduced significance and mitigation measures may be implemented to further reduce impacts.

Table 19: Loss of subsistence hunting grounds

Ecosystem service: Subsistence hunting			
Clearing of vegetation, construction activities and presence of people/machinery could affect access to hunting grounds, and cause a reduction in hunting opportunities in the LSA due to wildlife disturbance			
Project Phase	Construction		
Nature of Impact	Direct		
Scope	Local		
Probability	Highly likely		
Duration	Short term		
Reversibility	Reversible		
	Impact before mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	1. Minimise wildlife disturbance by completing construction work to schedule. 2. Provide mess facilities for construction workers and ban hunting by workforce.	Insignificant
Sensitivity	Low		Low
Classification of Significance	Reduced		Insignificant

Grazing Areas for Livestock

Loss/reduced access to vegetation communities of the LSA used by cattle for grazing during construction of the WEF could potentially affect local pastoralist's ability to move livestock throughout the landscape. The LSA is used by local beneficiaries to graze cattle, which are traditionally used for domestic consumption, pulling machinery, and more recently, commercial purposes (source of income). A residual impact of moderate significance is anticipated during the construction phase related to the reduced access to vegetation communities of the LSA used by cattle for grazing, whilst it is recognised that the impact is expected to be negligible once the WEF is operational and construction work ceases.

Table 20: Loss of grazing areas for livestock

Ecosystem service: Grazing for livestock			
Vegetation clearance and site fencing/activities may reduce available grazing area for livestock			
Project Phase	Construction		
Nature of Impact	Direct		
Scope	Local		
Probability	Highly likely		
Duration	Short term		
Reversibility	Reversible		
	Impacts without measures of mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	1. Construction activities should be restricted to the immediate footprint of the infrastructure as far as possible. 2. Limit the use of security fencing to laydown areas, site offices only. 3. Maintain access through fenced roads/areas via agreed crossing points. 4. Any economic displacement	Reduced
Sensitivity	High		High

Ecosystem service: Grazing for livestock			
Classification of Significance	High	experienced by impacted pastoralists will be addressed via a Resettlement Action Plan.	Moderate

Biomass Fuel

The majority of the population in the LSA use wood fuel as their main source of energy, which is harvested from woodland and bush areas. Reductions in vegetation communities that supply this ecosystem service due to Project construction may negatively affect the supply of this ecosystem service, however, given the relatively small loss in extent of supplying communities in the context of the wider area, the magnitude of the potential impact is considered to be reduced. The sensitivity of the ecosystem service is high, because there are almost no viable alternatives to the use of firewood and charcoal by beneficiaries, and it is not easily replaceable, resulting in a moderate impact significance. The successful application of the recommended mitigation measures provided below would reduce the impact magnitude and the ecosystem service sensitivity would also be lowered due to the availability of an affordable substitute to charcoal/wood harvest, resulting in minor residual impacts, post-mitigation.

Table 21: Loss in extent of ecosystems supplying fuel wood

Ecosystem service: Wood			
Loss in extent of woodlands/vegetation communities from which people obtain firewood.			
Project Phase	Construction		
Nature of Impact	Direct		
Scope	Local		
Probability	Likely		
Duration	Long term		
Reversibility	Irreversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**

Ecosystem service: Wood			
Magnitude	Reduced	1. Limit vegetation clearing to new access tracks, and turbine footings. 2. Protect and maintain alternative areas where the local community can access wood.	Insignificant
Sensitivity	High		Medium
Classification of Significance	Moderate		Negligible

Biological Raw Materials

Beneficiaries in the LSA utilise natural materials to construct homesteads. The extent of loss of ecosystems supplying these materials is relatively small, therefore the magnitude of the potential impact is considered to be reduced. The sensitivity of the ecosystem service is considered moderate; as a result, an impact of reduced significance is predicted. Successful implementation of the recommended mitigation measures is expected to result in an insignificant residual impact.

Table 22: Loss in extent of ecosystems supplying biological raw materials

Ecosystem service: biological raw materials			
Loss in extent of woodland/grassland vegetation communities from which people obtain biological raw materials.			
Project Phase	Construction		
Nature of Impact	Direct		
Scope	Local		
Probability	Likely		
Duration	Long term		
Reversibility	Irreversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Reduced	1. Limit vegetation clearing to new access tracks, and turbine footings. 2. Protect and maintain alternative areas where	Negligible
Sensitivity	Medium		Medium

Ecosystem service: biological raw materials			
Classification of Significance	Reduced	the local community can access biological raw materials within the LSA.	Negligible

Medicinal Plants

Some use of medicinal plants by local beneficiaries is reported, although the importance of the LSA in supplying these is considered limited to areas of natural vegetation, the loss of which is expected to be minimal. While reductions in vegetation communities that supply this ecosystem service due to Project construction may negatively affect the supply of this ecosystem service, given the relatively small loss in extent of supplying communities in the context of the wider area, the magnitude of the potential impact is considered to be reduced. The sensitivity of the ecosystem service is considered moderate since local beneficiaries are also likely to have access to pharmaceutical medicines in nearby towns (e.g., Namaacha). The impact prior to mitigation is therefore expected to be of reduced significance; reducing to ope

Table 23: Loss in extent of ecosystems supplying medicinal resources

Ecosystem service: Medicinal resources			
Loss in extent of woodlands/vegetation communities from which people obtain medicinal plants.			
Project Phase	Construction		
Nature of Impact	Direct		
Scope	Local		
Probability	Highly likely		
Duration	Long term		
Reversibility	Irreversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Reduced	1. Limit vegetation clearing to new access tracks, and turbine footings. 2. Protect and maintain alternative areas where the local community can access biological raw materials within the LSA.	Negligible
Sensitivity	Medium		Medium
Classification of Significance	Reduced		Negligible

Freshwater

Temporary impacts on the quality of water supply where Project infrastructure intercepts drainage lines, streams in the upper catchment of the Mangave and Muhololo rivers could occur during construction, affecting downstream users' ability to utilise clean freshwater for domestic and agricultural purposes.

Sediment-loaded water could enter these systems during the construction phase as a result of earthworks for road and turbine footprint construction, resulting in temporary/intermittent (occurring during peak flow periods / heavy rains) regional downstream impacts. Although potentially regional in extent, the impact would be temporary/intermittent (occurring during peak flow periods / heavy rains). The potential magnitude could be moderate as significant sedimentation flushes could temporarily affect beneficiaries' ability to use clean freshwater for domestic and agricultural purposes.

The sensitivity of the ecosystem service is high, as freshwater supply in the necessary quantities and to the required quality standards is not easily substitutable. The significance of potential Project Impacts on the supply of this ecosystem service is thus considered high. The magnitude of the potential impacts can be reduced by appropriate storm water management, sediment control and monitoring mechanisms, reducing the predicted impact post-mitigation to negligible significance.

Table 24: Changes in quality of freshwater supply due to sediment release during earthworks

Ecosystem service: Freshwater			
Changes in quality of freshwater supply due to sediment release during earthworks			
Project Phase	Construction		
Nature of Impact	Direct		
Scope	Local		
Probability	Likely		
Duration	Temporary		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate		Insignificant

Ecosystem service: Freshwater			
Sensitivity	High	1. Implement stormwater management plan and sediment traps. 2. Monitor water quality throughout construction and employ additional mitigation measures (adaptive management) as required. 3. Schedule earthworks during periods of low rainfall (dry season).	High
Classification of Significance	High		Moderate

9.8.2 Operational phase

9.8.2.1 Flora and vegetation

During the operational phase, few additional impacts on flora and vegetation are expected.

The movements of vehicles in the park may be responsible for the suspension of a small amount of dust, production of combustion gases and other polluting substances. This is an impact that was also identified in the construction phase and whose expected effects are similar to those described for that phase, however an even lower magnitude is expected, making this an impact of very little significance.

As identified during the construction phase, the presence of vehicles in the area where the park is located could facilitate the dispersal of invasive species. However, at this stage vehicle movements will be smaller and as such this is a very minor impact.

9.8.2.2 Fauna (excluding Birds and Bats)

During the operational phase the most significant impacts are the mortality and disturbance (exclusion effect) of birds and bats which are presented below.

9.8.2.3 Bats

The major potential impact of wind turbines on bats is direct mortality resulting from collisions with turbine blades and/or barotrauma. Potential impact of wind turbines on bats will be limited to species that make use of the airspace within in the rotor swept zone of the wind turbines, during foraging, commuting and/or migration activities.

Up to 23 bat species that were recorded on site exhibit behaviour that would bring them into contact with wind turbine blades, putting them at risk of severe negative impacts of mortality. Direct fatality impacts as a result of foraging activities would also be further exacerbated with potential light pollution that would be present during both construction and operational activities. An additional four species of fruit bat also exhibit potential to be negatively affected by the development, although these were not observed on site.

Direct fatality impacts as a result of foraging activities would also be further exacerbated with potential light pollution that would be present during both construction and operational activities. Currently the local region experiences very little light pollution from anthropogenic sources and the construction of a Wind Farm will marginally increase light pollution.

Certain bat species actively forage around artificial lights due to the higher numbers of insects which are attracted to these lights. This would bring these species into the vicinity of the operating turbines and increase the risk of collision/barotrauma for these species.

The report prepared by Arcus (See Annexure 2) identified both medium sensitivity and high sensitivity areas within the Project's area of influence. The medium sensitivity areas were structures associated with local homes and/ or farms that could provide potential bat roosts (although none were observed to currently be serving this purpose). Because all of these identified structures will be removed as part of the physical resettlement required for the area, these sensitivities will not exist during the operational phase of the project. The high sensitivity areas flagged were drainage lines with a 200 m buffer applied (See Figure 4). Avoidance mitigation techniques have been incorporated by trying to microsite the turbines to avoid these high sensitive areas. Should placement of turbines in these areas be unavoidable, then appropriate minimisation techniques (including curtailment and/or acoustic deterrents) must be implemented according to the parameters defined in **Error! Reference s ource not found.**).

Figure 4. Areas of high bat sensitivities (Arcus)

Table 25: Minimisation parameters if fatality thresholds are exceeded or if turbines are sited in high sensitivity areas

	1 September – 30 November (Spring)	1 December – 29 February (Summer)
Time Period	18h00 – 22h00; 23h00 – 03h00	19h00 – 04h00
Temperature	Between 15°C and 20°C	Between 19 °C and 22°C
Wind Speed	Up to 10 m/s	Up to 8 m/s

Whilst not a mitigation measure, a minimum of two years of operational monitoring is recommended (acoustic monitoring, carcasses searches and fatality estimations) in accordance with the methodologies, as laid out in the South African best practice guidelines for monitoring bats at operational wind energy facilities. Thereafter, monitoring should be repeated again in year five, and every five years thereafter.

Table 26: Bat Mortality as a result of collisions with turbine blades and/or barotrauma during the operational phase

Ecology - Bats			
Bat mortality as a result of collisions with wind turbine blades and/or barotrauma during commuting, foraging and/or migration activities.			
Project Phase	Operations		
Nature of Impact	Direct; Negative		
Scope	Site		
Probability	Very Likely		
Duration	Long-term		
Reversibility	Irreversible		
	Impact before mitigation	**Mitigation measures**	**Residual impact**
Magnitude	High		Moderate

Ecology - Bats			
Sensitivity	Medium	1. All wind turbines are to avoid high sensitivity areas, as far as possible. Where unavoidable, any turbines overlapping with such buffers should be subjected to suitable minimisation techniques (i.e. curtailment or ultrasonic deterrents). 2. All wind turbines are to be subjected to standard blade feathering (up to 3.5 m/s) during spring and summer from the date of Project inception. 3. Minimise artificial light sources as far as possible. 4. Appropriate types of lighting are to be used to avoid attracting insects. 5. Fatality thresholds for all identified bat species should be closely monitored following international best practice, with additional mitigation measures implemented if such thresholds are exceeded. 6. An adaptive management process should be used, whereby any residual impacts are mitigated according to the best available data obtained at the time that the impact is realised. All recommendations are therefore to be updated on an on-going basis as soon as additional information becomes available.	Medium
Classification of Significance	High		Moderate

9.8.2.4 Birds

As presented in the Bird Monitoring Report in Annexure 2, the project area is a good habitat for birds, raptors in particular, with 16 species observed. The variety of species is significant for such a small site, with three Red List species recorded within the DUAT, i.e. Crowned Eagle (NT) Martial Eagle (EN) and Bateleur (EN). During the pre-construction monitoring, territorial display flights were observed for both Crowned Eagle and Martial Eagle, indicating that these species breed close to the Source Area. White-backed Vulture (CR) was also noted as an incidental observation near the Source Area during one survey. Based on the flight data recorded during the surveys, all of the Red List raptor species are at risk of

collisions with wind turbines. Turbine-related mortalities could result in the loss of Martial Eagle (Endangered), Crowned Eagle (Near Threatened), White-backed Vulture (Critically Endangered), Jackal Buzzard (Least Concern – regional endemic), and several other raptors. As these species are highly mobile, bird mortalities at the project site could affect regional ecosystems.

