Appendix A
Cabeolica Expansion Project Boa Vista - Environmental and Social Management Plan (ESMP)

Cabeolica SA

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Acronyms

Acronyms	Definition
AEB	*Águas e Energía de Boa Vista*
AfDB	African Development Bank
AIA	Environmental Integral Authorization
ALARP	A Low As Reasonably Practicable
BAT	Best Available Technology
BESS	Battery Energy Storage System
CAC	*Centro Arte e Cultura*
CCESMP	Contractor Construction Environmental and Social Management Plan
CESMP	Contractor Environmental and Social Management Plan
DAOI	Direct Area of Influence
DGASP	*Direção Geral de Agricultura, Silvicultura e Pequária*
DNA	*Direcção Nacional do Ambiente*
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EPC	Engineering, Procurement and Construction
ERP	Emergency Response Plan
ESAP	Environmental and Social Action Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
EU	European Union
GBV	Gender-Based Violence
GIIP	Good International Industry Practice
GPS	Global Positioning System
GRM	Grievance Rerness Mechanism
HMA	Hazard Mitigation Analysis
HHS	Hygiene Health and Safety
HSE	Health, Safety and Environment
IAOI	Indirect Area of Influence
IUCN	International Union for Conservation of Nature
KPI	Key Performance Indicator
MESA	Environmental, Social and Administration Manager
MSDS	Material Safety Data Sheet
NGO	Non-Governmental Organization
NIP	*Número de Identificação Predial*

Acronyms	Definition
OE	Owner's Engineer
O&M	Operation and Maintenance
OS	Operational Safeguard
PPE	Protective Personal Equipment
SEP	Stakeholder Engagement Plan
SDTBM	*Sociedade de Desenvolvimento Turistico das Ilhas de Boa Vista e Maio*
VAC	Violence Against Children
VR	Valued Receptors
WMP	Waste Management Plan

1 Introduction

1.1 Project description

Cabeolica, a Private-Public-Partnership between the Government of Cabo Verde, Electra S.A. and Infraco Limited, is a wind energy company in Cabo Verde that owns and operates four (4) independent windfarms, each on one of four islands of the Cabo Verde Archipelago: Sal, São Vicente, Boa Vista, and Santiago. These windfarms began producing energy commercially in May 2012 and have operated continuously; however, they shed considerable levels of produced energy due to insufficient demand loads on the islands.

Currently, Cabeolica plans to maximize the delivery of all available energy and reduce the risk of losing potential revenue through the Expansion Project, which will reduce diesel spinning reserve operation by incorporating Battery Energy Storage Systems (BESS) to maximize renewable energy penetration in each of the islands and increase existing production capacity with the addition of three new wind turbines at the Santiago windfarm. The Expansion Project will improve the decarbonization and diversification of the country's energy matrix and will allow for a more stable grid system to reduce the frequency of blackouts in the country.

The Cabeolica Expansion Project, to be implemented on the four islands, comprises the following:

- **Component 1**: Expansion of the Cabeolica Santiago Wind Farm with three (3) wind turbines with a total net additional power capacity of about 13.5 MW.
- **Component 2**: Battery Energy Storage System (BESS) of approximately 6 MW / 6 MWh storage capacity for spinning reserve and control, and short-term storage to be installed at the Cabeolica Santiago wind farm.
- **Component 3:** BESS of approximately 6 MW / 6 MWh storage capacity for grid stability control and short-term storage to be installed at the Cabeolica Sal windfarm.
- **Component 4:** BESS of approximately 8 MW/8 MWh storage capacity for grid stability control and short-term storage at São Vicente Island, located close to the ELECTRA Lazareto Power Station approximately 3.7 km from São Vicente windfarm.
- **Component 5:** BESS of approximately 6 MW/6 MWh storage capacity for grid stability control and short-term storage at Boa Vista Island, located close to the *Águas e Energía de Boa Vista* (AEB) Parcela Power Plant in an industrial area approximately 8.5 km from the Boa Vista windfarm.

The present document is focused on the **Cabeolica Expansion Project to be implemented in Boa Vista (Component 5)**.

Project phases, key activities, and schedule are summarized in Table 1-1.

Table 1-1 Key project phases and schedule

Project phase	Main activities	Expected schedule
Pre-construction	• Detailed design and BESS layout • Procurement of all necessary equipment and materials for BESS construction • Site mobilization of personnel and equipment • Delineation and preparation of temporary work areas • Site preparation and earthwork design • Equipment transportation	≈ 3 months
Construction	• BESS installation – civil works • Electrical and mechanical works • Restoration of temporary work areas	≈ 9 months
Commissioning	• Commissioning tests: electrical tests • Performance tests: site acceptance test for containerized BESS	≈ 1-2 months
Operation and maintenance	• Operation throughout the use of automatic and remote-controlled means. • Periodical monitoring and replacement of individual cells / modules and electrical checks. • Routine maintenance for the main equipment. • Waste management.	20 years
Decommissioning	• Initial assessment and preparation • Disconnection and isolation • Battery removal • Equipment removal • Environmental restoration process	≈ 6 months

1.2 Purpose and Objectives of the Plan

This Environmental and Social Management Plan (ESMP) for the Cabeolica Expansion Project on Boa Vista provides a summary of the environmental and social impacts predicted to occur during the construction, operation, and decommissioning phases, the mitigation measures to be taken for preventing or minimizing those impacts, and a monitoring plan.

The main objective of this ESMP is to provide clear mitigation measures for addressing identified social and environmental impacts that could occur, and the ESMP must:

- Be proportionate to the significance of the identified environmental and social risks and impacts,
- Ensure compliance with applicable legal, regulatory, or normative requirements,
- List of the mitigating measures to be adopted following the mitigation hierarchy and the monitoring plans to be carried out,
- Assign responsibilities to the various entities involved in all phases of each subproject,
- Promote the application of best environmental and social practices, and
- Specify the necessary records for the environmental and social management of the project.

Cabeolica will ensure the implementation of this ESMP with the support of their environmental staff and specialized consultants.

1.3 Technical team

This ESMP was prepared by Advisian in coordination with Pedro Oliveira Ramos, an Environmental Engineer and registered consultant by the DNA. The technical team members are listed in Table 1-2.

Table 1-2 Identification of the team for the Simplified ESIA

Technician's name	Responsibility	Education	Entity
Pedro Oliveira Ramos	Coordinator of Simplified ESIA	Environmental Engineering	Registered Consultant
Jon Evans	Environmental Assessment Team Lead	Chemistry and Engineering Geology, BSc, MSc	Advisian
Andrea Lázaro	Senior Environmental Consultant	Environmental Sciences, BSc, MSc, PhD	Advisian
Isabel Martínez	Senior Environmental Consultant	Environmental Sciences, BSc, MSc	Advisian
Lina Osorio	Junior Environmental Consultant	Chemical Engineering, BSc, MSc	Advisian

1.4 Legal Framework

The National Directorate of Environment in the Ministry of the Agriculture and Environment (DNA) is responsible for validating the environmental impact assessment (EIA) of projects in Cabo Verde. The DNA also has attributions and authority to contribute toward the definition of national environmental policy, to participate in the elaboration of plans, programs and projects regarding activities related the environmental and natural resources, and to define measures for the evaluation of air quality, water quality, and background noise levels.

The main **national legal instruments** applicable to the development of this environmental and social management plan are the following:

- Environment Policy Base Law (Law No. 86/IV/93) establishes the foundations of Cabo Verdean environmental policy based on the principle of prevention, which is focused on reducing or eliminating the causes and correcting the effects of actions or activities that could adversely affect the quality of the environment.

  Articles 30, 31 and 32 establish the objectives and the contents of environmental impact studies.
- The Legislative Decree no. 14/97, of July 1st, has the main objective to optimise and guarantee the use of natural resources, both qualitatively and quantitatively, as a basic premise for autonomous sustainable development and guaranteeing the right of citizens to live in a healthy and ecologically balanced environment. This decree makes it a duty to safeguard and preserve the environment by conferring on the state and municipalities the responsibility to improve the quality of life for both the individual and the community.
- Decree-Law No. 27/2020, of March 19th establishes the legal regime, in the context of Environmental Integral Authorization (AIA), applicable to projects susceptible to affect the environment. This more recent regulation establishes changes in EIA process, such as the categorisation of projects according to an environmental risk profile.

The National Environmental Impact Assessment Authority, *Direção Nacional do Ambiente*, confirmed the project categorization for Component 5 according to National Decree-Law No. 27/2020 in June 2023. The project is considered as a "new" activity and are defined as Category B, which require a Simplified Environmental and Social Impact Assessment.

Furthermore, Cabeolica endeavour to meet International Agreements and Lenders' requirements of the European Investment Bank (EIB) and the African Development Bank (AfDB),

The EIB is the financing institution of the European Union; therefore, all projects selected by the EIB must be acceptable to, and consistent with, EU environmental policies and law. The purpose of the EU environmental assessment procedure is to determine the potential environmental and social impacts of a project and to plan the proportionate avoidance and mitigation measures to be incorporated into the design, implementation, and operation of a project.

AfDB has an Integrated Safeguards System – Policy Statement and Operational Safeguards (2023), which are intended to assist borrowers in managing risks and impacts of a project or other activities or initiatives, and to improve environmental and social performance based on the results of a risk-based approach. The desired results, described in the objectives of each environmental and social operational safeguard (OS), are accompanied by specific requirements to assist borrowers to achieve these objectives through means that are appropriate to the nature and scale of the project, activity, or other initiatives, and proportionate to the level of environmental and social risks and impacts. Funding of the Expansion Project by the AfDB requires compliance with AfDB operational policies and procedures.

2 Site location and main characteristics

2.1 Project Location

The Cabeolica Expansion Project is in the Cabo Verde Archipelago. Component 5 is in the municipality of Boa Vista. The site, owned by *Direção Geral do Património do Estado*, is close to AEB Parcela Power Station and approximately 8.3 km from the Boa Vista windfarm. The details of the project site are summarized in Table 2-1 and outlined in red in Figure 2-1.

Table 2-1 Summary information of the Boa Vista Parcela site

Boa Vista BESS site characteristics	Details
Address / Location (island, country, municipality)	Boa Vista municipality
Geographic coordinates (WGS84 system)	Lat: 16.135215° Long: -22.896979°
Plot identification number (NIP, *Número de Identificação Predial*)	5500466730000
Deployment area	BESS plot area: 27.8 m x 19.46 m (~541 m^2), with potential augmentation to ~735 m^2 Electrical connection to AEB Substation: approximately 60 m length x 1.2 m trench width (72 m^2)
Ownership of lands for Project implementation	*Direção Geral do Património do Estado and AEB*
Current occupation of site	Idle

Figure 2-1 Location of Parcela site

The nearest village is Rabil, which is approximately 1.2km from the Parcela site to the east, and the nearest environmental protected areas are the Natural Reserve Boa Esperança, 1.4 km north of the site, and the Natural Reserve Morro de Areia, 2 km south of the site.

2.2 Delineation of the Area of Influence

The geographical boundaries of the area of influence (both direct and indirect) for the Cabeolica Expansion Project at Boa Vista (Component 5) are described below for the physical, biological, and socioeconomic and cultural environments.

