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Harmancık Wind Power Plant (WPP) Project

Non-Technical Summary

June 2024

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Glossary

AFAD	Disaster and Emergency Management Authority
AIS	Alien Invasive Species
AN	Ammonium Nitrate
ANFO	Ammonium Nitrate / Fuel Oil
AoI	Area of Influence
BAP	Biodiversity Action Plan
BMP	Biodiversity Management Plan
CCRA	Climate Change Risk Assessment
CCTV	Closed-circuit Television
CHA	Critical Habitat Assessment
CHIA	Cultural Heritage Impact Assessment
CHS	Community Health and Safety
CIA	Cumulative Impact Assessment
CLO	Community Liaison Officer
CoC	Code of Conduct
COD	Commercial Operation Deployment
CSR	Corporate Social Responsibility
DFC	Development Finance Corporation
DSI	State Hydraulic Works
EAAA	Ecologically Appropriate Area of Analysis
EBRD	European Bank for Reconstruction and Development
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EMI	Electromagnetic Interference
EMR	Electromagnetic Radiation
Enerjisa	Enerjisa Enerji Üretim Anonim Şirketi
EMRA	Energy Market Regulatory Authority
EN	Endangered
EPA	Environmental Protection Agency
EPC	Engineering, Procurement, and Construction
EPRP	Emergency Preparedness and Response Plan
E&S	The Environmental and Social
ESIA	Environmental and Social Impact Assessment

ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESRI	Environmental Systems Research Institute
ETL	Energy Transmission Line
EU	European Union
EURO 5	The fifth iteration of emission standards set by the European Union (EU) for vehicles
GBVH	Gender-Based Violence and Harassment
GHG	Greenhouse Gas
GIIPs	Good International Industry Practices
GIS	Geographical Information System
HR	Human Resources
HRIA	Human Rights Impact Assessment
ICNIRP	International Commission on Non- Ionizing Radiation Protection
IEC	International Electrotechnical Commission
IESC	Independent Environment & Social Consultant
IFC	International Finance Corporation
ILO	International Labour Organisation
ISO	International Standardisation Organisation
IUCN	International Union for the Conservation of Nature
KPI	Key Performance Indicator
KBAs	Key Biodiversity Areas
LRP	Livelihood Restoration Plan
MAPEG	The General Directorate of Mining and Petroleum Affairs
MoEUCC	Ministry of Environment, Urbanization and Climate Change
NTS	Non-Technical Summary
OECD	Organisation for Economic Co-operation and Development
OHS	Occupational Health and Safety
PAA	Project Affected Area
PAHs	Project-Affected Households
PAPs	Project Affected Persons
PAS	Project Affected Settlements
PBF	Priority Biodiversity Features
PID	Project Information Document
PM	Particulate Matter

PPE	Personal Protective Equipment
PPM	Public Participation Meetings
PR	Performance Requirements
PS	Performance Standard
RAP	Resettlement Action Plan
RCAPOI	Regulation on the Control of Industrial Source Air Pollution
RENC	Regulation on Environmental Noise Control
REPA	Türkiye Energy Potential Map
RF	Resettlement Framework
SCADA	Supervisory Control and Data Acquisition
SDoD	Shut-down on Demand
SEP	Stakeholder Engagement Plan
SMP	Security Management Procedure
SSPs	Shared Socioeconomic Pathways
TEIAS	Turkish Electricity Transmission Corporation
The Consultant	Mott MacDonald Türkiye
The Project	Harmancık Wind Power Plant (WPP) Project
TS	Transformer Substation
UNESCO	United Nations Educational, Scientific, and Cultural Organisation
VEC	Valued Environmental and Social Component
VP	Vantage Point
VU	Vulnerable
WBG	World Bank Group
WHO	World Health Organization
WPP	Wind Power Plant
YEKA	Renewable Energy Resource Area
ZVI	Zones of Visual Influence

1 Introduction

1.1 Background

This document is Non-Technical Summary (NTS) which provides a description and the main findings of the Environmental and Social Impact Assessment (ESIA), which has been conducted to evaluate the impacts associated with the Harmancık Wind Power Plant ("the Project") with 10 turbines located in Çanakkale Province, Merkez and Lapseki Districts, Yukarıokçular, Kızılkeçili, Üçpınar and Hacıgelen Neighbourhoods.

The Project is part of a nine-project wind energy investment package which has a 750 MW total installed power from a total of 180 wind turbines located in western Turkey. The Project has been initiated by Enerjisa Enerji Üretim Anonim Şirketi ("Enerjisa Üretim" or "the Project Company") which has been awarded to utilize potential wind energy resource by constructing and operating a wind power plant in the allocated region as a Renewable Energy Resource Area (YEKA) where the Project licence area is located. The main reason for selecting the Project site is its designation as a YEKA, as officially announced on 21 March 2021 (Official Gazette number: 31430) in accordance with the Renewable Energy Resource Areas Regulation. This designation primarily aims efficient utilization of renewable energy resources, allocating areas to investors promptly, expediting investments, and promoting the production of advanced technology components domestically or through local procurement for renewable energy facilities, contributing to technology transfer in Türkiye. YEKA can offer several advantages and positive outcomes for local communities and their members in terms of economic growth and job creation (even though it is at lower extent), improvements in local infrastructure such as roads and power grids that are beneficial for the wider community, better public health since renewable energy (with little to no greenhouse gas emissions and reduced air pollution) is produced, and energy independence, stability and security against imported price fluctuations and supply disruptions thanks to locally produced renewable energy. Additionally, renewable energy projects often involve local stakeholders in planning and decision-making, fostering a sense of ownership and empowerment within the community. In this regard, YEKA can play a crucial role in fostering sustainable, resilient, and prosperous local communities.

The construction phase of the Project is estimated to be completed in 17 months and the Power Plant will be operated in 49 years.

The Project, which will be realized using the planned financing provided by a group of development finance institutions and commercial lenders, jointly "Project Lenders" and with partial coverage by the German ECA Euler Hermes Aktiengesellschaft ("EH"), includes following components:

- Turbines (a total of 10 wind turbine)
- Switchyard and Administration Building
- Access Roads and Site Roads
- Mobile Crushing and Screening Facility
- Associated Facility (the Energy Transmission Line)

1.2 Project Parties

The Project is planned to be implemented by "Enerjisa Üretim" or the "Project Company" as a leading private sector energy producer in Türkiye. The total installed capacity of the Company's power generation portfolio is approximately 3,748 MW, of which 9.4% consists of six wind power

plants with a total installed capacity of 352.8 MW. The Project Company's goal is to complete 1,000 MW YEKA-2 project investments by early 2026 and increase their total installed capacity to 5,000 MW. They will focus on flexible and high-efficiency generation units and expanding the utilization of renewable energy resources potential in the upcoming years.

The Project includes several parties involved within various Project-related activities. In this sense, as well as its own Project team, the Project Company has appointed several consultancy companies to support during the National Environmental Impact Assessment (EIA) process. The consultancy activities include social studies undertaken by Adam & Smith, and environmental monitoring studies for the National EIA undertaken by Nartus. Furthermore, the Project Lenders have appointed Lenders' Independent Environment & Social Consultant (IESC), namely Ramboll UK Limited (Ramboll) and ACE Consulting and Engineering Inc (ACE), for monitoring of the Project in line with the Lenders' standards and requirements. As part of the financing process and achieving the sustainable outcomes with the Project, Mott MacDonald Türkiye ("the Consultant") has been appointed by Enerjisa Üretim to undertake an ESIA Study. Project organization chart is provided in Figure 1.1.

The Project Company holds the ultimate responsibility for the environmental and social performance including the performance of its contractors and overall accountability for the compliance of the Project activities during both construction and operation phases. It is the responsibility of the Project Company to oversee and monitor the implementation of relevant environmental and social (E&S) elements by subcontractors during the construction phase. This includes auditing and assessing subcontractors' implementation of the relevant E&S aspects, ensuring that corrective actions are taken when necessary to maintain performance in line with international standards and good international industry practice (GIIP).

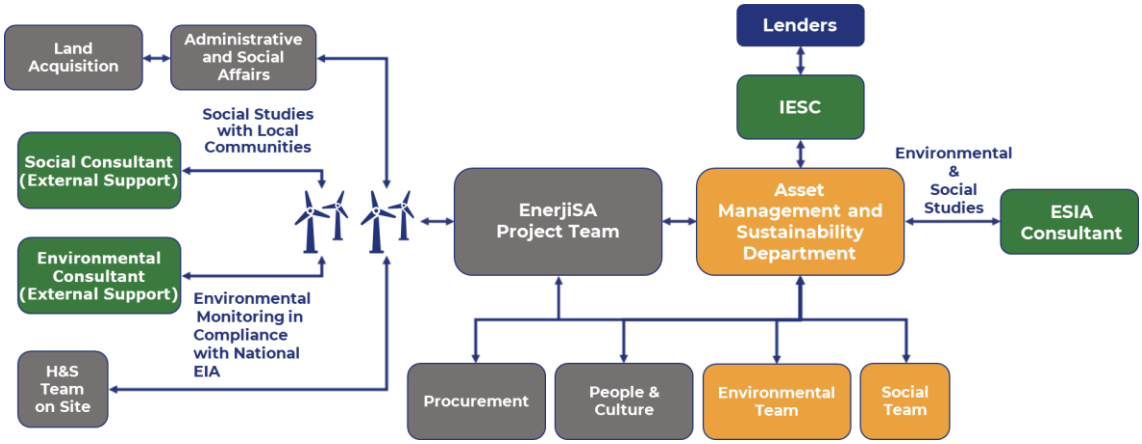

Figure 1.1: Project Organisational Chart

Source: Provided by the Project Company on 14 May 2024.

1.3 ESIA Objective and Requirements

The objective of the ESIA is to identify and assess the severity of potential impacts on receptors and identified resources; develop and describe mitigation measures that will be taken to prevent or minimize any potential negative effects and maximize the potential benefits; and communicate the severity of residual impacts that will remain once the mitigation has been applied. In the context of project financing requirements, as outlined in Section 1.1 above, the ESIA study has been conducted to meet primarily the requirements of the following international standards:

- International Finance Corporation (IFC)'s Environmental and Social Policy & Performance Standards (2012)

- IFC's Environmental, Health and Safety (EHS) General Guidelines (2007)
- IFC's EHS Guidelines for Electric Power Transmission and Distribution (2007)
- IFC's EHS Guidelines for Wind Energy (2015)
- Equator Principles IV (2020)
- The Organization for Economic Cooperation and Development (OECD) Recommendation of the Council on Common Approaches on the Environment and Officially Supported Export Credits – "The Common Approaches"
- IFC/KfW/ European Bank for Reconstruction and Development (EBRD) Post-construction Bird and Bat Fatality Monitoring for Onshore Wind Energy Facilities in Emerging Market Countries - Good Practice Handbook (2023)
- EBRD's Environmental and Social Policy & Performance Requirements (2019)
- IFC/EBRD's Guidance Note on Workers Accommodation: Processes and Standards (2009)
- U.S. International Development Finance Corporation (DFC)'s Environmental and Social Policy and Procedures (2020)
- International Labour Organization (ILO)'s fundamental conventions concerning the abolition of child labour, the elimination of discrimination at the workplace and forced/compulsory labour.

In addition to these standards, the Project comply with Turkish environmental and social legislation. The relevant European Union (EU) Directives and good international industry practices are also applicable to the Project.

1.4 Assessment Topics

The assessment has been broken down by topic to reflect the scope of the ESIA agreed with the Project Lenders. These topics are as follows:

- Water Quality, Hydrology and Hydrogeology
- Land Use, Soil and Geology
- Air Quality
- Climate and Greenhouse Gases
- Noise and Vibration
- Landscape and Visual
- Shadow Flicker
- Waste and Resources
- Biodiversity
- Social Environment
- Labour and Working Conditions
- Community Health and Safety (Water, Noise and Air Quality, Structural safety, Life and Fire Safety, Traffic Safety, Abnormal Load Transportation, Transport and Storage of Hazardous Materials, Disease Prevention, Emergency Preparedness and Response, Explosive Use and Blasting, Ecosystem Services, Public Access and Security Personnel)
- Cultural Heritage
- Cumulative Impacts
- Stakeholder Engagement, Information Disclosure and Consultation

1.5 ESIA Scope and Methodology

Lenders have confirmed the category of the Project as Category A in accordance with their Environmental and Social Policies. The initial stage of the ESIA process involves screening current conditions to determine if a study is needed for the proposed project, aligning with the lender's categorization criteria. The ESIA study is deemed necessary, and a Scoping report has been submitted to lenders, outlining the scope of the assessment. The final scope, agreed upon after reviewing justifications for certain excluded impacts, includes considerations for water quality, hydrology, hydrogeology, geology, soils, air quality, traffic, transport, archaeology, and cultural heritage during the construction phase. Landscape, visual and shadow flicker impacts are only considered within the scope during the operation phase. Climate change, greenhouse

gases, biodiversity, social, waste and resources, noise and vibration are scoped in for both construction and operation phases. It is to be noted that ESIA does not assess the likely impacts that may arise from the decommissioning phase. On the other hand, the Project Company will develop a high-level decommissioning strategy and improve it throughout the Project lifetime to develop a detailed decommissioning plan, including a full impact assessment and mitigation plan.

Criteria of the magnitude, sensitivity of a receptor, types of effect and evaluation matrix are determined within the scope of the ESIA methodology. In addition, the assessment of cumulative impacts (combination of multiple effects) has been considered as a part of ESIA methodology.

1.6 Previously Carried out Environmental & Social Studies

The Project Company secured a pre-license for the Project on 3 March 2022, which was issued by the Energy Market Regulatory Authority (EPDK) and is valid for twenty-four months. The generation license of the Project has been secured and it is valid until 22 February 2027 (for 49 years). In accordance with the relevant provisions of the national regulations governing National EIA studies, the baseline environmental and social activities were conducted. In accordance with the relevant provisions of the national regulations governing National EIA studies, the baseline environmental and social studies for the Project were conducted. An Environmental Consultancy Company named Nartus, with a competency certificate to prepare National EIA Report, prepared the National EIA Report, which was submitted to the MoEUCC on 19 January 2023 to MoEUCC. Upon submission of the Final EIA Report to the MoEUCC General Directorate of Environmental Impact Assessment, Permit and Inspection, the EIA Positive Decision for the Project was published on 7 March 2023 by the MoEUCC.

According to the received opinion letters, a number of important concerns are noted as described below.