The passage rate for priority species (see the Bird Monitoring Report in Annexure 2 for more details) within the Source Area after four surveys is high at 2.27 birds per hour, or approximately 29 birds per day[1]. The passage rate for Red List species at the Source Area after four surveys was 0.23 birds per hour, or approximately three (3) birds per day, which is low, but does point to a regular presence. It is important to note that despite the perceived low passage rate, the long duration that the individuals spent over the source area would increase their exposure to collision risk. It is important to note that the passage rate is calculated as the number of individuals counted per number of observation hours, and does not take into account the amount of time that the birds spend flying in the high risk zones. Thus, although the passage rate was calculated as low in the present study, the birds spend a considerable time flying over the source area within the rotor swept range, which escalates the risk of collision significantly.

Most of the recorded flights were at medium altitude (i.e., within the rotor swept area of wind turbines).

The potential impacts on identified for the operational phase of the Project are listed and assessed in the tables below.

Table 27: Priority bird species mortality due to collisions with the wind turbines

Ecology: Birds	
Bird collisions with wind turbines pose mortality risks for bird species, especially for priority species.	
Project Phase	Operations
Nature of Impact	Direct; Negative
Scope	National
Probability	Very Likely
Duration	Long-term

[1] Assuming 13 hours of daylight averaged over all four seasons.

Ecology: Birds			
Reversibility	The reversibility of this impact is highly species dependent. For many priority bird species, population sizes and range extents can recover on their own. However, for Red List species within and near the Source Area, especially Endangered species, reversing this impact would require proactive conservation efforts to recover population sizes, and compensation for local/regional population losses and or displacements.		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact***
Magnitude	High	1) Automated Shut-down-on-Demand (SDoD) using a camera system such as Identiflight® for all Red List Species. The automated system can also include an audible deterrent system that will use loud noise in an attempt to scare birds away. However, sound as a mitigation measure for birds has not been verified as being effective. 2) Should a mortality of a Red List species be recorded, an observer led shutdown on demand (SDoD) programme should be considered in addition to the Automated Shut-down-on-Demand programme. 3) Blade Painting – All wind turbines must have one blade painted according to a local civil aviation authority approved pattern to reduce the risk of raptor collisions. 4) If estimated collision rates indicate unacceptable mortality levels of priority species	High
Sensitivity	High		High
Classification of Significance:			
For Martial Eagles	High		High
For Bateleur	High		High
For Crowned Eagle	High		High
For White-backed Vulture	High		High

Ecology: Birds			
For Other Priority Species	High	additional mitigation measures will have to be implemented. 5) Livestock carcass and prey-availability management programme (see Section 10 for more detail).	High

* A Biodiversity Action Plan will be developed and implemented to address significant residual impacts.

Additional actions are recommended to refine and improve the implementation of mitigation measures:

- Flight Risk Modelling (of all Red List raptors) to create a spatially explicit risk profile and delineate a high-risk turbine exclusion zone.
- Collision Risk Modelling (CRM). The CRM should be used to calculate fatality estimates for the all the Red List raptors at the Source Area.

In addition to the above mitigation measures, operational phase monitoring should be implemented according to the Wind Guidelines or International Best Practice for a minimum of two years, and then every fifth year after that for the lifetime of the facility.

Table 28: Priority bird species mortality due to electrocutions on the overhead sections of the internal 33kV cables

Ecology: Birds	
Bird electrocutions with overhead sections of internal 33kV lines pose mortality risks for priority bird species.	
Project Phase	Operations
Nature of Impact	Direct; Negative
Scope	Local
Probability	Very Likely
Duration	Long-term
Reversibility	The reversibility of this impact is highly species dependent. For many priority bird species, population sizes and range extents can recover on their own.

Ecology: Birds			
	However, for Red List species within the Source Area, especially Endangered species, reversing this impact would require proactive conservation efforts to recover population sizes, and compensation for local/regional population displacements. The species most vulnerable to electrocution within the Source Area are the larger raptors, such as the Red List species Martial Eagle, Bateleur, Crowned Eagle, and White-backed Vulture.		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	High	1. Underground cabling should be used as much as is practically possible. 2. If the use of overhead lines is unavoidable due to technical reasons, the Avifaunal Specialist must be consulted timeously to ensure that a raptor friendly pole design is used, and that appropriate mitigation is implemented pro-actively for complicated pole structures e.g., insulation of live components to prevent electrocutions on terminal structures and pole transformers. 3. Regular inspections of the overhead sections of the internal reticulation network must be conducted during the operational phase to look for carcasses according to the applicable International Best Practice standards at the time.	Reduced
Sensitivity	High		Low
Classification of Significance:			
For Martial Eagles	High		Reduced
For Bateleur	High		Reduced
For Crowned Eagle	High		Reduced
For White-backed Vulture	Moderate		Reduced
For Other Priority Species	High		Reduced

Table 29: Priority species mortality due to collisions with the overhead sections of the internal 33kV cables

Ecology: Birds			
Bird collisions with overhead sections of internal 33kV reticulation lines pose mortality risks for priority bird species.			
Project Phase	Operations		
Nature of Impact	Direct; Negative		
Scope	Local		
Probability	Very Likely		
Duration	Long-term		
Reversibility	The reversibility of this impact is highly species dependent. For many priority bird species, population sizes and range extents can recover on their own. However, for Red List species within the Source Area, especially Endangered species, reversing this impact would require proactive conservation efforts to recover population sizes, and compensation for local/regional population displacements.		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	Bird flight diverters should be installed on all the overhead line sections for the full span length according to the applicable International Best Practice standards at the time.	Very low
Sensitivity	Medium		Low
Classification of Significance:			
For Martial Eagles	Moderate		Reduced
For Bateleur	Moderate		Reduced
For Crowned Eagle	Moderate		Reduced
For White-backed Vulture	Moderate		Reduced
For Other Priority Species	Moderate		Reduced

9.8.2.5 Ecosystem Services (ES)

Operation phase impacts on priority ecosystem services (i.e. ethical and spiritual values, educational and inspirational values) are predicted as a result of the physical presence of the Project in the landscape, potentially affecting beneficiaries' sense of space, and the value of cultural sites. These ES are considered together given that they are rooted in the same cultural landscapes and are potentially affected and demanded by the Project in the same ways. These ecosystem services may be impacted by the Project, and the Project also relies on the maintenance of the supply of these ecosystem services in order to prevent potential impacts on its social licence to operate. It is important to note that reduced visual amenity was not raised as a community concern in the public consultation conducted for the 2022 EIA. Additionally, some administrative stakeholders in the district of Namaacha have expressed their views that the change in visual character of the region could have some positive touristic value. That being said, a conservative view has been taken on the potential adverse impacts that may result from the change in landscape.

Sacred sites and intangible cultural heritage are inextricably linked with the landscapes and natural ecosystems of the LSA, and are important in terms of beneficiaries' sense of identity and heritage. The Project could impact the benefit that people derive from these ecosystem services, largely due to the visual presence of the Project itself in these landscapes; which could affect beneficiaries' perception of the value of such sites.

The magnitude of predicted impacts on peoples' ethical, spiritual, educational and inspirational values is expected to be moderate. The effect will extend to beneficiaries whose views of the landscape are located in the Project viewshed and to any sacred or cultural sites that are affected by shadow flicker. The duration will be long-term, extending throughout the Project's operational lifetime. The value of the affected components to beneficiaries is considered moderate. The overall impact prior to mitigation is one of moderate significance.

During the expected operational lifespan of the Project, mitigation of direct impacts on sacred sites/and or sense of space due to changes in the visual amenity of the landscape is not likely to be possible; however, ongoing consultation with local communities and provision of a project grievance mechanism will be in place to help identify and manage any such impacts.

Table 30: Changes in visual amenity of the landscape and sacred sites

Ecosystem service: Landscape and sacred sites	
Changes in visual amenity of the landscape affecting cultural sites and sense of place	
Project Phase	Operations
Nature of Impact	Direct
Scope	Local
Probability	Highly likely

Ecosystem service: Landscape and sacred sites			
Duration	Long-term		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate		Reduced
Sensitivity	Medium		Medium
Classification of Significance	Moderate		Reduced

9.8.3 Decommissioning phase

The impacts of the decommissioning phase will be very dependent on the final destination to be given to the development.

If the decommissioning consists of the removal of infrastructure, the impacts will be identical in nature to those of the construction phase. But if the option is to abandon the development, environmental impacts will be generated resulting from the abandoned structures and the degradation of the surrounding area, the magnitude of which will be very dependent on the occupation that the surrounding area has at that time.

The reconversion of the use for other purposes may also be envisaged, but due to its location and characteristics, it is not foreseen, from the outset, an occupation with great utility, but it is a subject that should be studied in more detail in the EIA phase.

9.8.3.1 Bats

The impacts to bats during this phase are likely to be restricted to disturbance/displacement effects as a result of decommissioning activities. The impacts to bats should be low, provided decommissioning activities are restricted to daylight hours and that activities are carefully monitored and managed (with inputs provided by an appropriate bat specialist) around any confirmed roosts that may be identified during the relevant project phases (if relevant). The impact is further addressed in Table 31 below.

Table 31: Disturbance/ displacement effects during the decommissioning phase.

Ecology: Bats	
Disturbance/displacement effects as a result of decommissioning activities (noise, dust, movement, etc.)	
Project Phase	Decommissioning Phase

Ecology: Bats			
Nature of Impact	Indirect; Negative		
Scope	Local		
Probability	Very Likely		
Duration	Medium-term		
Reversibility	Immediate		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	1. Limit decommissioning activities to daylight hours. 2. Avoid all decommissioning activities within potential roosting habitats, if identified during the Projects' operational phase bat monitoring campaign, when decommissioning wind turbines and associated infrastructures. 3. Consult with an appointed bat specialist on further management measures, particularly if any confirmed roosts are identified on site, during the lifespan of the Project.	Reduced
Sensitivity	Medium		Medium
Classification of Significance	Moderate		Reduced

9.8.3.2 Birds

Table 32: Displacement due to disturbance associated with the decommissioning (dismantling) of the wind turbines and associated infrastructure.

Ecology: Birds	
Displacement due to disturbance associated with the decommissioning (dismantling) of the wind turbines and associated infrastructure.	
Project Phase	Decommissioning Phase
Nature of Impact	Indirect; Negative
Scope	Local
Probability	Very Likely

Ecology: Birds			
Duration	Short-term		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	1. Dismantling activity should be restricted to the immediate footprint of the infrastructure as far as possible. 2. Access to the remainder of the area should be strictly controlled to prevent unnecessary disturbance of priority species. 3. Measures to control noise and dust should be applied according to current best practice in the industry.	Reduced
Sensitivity	High		Very low
Classification of Significance:			
For Martial Eagles	High		Moderate
For Bateleur	High		Moderate
For Crowned Eagle	Moderate		Reduced
For White-backed Vulture	Moderate		Reduced
For Other Priority Species	Moderate		Reduced

The aforementioned impacts will be assessed in more detail during the Environmental Impact Study phase, based on a better understanding of the characteristics of the Project and the location where it operates. In addition to these impacts, other impacts may arise during the Environmental Impact Study phase, which will be duly assessed.

9.9 Air Quality

See section 9.9 of the 2022 EIA.

9.10 Waste Management

See section 9.10 of the 2022 EIA.

Note that a high-level Waste Management Plan is now also included in the revised EMP for the Project (see Annexure 1).