The **Direct Area of Influence (DAOI)** is defined by the spatial extent of the footprint created by the BESS component and associated facilities and their direct effects on the physical, biological, and socioeconomic environments, which include the following:

- Physical environment:
  - Topography, geology, and soils: The DAOI coincides with the entire plot of the BESS site and the 50 m electrical connection corridor to AEB substation.
  - Air quality: The DAOI includes the entire plot of the BESS site and electrical connection plus a 1-km wide buffer.
  - Noise: The DAOI includes the entire plot of the BESS site and electrical connection plus a 500-m wide buffer.
- Biological environment:

The DAOI includes the entire plot of the BESS and a 200-m wide buffer zone around the project site (BESS site and electrical connection corridor). The sensitivities of different fauna groups to the project activities will vary, but the perimeter of the 200-m wide buffer zone is considered sufficient for the purposes of this study given that the site is adjacent to an industrial area.

- Socioeconomic and cultural environment:

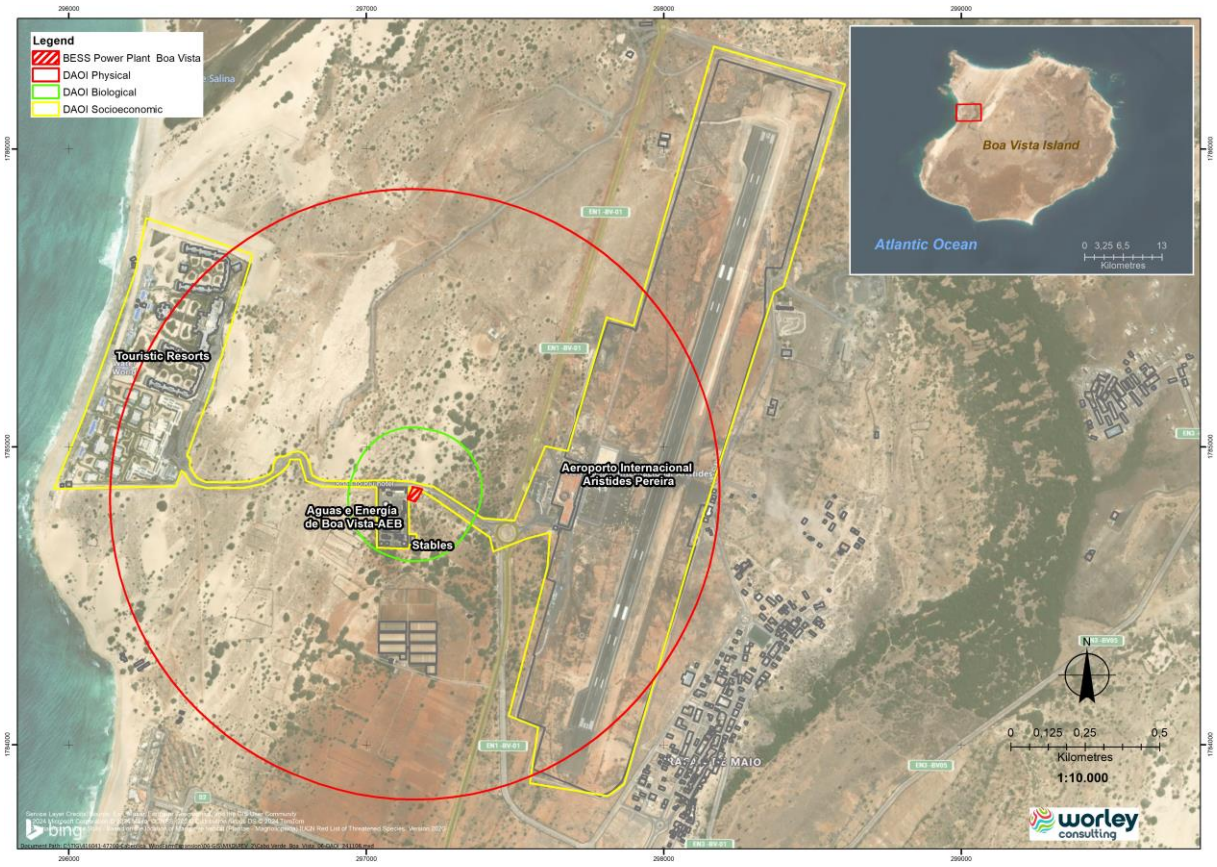
Access roads approaching the project site and the nearest receptors: a private plot of land with stables, including a guard house, is approximately 100m south of the site, the touristic resorts are approximately 800 m northwest of the site and the airport.

The DAOI for each of the main components (physical, biological and socioeconomic) is shown in Figure 2-2.

The **Indirect Area of Influence (IAOI)** is the wider area of influence where indirect, combined, and cumulative effects are likely to occur on the surrounding areas and communities, which include the following:

- Boa Vista Island is the IAOI for impacts on the local economy.
- Roads leading from the delivery Port (8 km route approximately), which are tar-sealed and support heavy vehicular traffic, are within the IAOI.

Figure 2-2 Direct Area of Influence (DAOI) of the Project components in Boa Vista site



3 Summary of Main Environmental and Social Impacts and Risks

The Cabeolica Expansion Project at Boa Vista will result in environmental and social impacts due to the following, as identified and summarized in the following subsections:

- Normal routine operations
- Non-routine operations (major accidents) and natural disasters (if they were to occur).
- Cumulative effects with other developments present within the area of influence of the Cabeolica Expansion Project at Boa Vista.

3.1 Environmental and social impacts of routine activities

The significance of routine impacts was evaluated based on the impact magnitude, which are assessed following the method proposed by Conesa (2010) adapted by Advisian, and the importance of Valued Receptors (VR). A detailed description of the impact assessment methodology is included in the Simplified ESIA. Routine impacts were assessed as **COMPATIBLE**, **MODERATE**, **SEVERE**, **CRITICAL** or **POSITIVE**.

Positive impacts

Positive impacts identified per project phase for the Cabeolica Expansion Project at Boa Vista are summarized in Table 3-1. The **pre-construction and construction phases** may create potential employment and skills development opportunities for local community members: it is expected a workforce of 10 for the Cabeolica Expansion Project in Boa Vista and where possible it will be sourced locally. Construction-related opportunities are likely to be limited to low skilled jobs and will be temporary in nature. The presence of personnel in the area could increase local demand for goods and some construction materials from local suppliers, which may positively impact local trade.

During **operation**, five indirect jobs will be created. These workers will be sourced by the BESS provider and will be involved in the occasional and planned maintenance activities during a period of 15 years (with the possibility of being extended to 20 years to cover all the battery life period). Furthermore, the project will contribute to fuel savings and improved decarbonization factors by installing a spinning reserve operated BESS. Another benefit is the reduced use of fossil fuels and the subsequently reduced emissions of greenhouse gases.

Table 3-1 Summary of positive impacts

Project phase	Valued Receptor	Impact	VR Assessment	Impact Significance
Pre-construction and Construction	Local Economy	Creation of employment, skills development, and business opportunities	MEDIUM	POSITIVE
Commissioning, Operation and Maintenance	Global Climate and Air Quality	Reduction in CO_2 emissions due to increased capacity and storage	MEDIUM	POSITIVE
	Local Economy	Creation of employment, skills development, and business opportunities	MEDIUM	POSITIVE

Negative impacts

None of the negative impacts were assessed to be CRITICAL (i.e., above acceptable thresholds that would imply a permanent loss of environmental conditions without recoverability regardless of corrective measures) , SEVERE (i.e., requires corrective measures to return to original conditions and recoverability period is medium- or long-term) prior to the implementation of mitigation measures), nor MODERATE (i.e., does not require intensive preventive or corrective measures and the period needed to return to original conditions is not long) prior to the implementation of mitigation measures. All the potential negative impacts have been assessed as COMPATIBLE before the implementation of mitigation measures for routine project activities.

The Cabeolica Expansion Project at Boa Vista will have overall limited levels of environmental and social impacts for which the implementation of mitigation measures detailed in Section 5.1.1 will further lower or eliminate the significance of impacts.

3.2 Anticipated Non-routine Impacts

Non-routine impacts (major accidents and natural disasters) are unplanned occurrences under abnormal conditions with a probability of occurrence that is not negligible. These were assessed following a risk assessment process focused on accident scenarios with environmental and socioeconomic consequences. Risk severity is assessed as MINOR, MODERATE, HIGH, or URGENT based on the risk level assigned. The risk ratings under each scenario that was assessed before the implementation of prevention and mitigation measures, based on a combination of their frequency of occurrence and their environmental and social consequences in each case, are as follows:

- Fire and explosion accidents (HIGH Risk).
- Accidents / Collision of vehicles (LOW Risk).
- Leaks and spills of hazardous substances and waste (MODERATE Risk).

Assuming the implementation of the mitigation measures described in Section 5.1.2, all risk scenarios were reduced to As Low As Reasonably Practicable (ALARP).

3.3 Cumulative Impacts

Cumulative impacts resulting from successive, incremental and/or combined effects from the project when added to other existing activities in the vicinity of the BESS site were also assessed.

The existing activities in the vicinities of Boa Vista BESS site are summarized in Table 3-2.

Table 3-2 Activities and infrastructures in the vicinity of Boa Vista site

Project/ Communities in the vicinity	Remarks
AEB Parcela Power Station	Located adjacent to BESS, west of the site location.
Horse stable and guard house	Located approximately 100 m south of Parcela site.
Aristides Pereira International Airport - Rabil	Located 400 m east of the site.

Project/ Communities in the vicinity	Remarks
Riu Hotels	Hotel RIU Palace and Hotel RIU Karamboa, both located at approx. 800 m northwest of the site.
Nearby roads	• Access road to RIU Hotels located north from the site. • Dirt access road adjacent in the west side of the site.

The results of the assessments of the main cumulative impacts are summarized in Table 3-3. Cumulative impacts of the Project were assessed as COMPATIBLE in all cases.

Table 3-3 Cumulative Impacts for the Cabeolica Expansion Project at Boa Vista

Valued Receptors	Cumulative impacts
Air Quality and Climate Condition	The air quality is affected by the presence of AEB Parcela Power Station, the Aristides Pereira International Airport and the circulation of vehicles on the road that connects the airport with touristic resorts. AEB Parcela Power Station is the most important contributor to the deterioration of local air quality, as a stationary source of nitrogen oxides (NO_x) and sulphur dioxide (SO_2), among others. The emissions from circulating vehicles (mainly NOx, CO and CO_2) on the road that connects the touristic resorts with the airport are not expected to impact significantly on air quality at the Project site. Considering the above and that the contribution of the BESS project to the increase in air emissions will be limited to construction activities of short duration (9 months), the significance of the cumulative impact on air quality and climate condition is assessed as COMPATIBLE.
Acoustic Environment (Noise)	The main sources of noise during the BESS construction are expected to be site preparation activities, installation of new components, and increased traffic during the transport of equipment, materials, and personnel from Port locations and accommodations. Cumulative effects during construction activities are not expected to be significant given their short duration (9 months) and the mitigation measures that will be in place to reduce this impact. During operation, the BESS is not anticipated to emit significant noise pressure because all sources of noise will be enclosed in metal or block building/enclosures and is not expected to contribute significantly to existing background levels, which will be dominated by the higher noise levels of the Parcela Power Station and the Rabil Airport. Considering the adoption of the proposed mitigation measures during operation, the significance of the cumulative impact on the acoustic environment is assessed to be COMPATIBLE.
Flora and Fauna	The overall impact on habitat loss and the connectivity of ecosystems by the proposed BESS project and other developments in the area is expected to be limited due to the reduce scale of the Cabeolica Expansion Project at Boa Vista and the industrial nature of the larger area.
Local economy	The Electricity Sector Master Plan for Cabo Verde (2017-2040) has established ambitious targets for renewable energy penetration of 30% by 2025 and more than 50% by 2030. Energy Storage is expected to meet 10% of the targets, and the BESS to be installed in Boa Vista is part of this Master Plan. The Cabeolica Expansion Project will improve the decarbonisation and diversification of the country's energy matrix and will allow for a more stable grid system to reduce the frequency of blackouts in the country.
Infrastructures	During pre-construction and construction, the circulation of heavy machinery and vehicles may deteriorate the access roads. In any case, the transport requirements will be reduced and limited to the transport of the modules for the BESS and materials for construction.