Ministry of Agriculture and Forestry, General Directorate of State Hydraulic Works (DSİ) has concerns related to the Project's impact on water sources and riverbeds. They emphasize the importance of preserving structures and maintaining minimum distances between the turbines and riverbeds.

Ministry Of Culture and Tourism, General Directorate of Cultural Heritage and Museums, Çanakkale Cultural Heritage Preservation Regional Board Directorate has reported that there were no cultural assets in the license area. However, during physical and construction interventions in the area, if any discovery of cultural heritage items or remains of cultural heritage significance subject to the Law No. 2863 is made, it is mandatory to immediately halt the activities and report this discovery to the nearest Museum Directorate within three days, in accordance with the "Obligation to Notify" under the mentioned law.

General Directorate of Highways 14th Regional Directorate approval has been granted provided that Project area does not intersect with the routes within the responsibility of the Authority. In addition, within the scope of the Project activities, it was specified in the Authority’s internal directive that "the minimum distances that wind energy power plants should have to the highway boundary line are as follows: on highways ... B: 1.5 * (H+L); on State and Provincial Roads ... B: 1.25 * (H+L), B: distance (m), H: tower height (m), L: blade length (m)." It was emphasized that these minimum distances should be adhered to, transportation within the Project should be carried out in accordance with the 2918 Road Traffic Law, and the permits specified in the legislation should be obtained in advance for such transportation. It was also required that no new connections to the roads should be established, except for the existing connections within the Project area. Furthermore, if a connection is to be made from the Project area to a public

road, it is necessary to apply to the Authority with detailed projects, taking into account the provisions of the 2918 Road Traffic Law and the regulations issued in connection with it.

Ministry of Energy and Natural Resources, General Directorate of Mining and Petroleum Affairs, Special Areas and Map Department has emphasized that, the examination of the Project area has concluded with a favourable evaluation of the Project. As a result, the Project has been registered in the Authority's system as "Harmancık WPP Special Permit Area" under number ER: 3421571, as identified within the provided coordinates. Therefore, it is noted that there is no objection from the Authority to the finalization of the Project.

Ministry of Agriculture and Forestry General Directorate of Nature Conservation and National Parks has emphasized that, a commitment from the Project Company is required regarding measures to eliminate or minimize the potential negative impacts included in the ecosystem assessment report, ornithological assessment report and bat monitoring report. In addition, during operational phase of the Project, the effects of the Project on birds shall be monitored, evaluated and reported by an ornithology expert for a period of 3 years. The work should be carried out in the field for a maximum of 3 consecutive days, 30 days each during both migratory periods, between 15 August and 15 October for autumn, and between 15 March and 15 June for spring migration. Furthermore, during operational phase of the Project, the effects of the Project on bats shall be monitored, evaluated and reported by a bat expert for 5 days/night every month, from end of March to October.

The questions and concerns were shared by the participants during the meetings and concerns have been taken into consideration and elaborated in the relevant sections of the ESIA Report.

The outputs of the completed National EIA studies are evaluated by the Consultant, and the gaps analysed within the scope of the ESIA Report to assess the Project’s compliance with the applicable national and international environmental, health, safety, and social standards. The identified compliance gaps include any additional data that should be collected, and any additional assessments required for the Project to meet the applicable standards.

1.7 Timeline

The tasks undertaken to support this ESIA including baseline data collection, public consultation, detailed assessment as noted below:

- The detailed design phase of the Project has commenced.
- The National EIA Positive decision secured in December 2022.
- Primary ESIA baseline data collection performed from October 2023 to November 2023.
- Draft ESIA Report submitted to the Lenders in May 2024.
- The disclosure period of the Final Draft ESIA in planned to start in June 2024.
- Final ESIA Report to be submitted in August 2024.

1.8 Grievance Mechanism Channels of the Project

- Official letter and/or petition to;
  - The Head Office (Barbaros Mah, My Office İş Merkezi, Çiğdem Sok. No:1/16 34746 Ataşehir/İstanbul), or
  - The Project Administration Office (Yukarı Okçular Mah, Çukurtarla Mevkii, Merkez/Çanakkale)
  - Phone number of the Head Office: (0216) 512 40 00
- Project e-mail address: mailto:yekares2@enerjisauretim.com
- Project website: https://yekares2.enerjisauretim.com

- The grievance form disclosed on the Project website that enables anonymous grievance applications
- Posters that are hung in common areas of the Project affected neighbourhoods (i.e., teahouses and/or mukhtars' offices), indicating what the clear communication channels are
- The grievance form disclosed on the Project website[1] that enables anonymous grievance applications

Contact Details of the Community Liaison Officer (CLO)

The information contained herein is excluded from the publicly disclosed version of this document in compliance with personal data protection regulations.

1.9 NTS Structure

The NTS is structured as follows:

Table 1.1: Report Structure

Section	Title
Section 1	Introduction
Section 2	Project Description
Section 3	Environmental and Social Impacts and Mitigations
Section 4	Project Environmental and Social Management System

[1] The link of the grievance form on the Project website will be included once finalized.

2 Project Description

2.1 Project Overview

Need for the Project

Energy is a pivotal factor in both production processes and human settlements, serving as a key indicator of a country's economic and social development. The global energy crisis and the Covid-19 pandemic have underscored the necessity for a secure, affordable, and people-centric transition in energy generation. With a growing demand for primary energy, Türkiye faces challenges due to its reliance on non-renewable resources, particularly fossil fuels. These not only contribute to climate change but also pose threats to ecosystems and human life.

In response, Türkiye aims to strategically integrate renewable energy resources, such as wind, solar, biomass, wave, and current, into its economy to ensure resource diversity and sustainable development. This initiative seeks to enhance the efficient use of public resources by expanding renewable energy power plants, supporting local resilience, and diversifying the country's energy mix.

The Project, particularly focusing on wind power, aligns with global trends, contributing to national renewable energy targets and reducing external energy dependency. By leveraging Türkiye's existing wind energy potential, the project addresses climate change concerns and diminishes reliance on fossil fuels. In essence, this initiative holds strategic significance, aligning with national objectives and promoting sustainable energy practices.

Project location and layout

The Project licence area falls within Çanakkale province of Türkiye which is located in the Marmara region. Figure 2.1 provides the location of Çanakkale.

Figure 2.1: Çanakkale Province of Türkiye where the Project License Area Falls within

Source: Mott MacDonald

According to the Wind Power Plants Report published by Türkiye Wind Energy Association (TÜREB), considering the share of wind power plants in operation in the Aegean Region,

Çanakkale ranks third with an installed capacity of 917.35. MWm (8.26% share). With the Project, it is aimed to contribute to the national energy strategy targets as well as regional economy by utilizing the wind potential of Çanakkale province.

2.2 Project Components

There are three main units of the Project namely the turbines for energy production, the switchyard transmitting energy to the grid, and access roads for transportation. In addition to the Project components, an Energy Transmission Line (ETL) will be constructed as an Associated Facility for the Project.

The Project components including the access roads and ETL are provided in Figure 2.2.

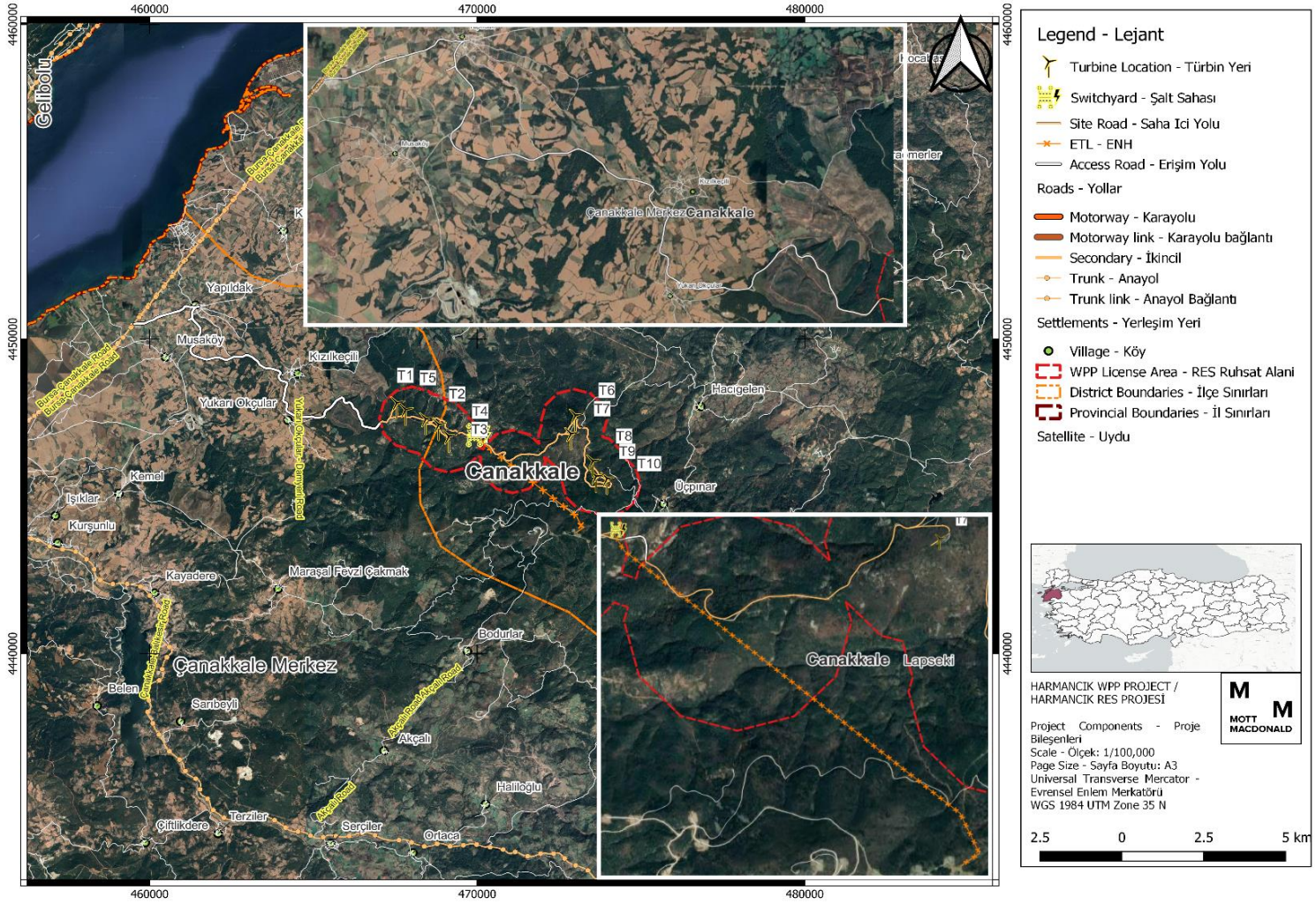

Figure 2.2: Project components including the Access Roads and ETL

Wind turbines: The Project comprises to build 10 horizontal axis (e.g. Figure 2.3) wind turbines to generate a maximum of 42 MW_m of power for the national grid. Wind turbines, the main components of wind power plants, operate on a simple principle: they convert the kinetic energy of moving air into mechanical and then electrical energy. As the wind turns the turbine blades around the rotor, connected to a main shaft, a generator produces electricity. The turbines which will be used in the Project typically have two or three blades and include a foundation, tower, nacelle (containing essential components), generator, rotor hub, and rotor blades.

In full load operation mode, with wind speeds above 15 m/s, the turbine limits power to 4,200 kW. In partial load mode (wind speeds between 2 m/s and 15 m/s), the turbine adjusts rotor speed for optimal power extraction. In idle mode (wind speed below 2 m/s), the turbine slows or stops, preventing power feed into the grid. This minimizes strain on the rotor in low-wind conditions.

The wind turbine is equipped with a number of safety devices in order to keep the wind turbine within a constantly safe operating range. These safety devices include components for safe stopping of the wind turbine as well as a system of sensors. The sensor system records all relevant operating states of the wind turbine and feeds the information into the SCADA[2] ,which is a control system architecture comprising computers, networked data communications and graphical user interfaces for high-level supervision of machines and processes, remote system of Enercon[3] (type of wind turbine). The safety equipment and sensor systems of the wind turbine are emergency stop button, main switch, redundant sensors, speed monitoring, air gap monitoring, oscillation monitoring, temperature monitoring, nacelle-internal noise monitoring, and cable twisting monitoring systems.

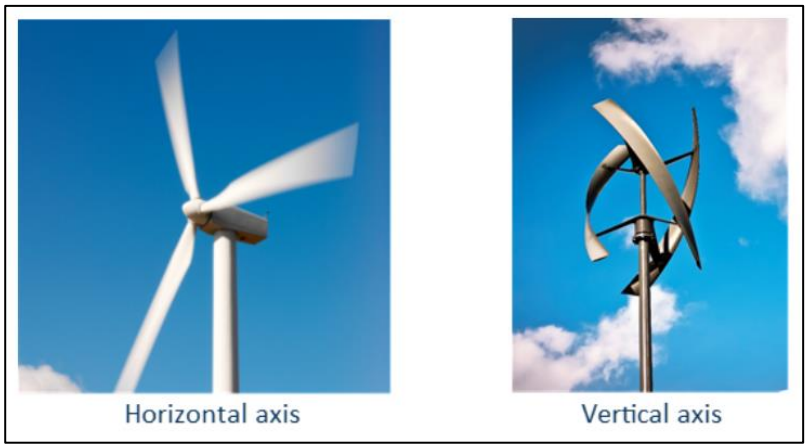

Figure 2.3: Types of Wind Turbines[4]

Source: Energy Knowledge Base (n.d) Wind Power
https://energyknowledgebase.com/topics/wind-power.asp

The switchyard: The wind turbines will be connected at the switchgear panels through a cross linked cabling system to the Switchyard located within the Project area. The connection between the turbines and the switchyard will be made using underground transmission cables buried in ground. The cables are selected as AL core XLPE insulated underground MV cables.

[2] Supervisory Control and Data Acquisition

[3] ENERCON GmbH, n.d. WEC Components. Accessed from https://www.enercon.de/en/technology/wec-components/ on 02 November 2023

[4] The shaft that carries rotational energy from the blade to the generator in wind power technology can be positioned vertically or horizontally. The horizontal axis is the most widely used. The vertical axis is not as widely used.

The connection between the switchyard and substation will be provided by 154 kV 4.5 km transmission line with 1272 MCM conductor.