9.11 Noise

Wind turbines have the potential to generate noise and as such a specialist Environmental Acoustic Impact Assessment is required as part of the Environmental and Social Impact Assessment (ESIA) update for the Namaacha Wind Energy Facility (WEF). Please refer to Annexure 2 for the full Acoustic Impact Assessment. Although noise is considered a

nuisance impact in terms of human impacts; given human subjectivity to nuisance noise and the resultant physiological distress that can result from nuisance noise; even noise levels well below those that are a risk to human health physically and bodily integrity. Nuisance noise can also disrupt sleep. Households at homesteads / farmsteads would be considered as sensitive receiving receptors with very little resilience or adaptability to imposed stressors and therefore of high sensitivity. Religious institutions, cultural heritage site and commercial sites could be considered receiving receptors with moderate resilience or adaptability to imposed stresses and therefore of medium sensitivity. Industrial /manufacturing and mining / quarrying activities could be considered as sensitive receiving receptors with high resilience or adaptability to imposed stresses and therefore of low sensitivity.

Based on the International Finance Corporation (IFC) Environmental Health and Safety (EHS) Guidelines for Wind Energy a preliminary modelling exercise was executed using a simple model which assumes hemispherical propagation of noise from each turbine to determine potential impact on receptors within a 2 km radius of the turbines. If LA90 noise levels at all sensitive receptors are below 35 dB(A) at a wind speed of 10 m/s (at a height of 10 m) during day and night times, this would be sufficient to assess the noise impact of the proposed facility, offering adequate protection of amenity at these receptors. If LA90 levels at any receptor location are above 35 dB(A), then impacts at these receptors may be perceived and potential turbine relocations may need to be considered.

In low noise environments, the Energy Technology Support Unit (ETSU) ETSU-R-97 report itself, however, stipulates that noise from wind farms should be limited to a range between 35 and 40 dB(A) (daytime).

Additionally, a fixed limit of 43 dB(A) should be implemented during night-time. This should increase to 45 dB(A) (day and night) if the potential receptors have financial investments in the facility. With the Namaacha WEF being located within a low noise environment a combination of the IFC and ETSU methodology was discussed in this assessment; however, the IFC was considered in determining the impact rating.

9.11.1 Construction phase

Construction activities at the proposed site will include civil works (including surveying), reinforced concrete works, masonry works, façade works, floor works, general construction activities including mechanical, electrical, and plumbing installation works. Due to the erratic and transient nature of such construction activities as well as the fact that detailed construction phase plans have not yet been developed for the proposed Project, the resultant noise levels from the construction phase of the facility could not be quantified.

During the construction phase of the facility various noise sources will be present onsite including earth-moving equipment (trucks, cranes, scrapers and loaders), compressors and generators, pumps, rotary drills, concrete mixers and materials handling activities among others. All of these sources will generate substantial amounts of noise and may impact on neighbouring sensitive receptors. As such, mitigation interventions are advised during the construction phase.

To minimise the acoustic impacts from the construction phase of the proposed Project, various mitigation techniques can be employed. These options include both management and technical options, as described below.

Table 33: Construction phase: Nuisance impact on residential sensitive receptors as a result of elevated noise levels

Noise			
Nuisance impacts on residential sensitive receptors as a result of elevated noise levels			
Project Phase	Construction		
Nature of Impact	Direct; Negative		
Scope	Local		
Probability	Likely		
Duration	Short-term		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	1. Planning construction activities in consultation with local communities so that activities with the greatest potential to generate noise are planned during periods of the day that will result in least disturbance. Information regarding construction activities should be provided to identified and nearby receptors likely to be affected. Such information includes: ▪ Proposed working times. ▪ Anticipated duration of activities.	Low
Sensitivity	High		High

Noise			
Classification of Significance	High	▪ Explanations on activities to take place and reasons for activities. ▪ Contact details of a responsible person on site should complaints arise. 2. When working near a potential sensitive receptor, limit the number of simultaneous activities to a minimum as far as possible. 3. Using noise control devices, such as temporary noise barriers and deflectors for high impact activities, and exhaust muffling devices for combustion engines. 4. Selecting equipment with the lowest possible sound power levels whilst still being suitable for the specific task. 5. Ensuring equipment is well-maintained to avoid additional noise generation.	Moderate

9.11.2 Operational phase

For detailed noise level results refer to the Acoustic Impact Assessment in Annexure 2. The preliminary model was run taking the surrounding terrain into account. Results indicate that predicted LA90 noise levels during both day and night are above the 35 dB(A) threshold, as stipulated in the IFC EHS guidance, at all 46 inhabited receptors. This indicates that noise from the turbines could create a nuisance or impact at those locations above this threshold. As such, complaints are anticipated as a result of the operation of the Namaacha WEF if unmitigated. However, because the project is looking to physically resettle all households where noise levels are predicted to be above 35 dB(A), no significant impacts are expected long-term.

Table 34: Operational phase: Nuisance impact on residential sensitive receptors as a result of elevated noise levels

Noise
Nuisance impact on residential sensitive receptors as a result of elevated noise levels

Noise			
Project Phase	Operations		
Nature of Impact	Direct; Negative		
Scope	Local		
Probability	Highly Likely		
Duration	Long term		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	High	1. Physically resettle households where noise levels are expected to exceed 35 dB(A) at LA_{90}. If physical resettlement is not an option the following mitigation measures would apply: 2. Operating the turbines in reduced noise mode. 3. Locate turbines away from receptors. A buffer zone of at least 1 km should be developed. 4. Selecting the proposed turbines (Nordex N163 and Goldwind 165) with higher hub heights. 5. Selecting turbines with lower noise levels.	Negligible
Sensitivity	High		High
Classification of Significance	High		Negligible (if physical resettlement occurs) Moderate (if optional mitigation measures are applied) Low (if optional mitigation measures are applied including 1km buffer)

9.11.3 Decommissioning phase

The decommissioning phase of the Project, during the removal of infrastructures, will entail impacts similar to those of the construction phase, that is, that is, localized and temporary ceasing after completion of the works. Once the infrastructure is removed, the impacts will cease. Given the unknown conditions that will be present in 25 years, it is impossible to accurately assess the significance of this impact at this time; however, it is expected that a Decommissioning Plan will be developed at that time that evaluates potential impacts and proposes appropriate mitigation aligned with current GIIP.

9.12 Archaeological and Cultural Heritage

The following section has been extracted from the Cultural Heritage Impact Assessment. Refer to the Annexure 2 for the full detailed study.

9.12.1 Construction phase

Archaeological and Historic Resources: Direct Impacts

Although no archaeological or historic resources were identified as part of the baseline study, there is a potential for as yet unknown archaeological resources, including surface artefacts and sub-surface features, to be identified as a result of preparatory works and construction phase activities. These include direct impacts from vegetation clearance and grading, machine movement, foundation piling, compound construction and associated infrastructure, such as access tracks and service trenches. At worst case, this would result in the direct permanent loss of highly sensitive non-renewable resources. The severity of the impact on any receptors would depend on the nature, date, survival and heritage significance of the remains.

The implementation of the recommended mitigation would result in a 'Negative Moderate' impact, as outlined in Table 35.

Table 35: Construction phase impacts: archaeological resources

Construction phase impacts: archaeological resources			
Direct physical impacts from ground clearance, turbine bases installation, machine movement, compound and laydown areas and associated infrastructure such as access tacks and service trenches. This may result in direct, permanent loss of non-renewable resources that may range from low to high in terms of their sensitivity (with an average medium sensitivity value). The probability of impact is unlikely, since the overall archaeological potential of the Project site is considered to be low.			
Project Phase	Construction (including pre-construction)		
Nature of Impact	Direct; Negative		
Scope	Site		
Probability	Unlikely		
Duration	Permanent		
Reversibility	Irreversible		
	Impacts without mitigation measures	**Mitigation measures**	**Residual impact**
Magnitude	High		Reduced

Construction phase impacts: archaeological resources			
Sensitivity	Low to High (worst case)	Implementation of the Chance Find Procedure	Low to High (worst case)
Classification of Significance	Moderate (average)		Reduced (average)

Cultural and Sacred Resources

Nineteen cultural and sacred resources were identified in the baseline study area, including graves, a church (now abandoned), a sanctuary, a monument and natural features.

Direct changes to the land surface within the ADI during the construction phase (including pre-construction preparatory works) may arise through land clearance activities, turbine installation, access track creation, compound foundations, service trenches and plant movements and have the potential to impact the following receptors within the proposed Project boundary area: graves and Christian church. This could result in the loss or damage to highly sensitive, non-renewable resources, including previously unidentified graves.

Predicted indirect impacts during the construction phase include changes in the local environmental setting, such as noise, dust/air quality or loss of safe local access, particularly in relation to the graves. that lie within the proposed Project boundary. There are also no predicted construction phase impacts to resources beyond the ADI since the closest resource (a monument) is 2 – 3 km southeast of the Project boundary.

Indirect changes on graves sites (that are directly avoided during ground works) associated with the construction phase would be site-based in extent, temporary (throughout the construction phase) and reversible in nature.

Table 36: Construction phase impacts: cultural and sacred resources

Construction phase impacts to cultural and sacred resources	
Direct impacts to the graves associated with ground clearance, turbine placement, access tracks, plant movement and service trenches resulting in loss or damage to sensitive, non-renewable resources and disruption of normal cultural activities. Indirect impacts through temporary changes to the environmental setting of graves and the church within the ADI. Potential loss of community access.	
Project Phase	Construction (including pre-construction)
Nature of Impact	Direct and Indirect; Negative
Scope	Site
Probability	Likely

Construction phase impacts to cultural and sacred resources			
Duration	Permanent (direct impacts) and Temporary (indirect impacts)		
Reversibility	Irreversible – (direct impacts) and Reversable (indirect impacts)		
	Impacts without mitigation measures	**Mitigation measures**	**Residual impact**
Magnitude	Graves (CH-1 – CH-14) High (direct impact) Graves (CH-1 – CH-14) Moderate (indirect impact)	Implementation of the Cultural Heritage Management Plan.	Reduced
Sensitivity	Graves (CH-1 – CH-14) High		Graves (CH-1 – CH-14) High
Classification of Significance	High (Graves, CH-1 – CH-14)		Moderate (Graves, CH-1 – CH-14)

Intangible Cultural Heritage

The intangible cultural heritage identified during baseline consultations undertaken for the Project includes unique local belief systems related to ancestor worship, religious pilgrimage, formal religion and traditional ceremonial activities. In the context of the Project area, intangible heritage is defined, in accordance with IFC PS 8 as the normal cultural behaviour and knowledge transmitted from one generation to the next, which communities or individuals recognise as part of their cultural heritage that may or may not be, tied to a physical cultural heritage resource.

Intangible heritage has the potential, without mitigation, to be impacted during the construction phase through disruption of normal cultural behaviours and particularly through the loss of access to grave sites (CH-1 – CH-14) and/or disruption to formal worship sites. Without the implementation of appropriate mitigation measures the endurance of traditional ceremonies and other activities impacted through general Project-induced disturbance, particularly population influx. The impact of the Project in relation to Ecosystem Services, including cultural services, in the context of medicinal plants, and spiritual / recreational services is discussed in the Ecosystem Services report in Annexure 2. Selecting the severity of impacts is subjective, with change from the local cultural norm perceived as potentially positive or negative. In the context of the Project, a loss, deviation, or dilution of intangible cultural heritage is considered a negative impact. Furthermore, an influx of migrants may either strengthen or weaken local cultural practices over the Project lifetime. If construction

phase impacts are to occur, they could be of unknown and, therefore, high intensity (on a worst-case basis) and permanent in duration. Societal changes are considered irreversible in the context of intangible cultural heritage since they may be entirely lost from one generation to the next.

Table 37: Construction phase impacts: intangible cultural heritage

Construction phase impacts to intangible cultural heritage			
Disruption to normal cultural behaviours, loss of access to cultural sites			
Project Phase	Construction (including pre-construction)		
Nature of Impact	Indirect; Negative		
Scope	Local		
Probability	Likely		
Duration	Permanent		
Reversibility	Irreversible		
	Impacts without mitigation measures	**Mitigation measures**	**Residual impact**
Magnitude	High (worst case)	Implementation of the CHMP.	Reduced
Sensitivity	High		High
Classification of Significance	High		Moderate

9.12.2 Operational phase

Archaeological, Cultural and Sacred Resources

No direct physical impacts to archaeological, cultural and sacred resources during the operational phase of the Project are anticipated, since no groundworks are predicted. The CFP will remain in place for the lifetime of the Project.