Valued Receptors	Cumulative impacts
	Given that this activity will be limited to pre-construction and construction and the proposed mitigation measures to be implemented, the significance of the cumulative impact on infrastructure with existing circulation in the access roads to the touristic resorts is assessed to be COMPATIBLE.
Landscape	The overall impact on landscape by the Cabeolica Expansion Project at Boa Vista combined with other developments in the area will be limited given that the BESS will be modular with reduced dimensions in an industrial area. Therefore, the significance of the cumulative visual impact is assessed to be COMPATIBLE.

4 Stakeholder Engagement

Public consultation

The consultation process gives stakeholders the opportunity to gain understanding of and comment on the proposed Project and enables the gathering of local information about the project area, the identification of key issues and the consideration of alternative approaches for achieving Project objectives.

A consultation meeting was carried out in "Centro Arte e Cultura (CAC)" at Sal Rei, on August 2nd, 2024, at 15:30 (local time).

The objectives of the meeting were the following:

- Introduce Cabeolica, the Project and its components to stakeholders and provide all available information about the Project,
- Provide an overview of the environmental and social impacts identified and assessed, and of the mitigation measures proposed to reduce their significance.
- Invite interested parties to participate in the Public Participation process, obtain a broad understanding of the proposed project, raise issues, concerns and to request/ share information regarding the project.

The meetings were attended by different stakeholders, most of them representing companies or local authorities and institutions, as listed in Table 4-1.

Table 4-1 Attendees to Boa Vista stakeholder engagement meeting

ATTENDEES	
Stakeholder category	Attendees
Primary stakeholders - Project affected people / communities	Elision Rodrigues (AEB) Alexandre Lopes (AEB)
Secondary stakeholders – National and local authorities and institutions	Narina Silva (SDTBM)
Secondary stakeholders – NGOs	Katia Freire Lopes (Bios CV)

In summary, the main topics were related to technical issues of the project, such as the expected lifetime of the batteries and the methodology to be followed with the waste produced during decommissioning of the batteries. Two concerns, which were related to a photovoltaic project on the island, and the changes produced that will occur in Electra, were not specifically related to the Project, so they and could not be properly answered during this meeting, as given that the Cabeolica's project only concerns the BESS project. Suggestions for improvements to the Project were not made during this engagement.

Grievance mechanism

A Grievance Redress Mechanism (GRM) has been implemented by Cabeolica as part of the Cabeolica Environmental and Social Management Plan to receive, assess and settle grievances of Cabeolica employees and external stakeholders in the shortest time possible, at the lowest possible level of authority, and to assess and provide resolutions of complaints and monitor the close-out of these grievances. This mechanism will be used during all phases of the Cabeolica Expansion Project and applies to all five components regardless of location.

Post-Design Phase Stakeholder Engagement Activities

For the Cabeolica Expansion Project, i.e. all five components, stakeholder engagement will continue following completion of the final Project Design and ESIA process as per Project SEP (**Error! Reference source not found.**C).

As part of post-design phase stakeholder engagement activities, prior to the start of EPC Construction activities, Cabeolica will arrange a meeting with the closest neighbour (the stable owner) to provide updated information regarding the project and provide the opportunity to submit comments or concerns. Any relevant comments received from the stable owner during this meeting will be addressed via the project ESMP.

5 Environmental and Social Management Plan

This ESMP provides the framework for implementing measures to eliminate, reduce and mitigate negative impacts that have been identified for the Cabeolica Expansion Project at Boa Vista to acceptable levels and to promote and enhance positive impacts. The main objectives of the ESMP are to provide the following:

- Initial mechanism for ensuring that measures identified to mitigate potentially adverse impacts are implemented.
- Framework for mitigating impacts that may be unforeseen or unidentified until project activities are underway.
- Framework for monitoring programs that will enable Cabeolica to ensure that the company's goals for environmental and social performance are met.

The proposed mitigation measures, described in Section 5.1 with specific recommendations for routine impacts (Section 5.1.1) and non-routine impacts (Section 5.1.2), will be integrated into the project through the commitments made in the Monitoring Plan, described in Section 5.2.

5.1 Mitigation Measures

5.1.1 Mitigation measures for Routine Impacts

The potential impact on Valued Receptors resulting from the Cabeolica Expansion Project at Boa Vista that were evaluated as COMPATIBLE could further lower or eliminate the significance of impacts.

Mitigation measures include design measures, technical controls and procedures and management activities. Generally, the impact mitigation hierarchy is as follows:

1. Prevention
2. Minimization
3. Restoration
4. Compensation

The objectives of mitigation have been mainly established through legal requirements or good industry practice. Cross-cutting measures which are applicable to several impacts or phases are described in Table 5-1(MiG #). The proposed mitigation measures applicable to specific project phases are described in for pre-construction and construction phases (MiC #), and in Table 5-3 for commissioning, operation, and maintenance (MiO #). In addition, mitigation measures for specific impacts of the decommissioning phase are proposed in Table 5-4 (MiD #). These tables include details of the valued receptor affected, the assessed impacts, the significance before the application of mitigation measures, the proposed measures (including codes), those who are responsible, and the deadlines/periods for the completion of mitigation measures. Reporting requirements and indicators and budget details are included in Sections 5.7 and 5.8.

Table 5-1 Cross-cutting Mitigation measures for All Project Phases

Valued Receptor	Impact	Impact significance	Code	Mitigation Measure: Commissioning, Operation and Maintenance	Responsibility	Period
All VR	All impacts	All significance categories	MiG 1	Implement the Cabeolica Expansion Project Stakeholder Engagement Plan included in Appendix C of the ESIA, which includes the identification of stakeholders, the views of stakeholders on the SEP and the timing and methods of engagement with stakeholders throughout the life cycle of the project.	Cabeolica and EPC contractors	All phases
			MiG 2	Hold a meeting with the stable owner to inform about the BESS project and provide the opportunity to submit comments or concerns.	Cabeolica	Prior to main EPC construction works commencing
			MiG 3	Implement the Cabeolica Grievance Redress Mechanism (GRM) included in Appendix C of the ESIA to address potential grievances/concerns of interested third parties in a timely manner throughout the Project. All contractors will follow, and integrate proportionally, the Cabeolica GRM procedures, where relevant, into their Project environmental and social management plans and systems as per the SEP.	Cabeolica and EPC contractors	All phases
			MiG 4	Implement the Cabeolica Expansion Project Waste Management Plan (Doc. No. 06106-416041-47260-B-0029) . Update responsibilities, procedures, and compliance actions as required.	Cabeolica and EPC contractors	All phases
			MiG 5	Once final design is finalized, confirm exact location of the BESS and electrical connection. Documentation providing compliance with *E&S Operational Safeguard 5 – Land Acquisition, Restrictions on Access to Land and Land Use, and Involuntary Resettlement* will need to be presented before any works commence.	Cabeolica	Prior to all phases, with final design

Table 5-2 Mitigation measures for Pre-Construction and Construction

Valued	Receptor	Impact	Impact Significance	Code	Mitigation Measure: Pre-construction and Construction	Responsibility	Period
PHYSICAL ENVIRONMENT	Global Climate & Air Quality	Decreased air quality and impact on climate change	COMPATIBLE	MiC 1	Use low-sulphur diesel (<1.5%) to reduce emissions.	EPC Contractor	During construction phase
				MiC 2	Ensure appropriate equipment and vehicles maintenance and avoid deficient combustion.	EPC Contractor	During construction phase
				MiC 3	Adopt a policy of switching off machinery and equipment when not in use.	EPC Contractor	During construction phase
				MiC 4	Minimise transportation on and to/from the site through efficient transport management to minimise noise and vehicle pollution.	EPC Contractor	During construction phase
				MiC 5	Suppress dust, where and when necessary, by spraying affected soil surfaces and piles of soil with water, fencing stockpiles, and minimizing discharge heights from trucks (not to exceed 1 m).	EPC Contractor	During construction phase
				MiC 6	Ensure that the transport of materials is done in suitable and covered vehicles in order to prevent the dispersion of dust.	EPC Contractor	During pre-construction and construction phase
	Acoustic Environment	Increased ambient noise levels	COMPATIBLE	MiC 7	Apply MiC 1-4 to minimize noise emissions.	EPC Contractor	During construction phase
				MiC 8	Combine and schedule noise-producing operations to occur during the same time period and avoid the night-time to prevent disturbance to nearby residents. When combined, verify that operations running at the same time are below applicable noise limits.	EPC Contractor	During construction phase
				MiC 9	Check that all site equipment is within the acceptable noise standards.	EPC Contractor	During construction phase
	Geology & soils	Soil loss, compaction and impacts on soil quality	COMPATIBLE	MiC 10	Mark locations of new access roads, temporary offices, and laydown areas before activities begin and avoid activities outside these defined areas.	EPC Contractor	During pre-construction phase
				MiC 11	Limit construction activities to demarcated areas and follow pre-defined transport routes.	EPC Contractor	During construction phase
				MiC 12	Preserve excavated soil for reuse, when possible, during site restoration activities.	EPC Contractor	During and after construction phase
		Demand of natural resources for construction materials	COMPATIBLE	MiC 13	Source construction materials locally, where feasible, and keep transport distance as short as possible.	EPC Contractor	During pre-construction and construction phase
				MiC 14	All fill materials will be sourced from existing licenced facilities. No fill material is to be imported from new locations opened for the project, or unlicenced borrow pits or landfill sites	EPC Contractor	During pre-construction and construction phase
BIOLOGICAL ENVIRONMENT	Flora	Direct removal or damage to vegetation	COMPATIBLE	MiC 15	Apply MiC 10-11 to minimize damage to vegetation.	EPC Contractor	During construction phase
				MiC 16	Maintain the original condition of surface soils and vegetation cover to the extent practical during pre-construction and construction activities. Unnecessary removal of vegetation during construction should be avoided and surrounding vegetation must be protected by employing appropriate fences, covers, etc. If applicable, an authorization for the removal of vegetation will be requested to *Direção Geral de Agricultura, Silvicultura e Pequária* (DGASP).	EPC Contractor	During construction phase