Access Roads and Site Roads: The Project involves two types of roads: access roads, connecting the existing transport road to the site, and site roads, the path along the wind turbines in the Project area. According to the Project Company and the National EIA Report, no additional roads are expected to be opened during construction. If needed, improvements will be made to existing roads. The connection to the Project area will be through D200 Highway Connection and connection roads through Yukarıokçular and Kızılkeçili Neighbourhoods, referred to as "access roads" in this NTS. According to National EIA, within the scope of the Project, it is planned to use 14,061 m of road, the majority of which is part of existing roads. During construction phase, widening and improvements for approximately 9,655 m roads will be carried out and new roads will be constructed of approximately 4,406 m in accordance with the development plans.

As mentioned, it is anticipated that road construction will be performed inside and the outside the Project licence area. The road construction to be performed within Project licence area is mentioned to be the site roads, which will provide connection between the wind turbines. In addition, roads will be constructed outside of the Project area providing connection between D200 Highway and Project area for transportation purposes. Although the route of the access roads is broadly fixed, there may be adjustments to the final design, which will be consulted upon with relevant stakeholders, including community members, as necessary.

Mobile Crushing and Screening Facility: The excess excavation material generated while constructing the turbines will be temporarily stored on turbine platforms and later reused for backfilling. To efficiently manage this material, a mobile crushing and screening facility with a 68.75 tonnes/hour capacity will be set up during the construction phase. The transportation of this material will be facilitated by trucks. Treated soil materials will be reused as structural fill materials under roads and in the levelling of turbine platform areas. In case the reuse of excess excavation soil is not feasible (i.e., more soil material is excavated than is needed for filling or untreated soil materials could not be reused for any purpose), it will be managed as excavation waste, which will be stored in turbine platform areas onsite and be transferred and disposed of in the licensed excavated soil disposal areas operated by the municipalities.

Administration Building: An administration building will be constructed in the Switchyard area for the Project. The administration building will consist of the Enercon SCADA[5], which is a control system architecture comprising computers, networked data communications and graphical user interfaces for high-level supervision of machines and processes, system room, a working station for the monitoring of the Project, and facilities for maintenance personnel as deemed necessary as well as storage areas. The administration building is designed to deploy full operational staff, not only technical but also administrative staff.

Project Associated Facility (Electricity Transmission Line): Associated facilities are facilities or activities that are not funded as part of the Project, but which are significant in determining the success of Project or in producing agreed project outcomes. In addition to the Project components, the Project activities also cover construction of the ETL for connection of the generated electricity to the national grid. The ETL will be constructed by Enerjisa Üretim, but the ownership will be under to Turkish Electricity Transmission Corporation (TEIAS) once connection is completed. The Consultant has been informed that permitting process for the ETL is being managed by TEIAS. Expropriation process of the ETL will commence once permitting processes of the WPP are completed.

[5] Supervisory Control and Data Acquisition

The wind turbines will be connected at the switchgear panels through a cross linked cabling system to the switchyard located within the Project area. The connection between the turbines and the switchyard will be made using underground transmission cables buried in ground. The cables are selected as AL core XLPE insulated underground MV cables. The connection between the switchyard and substation will be provided by one 154 kV single-circuit overhead transmission line of approximately 5 km for connection to Üçpınar Transformer Substation which is currently operated by TEIAS. Therefore, the ETL is exempt from the National EIA.

According to the Project Information Document (PID) prepared for the ETLs to be constructed within the scope of the Project, excavation works will be performed to open the pits where the pylons will be placed. A total of four pits, each with a depth of 3m and and a surface area of $9m^2$, will be dug for each pylon. Excavated materials will be stored nearby storage area and used to backfill the excavated pits.

At this stage, the ETL is the only facility identified as an Associated Facility to the Project. There will not be any other facility considered as a project Associated Facility such as quarries, borrow pits, wastewater treatment plant, landfilling site, etc.

2.3 Project Activities

Project activities are planned to consist of three phases:

- Pre-licence (permitting) phase, encompassing the completion of necessary design measurements and permitting processes.
- Construction (licence) phase, involving site preparation, infrastructure, and assembly operations as well as commissioning test studies.
- Operation (production licence) phase, where the connection to the interconnected system is established through temporary-final acceptance processes, enabling electricity production.

Blasting activities will be conducted at the turbine locations to be specified by the Project Company, and a mobile crushing and screening facility will be established for sizing the materials obtained from the blasting. According to the EIA report of the Project, approximately 144 blasting events will be required during the construction phase of the Project. Therefore, blasting will be carried out every 2 days.

The activities will be carried out simultaneously in each stage, and it is planned to complete the pre-construction, construction, and assembly works within 24 months. The construction of the Project has been initiated in the fourth quarter of 2023 with the construction of Project roads and is planned to be completed by the first quarter of 2025.

Within the scope of the Project, a total of 106 people, including six Enerjisa Üretim employees and 100 subcontractor employees, are expected to work in the Project area during the construction phase. For the operation phase, the number of workforce is estimated to be five, two of whom will be the subcontractors.

There will be no accommodation and refectory within the Project area.

The utility water to be supplied from the licensed water subcontractor will be used during the construction phase to meet the personnel needs as well as to prevent generation of dust during construction activities. During the maintenance and repair of the turbines within the Power Plant, small volumes of chemical substances are employed. The social and technical infrastructure needs of the Project personnel during the operational phase of the Project will be met through the planned administrative building. The electricity to be used in the Project construction area will be supplied from the national grid or diesel-fired generators.

Within the scope of the Project, the fuel will be used due to the use of construction equipment and machinery and during the transportation of Project workers during the construction phase. The fuel will be stored in above-ground storage tanks located in the mobilization areas.

2.4 Area of Influence

As defined in IFC PS1, Area of Influence (AoI) encompasses the following, as appropriate:

- The area likely to be affected by: (i) the project and the client's activities and facilities that are directly owned, operated or managed (including by contractors) and that are a component of the Project; (ii) impacts from unplanned but predictable developments caused by the Project that may occur later or at a different location; or (iii) indirect Project impacts on biodiversity or on ecosystem services upon which Affected Communities' livelihoods are dependent.
- Associated facilities, which are facilities or activities that are not funded as part of the Project, but which are significant in determining the success of Project or in producing agreed project outcomes. These would not have been constructed or expanded if the project did not exist and without which the Project would not be viable.
- Cumulative impacts that result from the incremental impact, on areas or resources used or directly impacted by the Project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted.

The AoI covers all land or water, directly or indirectly impacted by the Project, and therefore extends beyond the Project boundary. This includes communities and areas adjacent to the Project Affected Area (PAA) that may experience impacts during the construction or operation of the Project, despite being located outside of the area in which the Project will be located e.g., air or noise impacts. The AoI is defined on a topic-by-topic basis, as each topic will define its AoI based upon the potential effects.

2.5 Analysis of Alternatives

In order to make sure that the goals of the proposed Project have taken into account social, environmental, economic, and technological choices, it is necessary to evaluate different project designs and activity alternatives in accordance with best practises for ESIA. During the feasibility stage, the following project alternatives were taken into account:

- No Project Alternative;
- Location Alternatives; and
- Design Alternatives.

Detailed evaluation of locations as well as design of Project components was conducted in terms of various environmental and social factors including avoidance of designated sites, cultural heritage aspects, bird migration routes, community health and safety aspects as well as community acceptance, conditions of physical displacement etc. The Project overlaps known migratory routes of large soaring species, which was taken into consideration by national authorities during permitting process. Accordingly, the turbine coordinates planned at the beginning of the Project were changed. The change was notified to the Ministry of Energy and Natural Resources, and the National EIA Report was prepared based on last declared locations.

As a result of these careful considerations, the Project area, turbine locations and design subject to this ESIA Study have been selected as the most favourable locations for realisation of Harmancık WPP.

It should be noted that, the final design decisions regarding the ETL including the final route details, which is assessed as an associated facility for the Project, lie with TEIAS and is outside the control of the Project Company. Therefore, no location alternatives are assessed by the Project Company for the ETL.

2.6 Site Selection

There are several factors considered during the site selection process to ensure minimal environmental impact and optimal energy generation.

- Legal requirements: Within the scope of the "Competition Announcement for the Allocation of Renewable Energy Resource Areas and Connection Capacities Based on Wind Energy" published in the Official Gazette dated 7 November 2018 and numbered 30588, Enerjisa Enerji Üretim A.Ş. was selected for the Çanakkale region by the Ministry of Energy and Natural Resources on 30 May 2019. The YEKA contract was signed on 9 March 2020, and the region where the Project is located was transferred to Enerjisa Energy Production Plants A.Ş. on 21 March 2021. Accordingly, the Project area has been determined by the General Directorate of Energy Affairs of the Ministry of Energy and Natural Resources.
- Access to and within the Project area: The Project Company confirmed during the Consultant's site visit that the existing roads will be used for access to the Project area to the extent possible, and where found necessary, improvements and additions will be made to the existing roads. The ease and readiness of access is one of the factors that made the Project area favourable for this investment. During the determination of access routes for the Projects, various factors are considered. Field exploration is conducted to assess potential routes based on specific criteria. Once routes are identified, communication is established with relevant authorities such as General Directorate of Highways to confirm route suitability. Furthermore, the Project Company collaborates with pertinent departments to evaluate the permit and construction status of planned access roads. Factors such as insufficient bridge and electrical cable heights along the route, as well as restrictions imposed by relevant units, are taken into account. Additionally, adherence to transportation specifications outlined by turbine manufacturers while considering time and cost constraints is essential. Physical obstacles such as DSİ Canals, DSİ Dams, forest lands, and certain village roads that may impede heavy load transportation are also considered during route planning.
- Wind Potential of the Project area: The Project Company plans to install 10 turbines in Çanakkale. The Türkiye Energy Potential Map (REPA) indicates a maximum wind speed of 9.86 m/s in Çanakkale, with average of 6.14 m/s. Project-specific wind measurements indicates an annual average speed of approximately 6-7 m/s.
- Avoiding designated ecological and cultural heritage sites: While selecting the locations of Project components within the license area, the designated ecological and cultural heritage sites are taken into consideration and avoided to minimize the impacts. During site selection process national authorities do not consider Key Biodiversity Areas (KBAs) as a factor since those are not nationally recognized, however KBAs are internationally recognized areas that carry ecological significance and the Project overlaps Boz Mountains KBA. The Project overlaps known migratory routes of large soaring species, which was taken into consideration by national authorities during permitting process.
- Avoiding physical displacement regarding land acquisition: While determining the lands needed for the Project, criteria that will minimise the negative social and economic impacts arising from land acquisition have been taken into consideration by avoiding resettlement as much as possible. For this purpose, in the determination of the Project area, state lands were preferred by avoiding private parcels and physical displacement, especially living areas with buildings, as much as possible where technical conditions are suitable. Collective findings indicate that the Project aligns with the existing land use patterns and regulatory frameworks, fostering socially responsible land acquisition process that Project Affected Persons (PAPs) are approached in a sensitive manner.

3 Environmental and Social Impacts and Mitigation

3.1 Overview

The proposed project is a green energy project proposing to generate electricity through wind energy. Impacts due to proposed wind energy project are short term, generally limited to construction phase and operation phase have negligible to critical environmental, ecological and social impacts.

3.2 Summary of Impacts and Mitigation Measures

The Project and its key components such as access and site roads, administration building, and switchyard, are likely to have potential environmental impacts on baseline parameters such as land use, ambient air quality, noise quality and waste management in the immediate vicinity of the Project area during the construction phase, the Project is also likely having potential impact on the biodiversity in immediate area. The Project shall prove to be beneficial in terms of employment generation, reduction in greenhouse gases emission, community benefits through corporate social responsibility (CSR) activities.

The outcomes of the comprehensive assessment of identified impacts without mitigations during the construction and operation phases are outlined in below table.

Topics	Occurrence of the Impact	Receptor	Impact Significance without mitigations
	Construction Phase		
Water Quality, Hydrology and Hydrogeology	Use of Water Resources	Surface water bodies	Moderate
		Groundwater bodies	Minor
	Water Quality Alteration: Surface water contamination due to runoff from construction of temporary and permanent impermeable hard surfaces, accidental spills, wastewaters, sewage, and cleaning of equipment	Surface water bodies	Moderate
	Water Quality Alteration: Groundwater contamination due to accidental spills, wastewaters, sewage, and cleaning of equipment	Groundwater bodies	Minor
	Alteration of Water Flow Systems	Surface water bodies & Groundwater bodies	Minor
	Alteration of Surface Water & Groundwater Interaction	Surface water bodies & Groundwater bodies Local community members who use the local springs and wells	Minor
Land Use, Soil and Geology	Land Loss	Agricultural and Forest Land	Minor
	Soil Contamination	Agricultural and Forest Land	Minor
	Topsoil Stripping	Agricultural and Forest Land	Moderate
	Seismicity	Project Area Project Components	Major

Topics	Occurrence of the Impact	Receptor	Impact Significance without mitigations
	Stability of Structures after Soil Erosion	Areas with Severe Erosion Risk Areas with Moderate Erosion Risk Areas with Low Erosion Risk	Major
Biodiversity	Habitat loss and degradation Disturbance Air pollution Death or injury Alien Invasive Species (AIS) competition	Biga Mountain KBA	Major
	Habitat loss and degradation Air, soil and water pollution Artificial light Dust emissions Disturbance Accidental injury or death	Mammals (excluding bats)	Negligible
Air Quality	PM_{10} and $PM_{2.5}$ emissions	Nearby receptors	Insignificant
Noise	Noise	Nearby receptors	No impact
Social	Population	Local community members / Project affected villages	Negligible
	Education	Local community members / Project affected villages	Negligible
	Land Use and Economic Displacement	Local community members whose lands are acquired-expropriated / Formal and informal users of the acquired-expropriated lands	Major
	Local Economy, Livelihood Sources and Employment	Local community members	Moderate
	Infrastructural Services	Local community members / Project affected villages	Minor
	Gender	Local community members	Negligible
	Vulnerable Groups	Local community members who are in a more disadvantaged position	Negligible
Labour and Working Conditions	Working Conditions and Terms of Employment	All Project workforce (including subcontractors and supply chain workers where relevant)	Moderate
	Fair Treatment, Non-Discrimination and Equal Opportunity for Workers		
	Workers' Organisations		
	Workers' Grievance Mechanism		
	Management of Contractors, Subcontractors and Supply Chain (Including Child and Forced Labour)		
	Overtime Working without Workers' Consent and/or Compliance with National and International Requirements		
	Conditions In Construction Camps and Other Facilities		
	Retrenchment and Demobilisation Risks		