No direct physical impacts to cultural and sacred resources during the operational phase of the Project are anticipated, since no groundworks are predicted. The CFP and CHMP will remain in place for the lifetime of the Project.

Indirect impacts to graves sites may result during the operational phase of the Project. Potential concurrent impacts include the loss of safe site access, visual disturbance from the erected turbines and noise / dust from maintenance vehicles, resulting in (cumulative) change to the local ‘sense of place’.

The project sits within an undulating landscape and the visual assessment area defined for the MFA ESIA was approximately 2km from the Project boundary. The closest identified cultural resource within the ADI is the memorial/monument (MFA-2) located 2 – 3km southwest of the Project, all other resources are over 10 km to south and screened by interim topography. However, visual impacts in the nearby AII are difficult to quantify and subjective in nature and no concerns regarding the visual impact of the Project have so far been raised by the local community.

Table 38: Operational Impacts: cultural and sacred resources

<table>
<tr><th colspan="4">Operational phase impacts: cultural and sacred resources</th></tr>
<tr><td colspan="4">Visual disturbance, noise / dust from maintenance vehicles, restricted local access</td></tr>
<tr><td>Project Phase</td><td colspan="3">Operations</td></tr>
<tr><td>Nature of Impact</td><td colspan="3">Indirect; Negative</td></tr>
<tr><td>Scope</td><td colspan="3">Local</td></tr>
<tr><td>Probability</td><td colspan="3">Probable</td></tr>
<tr><td>Duration</td><td colspan="3">Long-term</td></tr>
<tr><td>Reversibility</td><td colspan="3">Reversible</td></tr>
<tr><td></td><td>Impacts without mitigation measures</td><td>Mitigation measures</td><td>Residual impact</td></tr>
<tr><td>Magnitude</td><td>Graves (CH-1 – CH-14): Moderate
Memorial (MFA-2): Reduced</td><td rowspan="3">1. The physical demarcation of known grave sites by establishing suitable buffers, in consultation with local custodians, to ensure continued safe access.
2. Implementation of the Project’s Stakeholder Engagement Plan (SEP) and Community Grievance Redress Mechanism.
3. Implementation of the Project’s CFP.</td><td>Graves (CH-1 – CH-14): Reduced
Memorial (MFA-2): Insignificant</td></tr>
<tr><td>Sensitivity</td><td>High</td><td>High</td></tr>
<tr><td rowspan="2">Classification of Significance</td><td>High (Graves CH-1 – CH-14)</td><td>Moderate(Graves CH-1 – CH-14)</td></tr>
<tr><td>Moderate (Memorial, MFA-2)</td><td>Insignificant (Memorial, MFA-2)</td></tr>
</table>

Intangible Cultural Heritage

During the operational phase of the Project, the erection of safety and security fencing could disrupt the usual access route to cultural resources; resulting in a disruption to traditional practice and usual cultural activity. Without the implementation of appropriate mitigation measures, access to graves may be restricted and the endurance of traditional ceremonies and other activities (e.g., gathering of medicinal plants, traditional foods) affected.

If operational phase impacts are to occur, they would be of moderate intensity (on a worst-case basis) and permanent in duration. Societal changes are considered irreversible in the context of intangible cultural heritage since they may be entirely lost from one generation to the next. However, during the operational phase of the Project the sensitivity value of intangible cultural heritage is reduced from high (at construction) to medium to account for the lesser 'shock' of the Project on normal cultural behaviour at this phase in the Project Lifecyle.

Table 39: Intangible cultural heritage

Operational Phase Impacts: Intangible cultural heritage			
Restricted access to cultural sites and disruption of normal cultural behaviours associated with traditional grave maintenance, related ceremonies and the gathering of plants and medicine.			
Project Phase	Operations and maintenance		
Nature of Impact	Indirect; Negative		
Scope	Site		
Probability	Probable		
Duration	Permanent		
Reversibility	Irreversible		
	Impacts without mitigation measures	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	1. Implementation of the Project EMP: 2. The physical demarcation of known grave sites by establishing suitable buffers, in consultation with local custodians, to ensure continued safe access.	Reduced
Sensitivity	Medium		Medium

Operational Phase Impacts: Intangible cultural heritage			
Classification of Significance	Moderate	3. Implementation of the Project's Stakeholder Engagement Plan (SEP) and Community Grievance Redress Mechanism.	Reduced

9.12.3 Decommissioning phase

No additional impacts to cultural heritage resources are highlighted for the decommissioning phase of the Project. The CFP will provide the necessary mitigation strategy for any accidental finds recovered during the decommissioning phase. No additional decommissioning -specific measures are anticipated for cultural and/or sacred resources. The CHMP, prepared in participation with affected communities and stakeholders should make provisions for long term management where required.

The effectiveness and suitability of the CHMP for the decommissioning phase will be subject to review as the project progresses.

9.13 Demography, Settlement, Society, Health and Economy

See Section 9.13 of the 2022 EIA.

All impacts should be read in conjunction with previous impact assessment detailed in Section 9.13 of the 2022 EIA.

9.13.1 Construction phase

Positive Impacts

In a place with little activity and economic dynamics, as is the case of the study area, any new undertaking/investment generates expectations and other resulting processes, such as attracting new businesses, population settlement, installation or offer of new services.

The value of the investment to be carried out will forcibly have positive effects on the local and regional economy, mainly because it will be carried out in a region with an effective lack of investment.

One of the main economic impacts of this type of Project lies in boosting economic activity on a local scale, as well as in the benefits it could bring to the population, resulting from the need to drive vehicles, the need for fuel supply services, equipment, materials and goods, the supply of construction materials (cement, wood, etc.), food and beverages, as well as the provision of services.

It is expected that new jobs will be created, estimating that around 400 direct workers will be assigned to the construction phase.

The increase in activity and employment generated during the construction phase, either directly or indirectly, by boosting the local economy, translates into a positive, significant, reduced and temporary impact.

Regional economic activity will also benefit during the construction phase, as a result of the dynamism of the construction materials market. The mobilization of construction companies and suppliers of materials and equipment are examples of the added value, from an economic point of view, that the Project will entail. These impacts will be positive, significant, of moderate magnitude, certain, indirect, short-term and reversible at the regional level.

Negative Impacts

On the other hand, it is also important to identify the negative impacts expected to occur during the construction process of the Project.

The largest adverse impact during construction will be the physical resettlement and economic displacement that will be required within the project area. The Project is undertaking a detailed census and following the Mozambican regulatory process for resettlement, aligning it with Performance Standard 5 requirements. An initial public consultation for resettlement was held on 20 September 2023, and the affected community remain broadly very supportive of the project. Whilst the detailed census is not yet complete, based on the 2019 socioeconomic survey and recent site reconnaissance, the total number of households requiring physical resettlement is expected to be less than 60.

Other impacts will be mainly related to the discomfort that actions associated with the work could generate on the affected populations, such as the inhabitants and workers of the village of Namaacha and the residents of the houses in ADI and AII.

In general, there will be an increase in vehicle traffic, heavy and commercial vehicles, on the accesses to the works and on the communication routes, which lead to an increase in pollutant emissions into the atmosphere, as well as noise, leading to a generalized change in well-being of the communities, not only in the area of intervention but also in its surroundings, mainly affecting population centers and private dwellings arranged along the different access roads in the vicinity of the Project implantation area. This impact is considered negative, of reduced magnitude, of little significance, local in extent, certain, temporary, reversible, immediate and direct.

In the construction phase, access to the study area of the future Namaacha Power Station, will be via National Road 2 (EN2) to the village of Namaacha and then via a dirt road that will serve as access to the ADI.

The operations referred to above will lead to a natural increase in the circulation of machinery and vehicles allocated to the works, which could deteriorate these roads, affecting their normal use by the local population. This impact is considered negative, of reduced magnitude, not very significant, local in scope, certain, temporary (during the construction phase), reversible, immediate and direct.

Another negative impact has to do with the possible ability to access or use areas currently used by residents to explore agropastoral and/or subsistence activities (agriculture and pastoralism).

In the construction phase, these areas will be affected by 0.6% in the case of machambas and around 1.8% in pasture areas. It is considered a negative, local, certain, temporary, reversible impact of reduced magnitude and significance, but minimized.

The foreseeable increase in population (construction phase workers), could generate an increase in economic activities in the surrounding region, which will have a positive, significant, certain, permanent impact, with a moderate magnitude, with direct effects on the regional economy and with reflections on the national economy. There are, however, some risks associated with the influx of new workers in the region, related to the increase in phenomena such as prostitution, drugs and violence. These aspects may constitute significant negative impacts, but they can be minimized if a correct follow-up of these social issues is carried out by the project promoter and the municipality.

As previously mentioned, these projects, as a rule, involve the introduction of “strangers” directly into communities, at least for a short period (construction phase). For many rural areas, this can greatly increase the local population and place stress on existing health services. In addition to proponents having to put in place appropriate systems for dealing with health impacts and managing emergencies resulting from incidents, the capacity of local health services should also be considered. The increased influx of people needing treatment for unexpected illnesses or accidents can put pressure on local health services (such as the local hospital) within a region, particularly where there is a shortage of the health workforce. If not properly managed, the Project could lead to negative risks related to community health safety and security impacts. These include:

- Possible pressure and additional demand on community health services associated with the influx of workers from outside the project area.;
- Possible pressure and additional demand on utility services including water and wastewater treatment plant associated with the influx of workers from outside the project area;
- Increased risks of GBV/SEA as a result of influx of employment and business seekers and cash income
- Possible pressure and additional demand for social services as a result of increased family stress and violence;
- Possible change in community wellness as a result of alcohol, and substance abuse associated with the influx of workers from outside the project area;
- Possible change in community health as a result of the sudden spread of communicable and non-communicable diseases, including sexually transmitted diseases associated with the influx of workers from outside the project area;
- Possible pressure on traffic and transportation network associated with construction and operations activities, including the risk of accidents; and

- Possible change in water and air quality associated with construction and operations activities.

The Project will ultimately have an impact on individuals selected as part of the workforce. If no appropriate policies and management measures are in place, the workforce could potentially be treated unfairly, discriminated and given unequal opportunities. This impact is applicable to both the construction and operational phases however, during the construction phase, the impact will be negative, of reduced magnitude, not very significant, local in scope, certain, temporary (during the construction phase), reversible, immediate and direct. The tables below represent a summary of the impacts described above (Table 40 to Table 47).