Valued	Receptor	Impact	Impact Significance	Code	Mitigation Measure: Pre-construction and Construction	Responsibility	Period
				MiC 17	Use existing accesses and transport corridors whenever possible.	EPC Contractor	During pre-construction and construction phase
		Impact on flora due to the introduction of invasive flora alien species	COMPATIBLE	MiC 18	Check origin of equipment and materials used on site.	EPC Contractor	During pre-construction phase
				MiC 19	Implement invasive species management procedures, including cleaning of equipment, prior to shipping to site	EPC Contractor	During pre-construction phase
	Fauna	Impact on fauna due to habitat loss (reptiles and mammals)	COMPATIBLE	MiC 20	Apply MiC 15-17 to minimise habitat loss.	Cabeolica EPC Contractor	During pre-construction phase
				MiC 21	Before initiating construction activities, conduct an initial survey to confirm or exclude the presence of endemic reptiles' species. If encountered, ensure that the maximum number of reptiles are removed, and relocated in another area with similar conditions to the original location. Restore habitats for reptiles by adding more refuges, such as piles of large rocks.	Cabeolica EPC Contractor	During pre-construction phase
		Impact on fauna due to the introduction of invasive fauna alien species (reptiles and mammals)	COMPATIBLE	MiC 22	Apply MiC 18 and MiC 19 to minimise the introduction of fauna invasive species.	EPC Contractor	During pre-construction phase
		Disturbance to fauna (avifauna and reptiles and mammals)	COMPATIBLE	MiC 23	Apply MiC 15-17 and MiC 20-21 to minimize disturbance to fauna.	Cabeolica EPC Contractor	During pre-construction and construction phase
				MiC 24	Design waste management procedures to prevent the attraction of fauna by appropriately managing food waste in work areas and in and around temporary offices.	EPC Contractor	During pre-construction phase
				MiC 25	Minimise the generation of light during the night-time to avoid attracting fauna and causing potential deviations from migration routes.	EPC Contractor	During construction phase
				MiC 26	Minimise the risk of injury to fauna from vehicle movements by adopting safe speed limits and driving only through pre-defined established access routes.	EPC Contractor	During construction phase
SOCIEONOMIC ENVIRONMENT	Population	Impact on local communities due to noise, dust, and air pollution	COMPATIBLE	MiC 27	Apply MiC 1-9 to minimise disturbance to population.	EPC Contractor	During construction phase
				MiC 28	Conduct environmental training and awareness activities for workers involved in the pre-construction and construction works.	Cabeolica EPC Contractor	During pre-construction and construction phase
		Impact on local communities due to influx of construction workers and job seekers	COMPATIBLE	MiC 29	Promote the use of a local workforce whenever possible and practicable to do so.	EPC Contractor	During pre-construction and construction phase
				MiC 30	Conduct training and awareness activities for workers involved in the pre-construction and construction works, including general norms for dealing with local population, general rules of hygiene health and safety (HHS) on construction sites, gender based violence and risks and prevention of sexually transmitted diseases, among others (See training requirements in Section 5.5).	Cabeolica EPC Contractor	During pre-construction and construction phase
				MiC 31	Implement Cabeolica's Labour Codes and Policies which are compliant with national legislation and are considered proportionate for the project: Code of Business Conduct, Ethic & Work Conduct, Anti-bribery and Anti-corruption Policy and Whistleblower Policy.	EPC Contractor	During pre-construction and construction phase
				MiC 32	Implement mechanisms to control and penalize situations related to gender-based discrimination, harassment, violence, sexual exploitation and abuse of minors and other vulnerable communities.	EPC Contractor	During pre-construction and construction phase
	Local Economy	Creation of employment, skills development, and business opportunities	POSITIVE	MiC 33	Apply MiC 29 to increase benefits of social and economic aspects of the resident population in nearby communities.	EPC Contractor	During pre-construction and construction phase
				MiC 34	Establish a register for interested companies and individuals to assist in the identification of supply and support opportunities during the construction of the BESS components.	Cabeolica	During pre-construction phase
	Infrastructure	Effects on local infrastructure due to increased traffic and waste generation	COMPATIBLE	MiC 35	Develop a logistics, traffic, and transportation plan that covers the transportation of oversized and heavy components using specialist transportation vehicles (where applicable).	Cabeolica	During pre-construction phase
				MiC 36	Ensure that roads and accesses in the vicinity of project areas are not obstructed or in poor conditions. Ensure that an alternative access to the stable and guard house is established.	Cabeolica EPC Contractor	During pre-construction phase
	Landscape	Change on the visual perception of landscape	COMPATIBLE	MiC 37	Apply MiC 11-13 to minimize impacts on landscape.	EPC Contractor	During construction phase
				MiC 38	Conduct site restoration activities at the end of the construction phase.	EPC Contractor	After construction phase
	Cultural heritage	Damage to cultural heritage resources	COMPATIBLE	MiC 39	Implement Cabeolica's chance finds procedure (See Appendix D) which shall be in place during the pre-construction and construction phase to manage any potential chance cultural heritage finds. All site workers, including EPC workers, will also undergo training in chance finds procedures.	Cabeolica EPC Contractor	During construction phase

Table 5-3 Mitigation measures for Commissioning. Operation and Maintenance Phase

Valued	Receptor	Impact	Impact significance	Code	Mitigation Measure: Commissioning, Operation and Maintenance	Responsibility	Period
PHYSICAL ENVIRONMENT	Global Climate and Air Quality	Reduced CO_2 emissions by storage	POSITIVE	-	-		
		Decreased air quality and impact on climate change	COMPATIBLE	MiO 1	Apply MiC 1-4 to minimize air emissions during operation and maintenance activities.	Cabeolica and BESS provider	During operation
	Acoustic Environment	Increased ambient noise levels	COMPATIBLE	MiO 2	Install best available technology (BAT) compliant with noise emission standards and economically viable for the project.	Cabeolica and BESS provider	During pre-construction
				MiO 3	Apply MiC 7-9 to minimize noise emissions during operation and maintenance activities.	Cabeolica and BESS provider	During operation
BIOLOGICAL ENVIRONMENT	Fauna	Disturbance to fauna (avifauna, reptiles & mammals)	COMPATIBLE	MiO 4	Apply MiC 23-26 to reduce disturbance to fauna during operation and maintenance activities.	Cabeolica and BESS provider	During operation
SOCIOECONOMIC ENVIRONMENT	Population	Impact on local communities due to noise, generated dust, and air pollution	MODERATE	MiO 5	Apply MiO 1 and MiO 3 to reduce disturbance to local communities during operation and maintenance activities.	Cabeolica and BESS provider	During operation
	Local Economy	Creation of employment, skills development, and business opportunities	POSITIVE	MiO 6	Apply MiC 33 and MiC 34 to enhance the creation of employment, skills development, and business opportunities during operation.	Cabeolica and BESS provider	During operation
	Landscape	Change on the visual perception of landscape	COMPATIBLE	MiO 7	Minimise the presence of ancillary structures on the site by minimising site infrastructure.	Cabeolica and BESS provider	During pre-construction

Table 5-4 Mitigation measures for Decommissioning Phase (specific impacts)

Valued Receptor		Impact	Impact significance	Code	Mitigation Measure: Commissioning, Operation and Maintenance	Responsibility	Period
PHYSICAL ENVIRONMENT	Global Climate and Air Quality	Impact on global climate due to SF_6 release	COMPATIBLE	MiD 1	Recycle SF_6 gas at equipment servicing or disposal at approved facilities.	Cabeolica and BESS provider	During operation
				MiD 2	Implement leak detection and repair strategies consistent with BAT and economically feasible for the Project.	Cabeolica and BESS provider	During pre-construction phase and regularly during operation
				MiD 3	Appropriate decommissioning using SF_6 recovery systems. For closed-pressure systems, utilities can purify used SF_6 onsite or off-site or send non-reusable gas for destruction. Evacuate SF_6 from all equipment including hermetically sealed pressure equipment	Cabeolica and BESS provider	During decommissioning phase
SOCIOECONOMIC ENVIRONMENT	Infrastructure	Impact on waste management infrastructure due to waste generation	COMPATIBLE	MiD 4	Update the Cabeolica Expansion Project Waste Management Plan (Doc. No. 06106-416041-47260-B-0029) prior to starting this phase to guarantee compliance with the applicable regulations at the time of starting these activities and to allow for the identification of available final disposal/recycling facilities	Cabeolica	Before the start of the decommissioning phase

5.1.2 Mitigation measures for Non-Routine events

Designing appropriate prevention and response strategies to address predicted impacts from non-routine operations is an important component of best practices and critical for meeting regulatory requirements. General environmental recommendations (MiN #) to prevent and mitigate impacts resulting from non-routine operations are listed in Table 5-5.

Table 5-5 Mitigation measures for non-routine events

Non-routine event	Code	Mitigation Measures: Non-Routine Events	Responsibility	Period
All non-routine events	MiN 1	Develop and implement an Emergency Response Plan (ERP) and a Health and Safety Plan (HSP) for all facilities.	EPC Contractor Cabeolica	During all phases of the project
	MiN 2	Document and report each non-routine event and accident that occurs. Cabeolica to notify lenders no later than 72 hours after the occurrence of non-routine event or accident. In the event of a severe EOHS risk or incident works will be suspended and only should be resumed upon no-objection of the Lenders. A root-cause analysis (RCA) of any fatal EOHS incident shall be prepared along with a Corrective Action Plan (CAP).	EPC Contractor Cabeolica	During all phases of the project
	MiN 3	Implement the Cabeolica Grievance Mechanism to address potential grievances/concerns of interested third parties in a timely manner throughout the implementation of the Project. All contractors will follow, and integrate proportionally, the Cabeolica GRM procedures, where relevant, into their Project environmental and social management plans and systems.	EPC Contractor Cabeolica	During all phases of the project
	MiN 4	Address any complaint received from the local community and onsite workers promptly to the extent practical.	EPC Contractor Cabeolica	During all phases of the project
	MiN 5	Maintain good housekeeping at all times.	EPC Contractor Cabeolica	During all phases of the project
	MiN 6	Clearly display Material Safety Datasheets (MSDS) and safety instructions in the storage area.	EPC Contractor Cabeolica	During all phases of the project
	MiN 7	Implement the Cabeolica and EPC contractor training programmes as given in the E&S Manual and EPC contract to ensure that personnel onsite respond in a timely manner to accidents, incidents and in the event of an emergency.	EPC Contractor Cabeolica	During all phases of the project
	MiN 8	Ensure that emergency alarm systems are both audible and visible, where applicable to GIIP and national legislation.	EPC Contractor Cabeolica	During all phases of the project
	MiN 9	Ensure that appropriately equipped first-aid stations are easily accessible throughout the site.	EPC Contractor Cabeolica	During all phases of the project
Fire and explosion accidents	MiN 10	Ensure regular inspection and maintenance of electrical equipment and fittings to avoid the risk of fire, as per Cabeolica Health, Safety and Environmental (HSE) Plan.	EPC Contractor Cabeolica	During all phases of the project
	MiN 11	Ensure that fire response equipment is routinely inspected, maintained, and operationally exercised and tested, and is available as necessary for response.	EPC Contractor Cabeolica	During all phases of the project
	MiN 12	Coordinate with local fire services and provide specific information about the facility, as necessary, so that the most effective firefighting methods can be determined and mobilised.	Cabeolica	During all phases of the project
	MiN 13	Install circuit breakers in the power supply for equipment to prevent excessive current flow and hazards due to possible short-circuiting.	EPC Contractor Cabeolica	During all phases of the project
	MiN 14	Train and familiarise employees involved in electrical works with the safety-related work practices, safety procedures, and other safety requirements related to their respective job assignments.	EPC Contractor Cabeolica	During all phases of the project
	MiN 15	Provide fire and explosion protection, suppression, and relief equipment, and suitable personal protective equipment (PPE).	EPC Contractor Cabeolica	During all phases of the project
	MiN 16	Implement best practices for mitigating BESS hazards, which may include the following: Hazard Mitigation Analysis (HMA); Smoke and fire detection; Fire control and suppression; Explosion control; Gas detection; Thermal runaway protection; Size and separation requirements; Water supply; Explosion prevention systems; and Deflagration venting.	BESS provider	During all phases of the project
Accidents / Collision of vehicles	MiN 17	Ensure driver safety training is provided and verify driver qualifications.	EPC Contractor	During construction phase
	MiN 18	Ensure that traffic plan is appropriate to cover all transport arrangements.	EPC Contractor	During construction phase
	MiN 19	Movement of vehicles shall be restricted to the identified routes.	EPC Contractor	During construction phase
Leaks and spills of hazardous substances and waste	MiN 20	Subject vehicles and other equipment to regular maintenance and inspections to prevent fuel and lubricant spills and leaks.	EPC Contractor Cabeolica	During all phases of the project
	MiN 21	Ensure that spill response and containment equipment are routinely inspected, maintained, and operationally exercised and tested, and are available as necessary for response.	EPC Contractor Cabeolica	During all phases of the project
	MiN 22	Pave and make impervious all storage areas for oil, cement, and other materials, with secondary containment and a spill kit.	EPC Contractor Cabeolica	During all phases of the project
	MiN 23	Use appropriate containers and receipts according to the type of hazardous substances or waste to be stored.	EPC Contractor Cabeolica	During all phases of the project
	MiN 24	Store hazardous substances and waste in a defined space and that is accessible to only authorized personnel.	EPC Contractor Cabeolica	During all phases of the project