Topics	Occurrence of the Impact	Receptor	Impact Significance without mitigations
	Gender-Based Violence and Harassment (GBVH) Risks	All Project workforce/ Local community members / Project affected neighbourhoods	Moderate
	Increase In Local Employment Rates Through Employment Opportunities Created by The Project		
Community Health and Safety	Water quality and availability	Groundwater bodies	Minor
	Air Quality	Local community members / nearby settlements	Negligible
	Noise	Local community members / nearby settlements	Minor to Major
	Structural safety of Project Infrastructure	Project Area / Components	Minor
	Life and Fire Safety	Forest Area	Moderate
	Traffic Safety	Passengers on Bursa-Çanakkale State Road	Moderate
	Abnormal Load Transportation	Passengers on Bursa-Çanakkale State Road	Negligible
	Transport and Storage of Hazardous Materials	Local community members / nearby settlements Groundwater bodies	Minor
	Disease Prevention	Local community members / nearby settlements	Minor
	Emergency Preparedness and Response	Local community members / nearby settlements	Moderate
	Explosive Use and Blasting	Local community members / nearby settlements	Minor
	Ecosystem Services	Local community members benefiting from ecosystem services	Minor
	Public Access	Local community members / nearby settlements	Minor
	Security Personnel	Local community members / nearby settlements	Minor
	Operation Phase		
Biodiversity	Habitat loss and degradation Disturbance Air pollution Death or injury AIS competition	Biga Mountain KBA	Major
	Collision / barotrauma mortality	Bats	Major
	Artificial light	Bats	Major for the receptor with high sensitivity Moderate for the receptor with medium sensitivity
	Artificial light	Birds	Major for major impact magnitude Moderate for moderate impact magnitude

Topics	Occurrence of the Impact	Receptor	Impact Significance without mitigations
			Negligible for minor impact magnitude
	Collision / electrocution mortality	*CH* *Accipiter brevipes* *Aquila heliaca* *Ciconia nigra* *Circaetus gallicus* *Clanga pomarina* *PBF* *Ciconia ciconia* *Clanga clanga* *Falco eleonorae* *Falco vespertinus* *Gyps fulvus* *Milvus migrans* *Streptopelia turtur* Large soaring migrants of Turkish flyways Large soaring resident species All other species	Major for major impact magnitude Moderate for moderate impact magnitude Negligible for minor impact magnitude
Social	Local Economy, Livelihood Sources and Employment	Local community members	Negligible
Labour and Working Conditions	Working Conditions and Terms of Employment	All Project workforce (including subcontractors and supply chain workers where relevant)	Moderate
	Fair Treatment, Non-Discrimination and Equal Opportunity for Workers		
	Workers' Organisations		
	Workers' Grievance Mechanism		
	Gender-Based Violence and Harassment (GBVH) Risks	All Project workers/ Local community members residing in the nearby neighbourhoods	Moderate
	Increase In Local Employment Rates Through Employment Opportunities Created by The Project	All Project workforce/ National wind industry workforce	Moderate
Community Health and Safety	Blade Ice Throw	Local community members / nearby settlements	Negligible
	Aviation	Çanakkale Airport	Minor
	Electromagnetic Interference and Radiation	Local community members / nearby settlements	Minor
	Traffic Safety	Local community members / nearby settlements	Negligible
	Shadow Flicker	Local community members / nearby settlements	Negligible
	Public Access	Local community members / nearby settlements	Negligible
	Security Personnel	Local community members / nearby settlements	Negligible
	Noise	Local community members	Minor

Topics	Occurrence of the Impact	Receptor	Impact Significance without mitigations
Visual Impact	Turbine visibility	Residents	Minor Moderate
Shadow Flicker	A nuisance for homeowners	Local community members / nearby settlements	Minor to Moderate
	Construction and Operation Phases		
Waste and Resources	Soil Contamination due to poor waste management	The land where the Project is situated possesses characteristics typical of agricultural lands not suitable for soil cultivation and non-arable lands.	Minor
	Life and Fire Safety vulnerability due to not properly stored waste	Forest Area, the Project area and residents who lives in the near settlement	Moderate
	Poor management of high-volume excavation waste due to insufficient storage conditions onsite and offsite.	Existing local excavated soil disposal waste disposal areas and the Project area Local community members / nearby settlements to be affected from Community Health and Safety related concerns by transport of waste from site to waste disposal areas	Moderate High
	Increase in load on the capacity of existing waste recycling/landfilling facilities	Existing local waste disposal facilities including landfills, waste transfer stations	Moderate
	Runoff from the exposed soil and concrete stockpiles	Surface water bodies	Moderate
	Groundwater contamination due to poor waste management	Groundwater	Minor
	Increase in the load on the capacity of the existing wastewater treatment plants	Existing local wastewater treatment plants	Minor
Biodiversity	Habitat loss and degradation	Natural Habitats Modified Habitats	Moderate Negligible
	Habitat loss and degradation Air, soil and water pollution Dust emissions AIS competition	Flora	High for Major impact magnitude Medium for Moderate impact magnitude Low for Minor impact magnitude
	Habitat loss and degradation Air, soil and water pollution Dust emissions Disturbance	Bats	Negligible
	Habitat loss and degradation Air, soil and water pollution Dust emissions Disturbance	Birds	Moderate for high receptor sensitivity Minor for medium receptor sensitivity Negligible for low receptor sensitivity
	Habitat loss and degradation Air, soil and water pollution	*Herpetofauna* *Testudo graeca*	Negligible Minor

Topics	Occurrence of the Impact	Receptor	Impact Significance without mitigations
	Dust emissions		
	Disturbance		
	Accidental injury or death		

3.3 Water Quality Hydrology and Hydrogeology

As a result of baseline studies the following results are examined.

- The Project site is located within the Marmara Basin
- The nearest streams to the Project area are Umurbey Creek located in the north and Sarıçay Creek located in the south-west of the Project area.
- According to the National EIA Report prepared for the Project, the WPP License Area is formed Late Eocene-Oligocene aged Mezardere Formation, Oligocene aged Hallaçlar Volcanite and Pliocene aged Bayramiç Formation.

A 3 km radius from the site is used to assess water (both groundwater and surface water) derived receptors. It is considered that beyond this distance, natural processes such as attenuation and dilution of substances is expected to occur. Therefore, the proposed development is unlikely to have a hydrological effect beyond the area of influence. In addition, no significant impacts associated with the following aspects are considered during the implementation of the Project:

- No significant impact on water sources is anticipated due to activities to be carried out during operation phase.
- The Project area does not fall within any floodplain and no decision taken by the regulatory authorities indicating that the site is in an area that may subject to flood. Therefore, no flood risk is likely to cause.
- The groundwater and surface water usage are not planned within the scope of the Project; therefore, no significant impact is anticipated on water quantity of groundwater and surface water bodies due to water consumption. Therefore, no impacts related to direct withdrawal of water bodies in changing water flows is anticipated.
- The blasting activities during the construction phase of the Project will be on the surface level and no impacts are anticipated on groundwater resources. It is worth to mention that after the test blasts, a blasting evaluation report will be prepared by the Project Company. This report will reveal the impact on the activity area and surrounding groundwater resources (springs, boreholes, etc.) and no activity will be initiated unless the evaluation report is found appropriate.

The following impacts on water quality, hydrology and hydrogeology have the potential to take place during the construction phase of the Project.

Use of water resources: There will be numerous activities that would use water during construction. According to the information shared by the Project Company the construction period of the Project will be 16 months. Hence, potentially significant amounts of water would be needed. Water will come from licensed sources which have been confirmed to have sufficient capacity to supply the project without impacting supply to existing local users. The amount of drinking and potable water for the personnel planned to work within the scope of the Project is determined as 231 L/person-day. It was also found that 42 m^3/day of water will be needed for dust suppression.

Water quality alteration: traffic at the site due to transport of material could increase the risk of the accidental spills which is likely to cause contamination on surface water. Elevated levels of

the materials contain environmental pollutants originating from routine construction activities such as dust creation and settlement and coliform bacteria from human waste may also interfere to water resources via surface runoff and may have significant impacts on water quality. Stormwater is made up of flows and surface runoff from a variety of sources, such as drainage and precipitation. Stormwater runoff includes a variety of contaminants, including suspended sediments, metals, petroleum hydrocarbons, and coliform. Moreover, even from clean rainwater, fast runoff can erode streambeds and banks, lowering the quality of the water that is eventually received. Furthermore, soil erosion may be in question locally due to ground surface disturbance. Depending on the erosion potential of the soil, local terrain, vegetation cover, and distance to the surface water bodies, soil erosion may lead to degradation of water quality in nearby surface water bodies.

Alteration of water flow systems: Construction activities, including excavation, blasting, and trenching, could potentially impact natural surface water and groundwater flow systems, including agricultural drainage channels.

Alteration of surface water and groundwater interaction: Construction activities such as excavation, blasting could have a risk to conduit between a surface water body and groundwater aquifer or between two aquifers by breaching the hydrologic barriers. This could result in unwanted dewatering or recharge of any of these water resources depending on local hydrogeologic conditions. The Project area has low hydrogeological permeability due to its unique morphology and features of the rock. Groundwater potential is also low. Anticipated alterations to water flow systems and surface water and groundwater interaction are minor. The impact is localised within the area of the influence and unlikely to significantly affect local livelihoods.

Mitigation Measures

Specific mitigation measures to avoid and/or mitigate the potential impacts on surface water and groundwater during construction phase are shared below.

- Accidental spill prevention will be ensured by developing and implementing the “Emergency Preparedness Response Plan”.
- Construction workers and relevant staff will be trained related to the implementation of good construction site practices and on spill response and prevention measures.
- Compliance with rules of material storage and use, waste storage and its timely removal. A material storage area will be determined in accordance with the requirements determined in the “Waste and Wastewater Management Plan”.
- Water Quality Management Procedure will be developed to provide management procedures, mitigation measures, and other requirements e.g., training, KPIs for unplanned events related to spills and flooding for both construction and operation phase.
- The Project Company shared that necessary overflow and drip containment measures including providing secondary containment will be taken in the hazardous material storage areas and designated hazardous waste storage area. The secondary containment structure will include walls capable of containing the larger of 110 percentage of the largest tank in area with above-ground tanks with a thousand liter or above storage volume totally and will be impervious, chemically resistant material. The preventing the contact between incompatible materials will be also considered in case of releasing of the chemicals. For the flammable hazardous material storage and hazardous waste storage, flame arresting devices on vents will be used. In addition to these, transfer of hazardous materials and hazardous waste from vehicle tanks to storage areas and during the oil transfers for maintenance of equipment will be conducted with surfaces sufficiently impervious or spill containment to avoid soil contamination. In hazardous material management, it will be

ensured that containment structure will not connect to municipal wastewater collection system.

- The fuel will be used due to the use of construction equipment and machinery and during the transportation of Project's workers during the construction phase. The fuel will be stored in above-ground storage tanks located in the mobilization areas.
- Adequate secondary containment for fuel storage tanks and for the temporary storage of other fluids such as lubricating oils and hydraulic fluids will be provided.
- Personnels on the correct transfer and handling of fuels and chemicals and the response to spills will be trained.
- Suitably sized impervious bunds or other containment will be installed where hazardous materials are handled to prevent hazardous materials entering the site drainage.
- Use of the existing roads for material delivery.
- Work performed strictly within the construction site.
- Strict prohibition of vehicle washing and refuelling outside of the specially equipped places.
- Construction activities will be regularly inspected on site by the Project Company.
- In order to prevent direct or indirect impacts on stream beds, no intervention will be made to the bed sections of the streams in the vicinity of the Project area, bed sections will not be narrowed, and activities will not be carried out to disrupt the flow regimes.
- Within the scope of the Project, if a water source is encountered in the vicinity of the turbine sites and switchyard, the relevant institution will be contacted, and no destruction and construction activities will be carried out in the water source and the area feeding the source.
- No waste material, solid or liquid, will be poured into the existing stream beds in the vicinity of the Project area including ones with seasonal flowing, their cross-sections will not be narrowed, the existing and cadastral width of the stream beds will be preserved,
- Additionally, a groundwater quality and groundwater table monitoring regime should be implemented regularly during the construction phase. It is recommended that water is sampled from the groundwater wells and springs around the Project site in 1 km distance from the boundary.
- Construction vehicles should only use the designated roads to prevent any harm or alteration on the agricultural drainage channels.
- A blasting evaluation report should be developed by the Project Company to reveal blasting impacts on the groundwater sources in and around the blasting activity.

The Project Company has informed that communication with Mukhtar during the construction activities regarding the safeguard of the water source will be ensured.

Although the likelihood of the impacts will be greatly reduced with the application of mitigation, sensitivity of the receptors does not change. However, the application of mitigation including best practice measures means that the impact of spillages, leaks and pollution is reduced to negligible. As this mitigation would remove the likely risk of an incident occurring that could affect water resources, any major spillages would be considered an emergency which would require implementation of the emergency spill response measures.

3.4 Land Use, Soil and Geology

The Project's area of influence is defined by considering northern section of the Project area where the wind turbines are planned to be located. This includes the planned locations for wind turbines, the access road, and the route for the ETL. Additionally, a 1 km protective area has been established around this area.

The baseline conditions regarding land use, soil and geology are shared below for the Project area:

- No built area within area of influence except for the substation located where the ETL is connected.
- Industrial and commercial activities are identified to be located far away from the footprint of the Project Area.
- It shall be noted that a few villages located around the area of influence is determined.

The following aspects are considered in land use, soil and geology have potential to take place during the construction phase of the Project:

Land loss: most of the Project area has land use capability which restriction on the productivity and utilization of agriculture is suggested. In the land preparation phase of the Project, land loss is anticipated due to earthworks to prepare the land for turbine foundations and the site and the access roads. Since there is a limited land use capabilities in the area, it is not anticipated that land loss would be significant. Total footprint of the Project area is 68.1 hectares.

Soil integrity: The use of explosives in blasting activities has potential to disturb soil structure cause in compaction and reduced permeability. In addition, topsoil stripping activities during the site preparation and accidental spills could be raised during the implementation of the Project could affect adversely to soil integrity.

Topsoil loss: Topsoil stripping will be carried out during the site preparation could cause in soil degradation and loss of fertile layers. This leads to impact the ecosystem's ability to support vegetation and wildlife adversely.

Soil erosion: The National EIA Report gathered information about the land in the area of influence considering it use and condition. It is yield that all of the turbine locations are located on areas with low or very low erosion risk areas. The construction activities that could contribute to soil erosion include ground surface disturbance during the installation of access roads, wind turbines, disturbing soil stability due to heavy equipment traffic and surface runoff pattern disturbance by diverting natural drainage into new areas and locally increasing runoff volume.