Table 40: Increased employment in the region

Socioeconomic: Employment			
Increased employment in the region			
Project Phase	Construction		
Nature of Impact	Direct and indirect; Positive		
Scope	Local and Regional		
Probability	Certain		
Duration	Reversible		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Reduced	1. Hiring principles and procedures should give priority to hiring qualified local workers, contributing to the creation of jobs and wealth at the local level. 2. Hiring policies should ensure the principle of gender equality.	Moderate

Socioeconomic: Employment			
Sensitivity	Medium	3. Training actions should be planned for workers in order to boost their qualification. 4. In case there are local expectations of jobs that cannot be met by the Project, the limited availability of posts should be made known to interested parties through local authorities and community representatives. 5. Disclose for each position, the exact number of jobs available, the applicable period and the remuneration to be attributed to each type of work. 6. Hiring requirements must be transparent, following pre-established and recognized criteria, and duly publicized before the start of the recruitment process and respected by the contractor, so as not to limit application opportunities. 7. As much training as possible should be given to local workers to perform semi-skilled tasks, to enhance their capacities and reduce the number of workers hired from abroad for this purpose.	Medium
Classification of Significance	Moderate		High

Table 41: Improvement of regional economic activity (construction materials market)

Socioeconomic: Regional effects	
Improvement of regional economic activity (construction materials market)	
Project Phase	Construction
Nature of Impact	Indirect; Positive
Scope	Regional
Probability	Certain

Socioeconomic: Regional effects			
Duration	Short-term		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	1. Whenever possible, favour the acquisition of services from local or regional companies, thus encouraging permanent and indirect employment derived from the operation of the Namaacha WEF.	High
Sensitivity	Medium		Medium
Classification of Significance	Moderate		High

Table 42: Physical and economic resettlement

Socioeconomic: Resettlement			
Physical resettlement will be implemented within the Project area to ensure that safe noise levels are met at all nearby noise sensitive receptors. Some economic resettlements will also be required.			
Project Phase	Construction (carrying on to Operations)		
Nature of Impact	Direct		
Scope	Local		
Probability	Highly likely		
Duration	Long term		
Reversibility	Reversible		
	Impacts without measures of mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	1. Prepare a Physical Socioeconomic Survey (PSES) Report pursuant to Mozambiquan regulations.	Moderate

Socioeconomic: Resettlement			
Sensitivity	High	2. Conduct four rounds of public consultation as required by Mozambiquan regulations. 3. Prepare and gain approval of a Resettlement Plan and Resettlement Action Implementation Plan pursuant to Mozambiquan regulations and aligned with Performance Standard 5 requirements. This will include livelihood restoration measures. 4. Implement the approved Resettlement Action Implementation Plan.	High
Classification of Significance	High		High

Table 43: Increased discomfort for the population of the region

Socioeconomic: Regional population			
Increased discomfort for the population of the region			
Project Phase	Construction		
Nature of Impact	Direct; Negative		
Scope	Local		
Probability	Certain		
Duration	Temporary		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Reduced	1. Create security areas with limited access and properly flagged, with a purpose of	Negligible

Socioeconomic: Regional population			
Sensitivity	Medium	reducing the risk of accidents, by people moving closer to the work area. 2. Among local workers there should be a group responsible for communication with the community, which will be particularly important in cases of conflict.	Medium
Classification of Significance	Reduced		Negligible

Table 44: Deterioration of traffic routes

Socioeconomic: Traffic			
Deterioration of traffic routes			
Project Phase	Construction		
Nature of Impact	Direct; Negative		
Scope	Local		
Probability	Certain		
Duration	Temporary		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Reduced	1. Specific roads/routes and timetables should be defined for the circulation of heavy vehicles, involved in the construction of the Wind Power Plant, in order to reduce pressure on other roads and congestion at times of peak traffic. 2. Whenever necessary, repair damaged roads during the construction phase.	Negligible
Sensitivity	Medium		Medium
Classification of Significance	Reduced		Negligible

Table 45: Difficulty accessing existing agropastoral farms and occupation of areas currently used by residents for agropastoral exploration

Socioeconomic: Access to farms			
Difficulty accessing existing agropastoral farms and occupation of areas currently used by residents for agropastoral exploration			
Project Phase	Construction		
Nature of Impact	Direct; Negative		
Scope	Local		
Probability	Certain		
Duration	Temporary		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Reduced	1. Whenever necessary, carry out the process of resettlement of the machambas agreed with the users. 2. Improvement of existing or alternative accesses in order to give access to the machambas.	Negligible
Sensitivity	Medium		Medium
Classification of Significance	Reduced		Negligible

Table 46: Increase in economic activities in the surrounding region (accommodation and catering)

Socioeconomic: Regional economy	
Increase in economic activities in the surrounding region (accommodation and catering)	
Project Phase	Construction
Nature of Impact	Direct; Positive
Scope	Regional and National
Probability	Certain
Duration	Permanent
Reversibility	Reversible

	Impact prior to mitigation	Mitigation measures	Residual impact
Magnitude	Moderate	1. Whenever possible, privilege the acquisition of local or regional services, thus promoting the greatest added value for the local economy.	High
Sensitivity	Medium		Medium
Classification of Significance	Moderate		High

Table 47: Introduction of negative habits in the local population

Socioeconomic: Workforce interaction with community			
Introduction of negative habits in the local population through community and workforce interaction.			
Project Phase	Construction		
Nature of Impact	Direct; Negative		
Scope	Local		
Probability	Likely		
Duration	Temporary		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	1. Among the local workers there must be a group responsible for communicating with the community, which will be particularly important in cases of conflict;	Reduced
Sensitivity	Medium		Medium
Classification of Significance	Moderate		Reduced

Table 48: Impact on workforce

Socioeconomic: Workforce	
Unfair treatment, discrimination and inadequate labour policies for the workforce	
Project Phase	Construction and Operations
Nature of Impact	Direct; Negative
Scope	Local
Probability	Certain

Socioeconomic: Workforce			
Duration	Temporary		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Reduced	1. Adopt and implement human resources policies and procedures appropriate to size of the workforce 2. Provision of reasonable working conditions and terms of employment[2] for all workers (including equivalent terms and conditions for migrant workers) 3. Compliance with national law which recognises workers rights to form and join workers' organisations or unions; 4. Non-discrimination and equal opportunity in employment decisions; 5. Analysis of alternatives to retrenchment including adequate notice of dismissal and severance payments in accordance with national law; 6. Provision of a grievance mechanism for workers (and their organizations, where they exist) to raise workplace concerns; 7. No child labour in a manner that is economically exploitative, or is likely to be	Negligible
Sensitivity	Medium		Medium
Classification of Significance	Reduced		Negligible

[2] Reasonable working conditions and terms of employment could be assessed by reference to (i) conditions established for work of the same character in the trade or industry concerned in the area/region where the work is carried out; (ii) collective agreement or other recognised negotiation between other organisations of employers and workers' representatives in the trade or industry concerned; (iii) arbitration award; or (iv) conditions established by national law

Socioeconomic: Workforce			
		hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development; 8. Inclusion of measures to address and eliminate gender-based violence at a project level; and 9. Monitoring of human rights and accessibility; 10. Reference should also be made to contractual arrangements, employment relationship on vulnerable groups, safe and healthy work environments, workers' rights (including grievance mechanism) and organisational structures. The International Labour Organisation (ILO) standards and World Bank Environmental Health and Safety Guidelines should also be referenced where appropriate. Due consideration should also be taken of workers engaged by third parties.	

9.13.2 Operational phase

Positive impacts

In the operational phase, positive impacts associated with the justification of the Project will be expected.

The electricity produced at the Project will constitute a significant positive impact, of moderate magnitude, certain (it will occur during the wind farm's operating phase), permanent, of national extent, bearing in mind that it will contribute to reducing the current external dependency with regard to the supply of fossil fuels for the production of electricity.

This positive impact is part of the objectives defined by the Government of Mozambique within the scope of various international agreements, for the reduction of greenhouse gases.

It is estimated that the Government of Mozambique will receive taxes associated with this Project for 25 years (period of operation of the Power Station), which constitutes a positive, significant and nationwide impact.

It should also be noted that the operating costs of the Project and its maintenance involve the acquisition of various materials (such as raw materials and lubricants) and services, including maintenance of the roads. These costs will benefit the local economy, with a positive impact on the population and economic activities, with a positive, insignificant, temporary impact, of local extent.

Job creation at this stage is also seen as a positive impact. In order to operate a wind facility, it is necessary to have a technical team to assist with surveillance and maintenance. For this purpose, jobs are created. Twenty (20) jobs are expected to be created. This impact is considered positive, of small magnitude, but in a region where there is little employment, significant.

The project promoter will support and finance activities for the social development of that region which will also result in a significant positive impact.

Negative impacts

It is understood that the main negative impacts are those arising from possible inconveniences caused by the Project on the inhabited and productive areas, namely in terms of the noise caused by the operation of the turbines, the visual intrusion and the intermittent shading effect of the rotor blades, which may have repercussions in terms of nuisance and health.

Issues related to noise and landscape were dealt with in the sections relating to these descriptors (noise and landscape).

With regard to shading, studies were carried out, the details of which are summarized below.

The shading, commonly called "shadow flicker", occurs when the sun is positioned behind a wind turbine in operation. As the shadows of the moving rotor blades fall on the same point, they create an intermittent shading effect - Shadow flicker.

This effect is potentially problematic when it occurs on "sensitive receptors" such as homes, schools, hospitals or other places usually occupied during daylight hours.

In this regard, the International Finance Corporation (IFC) recommends following the guidelines for wind energy in the "Environmental, Health, and Safety Guidelines" (EHS Guidelines), whose most recent edition is dated August 7, 2015.

The maximum exposure times for receptors sensitive to the effect should not exceed 30 hours a year or 30 minutes a day on the worst day of the most unfavourable scenario (described below).

In order to assess the impact of shadow flicker, sensitive receivers located within a 1500m radius of the wind turbines and their architectural features were enumerated.

It is considered that the threshold distance at which a receiver can be affected is equal to 10x the diameter of the rotor. It is especially relevant to know the location, dimensions and orientation of doors and windows of buildings. These sensitive receivers, duly characterized, were loaded into a computer model together with the wind turbines, also according to the specific characteristics of each model, and also the Digital Terrain Model.

Another modelling parameter would be the climate (insolation, wind speed and quadrant, etc), resulting from the statistical data, however and in accordance with the aforementioned "EHS Guidelines", it is important to study the most unfavourable scenario. In this, the computer model assumes that the sun is always uncovered (from sunrise to sunset), that the wind allows the wind turbines to operate constantly and that their blades are always perpendicular to the sun's rays.

The model used was the WindPRO from EMD International, which is a world leader in wind farm modelling.

The Project's Area of Influence includes several structures, including houses (made of mud, thatch, zinc) and ruins. Structures which are required to be relocated, due to shadow flicker and noise limit exceedances, will need to follow a resettlement process which aligns with Mozambiquan legislation and IFC PS5.

Table 49: Reduction in external energy dependency

Socioeconomic: Energy dependency			
Reduction in external energy dependency			
Project Phase	Operations		
Nature of Impact	Direct; Positive		
Scope	National		
Probability	Certain		
Duration	Permanent		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	Not Applicable	Moderate
Sensitivity	Medium		Medium
Classification of Significance	Moderate		Moderate

Table 50: Improvement of Mozambique's economy

Socioeconomic: National economy			
Improvement of Mozambique's economy			
Project Phase	Operations		
Nature of Impact	Direct; Positive		
Scope	National		
Probability	Certain		
Duration	Permanent		
Reversibility	Immediate		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	1. Whenever possible, favor the acquisition of services from local or regional companies, thus encouraging permanent and indirect employment derived from the operation of the Wind Power Station.	High
Sensitivity	Medium		Medium
Classification of Significance	Moderate		High

Table 51: Improvement of the local economy (building materials)

Socioeconomic: Local economy			
Improvement of the Local economy (building materials)			
Project Phase	Operations		
Nature of Impact	Direct; Positive		
Scope	Local		
Probability	Certain		
Duration	Permanent		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**

Socioeconomic: Local economy			
Magnitude	Moderate	1. Whenever possible, favour the acquisition of services (maintenance, supply of materials, supply of goods and services) from local or regional companies, thus encouraging permanent and indirect employment derived from the operation of the Wind Power Station.	High
Sensitivity	Medium		Medium
Classification of Significance	Moderate		Moderate

Table 52: Creation of jobs

Socioeconomic: Job creation			
Creation of jobs			
Project Phase	Operations		
Nature of Impact	Direct; Positive		
Scope	Local		
Probability	Certain		
Duration	Temporary		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Reduced	1. Whenever possible, favour the acquisition of services (maintenance, supply of materials, supply of goods and services) from local or regional companies, thus encouraging permanent and indirect employment derived from the operation of the Wind Power Station. 2. Contracting principles and procedures should, as far as possible, give priority to hiring qualified local workers, contributing to the creation of jobs and wealth at the local level.	Moderate
Sensitivity	High		High
Classification of Significance	Moderate		High

Socioeconomic: Job creation			
		3. Hiring policies should ensure the principle of gender equality. 4. Training actions should be provided for workers in order to boost their qualification.	