Non-routine event	Code	Mitigation Measures: Non-Routine Events	Responsibility	Period
	MiN 25	Contain spills as quickly as possible and immediately begin clean-up using appropriate clean-up materials.	EPC Contractor Cabeolica	During all phases of the project
	MiN 26	Document and report each leak and spill event.	EPC Contractor Cabeolica	During all phases of the project
	MiN 27	Implement Cabeolica Expansion Project Waste Management Plan (WMP) (Doc. No. 06106-416041-47260-B-0029).	EPC Contractor Cabeolica	During all phases of the project
	MiN 28	Use an environmental register to record all waste management activities, including quantities and types of waste handled.	EPC Contractor Cabeolica	During all phases of the project

5.2 Monitoring Plan

The Monitoring Plan defines the actions to be carried out by Cabeolica and their contractors prior to and/or during project activities to verify the effective implementation of mitigation measures and the compliance of impacts from activities within acceptable limits. Additionally, this plan provides early warnings of potential impacts, informs future operations, and contributes to continuous improvement in the management of environmental and social issues related to the Project. The monitoring activities proposed for those cross-cutting mitigation measures applicable to all project phases are summarized in Table 5-6. Specific monitoring activities for each phase and those applicable to non-routine events are summarized in Table 5-7 to Table 5-10. Under the supervision of Cabeolica's MESA, this table includes details of the valued receptors subject to monitoring, the proposed measures, the monitoring frequencies, and those responsible. Reporting requirements and budget details are included in Sections 5.7 and 5.8.

Table 5-6 Monitoring activities for Cross-Cutting mitigation measures applicable to all phases

Valued Receptor	Impact	Mitigation measure	Monitoring Measure	Monitoring Location(s)	Indicator	Evidence	Monitoring Frequency	Responsibility for monitoring
All	All impacts	MiG 1 MIG 2	MoG 1 Verification of Cabeolica Expansion Project SEP implementation during subsequent phases and verification of the additional meeting with the stable owner	-	**Meetings:** No. of meetings held. **Communication materials:** No. of communication materials produced and disseminated. **Use of social media platforms:** No. of social media messages published/No. of reactions to messages in social media. **Training of internal stakeholders on SEP**: No. of training sessions and hours of training.	List of participants in each meeting. Pictures of the event. Attendance register. List of comments raised during the meeting. Communication material. Evidence of publication in social media platforms. List of participants in each training session.	Once prior to EPC construction works commencing Continuous through construction activities and regular follow up during remaining phases	Cabeolica (MESA) EPC Contractor (HSE Manager)
	All impacts	MiG 3 MiN 3 MiN 4	MoG 2 Verification of Cabeolica GRM implementation. Register and address, in a timely manner, the complaints received from local community and onsite workers	-	No. of close-out complaints are equal to No. of complaints received.	Grievance forms. Grievance register.	Continuous through construction activities and regular follow up during remaining phases	EPC Contractor (HSE Manager) Cabeolica (MESA)
	All impacts	MiG 4 MiN 27 MiN 28	MoG 3 Verification of Cabeolica Expansion Project WMP implementation	-	Quantities of waste (hazardous and non-hazardous) stored per month. Quantities of waste (hazardous and non-hazardous) delivered per month (if any) and management operation to which they were subjected.	Waste data tracking. HSE inspections records.	Continuous through construction activities and regular follow up during remaining phases	EPC Contractor (HSE Manager) Cabeolica (MESA)
	All impacts	MIG 5	MoG 4 Verify that before commencement of any of the works documentation proving compliance with land acquisition requirements is submitted to the lenders	-	Final design location and permits/approvals for BESS and electrical connections	Permits/approvals obtained	Once prior to commencement of works	Cabeolica (MESA)

Table 5-7 Monitoring activities during Pre-construction and Construction

Valued Receptor	Impact	Mitigation measure	Monitoring Measure	Monitoring Location(s)	Indicator	Evidence	Monitoring Frequency	Responsibility
Air Quality	Decreased air quality and impact on climate change	MiC 1	MoC 1 Verify that low-sulphur diesel (<1.5%) is used to reduce emissions	-	Fuel consumption (m^3) and type of fuel	Fuel specification. Fuel consumption register.	Monthly during construction	EPC Contractor (HSE Manager)
		MiC 2	MoC 2 Verify appropriate equipment and vehicles operation and maintenance	-	Percentage (%) of vehicles/machinery serviced as per maintenance procedures	Equipment and vehicles maintenance/inspection records	Monthly during construction	EPC Contractor (HSE Manager)
		MiC 4	MoC 3 Verify that Logistic, Traffic and Transportation Plan to limit transport to essential travel is in place and is followed	-	Daily number of transportation trucks moving in and out of the site	Register of signing in and out of trucks at security gate.	Monthly during construction	EPC Contractor (HSE Manager)

Valued Receptor	Impact	Mitigation measure	Monitoring Measure	Monitoring Location(s)	Indicator	Evidence	Monitoring Frequency	Responsibility
					not exceeding estimates included under the plan. Routes followed vs planned.			
		MiC 3 MiC 5 MiC 6	MoC 4 Verify dust / combustion pollutants reduction strategies	Site construction areas and access roads	Volume of water used for irrigation (m^3). Percentage (%) of vehicles/machinery serviced as per maintenance procedures.	Irrigation records. Equipment and vehicles maintenance/inspection records.	Daily during construction	EPC Contractor (HSE Manager)
Acoustic Environment	Increased ambient noise levels	MiC 7 MiC 9	MoC 5 Verify that all site equipment is within acceptable noise standards	-	Percentage (%) of vehicles/machinery serviced as per maintenance procedures.	Equipment and vehicles maintenance/inspection records.	Monthly during construction	EPC Contractor (HSE Manager)
		MiO 2	MoC 6 Verify that BAT compliant with noise emissions standards and economically viable for the project is adopted in final BESS design	-	Number and type of BAT adopted in final BESS design compliant with noise emissions standards.	Final design.	Once during pre-construction, with final design	Cabeolica, and BESS Provider
Soil, Flora and Fauna	Soil loss, compaction and impacts on soil quality Direct removal or damage to vegetation	MiC 10 MiC 11 MiC 15 MiC 17	MoC 7 Periodic verification that areas used for construction activities are restricted to the areas delimited for this purpose	Site construction areas and access roads	Surface of areas occupied during construction vs planned	HSE inspection records Photographic records	Weekly during construction	EPC Contractor (HSE Manager)
		MiC 12 MiC 16	MoC 8 Verify that excavated soil is preserved for reuse during restoration activities, when possible	Site construction areas and access roads	Volume of soil excavated vs volume of soil used for restoration activities.	HSE inspection records. Photographic records.	Daily during site preparation activities and once after restoration activities	EPC Contractor (HSE Manager)
		MiC 16	MoC 9 Verify that, when applicable, authorization for the removal of vegetation is requested to *Direção Geral de Agricultura, Silvicultura e Pequária* (DGASP).	Site construction areas and access roads	Number of permits obtained in accordance with legal requirements	Permits obtained (when applicable)	Once, before construction activities	EPC Contractor (HSE Manager)
	Impact on fauna due to habitat loss	MiC 21	MoC 10 Verify that an initial site survey to identify areas of high concentration of fauna individuals (including photographic survey of sites where components will be installed) is conducted before initiating construction activities	Site construction areas and access roads	Number and type of sensitive species affected.	GPS location and photographic records of areas where final components will be located. GPS location of species to be removed. Permits obtained (where applicable).	Once, before pre-construction activities	Cabeolica (MESA)
		MiC 21	MoC 11 Verification of removal of species categorized as Endangered or Critically Endangered Species by the IUCN Red List and endemic species (where applicable)	Site construction areas and access roads	Number of permits obtained in accordance with legal requirements.		Once after site preparation clearing/works	Cabeolica (MESA) EPC Contractor (HSE Manager)
		MiC 21	MoC 12 Verification of relocation of fauna species where important concentrations have been observed (where applicable), and sensitive species are affected.	Site construction areas and access roads	Number of sensitive species relocated and destination (where applicable) (per specie)	HSE inspections records Photographic records	Once before construction	Cabeolica (MESA) EPC Contractor (HSE Manager)
		MiC 21	MoC 13 Verification of site restoration measures of areas affected by construction activities	Site construction areas and access roads	Surface of areas restored vs planned.	HSE inspection records. Photographic records.	Once, at the end of construction	Cabeolica (MESA) EPC Contractor (HSE Manager)
	Disturbance to fauna	MiC 24	MoC 14 Verify that all waste on site will be correctly stored and disposed off-site and that no edible waste (e.g. remains of animal carcasses, bones etc.) will be left on site during construction.	Site construction areas and access roads	Number of complaints or warning notices issues by HSE Manager	Warning notices issued	Daily during construction activities	EPC Contractor (HSE Manager)