Soil contamination: Construction equipment would need to be refuelled and some hazardous materials or wastes (such as waste paints and degreasing agents) may be generated. Accidental fuel spills or releases of hazardous materials could result in the exposure of vegetation at the project site, and reestablishment of the vegetation may be impacted or delayed because of residual soil contamination. However, after expected hazardous materials handling and refuelling requirements were met, only small spills or releases would be anticipated, if any.

Seismicity/Stability of structures: The National EIA Report gathered information about that the Project area is located in 2nd Degree Earthquake Zone (1st degree being the highest risk and 5th degree being the lowest risk).

Potential geological hazards: Landslides, rock falls and earthquakes could affect the construction and operation of the Project area. If site construction activities were not conducted properly, they could destabilize slopes leads to increase destabilization risk of soil.

Mitigation Measures

Specific mitigation measures to avoid and/or mitigate the potential impacts on land use, soil and geology during construction phase will need to include the following:

- The impacts on land use will be mitigated by adopting hierarchical approach, beginning with avoidance and minimisation strategies. Turbine locations had been already selected by considering land use capability in design process, so majority impacts had been avoided in design process. In the design of access and side roads, existing terrain contours will be

considered to minimise land clearance requirements includes avoidance of sensitive areas and utilizing existence infrastructure where possible.

- The soil disturbed areas will undergo restoration in accordance with the "Biodiversity Management Plan (BMP)" which includes reinstating topsoil, reseeding with native vegetation.
- Restoring ecological functions of the land by developing and implementing "Erosion Control Management Plan"
- Stripped topsoil will be stored within the Project area in accordance with requirements specified in the relevant national legislation.
- After topsoil stripping, filling will be carried out immediately and stockpiling of the topsoil be carried out.
- The several management and mitigation techniques will be used in the event that soil contamination occurs of which include releasing of substances into soil that could contaminate it will be prevented, "Emergency Preparedness and Response Plan (EPRP)" will be developed and implemented. Mitigation measures in Waste and Wastewater Management Plan and EPRP will be applied in case of hazardous spills (e.g. during the refuelling procedure).
- The several erosion control methods will be applied. The vegetative cover with the native grasses, shrubs, and trees helps stabilizing the soil, will be planted reducing the risk of erosion. The erosion control blankets or mats will be employed on slopes to provide immediate protection and support the growth of vegetation. Sediment basins and silt fences will be implemented to trap sediment-laden runoff and prevent it reaching vulnerable areas. Regular monitoring and maintenance of erosion control measures will be implemented.
- Visual observation will be carried out and database of Disaster and Emergency Management Authority (AFAD)'s latest earthquakes list[6] will be controlled regularly to detect changes in soil conditions, subsurface stability, and potential seismic activity. Adaptive management strategies will be employed to adjust mitigation measures in response to monitoring results.
- In addition, the requirements identified in Erosion Control Management Plan Including Drainage and Sediment Management Procedure for the Construction and Operation Phases will be followed.

No significant impact on land use, soil and geology is anticipated due to activities to be carried out during operation phase.

Residual impact significance is low to negligible for the impact of stability of structures after soil erosion.

3.5 Air Quality

Several factors have been evaluated to determine area that could be affected by the emissions due to Project activities. In this context, following evaluations have been made to determine AoI:

- The distribution of the emission sources,
- The land uses and intensities of sensitive receiver types, and
- Regulations and guidelines.

Another criterion to determine AoI is Turkish Regulation on the Control of Air Pollution Originating from Industry (RCAPOI). The impact area defined in the RCAPOI for the modelling study suggests an area should be taken as square-shaped area with a side length of two km which is the minimum AoI.

Within the scope of the Project, emissions from point, areal, and linear sources arising from

[6] AFAD's list of lates earthquakes (URL: https://deprem.afad.gov.tr/last-earthquakes)

road and turbine construction activities are distributed heterogeneously in the field. Hence, examination areas have been established by separately evaluating each emission source based on its type.

Additionally, Project specific baseline monitoring has been undertaken to support the assessment. The study area includes various sensitive receptors such as settlements, forest lands, and agricultural lands.

Air quality measurements were conducted for the particulate matters (PM_{10} and $PM_{2.5}$) at 4 locations which are determined to represent the receptors such as residential areas and agricultural lands, around the Project area.

It is observed that both PM_{10} and $PM_{2.5}$ values comply with both national and EU limit values. When the values at the four measurement points are evaluated, it is concluded that the total impact significance is insignificant for all measurement points. Although overall air quality impacts by the project activities are insignificance, the following mitigation measures will be taken into account to avoid potential impacts and mitigate those that do occur.

During the construction phase of the Project, dust emission will occur due to excavation activities and movements of construction machinery. Secondly, exhaust emissions from the engines of the vehicles will occur. Impact significances are found as insignificant for PM_{10} and $PM_{2.5}$ parameters.

Mitigation Measures

The World Bank Group (WBG) General EHS Guidelines document was used for air emission abatement techniques concerning to the construction phase. Specific mitigation measures to avoid and/or mitigate the potential impacts ambient air quality during construction phase will need to include the following:

- All the provisions provided in Air Quality Management Plan will be complied with.
- Community grievances regarding air quality including air emissions and dust generation will be collected through Community Grievance Mechanism established as part of Stakeholder Engagement Plan (SEP) and will be addressed by the Project Company.
- Any unnecessary soil moving/clearing will be avoided to minimize dust.
- All vehicles will undergo regular maintenance according to the manufacturer's recommended intervals and individual maintenance schedules will be created for each vehicle.
- Operators will be trained to take appropriate action in case of abnormal events (e.g., black smoke emission).
- Vehicles will be turned off when idling is necessary, provided that the ambient temperature is above 0°C. For ambient temperatures below 0°C, vehicles will be turned off if the idling time exceeds 5 minutes. Exceptions to this rule may apply in emergency situations, for occupational health and safety reasons, or due to traffic conditions. Operators will be informed about these exceptions during their training.
- Drivers will be instructed about the importance of adhering to speed limits and smooth acceleration to minimize fuel consumption and emissions.
- All piling of materials/soils will be stabilized in a manner that minimizes the occurrence of dust by wetting the top layer. Seeding will also be applied, if necessary, so that vegetation will prevent wind erosion.
- Any loose material that could produce dust when travelling will be covered and/or maintained appropriate freeboard (+0.3m) on trucks or vessels hauling.
- Stockpiles will be inspected regularly.
- Excessive vehicular movement will be avoided.

- If necessary, haul roads and areas of hard standing of excessive dust will be cleaned.
- Covers and/or control equipment can be used to minimize dust from material handling.
- Vehicles will be kept clean, so that no dirt is carried on the vehicles into and out of the area. Wheel washing will be done for all construction vehicles prior to exiting the construction site.
- Stockpiling of stripped surface material, e.g. rock, sand and soil, stockpiling of unwashed materials, will be limited.
- Design of stockpiles will be optimized to maintain a low profile without a sharp change in shapes.
- Good practice will be applied for selection of Project vehicles that meet the latest emission standards (e.g. EURO 5 or US EPA Tier 2 emission standards) and maintained in a reasonable working order.
- Emissions from road and off-road vehicles must comply with national or regional programs.
- A 24-hour monitoring study for PM_{10} and $PM_{2.5}$ parameters will be conducted once every quarter to determine the impact of the works on air quality and the effectiveness of emission control measures, as specified in the Air Quality Management Plan.

3.6 Climate Change and Greenhouse Gas (GHG) Emissions

3.6.1 Climate Change

To identify physical climate change risks to the Project receptors (i.e., physical, social, and environmental receptors) during construction and operation phases, the following methodology have been used:

- The climate change scenarios including the evaluation of the current baseline scenario and future climate change projections have been constructed based on SSP1-2.6, SSP2-4.5, and SSP5-8.5 climate change scenarios both for the mid-future (2040-2059) and the far-future (2060-2079) considering the Project lifetime have been developed.
- A qualitative risk assessment for each vulnerability through consideration of the likelihood of climate impacts and severity of the impact have been performed.
- Embedded mitigation actions (i.e., mitigation actions incorporated into the Project design) and potential mitigating actions for identified risks have been reviewed.

Impacts and Mitigation Measures

The projected climate indicates warmer winters with reduced precipitation and hotter, drier summers, posing increased risks of drought and high temperatures. The impacts during construction and operation phases include damage to physical, environmental, and social receptors due to high temperatures, wildfires, flooding, and extreme weather events (including storms, high winds and rainfalls, etc.).

Based on identified climate hazards, climate impacts and mitigating actions have been determined for construction and operation phases. A summary of climate impacts and mitigation actions identified for construction and operation phases has been provided below:

Construction phase

Due to high temperatures,

- The engines of construction equipment and machinery can overheat. To mitigate the risk, construction equipment and machinery will be inspected regularly, cleaned to prevent dust accumulation, shutdown when they are not used, and stored away from the direct influence of sunlight.

- Office / welfare facilities can overheat. To mitigate the risk, office / welfare facilities will be equipped with proper air conditioning system.
- Workers may have heatstroke. To mitigate the risk, air-conditioned areas, proper PPE, and training to raise awareness of heat-related stress symptoms will be provided to workers,

Due to drought,

- Stockpiles of materials and soil can dry out, leading to more dust on the site. To mitigate the risk, measures will be considered in stockpile design for the prevention of dust generation and runoff (e.g., avoiding steep angles), a dust suppression system will be available on the site, and the air quality on the site will be monitored and reported regularly.

Due to high winds,

- Materials and soil can be blown away, leading to dust on the site. To mitigate the risk, windbreaks around material storage areas / soil stockpiles will be placed and a dust suppression system will be available on the site.
- Offices / welfare facilities may be damaged. To mitigate the risk, items such as partially installed decking, roofs, walls, etc. that might be dismantled or damaged by high winds will be supported.
- Unsafe working conditions can occur and lead to restrictions on working time or activities being carried out. To mitigate the risk, an Emergency Response Plan will be developed and implemented throughout the construction activities.

Due to intense rainfall,

- Materials and soil may runoff into watercourses, leading to pollution. Obtaining the necessary permits constitutes an embedded mitigating action. To further mitigate the risk, an Erosion Control Management Plan will be developed and implemented throughout the construction activities.
- The sites may be flooded and leads to restrictions on the operation of construction equipment and machinery on wet ground. To mitigate the risk, an Emergency Response Plan will be developed and implemented throughout the construction activities.

Due to flooding,

- The site access may be restricted. To mitigate the risk, an Emergency Response Plan will be developed and implemented throughout the construction activities.
- There may be loss of mains power supply or communication. As an embedded mitigating action, on-site generators will be available. Provided that on-site generators are available; no further action is needed.
- Construction equipment and machinery may be damaged. To mitigate the risk, construction equipment and machinery will be stored in covered and dry storage areas.
- Materials and soil may runoff into watercourses, leading to pollution. Obtaining the necessary permits constitutes an embedded mitigating action. To further mitigate the risk, an Erosion Control Management Plan will be developed and implemented throughout the construction activities.

Operation phase

Due to high temperatures,

- Wind energy converters may fail and metallic or plastic components and joints of moving parts can expand. The inclusion of the SCADA system, which allows for ongoing controlling and monitoring of the system, and a cooling system for the components sensitive to high temperatures in the design are considered as embedded mitigating actions. To further mitigate the risk, mechanical and electrical components will be reviewed to confirm that temperature tolerances include projected temperature increases.

- Power storage and transmission within the substation and transformers may reduce. The same embedded mitigating actions described above applies, if relevant. To further mitigate the risk, adequate cooling or capacity for fitting additional cooling will be included.
- Cables may overheat and their energy transmission capacity may reduce. The same embedded mitigating actions described above applies, if relevant. To further mitigate the risk, wind energy converters and substation will be inspected and reviewed during and after heatwaves.

Due to wildfires,

- The infrastructure may significantly be damaged and there may be a significant health and safety risks to workers. The inclusion of fire protection and suppression system in the design is considered as an embedded mitigating action. To further mitigate the risk, an Emergency Response Plan will be developed and implemented throughout the construction activities.

Due to high winds,

- There might be increased wear and tear on wind turbine blades and infrastructure may significantly be damaged due to extreme high wind speeds, fallen trees. Designing the Project considering the high wind speeds typical for the site constitute an embedded mitigating action. To further mitigate the risk, weather data will be monitored, equipment & infrastructure will be inspected during and after extremes, and equipment will be upgraded in line with projected wind speeds for the lifetime of the Project.

Due to intense rainfall,

- There might be increased wear and tear on wind turbine blades and electrical equipment may damage. Coating blades with a polyurethane-based surface coating, which allows protection against erosion, constitutes an embedded mitigating action. To further mitigate the risk, weather data will be monitored, and equipment & infrastructure will be inspected during and after extremes.

Due to flooding,

- The substation platform may be flooded if the drainage capacity of the substation is exceeded. Raising substation platform above the projected flood level constitute an embedded mitigating action and including a drainage system as needed & designing the system based on projected rainfalls are considered embedded mitigating actions. To further mitigate the risk, ponding of water on any flat substation structure will be monitored to avoid inundation of equipment.
- Access to the site for maintenance and repair may be restricted. To mitigate the risk, weather and flood conditions will be monitored prior to maintenance and inspection site visits.
- Access to the site in the case of widespread flooding across the area may be restricted in the case of widespread flooding across the area. To mitigate the risk, an Emergency Response Plan will be prepared and implemented throughout the operation period.

3.6.2 GHG Emissions

Using the equation below, GHG emissions during construction and operation phases have been calculated based on publicly available emissions factor data for operating activities.

$$Emissions\ (tCO2e) = rate\ of\ activity\ (unit) \times emission\ factor\ (tCO2e/unit)$$

GHG emission sources arising from the construction of the Project include the following:

- Emissions due to construction activities
  - During the manufacture of materials to be used within the scope of each project,
  - During the transportation of materials to each project site,

- During the construction / installation processes (including site preparation) associated with the following activities:
  - Electricity and fuel consumption by construction equipment and machinery
  - Electricity and fuel consumption during the worker's access to and from the site,
  - On-site waste production,
  - Maintenance activities,
  - Land use change

GHG emission sources arising from the Project operations include the following:

- Emissions due to;
  - Fuel consumption associated with the use of on-site generators,
  - Fuel consumption associated with maintenance and repair activities,

Electricity consumption for lighting and security purposes (e.g., operating security systems, Closed-circuit Television (CCTV), etc.) when climate conditions (i.e., the wind speed) are not suitable for operating activities.

GHG Emissions Assessment

Construction phase

Based on the methodology provided above, construction related GHG emissions have been assessed and presented below.