Table 53:Social development

Socioeconomic: Social development			
Social development			
Project Phase	Operations		
Nature of Impact	Direct; Positive		
Scope	Local and Regional		
Probability	Certain		
Duration	Temporary		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Reduced	1. Involve local community representatives in managing the support and funding that will be given to social development activities that will be implemented in coordination with the district and local Government.	Moderate
Sensitivity	Medium		Medium
Classification of Significance	Reduced		Moderate

Table 54: Impact of dwellings (discomfort due to the effect of shadows and noise) and field crops

Socioeconomic: Disturbance	
Impact of dwellings (discomfort due to the effect of shadows and noise)	
Project Phase	Operations
Nature of Impact	Direct; Negative

Socioeconomic: Disturbance			
Scope	Local		
Probability	Certain		
Duration	Long term		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	High	1. Prepare a Physical Socioeconomic Survey (PSES) Report pursuant to Mozambiquan regulations. 2. Prepare and gain approval of a Resettlement Plan and Resettlement Action Implementation Plan pursuant to Mozambiquan regulations and aligned with Performance Standard 5 requirements. This will include livelihood restoration measures. 3. Implement the approved Resettlement Action Implementation Plan.	Insignificant
Sensitivity	High		Low
Classification of Significance	High		Insignificant

9.13.3 Decommissioning phase

The decommissioning phase of the Project, during the removal of infrastructures, will entail impacts similar to those of the construction phase, that is, that is, localized and temporary ceasing after completion of the works. Once the infrastructure is removed, the impacts will cease. Given the unknown conditions that will be present in 25 years, it is impossible to accurately assess the significance of this impact at this time; however, it is expected that a Decommissioning Plan will be developed at that time that evaluates potential impacts and proposes appropriate mitigation aligned with current GIIP.

9.14 Landscape/Visual

See section 9.14 of the 2022 EIA.

Lubombo Transfrontier Conservation Area - Goba Conservancy

The LSA is situated within the Goba Conservancy, which is the Mozambican part of the Lubombo Transfrontier Conservation Area. While indicated on LTCA maps as a protected area, it is not yet statutorily designated as a protected area in Mozambique – it has been a

focus area for community conservation since the 1990's (Ullenberg et al., 2014) and is expected to be formalised via a law on the protection, conservation and sustainable use of biodiversity adopted in June 2014 (Lei no. 16/2014, Art. 22) (Ullenberg et al., 2014). Allowed land uses in such community conservation areas include concessions for tourist activities, and sustainable use of natural resources - depending on the development of an approved management plan (Ullenberg et al., 2014).

The presence of the Namaacha WEF in the landscape could affect the tourism value of the Goba Conservancy due to changes in the visual characteristics of the landscape potentially causing a loss in natural scenic value (Matos et al., 2022), and potential impacts on vegetation and fauna (discussed above) which form part of the potential tourism attraction to the area.

The magnitude of the presence of the WEF on the scenic and wildlife value of the Goba conservancy is expected to be moderate, since views of the WEF will be changed, and some significant residual (high) operation-phase impacts on avifauna (which form part of the area's tourism value) are predicted. The sensitivity of the receptor is considered High, since Goba Conservancy is of national conservation value, forming part of a transfrontier (cross-border) conservation area. The extent of the effect will be local. The duration will be long-term, extending throughout the Project's operational lifetime. The overall impact prior to mitigation is one of high significance; with the application of the recommended mitigation measures, the residual impact is predicted to be of negligible significance.

Table 55: Decommissioning phase: Impact on Goba Conservancy

Impact on Goba Conservancy			
The presence of the Namaacha WEF in the landscape could affect the tourism value of the Goba Conservancy			
Project Phase	Operations		
Nature of Impact	Direct		
Scope	Local		
Probability	Highly likely		
Duration	Long-term		
Reversibility	Reversible		
	Impact prior to mitigation	**Mitigation measures**	**Residual impact**
Magnitude	Moderate	1. Support development of a management plan for the	Insignificant

Impact on Goba Conservancy			
Sensitivity	High	Goba conservancy such as a Community Development Plan (CDP) to encourage ecotourism	High
Classification of Significance	High		Negligible

9.15 Cumulative impacts

See section 9.15 of the 2022 EIA.

10.0 RISK ANALYSIS

Refer to section 10 of the EIA (2022).

11.0 MITIGATION MEASURES

11.1 General Considerations

The measures proposed in this Chapter aim to reduce the magnitude and significance of the identified impacts and compensate for their negative effects, where possible. The main aspects associated with the minimisation of impacts on most of the descriptors, arising from the construction phase of the Project, are associated with the correct management of the work fronts and construction site, applying transversally to several descriptors and therefore being addressed in a separate sub-chapter, however, they are also referred to for each of the descriptors in which this is relevant.

11.2 Measures for the Design Phase

The measures listed here replace the mitigation measures included in section 11.2 of the 2022 EIA.

- Turbines should be located within a safe distance to meet the noise limits set out in the IFC/World Bank EHS Guidelines for noise at all permanent dwellings.
- Turbines should also be located a safe distance from dwellings to minimise shadow flicker effects (i.e. a minimum of 10x the diameter of the rotor).
- Implement the process of resettlement/relocation of persons/families whose housing is exposed to noise levels above the limits IFC/World Bank EHS Guidelines.

11.3 General Measures

11.3.1 Preparation phase prior to the execution of the works

- Disseminate the programme of execution of the works to the populations concerned, in particular the population living in the surrounding area. The information provided should include the purpose, nature, location of the works, the main actions to be carried out, their timetable and any impact on the population, in particular the impact on accessibility.
- Implement a public service mechanism to clarify any doubts and address any complaints.
- Carry out environmental and safety training and awareness-raising activities for the workers and foremen involved in the execution of the works regarding the actions likely to cause environmental impacts and the minimisation measures to be implemented, in particular the rules and precautions to be taken during the works (included in the Environmental Management Plan and the Safety and Health Plan) (PSS)).
- Draw up a Work Plan of all the works assigned to the contract that includes, among other relevant aspects of the contract, the phases foreseen for earthmoving, for clearing and deforestation actions and for the crossing of water lines.

- Draw up a Landscape Integration Plan for the Works, in order to ensure the appropriate landscape framework that guarantees the attenuation of the visual affectations associated with the presence of the works and their integration into the surrounding area.
- Implement the Works Environmental Monitoring Plan, consisting of the planning of the execution of all elements of the works and the identification and detailing of the minimisation measures to be implemented during the execution phase of the works, and their respective timetable.
- Correctly signpost accesses to the intervention area with speed reduction indications. Properly signpost the 30km/h speed limits within the works area.

11.3.2 Setting up the site and stockpiling materials

- The location of the construction site, if different from the one foreseen in this EIA, should be chosen avoiding areas within 50 m of permanent water lines, avoiding the destruction of tree species.
- The site should be organised in the following areas:
    - Social areas (support containers for the technical teams present on site);
    - Waste disposal: two types of containers should be placed - containers intended for Urban Solid Waste and similar and container intended for construction waste;
    - Storage of polluting materials (oils, lubricants, fuels): this area should be properly dimensioned, waterproofed and covered so as to prevent overflows and that, in the event of accidental spillage, contamination of adjacent areas does not occur (it should have a drainage system for a watertight retention basin);
    - Car and equipment parking; and
    - Deposition of construction materials.
- The construction site should be fenced off, or if this is not possible, the area allocated to it should be marked off with visible signs. Warning signs should be placed on the fencing, including the safety rules to be observed and the schedule of works.
- The construction site and the different work fronts must be equipped with all the necessary materials and means to respond to environmental incidents/accidents, including accidental spillages of polluting substances. They must be waterproofed and with effective drainage, easily accessible.
- Access by personnel not assigned to the works must be avoided or, if possible, prohibited. Therefore, the intervention areas that intersect public roads and paths must

be signposted in accordance with the municipal traffic regulations, and whenever justified, fenced off.

- Measures should be adopted in the field of information signalling and traffic regulation on the roads crossed by the Work Site, aiming at safety and information during the construction phase, complying with the National Regulations in force and the best international rules on the subject. international rules on the matter.
- A rainwater drainage system should be established around the construction site area.

11.3.3 Deforestation, clearing and stripping of soils

- The deforestation and soil stripping works should be limited to the areas strictly necessary for the execution of the works, and the vegetation cover of each intervention area should be restored as soon as the earthworks (which are expected to be minor) are completed, particularly in the excavation and embankment areas. This measure is particularly important in the areas of the working platforms for the construction of the control building and the substation and in the construction sites of the foundations of the power line supports. In this way, some potential direct affectations of the subsurface hydrogeological system of local scope will also be taken care of.
- Prior to earthmoving works, topsoil should be removed and stockpiled for later re-use in areas affected by the works.
- Stockpiling of topsoil from surface stripping should not exceed two metres in eight and should be located in the vicinity of the sites from which the topsoil was removed, on flat, well-drained areas, for later use in reclamation actions.
- Plant biomass and other waste resulting from these activities should be reused wherever possible.
- Earthmoving and machinery movements should, as far as possible, favour the use of existing accesses or those less sensitive to soil compaction and waterproofing, avoiding the movement of machinery indiscriminately over the entire site.

11.3.4 Excavations and earthmoving

- Excavation and backfill works should be started as soon as the soil is clean, avoiding repetition of actions on the same areas.
- Land clearing and stripping, earthmoving and exposure of bare soil should, where possible, be reduced during periods when heavy rainfall is most likely to occur, to minimise waterborne erosion and the consequent transport of sediment to major water lines.
- The execution of excavations and embankments should be interrupted during periods of high rainfall and precautions should be taken to ensure the stability of the slopes and to avoid landslides.

- Where possible, use materials from excavations as backfill material in order to minimise the volume of surplus land (to be transported outside the intervention area).
- Excavation materials that cannot be utilised, or are in excess, should be stored in suitable storage facilities.
- In areas where works are carried out that may affect water lines, measures should be implemented to minimise interference with the water regime, pre-existing vegetation cover and bank stability. The natural flow of the water line should never be interrupted. All interventions in the water domain that are necessary during the course of the work must be previously licensed.
- During the temporary storage of earth, it must be protected with waterproof coverings. The height of earth piles should be such as to ensure their stability.

11.3.5 Construction and rehabilitation of access roads

- Favour the use of existing paths to access the construction sites. If new access roads or improvements to existing access roads are required, the works should be carried out in such a way as to minimise changes in land use outside the areas that will subsequently be occupied by the access road.
- Ensure correct compliance with safety regulations and signalling of works on public roads, taking into account safety and minimising disruption to the activities of the population.
- Non-waterproofing materials should be used for the access roads to be built.
- Ensure that paths or access roads in the vicinity of the Project area are not obstructed or in poor condition, enabling their normal use by the local population.

11.3.6 Movement of vehicles and operation of machinery

- When crossing inhabited areas, moderate speeds should be adopted in order to minimise dust emissions.
- Ensure that dusty or particulate materials are transported in suitable vehicles with the load covered to prevent the dispersion of dust.
- Ensure that construction methods and equipment are selected that give rise to the least possible noise.
- Ensure that only equipment that is in a good state of repair/maintenance is present on site.
- Carry out maintenance and periodic overhaul of all machinery and vehicles assigned to the work, in order to maintain normal operating conditions and ensure the minimisation of gaseous emissions, risks of soil and water contamination, and in order to comply with noise emission standards. Ensure that the noisiest operations carried out in the vicinity of dwellings are restricted to the daytime and on working days.

- Parking areas for machinery and vehicles must be paved or waterproofed.
- Regular and controlled sprinkling of water, especially during dry and windy periods, in the work areas and in the accesses used by the various vehicles, where the production, accumulation and re-suspension of dust may occur.
- Structural and construction solutions for bodies and buildings, and installation of soundproofing systems for equipment and/or buildings housing the noisiest equipment, should be adopted to ensure compliance with the limits set out in the IFC standards.

11.3.7 Product, effluent and waste management

- Implement the Waste Management Plan and the respective minimisation measures contained therein, in accordance with the provisions of the EMP.
- Ensure the correct temporary storage of the waste produced, according to its typology and in accordance with the legislation in force. Provision must be made for the containment/ retention of any run-off/spillages. It is not permissible to deposit waste, even temporarily, on the banks, beds of water lines and areas of maximum infiltration.
- Open burning of hazardous waste is prohibited.
- Waste produced in social areas and comparable to urban solid waste must be deposited in containers specifically designated for this purpose and must be sent to an appropriate final destination to be agreed with the municipality.
- Construction and demolition waste and similar non-hazardous industrial waste shall be sorted and separated into its recyclable components and subsequently recovered.
- Used oils, lubricants, paints, adhesives and resins should be stored in suitable, leak-proof containers and then sent to an appropriate final destination, preferably recycling.
- Keep an up-to-date record of the quantities of waste generated and their final destinations, based on the documentation provided for in the legislation.
- Ensure proper final disposal of domestic effluent from the site, collection in tanks or watertight pits.
- The product storage area and the car parking area must be drained into a retention basin, sealed and isolated from the natural drainage network, in order to prevent accidental spills of oils, fuels or other hazardous products from contaminating soil and water. This retention basin must be equipped with a hydrocarbon separator.
- The storage of fuels and/or other polluting substances is only permitted in watertight containers, properly secured and within the site area prepared for that purpose. Containers must be clearly identified and labelled to indicate their contents.
- Whenever a chemical spill occurs on the ground, the contaminated soil should be collected, if necessary with the aid of a suitable absorbent product, stored and sent for final disposal or collection by a licensed operator.