Valued Receptor	Impact	Mitigation measure	Monitoring Measure	Monitoring Location(s)	Indicator	Evidence	Monitoring Frequency	Responsibility
		MiC 25	MoC 15 Verify that light during nighttime is minimized to avoid fauna attraction	Site construction areas	Lux levels used during night in compliance with final design and legislation	HSE inspections records	Once, before the start of construction	EPC Contractor (HSE Manager)
		MiC 26	MoC 16 Verify implementation of safe speed limits and driving through pre-defined routs	Site construction areas and access roads	Number of wildlife collisions	HSE inspection records	Daily during construction activities	EPC Contractor (HSE Manager)
	Impact on flora and fauna due to the introduction of invasive flora and fauna alien species	MiC 18 MiC 22	MoC 17 Check origin of equipment and verify cleaning of materials used on site to prevent the introduction of alien species	-	Percentage (%) of vehicles/machinery cleaned as per invasive flora and fauna prevention procedures.	HSE inspections records	Every time new equipment or machinery is brought to site	EPC Contractor (HSE Manager)
Demand of project resources	Demand of natural resources for construction materials	MiC 13 MiC 14	MoC 18 Register sources and quantities of water, raw materials and power requirements	-	Quantities and sources of origin of natural resources used during construction	Record of natural resources consumption Record of construction material	Monthly	EPC Contractor (HSE Manager)
Population/ Local Economy	Impact on local communities due to: - noise, dust, and air pollution - influx of construction workers and job seekers	MiC 28 MiC 30	MoC 19 Register training and awareness activities for workers	-	Number of workers participating in minimum one training and awareness session Training hours recorded.	Training matrix Training schedule Lists of participants	Once before construction and every time new workers are admitted	Cabeolica (MESA) EPC Contractor (HSE Manager)
		MiC 31 MiC 32	MoC 20 Verify implementation of Cabeolica's Labour Codes and Policies and that mechanisms to penalize situations related to gender-based discrimination, harassment, violence, sexual exploitation, and abuse of minors and other vulnerable communities are in place	-	No. of close-out complaints related to non-compliance with Labour Codes and Policies are equal to No. of complaints received.	EPC contract, policies and CCESMP. Cabeolica Labour Codes and Policies. Grievance register.	Once before pre-construction	Cabeolica (MESA) EPC Contractor (HSE Manager)
	Creation of employment, skills development, and business opportunities	MiC 29 MiC 33	MoC 21 Register employment created by the Company (direct and indirect) and verify that the use of local workforce is promoted when practicable to do so	-	Number of jobs created, gender ratio, and local employee ratio.	Employment records.	Monthly	Cabeolica (MESA) EPC Contractor (HSE Manager)
		MiC 34	MoC 22 Verify that a register of interested companies and individuals is created to supply and support opportunities during construction	-	Number of companies and individuals identified, gender ratio and local employee ratio	Company Register.	Once, before construction	Cabeolica (MESA)
Infrastructure	Effects on local infrastructure due to increased traffic	MiC 35	MoC 23 Verify that a logistics, traffic and transportation plan is developed (where applicable)	-	Daily number of transportation trucks moving in and out of the site not exceeding estimates included under the plan. Routes followed vs planned.	Register of signing in and out of trucks at security gate	Once, before construction	Cabeolica (MESA) EPC Contractor (HSE Manager)
		MiC 36	MoC 24 Verification that roads and accesses in the vicinity of project areas are not obstructed or are in poor conditions	Access roads	Number of incidents or close-out complaints received related to road and access conditions are equal to No. of complaints received	HSE inspections records Photographic record.	Weekly	EPC Contractor (HSE Manager)
Landscape	Change on the visual perception of landscape	MiC 38 MiO 7	MoC 25 Verification of site restoration measures and landscape integration work	Site construction areas and access roads	Surface of areas restored vs planned.	Final design Photographic record	Once during pre-construction, with final design Once, at the end of construction	EPC Contractor (HSE Manager)

Valued Receptor	Impact	Mitigation measure	Monitoring Measure	Monitoring Location(s)	Indicator	Evidence	Monitoring Frequency	Responsibility
Cultural Heritage	Damage to cultural heritage resources	MiC 39	MoC 26 Verify implementation of Cabeolica's chance finds procedure	Site construction areas and access roads	Number of chance finds identified and actions taken (where applicable)	Report of findings and actions taken (where applicable)	Daily during earthworks works	Cabeolica (MESA) EPC Contractor (HSE Manager)

Table 5-8 Monitoring activities during Operation

Valued Receptor	Impact	Mitigation measure	Monitoring Measure	Monitoring Location(s)	Indicator	Evidence	Monitoring Frequency	Responsibility for monitoring
Air Quality	Decreased air quality and impact on climate change	MiO 1	MoO 1 Verify that low-sulphur diesel (<1.5%) is used to reduce emissions.	BESS site area	Fuel consumption (m^3) and type	Fuel specification. Fuel consumption register	During maintenance operations	Cabeolica (MESA), Vestas and BESS provider
			MoO 2 Verify appropriate equipment and vehicles operation and maintenance	BESS site area	Percentage (%) of vehicles/machinery serviced as per maintenance procedures	Equipment and vehicles maintenance/inspections records	During maintenance operations	Cabeolica (MESA), Vestas and BESS provider
			MoO 3 Verify that machinery and equipment is switched-of when not in use.	BESS site area	Number of complaints or warning notices issues by HSE Manager	Warning notices issued	During maintenance operations	Cabeolica (MESA), Vestas and BESS provider
		MiD 1 MiD 2	MoO 4 Verify that SF_6 gas leak detection and repair strategies are implemented and that gas is recycled or disposed at approved facilities.	-	Percentage (%) of equipment serviced as per maintenance procedures. Quantities and type of gas recovered during the operation phase.	Records including information on: i) Quantity and type of gas in equipment when installed. ii) Quantity and type of gas added during maintenance. iii) Dates and results of mandatory leak checks. iv) Registered waste carrier used to dispose gas.	During maintenance operations	Cabeolica (MESA), Vestas and BESS provider
Acoustic Environment	Increased ambient noise levels (BESS and general O&M activities)	MiO 3	MoO 5 Verify appropriate equipment and vehicles operation and maintenance	BESS site area	Percentage (%) of equipment and vehicles serviced as per maintenance procedures	Equipment and vehicles maintenance/inspection records	During maintenance operations	Cabeolica (MESA), Vestas and BESS provider
Fauna	Disturbance to fauna	MiO 4	MoO 6 Verify that light during nighttime is minimized to avoid fauna attraction	BESS site area	Lux levels used during night in compliance with final design and legislation	HSE inspections records	Regular follow-up during this phase	Cabeolica (MESA)
			MoO 7 Verify that all waste on site is correctly stored and disposed off-site and that no edible waste (e.g. remains of animal carcasses, bones etc.) will be left on site during construction.	BESS site area	Number of complaints or warning notices issues by HSE Manager	Warning notices issued	Regular follow-up during this phase	Cabeolica (MESA)
Population and Local Economy	Creation of employment, skills development, and business opportunities	MiO 7	MoO 8 Register employment created by the Company (direct and indirect) and verify that the use of local workforce is promoted when practicable to do so	-	Number of jobs created, gender ratio, and local employee ratio.	Employment records Annual Monitoring report	As part of Annual Windfarm monitoring	Cabeolica (MESA)

Table 5-9 Monitoring activities during Decomissioning

Valued Receptor	Impact	Mitigation measure	Monitoring Measure	Monitoring Location(s)	Indicator	Evidence	Monitoring Frequency	Responsibility for monitoring
Air Quality	Impact on global climate due to SF_6 release	MiD 3	MoD 1 Verify that appropriate SF_6 gas recovering systems are used during this phase	-	Quantities and type of gas recovered during this phase.	Records of waste carrier used to dispose the gas.	Once during decommissioning	Cabeolica (MESA), Vestas and BESS provider
Infrastructure	Impact on waste management infrastructure due to waste generation	MiD 4	MoO 4 Verify that the Cabeolica Expansion Project Waste Management Plan is updated	-	Quantities of waste (hazardous and non-hazardous) stored per month. Quantities of waste (hazardous and non-hazardous) delivered per month (if any) and management operation to which they were subjected.	Production of updated plan.	Once, before the start of the decommissioning phase	Cabeolica (MESA), Vestas and BESS provider

Table 5-10 Monitoring activities for non-routine events

Non-routine event	Mitigation measure	Monitoring Measure	Indicator	Evidence	Monitoring Frequency	Responsibility for monitoring
All non-routine events	MiN 1	MoN 1 Verification of ERP and HSE plans preparation and implementation	-	ERP and HSE Plans in place and adhered to.	Once before each phase and regular follow-up during all phases	EPC Contractor (HSE Manager) Cabeolica (MESA)
	MiN 2	MoN 2 Verification of record of incidents	Number and types of emergency and non-routine situations.	Report of incidents and actions taken (where applicable)	Continuous during all phases	EPC Contractor (HSE Manager) Cabeolica (MESA)
	MiN 5	MoN 3 Verify that good housekeeping is kept at all times	Number of observations and non-conformances identified	HSE inspection records Photographic records	Continuous during all phases	EPC Contractor (HSE Manager) Cabeolica (MESA)
	MiN 6	MoN 4 Verify that MSDS and safety instructions are clearly displayed in the storage areas	Number and type of MSDS displayed are equal to number and type of hazardous materials stored	HSE inspection records Photographic records	Once before each phase and regular follow-up during all phases	EPC Contractor (HSE Manager) Cabeolica (MESA)
	MiN 7 MiN 14 MiN 17	MoN 5 Verify that Cabeolica and EPC contractor training systems are implemented to ensure that onsite personnel are familiarized with safety requirements related to their respective job assignments and respond in a timely manner to accidents, incidents and in case of emergency.	Number of workers participating in training and awareness sessions and training hours dedicated.	Training matrix Training schedule List of trainees	Once before each phase and every time new workers are admitted	EPC Contractor (HSE Manager) Cabeolica (MESA)
	MiN 8 MiN 9	MoN 6 Verify that emergency alarm systems, where applicable, are both audible and visible and that appropriately equipped first aid stations are accessible through the site.	Percentage (%) of emergency alarm systems displayed and serviced as per maintenance procedures. No. of drills.	HSE inspection records Photographic records Maintenance records	Once before each phase and regular follow-up during all phases	EPC Contractor (HSE Manager) Cabeolica (MESA)
	MiN 11 MiN 21	MoN 7 Verify that fire response and spill response equipment are routinely inspected, maintained, and operationally exercised and tested, and is available as necessary for response.	Percentage (%) of fire response and spill response equipment serviced and inspected as per maintenance procedures. No of drills.	HSE inspection records Photographic records Maintenance records	Once before each phase and regular follow-up during all phases	EPC Contractor (HSE Manager) Cabeolica (MESA)
Fire and explosion accidents	MiN 10 MiN 13	MoN 8 Verify regular inspection and maintenance of electrical equipment and installation of circuit breakers in the power supply to avoid risk of fire.	Percentage (%) of circuit breakers installed and serviced as per maintenance procedures	HSE inspection records Photographic records Maintenance records	Once before each phase and regular follow-up during all phases	EPC Contractor (HSE Manager) Cabeolica (MESA)