Table 3.1: Project emissions by scope

Scope	tCO_2e	% of total
Scope 1	830	2.62%
Scope 2	100	0.32%
Scope 3	30,770	97.07%
Total	31,700	100%

The construction period of the Project was 16 months. Therefore, total Scope 1 and Scope 2 emissions arising from the construction phase are 690tCO2e per year, which is below the threshold value (25,000 tCO2e/year) as per the IFC guidance. Construction emissions are also below 5% of the lifetime emissions avoided through this renewable energy development, therefore, the Project is compliant with the EBRD guideline.

According to the assessment of construction related GHG emissions, the most five emitting components / activities of the Project are blades (26% of the total emissions), tower (18% of total emissions), road construction materials (12% of the total emissions), material transport to the site (12% of the total), and turbine hub (7% of the total).

Emissions related to vegetation loss and the loss of sequestration potential have been calculated separately since they are not direct construction related emissions. Assessment results are presented below.

Table 3.2: Project specific land-use change emissions by scope

Scope	tCO_2e / year	tCO_2
Scope 1	90*	1,370**
Scope 2	0	0
Scope 3	0	0
*Annual estimated loss of forestry sequestration potential		

Scope	tCO_2e / year	tCO_2
**Total estimated vegetation (tree) loss emissions		

Operation phase

Potential carbon sources during the operation phase of the Project will include emissions due to:

- Fuel consumption associated with on-site generators,
- Fuel consumption associated with maintenance and repair activities,
- Electricity consumption for lightning and security purposes (e.g., operating security systems, CCTV, etc.) when climate conditions (i.e., the wind speed) are not suitable for operating activities.

Calculations have not been made due to lack of data on consumptions at this stage of the Project. However, no significant operational GHG emissions is anticipated due to the nature of the Project.

Additionally, the Project results in an emission reduction thanks to its nature (i.e., a renewable energy investment). According to the methodology outlined above, avoided GHG emissions compared to typical grid generation emissions have been calculated as 91,908 tCO_2e/year.

Mitigation Measures

Construction phase

Based on the assessment of construction-related GHG emissions provided above and considering mainly the components / activities emitting the most GHG emissions, the following measures have been identified to minimise these sources of GHG emissions as far as possible:

- Implementation of appropriate waste management during construction works, adhering to the Waste Management Hierarchy to avoid and/or minimize on-site waste generation,
- Sourcing construction materials locally where possible to minimise the amount of construction traffic movements,
- Minimizing construction related transport impact through enhancement of transportation of construction materials and construction workers,
- Where possible, preferring materials with low carbon footprint in the design.
- Desing optimisation to minimise the quantities of new raw materials required, for example by limited haul road widths, optimising design of foundations for turbines, etc.
- Establishing sustainable construction management practices to optimise energy efficiency measures during construction site work activities, including:
  - Toolbox talks for workers about switching off plant and construction equipment and machinery when not in use;
  - The use of energy zoning in construction site cabins to control energy usage; and
  - Regular servicing of plant and diesel-powered construction equipment and machinery.

Operation phase

There is no anticipated significant GHG emissions arising from the operation of the Project considering the nature of the Project (i.e., a renewable energy investment). Therefore, no further action is anticipated.

Renewable energy investments produce energy without emitting carbon emissions. In other words, renewable energy projects avoid the release of carbon emissions that would be occurred if a fossil-fuel based technology was used to produce energy. The Project results in an emission

reduction of 91,908 tCO2e per year. This is equal to approximately 0.02% of the country's annual emissions in 2020 year.

3.7 Noise and Vibration

The Project's AoI for noise impact is determined with the consideration of elevation and horizontal distance differences from the potential noise sources to receptors. 500 m distance was used for the AoI. Accordingly, baseline noise measurements were conducted at the potentially impacted settlements and noise model was prepared to cover potential impact zones.

The specific objectives of the impact assessment are to:

- Identify the main sources of potential impacts to ambient noise and vibration from Project activities during construction and operation phases,
- Assess noise and vibration impacts on sensitive receptors in the vicinity of Project area,
- Suggest mitigation measures and determine the residual impacts.

Potential sources of noise and vibration can be outlined as:

- Noise generated by construction works.
- Noise generated from earth-moving truck activities on road route during the construction period.
- Vibration caused by construction activities.
- Blasting vibration.
- Noise generated turbine activities for operation phase.

In order to evaluate the significance of impact from the Project, magnitude of impact and sensitivity of the receptors have been identified throughout the Project area. Magnitude of impact is a parameter defined as characteristics of impact and the Project. On the other hand, responsivity defined as characteristics of receptors.

Measurements were carried out at three locations which were selected as the closest residential areas to the Project area. During the measurement period, ISO 1996-2 Standard was followed and IEC 61672 – 1 type 1 sound level meters were used. Measurements were conducted for 48 hours. A noise model was developed using commercial noise modelling software CadnaA from Datakustik. Meteorological data (average relative humidity, average temperature, wind frequencies) were included in the noise mapping software to calculate the most suitable sound propagation conditions.

Construction noise

Satellite view of the assessment points are presented in Figure below.

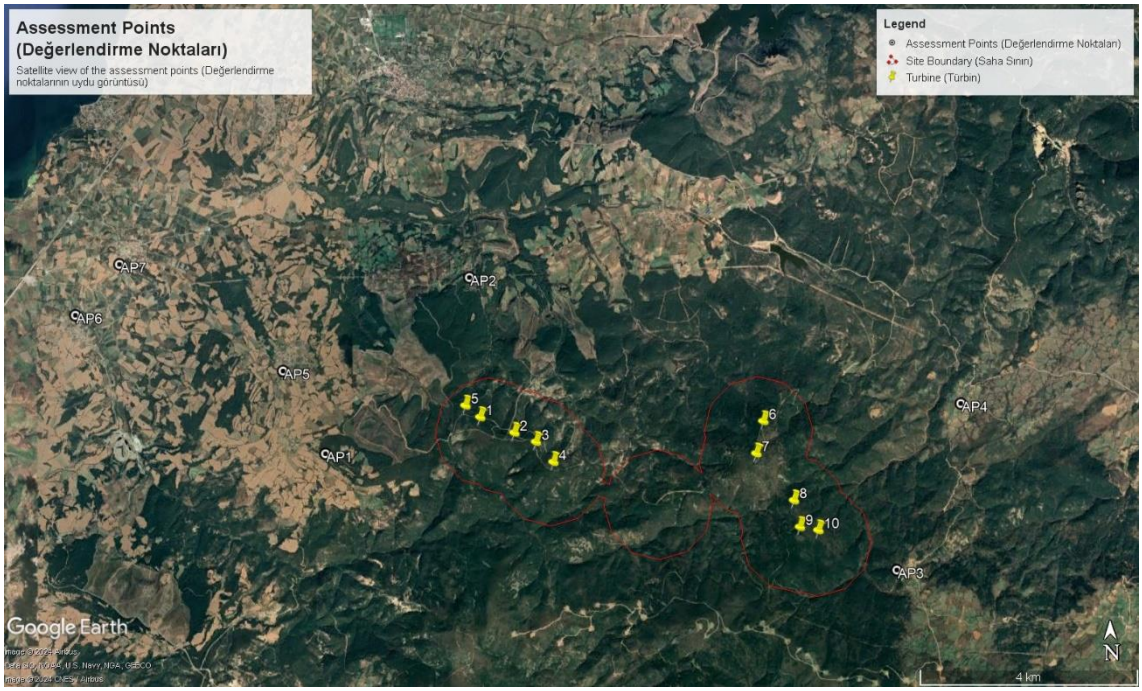

Figure 3.1: Satellite View of the Assessment Points

The importance of the receptor and the sensitivity of the receptor to the effect determines the damage that the effect will cause to the receiving environment in a given spectrum. This effect is rated in a matrix from 'Negligible' to “Major”. Regarding the construction phase of the Project; all final impact significances were found to result in “No Impact” in accordance with both national and IFC limits for seven assessment points without mitigation

Operation noise

Regarding the operation phase of the Project; all final impact significances were found to result in “No Impact” in accordance with both national and IFC limits for seven receiver locations.

Construction vibration

Vibration analyses were conducted for construction phase. There is no vibration impact expected for operation phase of the Project. Vibration during the construction stage is mostly caused by earthworks and blasting activities. It was assumed that machinery that have maximum vibration impact, will work at the closest construction area to receiving location. Thus, the worst-case scenario was studied.

There is one “moderate” (AP-7) and six “no impact” final impact significance measurement results in accordance with RENC regarding the vibration due to construction phase.

Blasting vibration

All final impact significances were found to result in “No Impact” for blasting activities to be performed during construction phase.

Operation vibration

There is no vibration impact expected for operation phase of the Project.

Mitigation Measures

The Project will seek compliance with international guidelines and national legislation regarding prevention and control of noise and vibrations during construction. Following measures could be taken to mitigate any impact.

- Earth-moving and noisy equipment will be kept as far away from sensitive areas as feasible on the construction site.
- Activities that cause noise and vibration will be spread over time as much as possible so that multiple activities that generate noise and vibration do not occur at the same time and their cumulative impacts are mitigated.
- Baseline noise will be taken into account when construction activities are planned. At low baseline noise regions, hours and at the weekends, truck activities will be limited as much as possible and low noise generating activities will be scheduled.
- Construction impacts detected are directly related with truck routes. Truck access routes can be altered at impacted zones.
- Site-specific measures could be implemented. (i.e. extra speed limits at impacted zones).
- Construction workers will be trained on relevant management plans and be aware of the sensitive nature of workplaces they are operating in and advised to limit verbal noise or other forms of noise.
- Noise and vibration will be minimized at the Project area and surrounding areas through instructing construction truck drivers to switch off vehicle engines while offloading materials and to shut down or throttled down to a minimum when not in operation.
- Local communities will be engaged to minimize any disturbance and effect on the safety, health of people in the nearby buildings.
- Complaints on noise and vibration disturbances will be recorded, assessed and necessary preventive measures will be taken.
- Proper machinery, equipment and vehicles with lower sound power levels and reduced-sound models will be preferred.
- Use of old or damaged machinery with high level of noise emissions that would have a negative impact in the environment will be avoided and it will be ensured that equipment is properly serviced and efficient.
- Maintenance of construction vehicles will be conducted regularly by means of a regular vehicle maintenance and repair program as per the recommendations of the manufacturer to minimize extraneous noises caused by poor performance.
- According to complaints and disturbances, mobile noise barriers will be employed for affected receptors from site access roads. Noise barriers will be used until completion of the truck traffic for construction activities.
- Mitigation measures specified in Noise Management Plan will be implemented.

Considering detected impact is sourced from truck passages, no residual impacts are expected. Following the end of construction works source will be removed.

In terms of both operational noise and vibration there is no significant impact detected at any of the assessment points. Thus, there is no need for mitigation measures and no residual impacts are expected in terms of the operation phase.

3.8 Landscape and Visual

Modelling studies were undertaken to analyse shadow flicker impact and zones of turbine visibility. An analysis of landscape and visual baseline conditions were undertaken to inform the assessment of change and resulting significant effect. All wind turbines within the scope of

Project have been considered. The anticipated activities at each receiver are modelled using the WindPRO 4.0 software.

The proposed WPP will consist of 10 wind turbines with a hub height of 111m and turbine tip height of up to 180m. Proposed ancillary assets include access roads and a 154 kV single-circuit ETL of approximately 4.5 km for connection to Üçpınar Transformer Substation, which is currently operated by the TEIAS.

The Project's AOI for the assessment of landscape and visual effects was determined by the outputs of the zone of visual influence (ZVI) modelled for the project, along with field studies undertaken by local consultants in country. The ZVI and site visits determined an initial study area of 20 km for the assessment of landscape and visual effects.

A digital ZVI has helped to inform the identification of visual receptors (those who would have a view of the proposed development) and a selection of corresponding representative viewpoints. A ZVI is a computer-generated model which illustrates the areas from which the project could theoretically be visible from a viewer height of 2m. A ZVI based on the operational project has been produced for this assessment. The ZVI has been modelled in ESRI's ArcGIS Pro Geographical Information System (GIS) using 25m resolution topographical data from Airbus. The ZVI is based on bare ground data, with any ridgelines, plateaux and valleys reflected in the extent of predicted visibility. Existing vegetation including forestry is therefore not accounted for in the ZVI and presents a worst-case scenario. The ZVI assumes a maximum 150m tip height above ground level.

According to studies conducted by United States Department of the Interior Bureau of Land Management about wind turbine visibility, maximum theoretical visibility of wind turbines varies between 16-58 kilometres. However same document states that; dominant landscape impact is limited to 4-8 kilometres according to hub heights. Since visual impact assessment is based on landscape alteration, area of influence for visual impact is 8 km radius from turbines.

- Visual Impacts, Zones of Visibility
  - In order to make a complete visibility assessment for the Project, the visibility of each turbine is calculated and mapped for identified receivers.
- Turbine information
  - Information related to the turbines to be used in the Project
- Modelling factors
  - The attenuation factors used in this study are: The sunshine/cloudiness data of the project region and the topography of the Project area.

During field trips and spatial surveys landscape identification has been conducted for current situation around planned Project site. In terms of current landscape followings are noted;

- The field mostly consist of rural and forest villages.
- The terrain is mostly forests and rocky mountainous areas.
- As a consequence of the hilly terrain, very close distances can be shadowed by terrain fluctuations.
- No recognized recreational viewpoints, UNESCO sites, or specific landscape designations.

Considering the lack of designations and the low development level, the area's sensitivity is considered medium.

Zones of Visibility

As a matter of fact, that turbines located at a very close distance to the rural households (considering average height of the rural houses and average height of the turbines).

Nonetheless, considering turbine distances to the households (being very distant), visual impact is expected to be only slightly changing the view of the residents. Below Figure shows turbine visibility assessment via wireline analysis. The wireline analysis has been undertaken without the benefit of corresponding photography, using bare earth data only. Wirelines have been produced using Resoft WindFarm software and 25m resolution terrain data from Airbus. All wireline images show a field of view of 90 degrees, which is broadly consistent with that of human eyes. An example of wireline image is provided in Figure 3.2.