- If generators are used in the course of the work, to supply electricity to the site, for testing the wind turbines or for other purposes, they must be properly conditioned to avoid contamination of the soil.
- Maintenance and washing of machinery and vehicles should not be carried out in the project area. If indispensable, conditions must be created to ensure that the soil is not contaminated.

11.3.8 Final phase of work execution

- Decommission the area allocated to the works for the execution of the project, with the dismantling of the construction sites and removal of all equipment, support machinery, material deposits, among others. Carry out the cleaning of these sites, at the very least restoring them to the conditions that existed before the work began.
- Part of the area around each of the wind turbine assembly platforms should be restored, leaving only one road around each wind turbine, necessary for the circulation of vehicles assigned to maintenance operations.
- Restore paths and roads used as access to sites under construction.
- Ensure the reinstatement and/or replacement of any existing infrastructure, equipment and/or services in the areas under construction and adjacent areas, which are affected during the course of the works.
- Ensure the unblocking and cleaning of all hydraulic drainage elements that may have been affected by the construction works.
- Re-establish and restore the landscape of the degraded surrounding area, if applicable, through reforestation with native species and the re-establishment of natural infiltration conditions, with the decompaction and aeration of the soils.

  Carry out landscape restoration of borrow pits, if materials from outside the intervention area are found to be necessary.

11.4 Additional Geology and Hydrogeology Measures

11.4.1 Construction phase

- The execution of excavations and embankments should be interrupted in periods of high rainfall and due precautions should be taken to ensure the stability of the slopes and to avoid ravines and/or landslides/slips.
- In the vicinity of the site planned for the construction of the platforms of wind turbines No. 3 and No. 10, 11, 12, 13, 14 and 15, and their respective access roads, special care should be taken in earthmoving to avoid the dragging of soils into the hydrographic network, namely the Maxongoluluane River in the northern sector of the N-S ridge (wind turbine No. 3) and the tributaries of the Mixumene, Mitesandene,

Libunzene, Macuabane rivers in the eastern sector of the W-E ridge that drain the area of wind turbines No. 10 to 15 and their access roads.

- Any storage of the stripped topsoil horizon, despite its reduced thickness, should be carried out in an appropriate place, duly protected by covers to prevent its mobilisation by rainwater and wind, and should be replaced later during the restoration phase of the affected areas, especially the excavation and embankment slopes of the wind turbine platforms, substation and access roads.
- The height of the earth heaps must ensure their stability and the cover must ensure that the soil is aerated. This measure is highly effective in protecting the soil and reduces the costs of restoring the affected sites, since it is a pedological stratum of the intervention site where seeds of local plant species are present and will easily develop. At the same time, the use of stripped soils for restoration of affected areas will avoid the use of other soils of good quality and consequently the movement of earth.
- The land resulting from the excavations should be used, whenever possible and if the materials have adequate geotechnical characteristics, in construction works where there is a need for landfill, namely in the need for backfill, namely in the regularisation of the platforms of the accesses to be built and in the construction and regularisation of the platforms of the wind turbines and substation.
- In view of the proximity of a well identified in the vicinity of the access to be regularised (approximately 400 m to the south of the site planned for wind turbine no. 6), it should be signposted and a protection and safety area demarcated to prevent it from being affected.
- The handling of oils during the construction phase and the maintenance of machinery must be carried out with the necessary care in order to limit possible spillages that could cause contamination of the soil and groundwater. To this end, it is recommended that these operations take place in a specifically designed area of the site, isolated from the natural drainage network and prepared (waterproofed and capped) to retain any possible spillage. In addition, it is recommended that waste oils are stored in suitable, leak-proof containers for further treatment by a licensed operator.
- In the event of an accidental spillage of oils, fuels or other substances, the affected soil layer should be removed immediately and the spillage should be directed to an appropriate final destination. This prevents contamination of the underlying soil layers and deep penetration of the substances involved, which could also contaminate groundwater.
- Ensure the appropriate final destination for domestic effluents from the site, in accordance with the legislation in force, with collection in leak-proof removable devices and subsequently forwarded for treatment, thus avoiding the possibility of infiltration into the soil and potential affectation of groundwater and surface water.

- The discharge of the water resulting from the cleaning of the concrete mixers should be carried out in places to be indicated by the environmental monitoring team and never in places close to water lines. Depending on the site under consideration, the opening of a retention basin may be indicated, preferably in a place where the concrete mixers must pass. The retention basin should be waterproofed and may have a layer of gravel, which after some washing can be removed and used for backfill and replaced in the retention basin.

11.4.2 Operation phase

- Decommission the area allocated to the works for the execution of the project, with the dismantling of the construction sites and removal of all equipment, support machinery, material deposits, among others. Clean up these sites, at least restoring them to the conditions existing before the start of the works.
- In the operation phase it is recommended that all maintenance operations be carried out with due care to avoid accidental spillages of oils, fuels or other substances.
- Waterproofed areas should be reduced to the minimum necessary, promoting the decompaction of the soils of the work areas after completion of the works, in places where future use is not expected for maintenance actions of the enterprise. This measure will have an impact on the easier infiltration of rainwater.
- During the operation phase, consideration should be given to emergency and safety plans to deal with any accidental spills that may affect the hydrogeological environment of the study area.

11.5 Additional Surface Water Resources Measures

11.5.1 Construction phase

- Clearing and general earthmoving works should be programmed to minimise the period of time during which soils are uncovered and should preferably take place during the dry season. Otherwise, the necessary measures should be taken to control the flow of water in the work areas in order to reduce their erosive capacity.
- Ensure natural drainage at all stages of site development.
- The site area should not be waterproofed, with the exception of places for handling and storing polluting substances.
- It is recommended that oil and fuel handling operations take place in the site area, specifically designed for that purpose, and prepared (waterproofed and capped) to be able to retain any spills.
- It is recommended that waste oils are stored in suitable, leak-proof containers. In the event of an accidental spillage of oils, fuels or other substances, the affected soil layer

should be immediately removed and the spillage directed to an appropriate final destination.

- In the event of accidental spillage outside the substance storage areas, a layer of absorbent material should be applied immediately and removal of the affected soil should be arranged to a suitable destination to be indicated by the entity responsible for environmental supervision, where no additional environmental damage will result.
- The discharge of water resulting from the cleaning of concrete mixers shall be carried out in places approved by the environmental monitoring team.
- Carry out temporary crossings of water lines in such a way as not to cause obstruction to the normal flow of water.
- If applicable, the necessary water abstraction licences should be applied for.

11.5.2 Operation phase

- Oil handling operations, in the case of maintenance and repair of structures, should take place in an area specifically designed for that purpose, and prepared (waterproofed and capped) to be able to retain any spillage.
- It is recommended that waste oils are stored in suitable, leak-proof containers. In the event of an accidental spillage of oils, fuels or other substances, the affected soil layer should be removed immediately and the spillage directed to a suitable location.
- In the event of an accidental spillage outside the substance storage and equipment maintenance areas, a layer of absorbent material should be applied immediately and removal of the affected soils should be arranged to a suitable destination to be indicated by the entity responsible for environmental supervision, where no additional environmental damage will result.
- If erosive phenomena are identified, corrective solutions should be implemented, to be studied on a case-by-case basis, to control erosion.
- If applicable, the necessary water abstraction licences should be applied for.

11.6 Additional Soil and Land Occupation Measures

11.6.1 Construction phase

- The layers of vegetable soil or live soil resulting from stripping should be deposited in flat areas, in stockpiles, in a place not in conflict with the works and with the areas of greatest ecological sensitivity, preferably as close as possible to the place where they are to
- be applied and should not be trampled by vehicles.

- Carry out appropriate modelling of the slopes and cover them with vegetable soil. Place live soil to allow and stimulate the growth of native vegetation, with a view to conserving and/or rehabilitating habitats.
- In order to avoid situations where the soil remains uncovered for long periods of time, the works should be properly planned, i.e. immediately after a stripping action the coating works should take place. These actions should be carried out successively in small sections, in order to avoid stripping large areas at once.
- Controlled removal of all spoils from stripping, clearing/deforestation actions required for the implementation of the Project shall be ensured and may be used for soil fertilisation.
- Adequate decompaction of soils that have been compacted by the movement of machinery and vehicles, thus facilitating the regeneration of soils, vegetation and favouring the recovery of habitats.

11.7 Additional Ecology Measures

11.7.1 Design phase

- Develop a Biodiversity Action Plan (BAP) to meet the requirements of Performance Standard 6 for critical habitat.
- Blade painting - All wind turbines must have one blade painted according to a local civil aviation authority approved pattern to reduce the risk of raptor collisions.
- Noise deterrents will be installed on all turbines to help promote bird avoidance behaviours.
- Implement an Automated Shut-down-on-Demand system for turbines using a camera system such as Identiflight®. This should be implemented for the Red Listed species as a minimum.
- Additional actions are recommended to refine and improve the implementation of bird mitigation measures:

  Flight Risk Modelling (of all Red List raptors) to create a spatially explicit risk profile and delineate a high-risk turbine exclusion zone.
  Collision Risk Modelling (CRM). The CRM should be used to calculate fatality estimates for the all the Red List raptors at the Source Area.

11.7.2 Construction phase

The following mitigation measures were included in the 2022 EIA for Ecology and remain applicable following the revised ecological assessments:

- Carry out landscape restoration as soon as practical after the end of construction activities on the land that has been affected by the works (e.g. construction laydown areas). Only native species should be used for restoration.
- Avoid conducting construction activities in the evening (i.e. after 22:00).
- If using explosives, pre-cutting techniques and the use of micro-retarders should be used, thus attenuating the intensity of the vibrations produced.
- Avoid clearance activities within 500 m of rivers and 200 m within drainage lines.
- Avoid creation of new linear edges of forested areas from the site clearance activities that could create a new pathway for bat foraging.
- Construction activities should be restricted to the immediate footprint of the infrastructure as far as possible. Access to the remainder of the area near construction activities should be strictly controlled to prevent unnecessary disturbance of priority bird species.
- Application of noise and dust control measures (see section 11.11.1 and section 11.3).
- Promote an awareness-raising action among workers for the non-harvesting or damage to plant specimens.
- Inform workers and supervisors of the possible consequences of a negligent attitude in relation to the identified mitigation measures, through instruction on the environmentally appropriate procedures to be carried out on site (environmental awareness).
- Limit the removal of vegetation to the areas strictly necessary for the execution of the work and preserve as many trees and shrubs as possible.
- All tree and shrub species that do not affect the execution of the work should be safeguarded.
- Develop maintenance actions in the areas under restoration to ensure that conditions are created for the normal development of natural habitats.
- Implement a landscape restoration plan that includes the use of native species belonging to the vegetation type described in the 2022 EIA.
- Concentrate works in time, especially those that cause the greatest disruption.
- Plan the timing of the works to minimise impacts on the different species of species relevant to this area.
- Minimise wildlife disturbance by completing construction work to schedule.
- Provide mess facilities for construction workers and ban hunting.
- Limit the use of security fencing to laydown areas, site offices only.

- Maintain access through fenced roads/areas via agreed crossing points.
- Support of community development initiatives for improving food security and agricultural output.
- Any economic displacement should be managed in via an approved Resettlement Action and Implementation Plan that is aligned with Mozambique regulations and Performance Standard 5.
- Protect and maintain alternative areas where the local community can access wood.
- Identify any important medicinal plant supply areas within the affected areas and manage/conserve accordingly.