Non-routine event	Mitigation measure	Monitoring Measure	Indicator	Evidence	Monitoring Frequency	Responsibility for monitoring
	MiN 12	MoN 9 Check that specific information about the facility is provided to local fire services to coordinate the rapid response	Number of communications / meetings held with local fire services	Evidence of communication	Once before operation	Cabeolica (MESA)
	MiN 15	MoN 10 Verify that fire and explosion protection, suppression and relief equipment, and PPE required per the job titles are provided and regularly inspected	Percentage (%) of PEE procured and being used by workers.	PPE register Maintenance records Inspections records	Once before each phase and regular follow-up during all phases	EPC Contractor (HSE Manager)
	MiN 16	MoN 11 Verify that best practices for mitigating BESS hazards are adopted in the final design	Number and type of BAT adopted for mitigation BESS hazards	Final design	Once during pre-construction, with final design	BESS provider
Accidents / Collision of vehicles	MiN 17	MoN 12 Verify drivers qualifications	Number of drivers and qualifications No drivers attending driver safety training	Drivers' license Training records	Once before construction and every time new drivers are admitted	EPC Contractor (HSE Manager)
	MiN 18 MiN 19	MoN 13 Verify that Logistic, Traffic and Transportation Plan is followed	Number of accidents or collisions Routes followed vs planned	Register of signing in and out of trucks at security gate. Incident reports.	Once before construction phase and monthly follow-up during this phase	EPC Contractor (HSE Manager)
Leaks and spills of hazardous substances and wastes	MiN 20	MoN 14 Verify regular maintenance and inspections to vehicles and other equipment to prevent fuel and lubricant spills and leaks	Percentage (%) of vehicles/machinery serviced and inspected as per maintenance procedures	Equipment and vehicles maintenance/inspection records	Once before each phase and regular follow-up during this phase	EPC Contractor (HSE Manager) Cabeolica (MESA)
	MiN 22	MoN 15 Verify that storage areas and containers are properly equipped with paved areas, secondary containment and a spill kit	Number of observations and non-conformances identified	HSE inspection records Photographic records	Once before each phase and regular follow-up during this phase	EPC Contractor (HSE Manager) Cabeolica (MESA)
	MiN 23 MiN 24	MoN 16 Verify that appropriate containers and receipts are used according to the type of hazardous substance or waste and that these are stored in a defined space only accessible to authorized personnel	Number of observations and non-conformances identified	HSE inspection records Photographic records	Once before each phase and regular follow-up during this phase	EPC Contractor (HSE Manager) Cabeolica (MESA)
	MiN 25 MiN 26	MoN 17 In case of a leak or spill, verify that the incident is documented and that appropriate clean-up measures were adopted	Number and types of emergency and non-routine situations.	Report of incidents and actions taken (where applicable)	In case of leak or spill event	EPC Contractor (HSE Manager) Cabeolica (MESA)

During the operation phase, monitoring activities of the new BESS components will be integrated into the current monitoring activities conducted by Cabeolica. The current scope includes **an annual environmental and social monitoring report** to be submitted to *Direção Nacional do Ambiente* with a compiled summary of the environmental and social activities executed throughout the year at the four windfarms, including the following activities:

- Verification of Environmental mitigation measures and recovery: Monthly site visits to monitor compliance with the above KPIs for the following aspects by the site manager. The following aspects are monitored during this verification:
  - Review of disturbed vegetation and soils in the a. on the site and any disturbed areas arising from its construction adjacent to the site perimeter.
  - Biodiversity: Monitoring of recuperation of habitats on site and any disturbed areas arising from its construction, adjacent to the site perimeter.
  - Soil erosion: Monitoring soil erosion occurrence and checking the condition of drainage systems, including verification that drainage systems are not obstructed.
- Waste Production: Monitoring of hazardous and non-hazardous waste production and storage.
- Social Aspects: Monitoring of social measures implemented:
  - Job creation: Permanent, long-term, and temporary contracts.
  - Corporate social responsibilities and community activities: Contributions to social and economic development of local communities.
  - Development of relationships with local organizations in environmental education.
- Economic Aspects: Monitoring of socio-economic benefits related to wind energy production and energy storage.

Monitoring activities during the decommissioning phase will be similar to those proposed for pre-construction and construction and will be incorporated into the Decommissioning Plan for the Project.

5.3 Schedule

The schedule of the ESMP milestones for each project phase is detailed in Table 5-11, Table 5-12, Table 5-13 and Table 5-14. Schedules are tentative and subject to adaptation to final project timelines and shall be updated in the corresponding CESMP and operational E&S plans.

Table 5-11 ESMP Schedule milestones before and during Pre-Construction Phase

ACTIVITY	FEED Phase	PRE-CONSTRUCTION months prior to construction		
		1	2	3
Verify that ESMP and CCESMP site specific measures are incorporated into relevant EPC contractual provisions and final design.				
Integrate proportionally Cabeolica Expansion Project Stakeholder Engagement Plan (SEP), Grievance Redress Mechanism (GRM), Waste Management Plan (WMP) and ESMP into contractors' project environmental and social management plans and systems.				
Establish a register for interested companies and individuals to assist in the identification of supply and support opportunities				
Develop an Emergency Response Plan and a Health and Safety Plan				
Develop a Logistics, Traffic, and Transportation plan				
Develop a Contractor Construction Environmental and Social Management Plan (CCESMP)				
Initial site survey to identify areas of high concentration of fauna individuals and sensitive flora				
Verification of the conditions of approach road and site access				
Design site drainage for the site				
Relocation of reptiles to areas with similar conditions				
Restoration of areas for reptiles				
Staff training and awareness				
Check origin of equipment and materials used on site to prevent the introduction of alien species				

Table 5-12 ESMP Schedule milestones for Construction and Commissioning Phases

ACTIVITY	CONSTRUCTION & COMMISSIONING Months								
	1	2	3	4	5	6	7	8	9
Verification of compliance with mechanisms included in contract, including social mechanisms to control situations related to gender-based discrimination, harassment, etc.) (monthly)									
Verify the compliance with Contractor Construction Environmental and Social Management Plan (CCESMP) and other related E&S plans (e.g. Transportation Plan, WMP, HSE and ERP plans) (monthly)									
Implement Cabeolica GRM and follow-up on grievances' received									
Verify appropriate equipment and vehicles maintenance (monthly)									
Verify dust suppression and combustion pollutants reduction measures (daily)									
Verification of the conditions of approach road and site access (weekly)									
Verification of site drainage (weekly)									
Verification that areas used for construction activities are restricted to the areas delimited for this purpose (weekly)									
Monitor of sources and quantities of water, raw materials and power requirements (monthly)									
Verification of soil, vegetation and fauna conditions (weekly)									
Verification of implementation of chance finds procedure (daily during earthworks)									
Site restoration and landscape integration									
Staff training and awareness									

Table 5-13 ESMP Schedule milestones for Operation and Maintenance Phase (Example of one year of operation)

ACTIVITY	OPERATION AND MAINTENANCE Months											
	1	2	3	4	5	6	7	8	9	10	11	12
Verification of environmental restauration (monthly)												
Verify the compliance with ESMP and other E&S plans (e.g. CCESMP, WMP, SEP, HSE, ERP) (monthly)												
Staff training and awareness/Capacity building initiatives												
Monitoring of social aspects: job creation, corporate social responsibilities and community activities and relationship with local organizations												
Monitoring of socio-economic benefits related to wind energy production in the country.												
Implement Cabeolica Grievance Mechanism and follow-up on grievances' received												
Annual monitoring report to DNA												

Table 5-14 ESMP Schedule milestones before and during Decommissioning Phase

ACTIVITY	End of operation	DECOMMISSIONING Months											
		1	2	3	4	5	6	7	8	9	10	11	12
Update Decommissioning Plan, Waste Management Plan and other relevant plans													
Verification of compliance with mechanisms included in contract, including social mechanisms to control situations related to gender-based discrimination, harassment, etc.) (monthly)													
Verify the compliance with Contractor Construction Environmental and Social Management Plan and other E&S plans (e.g. Transportation Plan, WMP, HSE and ERP plans) **(**monthly)													
Implement Cabeolica GRM and follow-up on grievances' received													
Disconnection and isolation of BESS. Recycle SF6 at equipment servicing or disposal at appropriate facilities													
Reuse, recycle or disposal of components at approved facilities													
Verify appropriate equipment and vehicles maintenance (monthly)													
Verify dust suppression and combustion pollutant reduction measures (daily)													
Verification of the conditions of approach road and site access (weekly)													
Verification of site drainage (weekly)													
Verification that areas used for construction activities are restricted to the areas delimited for this purpose (weekly)													
Monitor of sources and quantities of water, raw materials and power requirements (monthly)													
Site restoration and landscape integration													
Staff training and awareness													

5.4 Institutional capacity, roles, and responsibilities

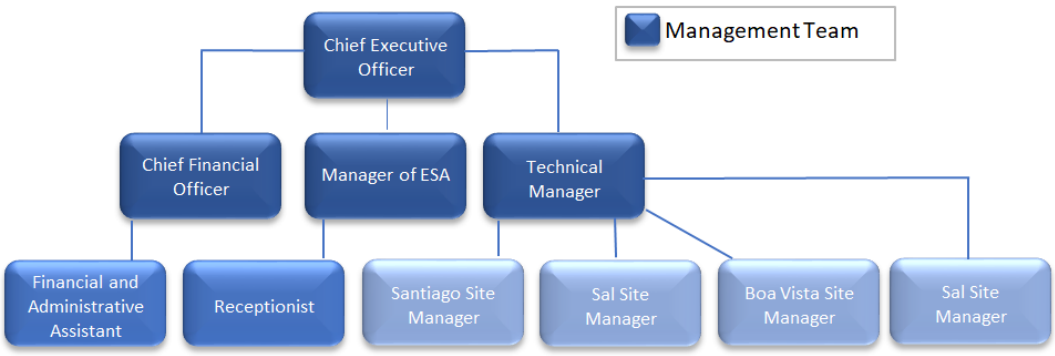
5.4.1 Cabeolica E&S management

Cabeolica has an Environmental and Social Management System (ESMS) to implement the Environmental and Social Policy and to manage the environmental and social risks and impacts throughout all activities carried out by the Company. The ESMS is a dynamic and continuous process that requires engagement between Cabeolica and its employees, EPC Contractors and other stakeholders who are directly or indirectly impacted by Cabeolica's financed activities and decisions.

Cabeolica Management provides the necessary human and material resources for the establishment, maintenance, and continuous improvement of the ESMS according to their available resources. These resources include human resources, special skills, organizational structure, and financial and technological resources. Furthermore, when required, Cabeolica engages specialist environmental and social support from appropriately qualified consultants. The Cabeolica organization chart is provided in Figure 5-1.

Cabeolica has an Environmental, Social and Administration Manager (MESA) on their team at the Santiago Cabeolica office. On the other islands, Cabeolica has a representative who manages all aspects of each site. The BESS provider is in charge of conducting maintenance with local personnel in Cabo Verde that assist Cabeolica, as necessary.

Figure 5-1 Cabeolica Organization Chart



5.4.2 Roles and responsibilities

The successful implementation of an Environmental and Social Management Plan (ESMP) is often determined by the clarity of the roles and responsibilities given to employees and EPC Contractors to undertake the necessary actions. This requires recognition by top management of the resources required to implement and control the ESMP for the project.

The following distribution of direct responsibilities in the environmental and social management for the project is proposed:

Cabeolica

The MESA of Cabeolica will establish the terms of reference to be observed for the environmental and social management of the Project, based on the applicable legal requirements, the ESMP, and the

requirements of the Project's financing entities, and will ensure that these terms of reference are complied with.

Cabeolica will be in charge of obtaining licenses and authorizations for carrying out the Project before construction, engaging in formal articulation with the various official entities involved in the process, and implementing the Grievance Redress Management (GRM) mechanism to receive and process complaints related to the Project.

EPC Contractor:

The EPC Contractor awarded the contract to design, deliver and install the BESS will be responsible for the physical execution of the works under the supervision of the Owner's Engineer (OE). As such, the EPC Contractor will be responsible for the completion, detailing, and adequate implementation of the ESMP including the Contractors Construction Environmental and Social Management Plan (CCESMP).

As part of the preparatory work, the EPC Contractor will complete and detail the general requirements established in this ESMP, depending on the specificities of its organization and the human and material resources that will be assigned to the work. The revised ESMP will be submitted for approval by Cabeolica (assisted by the OE) before the start of work. Once approved, the revised document will become the EPC Contractor's ESMP (CCESMP).