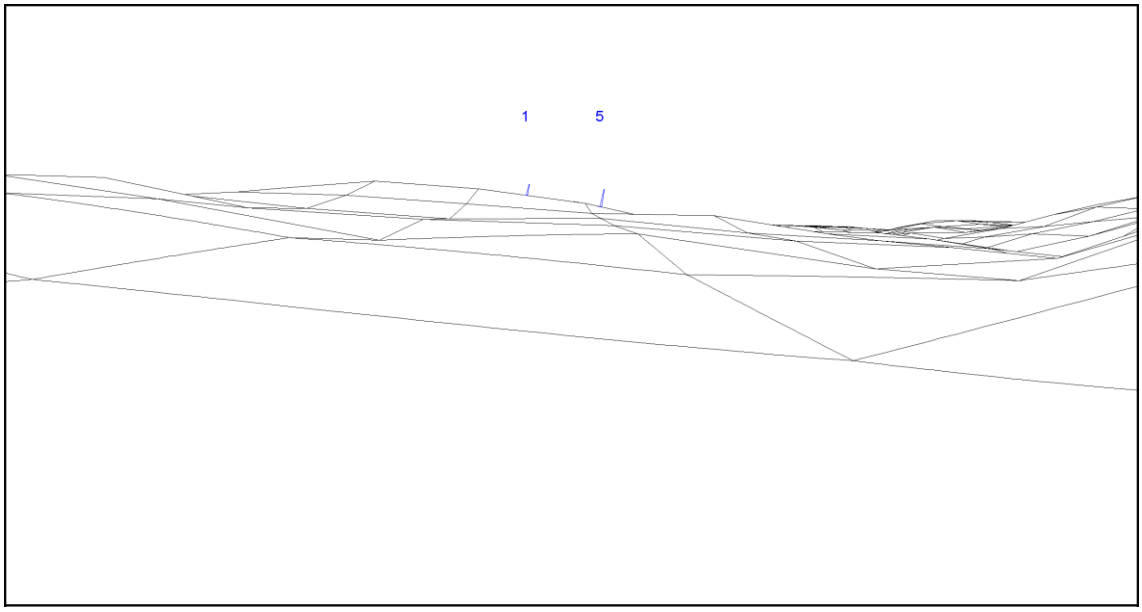

Figure 3.2: Assessment Point 1 (AP1) Proposed Wireline during Operation. View direction to Site Centre: 93.9°; Coordinates X: 465,015; Y: 4,447,171; Pitch: 0°

Assessment of landscape and visual effects

Temporary landscape and visual effects, during construction, would be minimised through measures within the Environmental and Social Management Plan. Overall, considering the nature of construction activities, particularly their transient characteristics, the magnitude of landscape impact is considered to be low to minor to moderate, and, taking into account the medium landscape sensitivity that has been identified, the overall significance of landscape effect during construction is considered to be minor moderate.

In terms of operation, the WPP design is responsive to the simple, mountainous landscape in which it would be located, by avoiding considerable variations in the height and spacing of turbines, avoiding multiple occurrences of overlapping turbines on ridgelines and through careful alignment of the access road. The overall significance of landscape effect during operation is considered to be negligible to minor. In addition, WPP design is responsive to existing views from the representative visual receptor locations identified by avoiding considerable variations in the height and spacing of turbines, avoiding multiple occurrences of overlapping turbines on ridgelines, and through careful alignment of the access road. The overall significance of visual effect during operation is considered to be negligible to minor.

Mitigation Measures

According to visual impact assessment methodology defined in this project, visual impacts found out to be Negligible/Minor.

3.9 Shadow Flicker

The Project's AoI for the shadow flicker impact was determined as the area where shadow generated by the Project reaches out the receptors. As such, the AoI for the shadow impact was determined as sensitive residential areas located at nearest settlements. Shadow impacts were assessed in line with "IFC Environmental, EHS Guidelines for Wind Energy" document. Although an unlikely case, it's standard practice to evaluate the shadow flicker in a "worst-case" scenario. Moreover, the shadow flicker intensity is not considered. Thus, even if the shadow is too weak to be observable, the period of flicker will be recorded. The worst-case scenario considers that:

- The sun is shining all day with no disturbance from clouds or fog;
- The sun rays, the turbine rotor and the windows are in the same line-of-sight all day long;
- The wind is blowing all day, which means that wind turbines are always operating;
- The dwelling is composed only of windows (like a greenhouse);
- There is no light obstruction from obstacles (existing turbines, trees, other buildings, etc.);
- There is no light obstruction from topography;

In order to gather more realistic results, real case scenario is also considered and simulated for the Project. Following sub-topics have been considered in order to create a real case scenario:

- Factors which may alter the occurrence of shadow
  - The sunshine/cloudiness data of the project region
  - The wind data of the project region, allowing to consider the real direction of the turbine rotor and the period when the turbine doesn't rotate
  - The presence of obstacles like existing wind turbines, trees or buildings
  - The topography of the site which could create a natural shadow
  - The external configuration of the dwellings (direction of building faces, number and size of the windows)
  - The internal configuration of the dwellings (size and location of the rooms)
  - The physical obstacles inside the dwellings (curtains, blinds…)

To assess possible impacts of a shadow flicker, an AoI has been identified according to the rotor diameter (which is 138.6 m). The AoI has been determined as ***10 X Rotor Diameter*** distance from turbines, curtailed to 130 degrees either side of North (so 260 degrees in total, leaving 130 degrees south of turbines where shadow effects are not expected). Seven assessment points have been identified in and around the identified AoIs and they are showed in below figure.

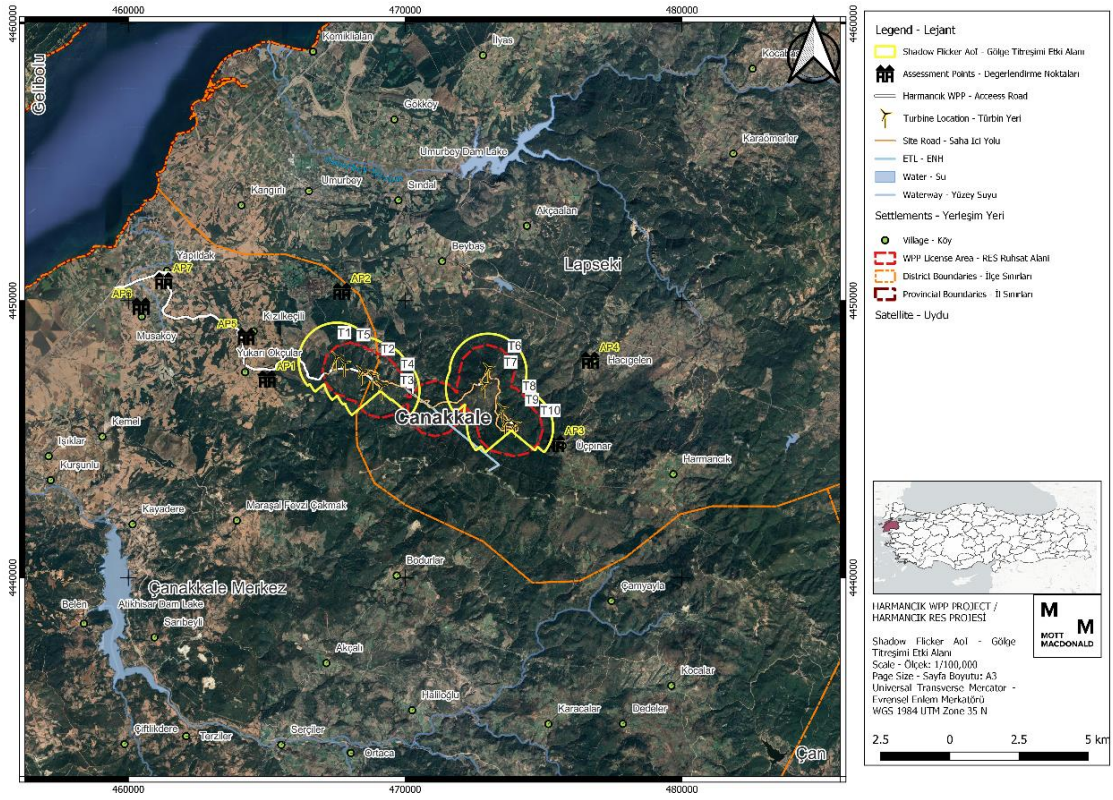

Figure 3.3: Shadow Flicker AoI (θ=260°C)

Mitigation Measures

In terms of shadow flicker negligible to minor impacts detected at most of the identified receptors. Thus, no residual impact expected, and no mitigation measures considered.

3.10 Waste and Resources

The area of influence includes the Project licence area, and its scope may extend to surrounding areas where potential impacts associated with resource utilization and waste generation are assessed.

The baseline conditions regarding waste and resources are shared below for the Project:

- Environmental considerations were taken into account during product selection in the design phase of the Project to minimise waste generation and prioritize recyclable materials. In addition, sustainable procurement practices were implemented to reduce waste and ensure responsible supplier selection.
- Electricity will be supplied from the national grid or diesel generators.
- Drinking water will be supplied from dispenser size bottled water, for which the emptied bottles will be collected as recycling materials and sent to licensed companies. Groundwater use is not permitted unless authorised by State Hydraulic Works.
- Utility water will be supplied from licensed contractors via water trucks with careful monitoring to avoid exceeding permitted use.
- The sanitary wastewater will be collected in septic tanks and transported to licensed wastewater treatment plants for processing.
- During construction, topsoil will be stored for reinstatement, excavated materials will undergo on-site treatment or disposal in licensed areas. Ready-mixed concrete and aggregate will be

supplied from certified manufacturers and delivered to the Project area as needed without establishing a batching plant on-site.

- Municipal waste generated by the Project will be collected and disposed of by relevant municipality in Çanakkale province.
- There are two municipal sanitary landfills namely Çanakkale Waste Management Corporation (ÇAKAB) and Gelibolu Peninsula Waste Management Corporation.
- There is one licensed medical waste sterilization facility in the Central district of Çanakkale province.
- The water used for dust control will remain within the soil structure, hence generation of wastewater is not anticipated for the dust suppression,
- The Project Company shared that all waste streams to be generated by the Project Company will be disposed of, reused, and treated within Republic of Türkiye, no transboundary trade in waste will be conducted during the implementation of the Project which is line with the current waste management practices onsite as of 2 May 2024.
- According to the information shared in Environmental Status Report which is prepared in 2022 for Çanakkale province, no disposal areas have been designated for the licensed excavated waste disposal facility for construction wastes. The Consultant had an interview with the authority of the Ministry of Environment, Urbanization and Climate Change Provincial Directorate of Çanakkale on 24 November 2023 regarding the current excavated soil management in the province. It was stated that the excavated waste is disposed of the licensed excavation waste disposal areas of the neighbouring provinces, which are in Bursa, Balıkesir and Tekirdağ.
- The excavation waste to be generated during the earthworks of the Project will be handled according to the Mitigation Hierarchy. With this regard, to avoid the generation of waste, the excavated material will be used as structural filling material on the access road as well as on turbine pads. The filling process will be carried out according to the suitability of the excavated material and limits of the final zoning planning permission (i.e. maximum permitted road width). The excavation waste will be stored temporarily in designated non-forest storage areas in the Project licensed area and the additionally bought agricultural land parcels subject to land acquisition onsite. According to the information shared by the Project Company, these lands will be bought on willing seller and willing buyer basis and any physical or economic displacement was not required. The CLO of the Project will coordinate with the contractor and/or Project Company to inform stakeholders while meeting with landowners to be used as temporary storage areas. Negotiated settlement and expropriation processes are followed within the land acquisitions made within the scope of the Project. However, the economic displacement process has been also evaluated in the Livelihood Restoration Plan (LRP) prepared in the Resettlement Action Plan (RAP) and PAPs whose livelihoods has been damaged will be compensated with appropriate corrective actions. Also, land acquisitions continue in the remaining parcels. The RAP prepared in this process will be followed and landowners will be approached within the scope of this plan.
- If there are no proper number of the agricultural lands to be bought for temporary excavation waste storage, available lands will be identified with engagement of the relevant forestry directorate. The lands, where no trees are present and can be considered as hollow areas, will be filled with mutual agreement with the relevant forestry directorate. For these areas permits from State Hydraulic Works (DSI) and Provincial Directorate of Forestry and Agriculture will be granted. Unless granting necessary permits including non-agricultural use permit for the temporary use of the bought land areas, the excavation waste will not be stored in these lands. In addition to the bought/to be bought agricultural lands in the Project licensed area, there may be need to acquire additional agricultural lands off the Project licensed area. For the agricultural lands to be bought offsite, the same actions identified for the agricultural lands bought/to be bought onsite are required to be followed during the

acquisition and use of these lands. It is to be noted that the Project Company shared that the remedy of the non-agricultural use of the lands is planned in order to protect the soil and sustain the natural function of the lands. In the rehabilitation of the lands, the proper technical measures will be taken in accordance with the Regulation on the Control of Excavation Soil, Construction and Demolition Wastes (Official Gazette Date/Number: 18.03.2004/25406). The Project Company shared that the duration for the temporary storage for the transferring the excavation waste to the final licensed excavation waste disposal facilities will be completed after Commercial Operation Deployment (COD). The excavation waste will be transported to the licensed excavation waste disposal facilities located in the neighbouring provinces including Bursa and Balıkesir. The necessary communications and official correspondences will be conducted with the authorities of the Environment, Urbanization and Climate Change Provincial Directorates of Çanakkale. After obtaining relevant directions by the authorities, the tendering procedure for transferring and disposing the excavation waste and storing the excavation waste storage will be followed.

- The potential community health and safety risks on the air quality, noise, erosion, water source protection, habitat and livelihood impacts associated with the transfer of the excavation waste, temporary storage of the excavation waste into agricultural areas to be bought, final disposal of the excavation waste to the licensed excavation waste disposal facilities and corresponding mitigation measures will be assessed separately in the Community Health and Safety Plan.
- Wastewater will be managed by existing wastewater treatment plants in Çanakkale province with septic tanks emptied reaching its capacity and disposed to local treatment plants.

The following aspects are considered resource and waste management have potential to take place:

Soil and groundwater contamination due to poor waste management: The transportation of the materials and equipment may increase traffic and pose risks of soil and water contamination from the spills.

Life and fire safety vulnerability due to not properly stored waste: Improperly stored waste materials can create hazardous conditions, increasing the likelihood of fire incidents. For instance, if flammable materials are not segregated or stored appropriately, they may ignite easily, potentially causing fires that endanger lives and property. Additionally, inadequate waste storage could obstruct emergency evacuation routes, hindering the escape of individuals during a fire emergency.

Runoff from the exposed soil and concrete stockpiles: In the extreme weather conditions could lead to contaminated runoff from exposed soil and concrete stockpiles.

Increase in load on the capacity of existing waste recycling/landfilling facilities and wastewater treatment plants: In the construction and operation phases, various types of waste and wastewater will be generated which will potentially straining local waste management facilities and wastewater treatment plants.