11.7.3 Operational phase

- Should a mortality of a Red List species be recorded, an observer led shutdown on demand (SDoD) programme should be considered in addition to the Automated Shut-down-on-Demand programme.
- Livestock carcass and prey-availability management programme to be implemented.
- Underground cabling should be used as much as is practically possible, to minimise risk of powerline collisions.
- If the use of overhead lines is unavoidable due to technical reasons, the Avifaunal Specialist must be consulted timeously to ensure that a raptor friendly pole design is used, and that appropriate mitigation is implemented pro-actively for complicated pole structures e.g., insulation of live components to prevent electrocutions on terminal structures and pole transformers.
- Bird flight diverters should be installed on all the overhead line sections for the full span length according to the applicable International Best Practice standards at the time.
- Regular inspections of the overhead sections of the internal reticulation network must be conducted during the operational phase to look for carcasses according to the applicable International Best Practice standards at the time.
- All wind turbines are to be subjected to standard blade feathering (up to 3.5 m/s) during spring and summer from the date of project inception. This should be implemented throughout the lifespan of the project, with specific parameters (seasonality and wind speed) being updated throughout the course of an operational bat monitoring campaign, as more fatality and acoustic data becomes available.
- Avoid artificial light sources where possible. White, steady lights in particular attract prey (e.g., insects), which in turn attracts predators. If lights are used, red or white blinking or pulsing lights are best. Steady or slow blinking lights are to be avoided. Timers, motion sensors, or downward-hooded lights help to reduce light pollution.

- For any turbines located within the high sensitivity buffer areas (See Figure 4 of the ESIA Addendum), suitable minimisation techniques (i.e. curtailment or ultrasonic deterrents) are to be implemented from the start of operation, in accordance with the parameters defined in Table 24 of the ESIA Addendum.
- Fatality thresholds for all identified bat species should be calculated following international best practice (e.g. The South African Bat Assessment Association fatality threshold guidelines, MacEwan et al. 2018).
- The mitigation measures for bats are to be updated on an on-going basis, as part of an adaptive management process, whereby any residual impacts are mitigated according to the best available data obtained at the time that the impact is realised.
- If unacceptable impacts to megabats are identified through ongoing monitoring, then curtailment (following the parameters detailed in Table 24 of the ESIA Addendum) should be implemented.
- If estimated collision rates indicate unacceptable mortality levels of priority bird species, the Automated Shut-down-on-Demand system should be expanded to include these species as well.
- Implement a Biodiversity Action Plan (BAP) that meets the requirements of Performance Standard 6 for critical habitat.

11.8 Additional Landscape Measures

11.8.1 Construction phase

N/A

11.8.2 Operation phase

N/A

11.9 Additional Socioeconomic Measures

11.9.1 Design phase

- Prepare a Physical Socioeconomic Survey (PSES) Report pursuant to Mozambiquan regulations.
- Conduct four rounds of public consultation for the resettlement process as required by Mozambiquan regulations.
- Prepare and gain approval of a Resettlement Plan and Resettlement Action Implementation Plan pursuant to Mozambiquan regulations and aligned with Performance Standard 5 requirements. This will include livelihood restoration measures.
- Implement the approved Resettlement Action Implementation Plan.

11.9.2 Construction phase

- Employment principles and procedures should prioritise the hiring of skilled local workers, contributing to local job and wealth creation.
- Employment policies should ensure the principle of gender equality.
- Training should be provided for workers in order to promote their skills.
- In case there are local expectations for employment that cannot be met by the Project, the limited availability of places should be made known to stakeholders through local authorities and community representatives.
- Employment requirements should be transparent, following pre-established and recognised criteria, and properly advertised before the recruitment process starts and respected by the contractor, so as not to limit the opportunities to apply. For best impact on communities this process should be conducted with the involvement of local leaders.
- For each position, the exact number of jobs available, the period applicable and the remuneration to be awarded for each type of work should be disclosed.
- As much training as possible should be given to local workers to perform semi-skilled tasks, in order to reduce the number of workers hired from outside for this purpose.
- Specific lanes/routes and schedules should be defined for the circulation of heavy vehicles involved in the construction of the Namaacha Power Plant in order to reduce pressure on other roads and congestion at peak traffic times.
- Where necessary, repair roads damaged during the construction phase.
- Favour, whenever possible, the procurement of local or regional services, thus fostering the greatest added value for the local economy.
- Warn people living in and frequenting the areas most affected by the work about the timing of the work, especially to avoid constraints due to the increased movement of vehicles.
- Create safety areas with limited access and properly signposted, in order to reduce the risk of accidents, by the approach of people to the work area.
- There should be a group among the local workers responsible for communication with the community, which will be particularly important in cases of conflict. This group should be familiar with the Project in general and be able to properly iron out any difficulties or pass on any complaints/grievances.
- Develop and implement a Health and Safety Plan. This plan should include training plans for workers in the area of occupational health and safety.
- Provide Personal Protective Equipment (PPE) to all workers.

- The use of PPE will be mandatory (helmet, jacket, footwear, among others).
- Ensure that all construction vehicles and equipment (including mobile equipment) are suitable for the specific activity and comply with current legislation and standards. Regular maintenance of these should be carried out.
- All construction equipment must be operated by operators who have been previously trained and certified for this purpose.
- All temporary electrical installations should be assembled using the same safety specifications as for fixed electrical installations.
- All temporary electrical installations shall be inspected at least once a week by a competent person and this inspection shall be recorded.
- A competent person should be appointed for the control of temporary electrical installations on a construction site.
- All flammable liquids used on the construction site should be properly stored to prevent fire or explosion. The storage area should be well ventilated.
- Smoking will be prohibited on site and this information must be properly signposted.
- Suitable fire fighting equipment should be provided, this equipment should be well located and labelled on site.

11.9.3 Operational phase

- Favour, whenever possible, the procurement of services (maintenance, supply of materials, supply of goods and services) from local or regional companies, thus fostering permanent and indirect employment derived from the operation of the Namaacha Power Plant.
- Employment principles and procedures should, as far as possible, prioritise the hiring of qualified local workers, contributing to local job and wealth creation.
- Employment policies should ensure the principle of gender equality.
- Training should be provided for workers in order to promote their skills.
- Healthcare and safety measures shall be ensured for the workers of the Namaacha Power Plant, taking into account the specific risks of each position.
- Involve local community representatives in the management of the support and funding that will be given to social development activities that will be implemented in co-ordination with the District and local government.
- Carry out all required physical resettlement and livelihood restoration monitoring required under the Resettlement Plan and Resettlement Action Implementation Plan.

11.10 Additional Air Quality Measures

11.10.1 Construction phase

N/A

11.10.2 Operational phase

N/A

11.11 Additional Noise Measures

11.11.1 Design phase

- Physically resettle households, following a process aligned with Mozambiquan regulations and Performance Standard 5, where noise levels are expected to exceed 35 dB(A).

11.11.2 Construction phase

- Plan construction activities in consultation with local communities so that activities with the greatest potential to generate noise are planned during periods of the day that will result in least disturbance. Information regarding construction activities should be provided to identified and nearby receptors likely to be affected. Such information includes:
    - Proposed working times.
    - Anticipated duration of activities.
    - Explanations on activities to take place and reasons for activities.
    - Contact details of a responsible person on site should complaints arise.
- When working near a potential sensitive receptor, limit the number of simultaneous activities to a minimum as far as possible.
- Use noise control devices, such as temporary noise barriers and deflectors for high impact activities, and exhaust muffling devices for combustion engines.
- Select equipment with the lowest possible sound power levels whilst still being suitable for the specific task.
- Ensure equipment is well-maintained to avoid additional noise generation.

11.11.3 Operational phase

N/A

11.12 Additional Archaeological and Cultural Heritage Measures

11.12.1 Design phase

- Develop a Project-specific Chance Finds Procedure.

- Develop a Project-specific Cultural Heritage Management Plan (CHMP). The CHMP will include the following:
    - Cultural heritage avoidance plans (constraints mapping) to locate tangible cultural heritage receptors (CH-1 – CH-14), and suitable buffers, to inform final Project design, such as the relocation of access tracks, compounds etc in order to avoid sites and to allow for continual community access, if necessary, in consultation with local custodians.
    - A programme for scheduled / ongoing engagement with the Affected Communities local to the Project, to provide a forum to identify any unanticipated impacts and assess the effectiveness of these mitigation measures proposed.
    - A programme for cultural heritage awareness training to be incorporated into the site induction process for all site staff and contractors.

11.12.2 Construction phase

- Implement a Project-specific Chance Finds Procedure.
- Implement a Project-specific Cultural Heritage Management Plan.

11.12.3 Operational phase

- The physical demarcation of known grave sites by establishing suitable buffers, in consultation with local custodians, to ensure continued safe access.
- Implementation of the Project's Stakeholder Engagement Plan (SEP) and Community Grievance Redress Mechanism.
- Implementation of the Project's Chance Finds Procedure.

11.13 Additional Waste Management Measures

Note that a high-level Waste Management Plan is now also included in the revised EMP for the Project (see Annexure 1).

11.13.1 Construction phase

- The waste resulting from the various construction works (cardboard, plastic and metal packaging, frames, formwork, among others) must be temporarily stored in a container in the construction site area, for later transport to an authorised location.
- Waste shall be sent to appropriately licensed companies as described in subchapter 7.10 and Annex 6 of the 2022 EIA.
- The segregated waste must be collected daily from the work fronts and temporarily stored on site, properly conditioned and in places specifically prepared for this purpose.

- Inert material from excavation operations should be deposited in the surroundings of the sites from which it was removed, to be subsequently used in backfilling operations.
- The site for the temporary waste storage facility should be clearly defined and labelled for this purpose. Access to this site should be restricted. Waste should be segregated and stored separately according to its characteristics and final destination. The storage locations for the different types of waste must be identified. The storage of waste on site must be done under appropriate conditions, as established in the applicable legislation in force.
- All waste classified as hazardous, namely waste oils, lubricants, as well as waste contaminated by oils, should be properly conditioned and stored in an appropriate place. The construction/implementation of a retention basin should be considered in order to minimise the impact of any spills. Subsequently, they should be taken for appropriate treatment by a company licensed for this purpose (list of waste operators - Annex 5 of the 2022 EIA).
- The temporary storage of waste oils and fuels should be carried out in a waterproofed and covered place, with an accidental spillage retention basin, separating used hydraulic and motor oils for differentiated management. Containers should be clearly labelled on the outside as to the different types of oil.
- The rejection of any type of waste into water lines or soil should be prohibited. Hazardous waste must be managed individually, in accordance with the law.
- Select companies for the treatment and final destination of the different segregated waste that are included in the lists of units accredited for this purpose.
- Provide the site with waste collection equipment in number, capacity and type, appropriate to the waste produced.
- Remove and properly dispose of solid and liquid waste produced on the construction site (list of waste operators - Annex 5 of the 2022 EIA).

11.13.2 Operational phase

- The forwarding to a duly authorised final destination of the waste generated in these operations.
- Waste must be stored in an appropriate manner, separating hazardous waste from non-hazardous waste, under technical conditions that prevent environmental contamination by the waste.
- The waste shall be sent to duly licensed companies as described in subchapter 7.10.1 of the 2022 EIA.

12.0 CONCLUSIONS

The implementation of Project will make a critical contribution to Mozambique's National Energy Strategy, the main goals of which are to promote universal access to electricity, reinforce Mozambique's position as an important regional power hub, to support social development and poverty alleviation, and to promote general economic growth.

The analysis carried out in the previous EIA (2020, modified in 2022) and additional specialist studies carried out by WSP Golder has identified a variety of impacts and mitigation measures that has facilitated the preparation of an updated Environmental Management Plans for the project to guide CEN and its contractors during construction, operations and decommissioning phases. Mitigation measures and monitoring programmes have been identified in all of the specialist investigations and were also drawn into the management plans for implementation.

Therefore, the implementation of the identified mitigation measures will reduce any negative environmental and social impacts of the CEN project to an acceptable level and will enhance the positive impacts to maximize their effect on the surrounding communities.

13.0 REFERENCES

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Annexure 1: Environmental Management Plan

Annexure 2: Specialist Reports

Included in this Annexure are the following specialist reports:

- Bat Pre-Construction Monitoring, Arcus, February 2023.
- Bats Impact Assessment Report, Arcus, November 2023.
- Bird Monitoring Report, Chris van Rooyen Consulting, July 2023.
- Critical Habitat Screening, WSP, August 2023.
- Ecosystem Services Impact Assessment, August 2023.
- Environmental Acoustic Specialist Study, WSP, August 2023.
- Cultural Heritage Impact Assessment, WSP, August 2023.

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