The EPC Contractor will have, in its organization, the necessary means to carry out these works and implement all applicable ESMPs and the SEP, as well as monitoring the different areas involved. An appropriately trained specialist HSE specialist or HSE manager will be present full-time at the construction sites. The appropriate training is given in the provisions of the EPC contract and the CCESMP.

All contractors will follow, and integrate proportionally, the Cabeolica GRM procedures, where relevant, into their Project environmental and social management plans and systems as per the Cabeolica's Expansion Project Stakeholder Engagement Plan.

Owner's Engineer (OE):

The activities to be overseen by the OE will include, among others, assisting Cabeolica in the procurement of goods and services related to the Cabeolica Expansion Project, control and supervision of the construction works, support for the implementation of the training program, and support and monitoring of the implementation of environmental and social safeguard measures, as follow:

- Support Cabeolica in the implementation of the training scheme associated with Project implementation.
- Review and approve the plans and other documentation to be prepared by the EPC Contractor in accordance with the provisions of the ESMP.
- Develop and put into practice a system for supervising the works covered by the EPC Contractor to verify the implementation of plans and, in general, the performance in environmental and social matters of that contract.
- Prepare periodic reports for Cabeolica on the environmental, social, health and safety management of the project.

5.5 Training

Before the start of the work, Cabeolica will promote, with the support of the OE and other entities, the training of the EPC Contractor's management staff, namely the environment, health and safety technician(s), foreman(s), and work management personnel, to cover the following topics:

- Environmental effects that the work may cause and corresponding good practices and preventive and corrective measures to be adopted.
- Rules and procedures for managing waste on site.
- Safety risks associated with works and corresponding preventive measures and behaviours to be adopted (including personal protective equipment, PPE).
- First aid and action in the event of an accident.
- General norms for dealing with local populations.
- General rules of Hygiene health and safety (HHS) on construction sites.
- Gender Based Violence (GBV) and Violence Against Children (VAC) prevention code of conduct.
- Risks and prevention of sexually transmitted diseases.
- Measures to be taken in case of discovery of tangible cultural heritage artefacts or sites (See Appendix D Management of Chance Finds).
- The GRM mechanism for workers and its use.

Subsequently, the EPC Contractor's management team must ensure that training and awareness-raising activities are carried out for all on-site personnel at its service (including the personnel of its subcontractors), to improve their knowledge of the actions to be taken, to prevent or minimize the environmental effects of their activities, and to promote the best relationship with the local populations. The presence and content of these actions must be duly registered. Whenever new workers are admitted, they must be given identical training and awareness.

During the work and following the follow-up and monitoring activities, the need for complementary training and awareness actions can be determined if found that the previous actions have not produced the desired effects.

5.6 Capacity building

Given that the installation and use of BESS are new activities for the company, Cabeolica will promote capacity building activities regarding operation, maintenance, and decommissioning of the BESS with the assistance of relevant institutions (e.g., local civil protection and fire services) and the BESS provider. The following themes should be covered:

- Battery Energy Storage System essential elements
- Standards and regulations
- Mitigating BESS hazards and mitigation
- Management and controls (onsite and remote)
- Waste management
- Decommissioning requirements

5.7 Reporting requirements and indicators

During the construction phase, the following reporting requirements shall be applicable:

- Weekly: The EPC Contractor will provide a summary of progress in implementing the ESMP and CCESMP for environmental and social aspects under their control and responsibility.
- Monthly: The EPC Contractor will present a detailed report containing all records produced and an assessment of incidents during the previous month. The monthly report will be produced with the structure defined in the revised ESAP and will be delivered to the OE.
- The OE will keep Cabeolica informed about the progress of the work, submitting a monthly status report that covers the most relevant environmental and social matters, without prejudice, and will participate in ad hoc communications in the event of urgent or emergency situations when requested by Cabeolica`s MESA.

The monthly reports prepared by the EPC Contractor will include the KPIs (Key Performance Indicators), included in Section 5.2. These indicators will be considered by the OE in the preparation of its monthly report to Cabeolica, which will also contain the following indicators:

- Non-conformities: Number of non-conformities (non-compliances with environmental and social management measures) identified by the OE. Average time to resolve identified non-conformities.
- Grievance: Number of complaints received through the GRM. Average response time to complaints received and average time taken to resolve the issues in question.

During operation phase reporting will be part of Annual Environmental and Social Monitoring Report to be submitted to *Direção Nacional do Ambiente*.

Cabeolica will also comply with the preparation of Environmental and Social Implementation Reports to be submitted to the lenders (quarterly for the AfDB) and annual audits.

5.8 Budget

Cabeolica has provided a general provisional budget for ESMP measures: however, the budget and costs for the site-specific measures in this ESMP will be subject to review and approval.

The environmental and social management activities or measures to be implemented for the Cabeolica Expansion Project in Boa Vista are summarised in the table below with the corresponding responsible parties and estimated budgeted costs.

Table 5-15 Cabeolica Budget – Boa Vista

Project phases	VR	Activity	Estimated cost	Comments
Pre-construction and construction phases	ALL	Environmental and Social Monitoring and Auditing of EPC scope	5.000,00 €	Lump sum estimated cost associated with the supervision of the implementation of the CCESMP by Cabeolica's MESA, including possible audits by national authorities and external support by OE team.
		SEP	2.000,00 €	Lump sum estimated cost associated with stakeholder engagement plan implementation and monitoring during construction.
		Grievance Mechanism	1.000,00 €	Lump sum estimated cost associated with the additional effort to implement existing Cabeolica's GRM for the new components during construction.
		Staff awareness training	1.000,00 €	Lump sum estimated cost associated with organizing and delivering training sessions during construction. Cost based in estimate provided in the ESMP for the previous phase of the Cabeolica Wind Farm Project.
		DNA permitting	2.500,00 €	Permit costs for DNA Approvals for Category C (1000 EUR between Santiago and Sal) and Category B projects (2500 EUR each for Sao Vicente and Boa Vista).
	FLORA & FAUNA	Initial flora and vegetation survey	1.000,00 €	Initial site survey to quantify species of flora that will be affected by the final location of the project components (including photographic survey of sites where components will be installed and report). This survey will be done by a specialized subcontractor. Cost based in estimates provided in the ESMP for the previous phase of the Cabeolica Wind Farm Project and prior surveys conducted for the Cabeolica Expansion Project.

Project phases	VR	Activity	Estimated cost	Comments
Operation and maintenance phases (only additional cost of the operation of new components)	ALL	BESS capacity building	5.000,00 €	Lump sum estimated cost associated with organizing and delivering capacity building sessions, including mobilization of participants.
Decommissioning phase	ALL	Environmental and Social Monitoring and Auditing of Decommissioning scope	5.000,00 €	Lump sum estimated cost associated with the supervision of the implementation of the Decommissioning Plan by Cabeolica's MESA, including possible audits by national authorities and external support by OE team.
		SEP	2.000,00 €	Lump sum estimated cost associated with stakeholder engagement plan implementation and monitoring during decommissioning.
		Grievance Mechanism	1.000,00 €	Lump sum estimated cost associated with the additional effort to implement existing Cabeolica's GRM for the new components during construction.
		Staff awareness training	500,00 €	Lump sum estimated cost associated with organizing and delivering training sessions during decommissioning. Cost based in estimate provided in the ESMP for the previous phase of the Cabeolica Wind Farm Project.
		Update and implementation of Cabeolica Waste management plan	10.000,00 €	Lump sum estimated cost associated with the updating and implementation of Cabeolica Waste Management Plan during the decommissioning phase: waste temporary storage, treatment, transport and final disposal, including the recovery and disposal of SF_6 gas.
TOTAL			**37.000,00 €**	

Table 5-16 EPC Contractor budget.

Project phases	VR	Activity	Estimated cost	Comments
Pre-construction and construction phases	ALL	Preparation of CCESMP, HSE Manager and implementation and monitoring of general mitigation measures	20.000,00 €	Lump sum estimated cost associated with the preparation of the CCESMP, HSE Manager Fees, training requirements and the implementation of general mitigation measures, which relate to compliance with the applicable legal requirements and/or best practices. Estimated cost to be confirmed with EPC Contractor.
		Grievance Mechanism	1.000,00 €	Lump sum estimated cost associated with integration and implementation of Cabeolica's GRM. Estimated cost to be confirmed with EPC Contractor.
	FLORA, FAUNA & LANDSCAPE	Prevention of potential introduction of invasive alien species	1.000,00 €	Periodic checks or construction equipment and implementation of prevention procedures. Cost based in estimate provided in the ESMP for the previous phase of the Cabeolica Wind Farm Project.
		Site restoration measures after construction activities	3.000.00 €	Site restoration at the end of the construction phase, including environmental restoration of soil and vegetation cover and removal of temporary construction facilities. Cost based in estimate provided in the ESMP for the previous phase of the Cabeolica Wind Farm Project, to be confirmed with EPC Contractor.
	CULTURAL HERITAGE	Change finds procedure	1.000.00 €	Lump sum estimated cost associated with the implementation and monitoring of Cabeolica Change Finds procedure during construction works. Estimated cost to be confirmed with EPC Contractor.
	COMPLEMENTARY PLANS TO CCESMP	Emergency Response Plan and HSE Plan	3.000.00 €	This plan is to be covered by EPC Contractor. Provision included by Cabeolica. Lump sum estimated cost associated with the preparation of the ERP and HSE Plans. Implementation and monitoring is included under general CCESMP and HSE Manager Fees. Estimated cost to be confirmed with EPC Contractor.

Project phases	VR	Activity	Estimated cost	Comments
		Logistics, Traffic and Transportation Plan	1.500.00 €	This plan is to be covered by EPC Contractor. Provision included by Cabeolica. This budget considers the preparation of the plan. Implementation and monitoring are included under general CCESMP and HSE Manager Fees. Estimated cost to be confirmed with EPC Contractor.
		Implementation of Cabeolica Expansion Waste Management Plan	3.000.00 €	Lump sum estimated cost of the implementation of the Cabeolica Waste Management Plan during construction including temporary storage, obtaining contracts with applicable local municipalities for waste collection and final waste management options. Cost based in estimate provided in the ESMP for the previous phase of the Cabeolica Wind Farm Project, to be confirmed with EPC Contractor.
TOTAL			**33.500 €**	

Table 5-17 Lenders external audits.

Activity	Responsibility	Estimated costs	Comments
Lenders External E&S Audits during construction	Cabeolica	30,000 €	Lump sum estimated cost associated to an annual external E&S audit during construction (30.000 EUR/visit). The estimated cost is shared between the four sites. This quotation includes travel costs for international E&S consultants.
Lenders External E&S Audits during operation	Cabeolica	30,000 €	Lump sum estimated cost associated to an annual external E&S audit during operation (30.000 EUR/visit), to be carried out during the first year of operation. The estimated cost is shared between the four sites.

5.9 ESMP Review

The provisions set out in this ESMP should be reviewed following any changes in the applicable Cabo Verde legislation, ES incidents, and sustained non-compliance with the KPIs. Any changes in implementation, monitoring or corrective actions will be approved by Cabeolica via their change management procedures.

The Cabeolica MESA, with the support of the OE, will work with the various stakeholders to ensure that these updates are made and communicated to all project-affected communities, persons and stakeholders.