Poor management of high-volume excavation waste due to insufficient storage conditions onsite and offsite: Excavation waste management presents challenges including finding suitable disposal areas and preventing improper storage that could lead to contamination and potential community health and safety risks including increased traffic load.

Mitigation Measures

Specific mitigation measures to avoid and/or mitigate the potential impacts on waste and resources will need to include the following:

- During the construction phase of the Project, several strategies are employed to minimize environmental impacts. These include sourcing materials locally to reduce transportation-

related impacts, managing equipment energy consumption, and reusing excavation soil to the extent possible for levelling and landscaping. Waste and construction materials are disposed of in designated areas to minimize transportation impacts, and any necessary temporary storage areas require approval from relevant authorities. Measures are taken to separate excavation waste from demolition waste and topsoil.

- The excavation waste to be generated during the earthworks of the Project will be handled according to the Mitigation Hierarchy. With this regard, to avoid the generation of waste, the excavated material will be used as filling material on the access road as well as on turbine pads. The filling process will be carried out according to the suitability of the excavated material and limits of the final zoning planning permission (i.e. maximum permitted road width).
- The materials that cannot be used as filling material, which will be classified as excavated soil, will be managed in a way that does not harm the environment and human health in accordance with the Regulation on the Control of Excavation Soil, Construction and Demolition Wastes. Mitigation on Waste and Wastewater Management Plan and Community Health and Safety Management Plan will be implemented.
- During operation, an energy management program is implemented to monitor and optimize energy use, including passive efficiency measures like improved insulation and maximizing natural lighting and ventilation.
- Throughout both construction and operation phases, various mitigation measures ensure sustainable resource management. These include Waste and Wastewater Management Plans, responsible procurement practices described in Procurement Procedure, substitution of hazardous materials, and efficient planning to minimize waste generation. Good housekeeping practices are also applied, such as inventory control to reduce waste from unused materials.
- For waste management, comprehensive Waste and Wastewater Management Plan is established, covering storage, training, collection, segregation, transportation, and disposal procedures. Hazardous waste is handled with care, and recycling facilities are utilized where applicable. Regular audits are conducted to ensure compliance and track waste generation trends. The proper waste management practices will be implemented including segregation, storage in designated areas, and adherence to fire safety regulations. Regular inspections and training programs will be conducted to ensure compliance with safety protocols and minimize the risk of life and property loss due to fires caused by improperly stored waste.
- For wastewater management, regulations are followed for the design and construction of septic tanks, with plans in place to manage domestic wastewater onsite before discharge to local treatment plants, ensuring protection of both personnel health and the environment.
- The periodic desktop duty of care audits to inspect that all waste records/documentation of the Project and their contractors will be maintained in accordance with national requirements; and visiting the principal third party waste transfer and treatment/disposal sites utilised by the Project to verify Project waste is being managed responsibly will be considered in the monitoring actions in the Waste and Wastewater Management Plan.
- During the operation phase of the Project, the wind turbines, which cannot be reused, are required to be repaired or disposed of in case of any problem; they will be stored in the turbine platforms temporarily to be transferred to recycle or disposal facilities by the turbine manufacturer. The details regarding the management of waste wind turbine sections will be discussed in the decommissioning strategy and further evaluated in the detailed Decommissioning Plan.

There should be no residual significant effects of waste and resources after the implementation of appropriate mitigation measures.

3.11 Biodiversity

The investigation into the region's ecology aimed to define an "Ecologically Appropriate Area of Analysis" (EAAA) to determine the presence of features that may qualify for Critical Habitat. The EAAA was identified at a scale indirect area of influence of the Project area, considering large-scale ecological processes. This approach ensures that all potential risks within the Project footprint and surrounding vicinity are taken into consideration.

The EAAA was identified at a scale indirect area of influence of the Project area, considering large-scale ecological processes. This approach ensures that all potential risks within the Project footprint and surrounding vicinity are taken into consideration.

For the purposes of this draft ESIA, the EAAA for flora and terrestrial fauna (amphibians, reptiles and non-bat mammals) was designated as the wider Biga Mountains KBA borders, and since the Project is located at the northwest edge of the KBA, a section at the northwest edge of the KBA borders, extending toward the end point of the Project access road was delineated, stopping at the Bursa-Çanakkale highway. The EAAA for flora and fauna encompasses an area of 516 km^2.

For EAAA for birds and bats, the main consideration was bird migration since the Project is located along the Dardanelles routes of migrants. The overall route direction between Lapseki and Canakkale (center) is NW-SE. Therefore, the EAAA is a NW-SE oriented approximately 20 km buffer which also encompasses Biga Mountains KBA entirely. The EAAA for birds and bats encompasses an area of 1689 km^2.

The baseline conditions regarding biodiversity are shared below for the Project:

- Due to time constraints, biodiversity surveys could not be done before completing the Draft ESIA study. On 29 September 2023, the biodiversity experts of the Consultant conducted a brief site visit. Due to the seasonality (autumn), the visit only provided an opportunity for general observations about habitat characteristics, especially for birds and bats. For the ecosystem services aspects of the ESIA, the use and functions of the flora/habitat was recorded. Information on the use of flora is provided by the field botanist, but interviews with local people were also carried out to validate the data. If some features were not observed by the Consultant during this visit, it does not necessarily indicate such features are not present and/or abundant. A one-year field monitoring programme has been established to resolve data gaps on biodiversity and inform for updating to Critical Habitat Assessment (CHA) accordingly. This monitoring methodology will focus on baseline of flora, birds, bats, mammals and herpetofauna.
- Within the scope of National EIA biodiversity chapters, several studies were conducted by Nartus which provided the basis for the present ESIA. The fieldwork for the examination of the Project activity area was carried out on 15 and 23 October 2021 in Çanakkale. The fieldworks were also conducted in and around the Project area to assess the ecological structure, flora and fauna study in October 2021 over 8 days. For ornithological studies, surveys were conducted in 2021 autumn and 2022 spring migratory seasons in the Project area. Monitoring studies were carried out at intervals between 18 August - 27 October 2021 and 24 March - 7 April 2022 for 15 visits each period. Bat surveys were conducted in August 2021, September 2021 and October 2021 for a total of 6 day/nights. The observations and examinations were conducted in and around the Project area to assess the presence of honeybees in late Autumn and Spring 2021-2022.
- Internationally and Nationally Recognized Areas: Harmancik WPP, along with its ETL and sections of the access road, is situated within the Biga Mountains KBA, characterized by woodland, maquis, grassland, and freshwater features. The KBA, identified as MAR009, prioritizes flora species, with *Crocus candidus* (VU) and *Galanthus trojanus* (CR) being key plant species. While parts of the access road also intersect with the Dardanelles Strait KBA,

it primarily utilizes existing roads within the area. Although KBAs lack legal protection in Turkey, they are widely utilized for conservation purposes.

- Habitats and Flora: The study area hosts suitable habitats for endemic species like *Crocus candidus* (VU) and *Galanthus trojanus* (CR), with *Crocus candidus* being recorded during the National EIA study. Additionally, other local and regional endemics such as *Verbascum hasbenlii, Verbascum lydium var. heterandrum, Feulago trojana, Cirsium balikesirense, Centaurea olympica, Campanula lyrata subsp. lyrata, Stachys tmolea*, and *Thymus zygioides var. lycaonicus* are indicated. Verbascum hasbenlii is determined as critical habitat trigger species regarding CHA. The recorded habitats are including woodland, riparian woodland, deciduous woodland, coniferous plantations, weathered rock habitats, and agricultural areas. According to calculations conducted from forest stand data maps, a total of 20,132 trees are expected to be cut.
- Birds: During thermal soaring, Common Buzzards form groups, and Eurasian Sparrowhawks transit through the area. An adult Eleonora's Falcon sighting in September indicates migrant activity, utilizing migrant passerines for feeding. While the area lacks nesting sites for many resident raptors, common species like Common Buzzards and Eurasian Sparrowhawks are expected. *Kruper's Nuthatch*, though not protected, is significant as a regional endemic breeding in the Biga Mountain forests. Three groups of bird species are key for the site: large soaring migratory species, large soaring residents, and other residents of conservation significance. Additionally, Lesser spotted eagle and Short-toed snake eagle are determined as potentially critical habitat trigger according to CHA.
- Bat and Mammal Surveys: the National EIA study reports recordings of *Pipistrellus pipistrellus, Pipistrellus kuhlii, Hypsugo savii*, *Pipistrellus nathusii, Tadarida teniotis, Nyctalus noctula, Nyctalus leislerii, Miniopterus schreibersii* (VU)*, Vespertilio murinus, Tadarida teniotis* and *Eptesicus serotinus.* A table detailing number of recordings for each species was not provided. *Pipistrellus pipistrellus* and *Nyctalus noctula* are the most active species. Both species are identified in literature as being prone to collision at WPPs.
- Invasive Alien Species: Species like *Centaurea solstitialis* and *Cirsium arvense*, *Hedera helix* and *Rumex acetosella* while native to Turkey, can spread during construction activities.
- Critical Habitat Screening: A total of 65 species were screened to determine critical habitat trigger status. Accordingly, a plant species (*Verbascum hasbenlii*) has been determined as critical habitat trigger and two bird species (Lesser spotted eagle and short-toed snke eagle) are defined potentially critical habitat trigger, however due to data gaps, potential Critical Habitat triggers were not conclusive and were deferred until 2024 baseline results. Factors considered included global population, extent of occurrence, observed individuals, conservation status, collision risk, migratory status, and the Project area's impact on population.

Construction impacts were assessed as they pertain to biodiversity and found to cause both temporary disturbance type impacts and permanent impacts that would last after construction activities are over. Some of the more significant impacts are, in summary;

Vegetation Removal and Habitat Loss: Clearing natural habitats for construction leads to the loss of terrestrial habitat and flora species. 76.72 ha forest area are affected.

Disturbance from Noise, Light, and Vibration: Construction activities cause increased noise, artificial light, and vibration, disturbing wildlife.

Wildlife Injury from Construction Vehicles: Movement of vehicles and machinery poses a risk of injury or killing of wildlife.

Dust Emissions Impacting Wildlife: Construction equipment dust emissions can adversely affect wildlife populations, mainly sensitive flora species.

Soil Pollution: Pollution from run-offs, spills, and cleaning harms habitats.

Introduction of Alien Species: Construction activities may introduce invasive species, impacting native biodiversity.

International Recognised Areas (Biga Mountains KBA): The Project impacts the Biga Mountains KBA, leading to habitat loss, fragmentation, and disturbance.

Habitats: Various habitats are affected, with limited impact due to the small construction footprint.

Flora: Habitat loss and pollution impact flora species, but the overall impact is minor.

Mammals (excluding bats): Some small and common mammal species could be affected within the AoI especially during blasting activities. Construction activities will impact the mammals and other terrestrial fauna the forms of habitat loss and degradation (as a result of vegetation clearing and rock blasting for installation of the Project components such as roads, turbine pads, ETL route). Direct loss of nests and shelter structures of these species will be limited to the footprint, while fragmentation and edge effects can be considered as impacting the AoI. Temporary disturbance during construction activities, pollution, light and noise disturbance, and accidental injury or death are possible. Construction impact on these species will be reversible for the most part. The magnitude of this impact to mammals of low.

Bats: Habitat loss and disturbance affect bat species, but impacts are reversible.

Birds: Construction affects bird habitats, with reversible impacts, except for high-sensitivity species.

Operational phase impacts were assessed as they pertain to biodiversity and found to cause mainly permanent impacts that would last for the lifetime of the Project without proper management. Some of the more significant impacts are, in summary;

Permanent Habitat Loss: Turbine areas and switchyards contribute to permanent habitat loss. Some persisting impacts from construction in terms of habitat loss and degradation (as a result of vegetation clearing and rock blasting for installation of the Project components such as roads, turbine pads, ETL route) including fragmentation and edge effects, disturbance to biodiversity values during operation (mainly through regular vehicle access), air pollution and invasive species introduction and competition. These effects are possible to occur within the AoI due to operation activities.

Introduction of Alien Invasive Species: The presence of turbines may introduce alien invasive species, impacting native biodiversity.

Wildlife Disturbance: Increased noise levels and artificial light from turbines disturb wildlife. The main receptors of noise and artificial light are nocturnal migrating small bird and bat species which might get dazed during migration due to lighting, and terrestrial fauna which would be under increased predation risk at night due to added lighting.

Collision and Electrocution Risks: Bird and bat species face risks of collision and electrocution from turbines and power lines. A bird collision risk model has not been developed for the project, but a CRM is needed due to both the KBAs it is associated with and The Project location. Bat species include high collision risk species in low activity levels, which will also be confirmed through added baseline. Necessary collision risk assessments will be carried out with the 2024 studies.

Barotrauma Mortality Risks: Bat species may suffer barotrauma due to sudden changes in air pressure near turbines.

International Recognised Areas (Boz Mountains KBA): Persisting impacts from construction in terms of habitat loss and degradation (as a result of vegetation clearing and rock blasting for installation of the Project components such as roads, turbine pads, ETL route) including fragmentation and edge effects, disturbance to biodiversity values during operation (mainly through regular vehicle access), air pollution and invasive species introduction and competition. The Project Area falls within the Biga Mountains KBA, with one qualifying flora species, *Crocus candidus*, found within the 2 km Area of Interest (AoI). Operational activities are not anticipated to pose a significant threat to the existence of this species. Therefore, the overall impact on the KBAs is deemed minor.

Habitats: The Project affects various habitats, leading to permanent habitat loss and fragmentation, especially in forested areas. While operational activities may moderately affect basic biodiversity features, direct impacts on these habitats during operation are expected to be moderate.

Flora: Due to limited habitat loss, a high rate of decline in populations is not expected if the relevant species are present in this grassland habitat. It is estimated that the operational impacts will be moderate.

Mammals (excluding bats): While no threatened mammals were identified, persisting effects from construction include habitat loss and degradation, with negligible operational impacts.

Bats: Bat species face injury and mortality risks from turbine blades during operation, with major impacts expected. Other impacts include displacement, avoidance, and barrier effects, albeit less pronounced.

Birds: Collision and electrocution risks affect resident and migratory bird species, particularly large soaring species, during operation. These impacts are considered major. Barrier effects for migrants are less pronounced but still significant. Due to insufficiencies in National EIA study, and desktop components such as citizen science records and low completion rate of Turkish Breeding Bird Atlas study for the atlas square in question, some species such as Golden Eagle cannot be properly ruled out. These species have slow reproductive cycles, and propensity for attraction and habituation to WPPs during operation which can increase mortality risks. The terrain also adds to the risks as these species are shown to exhibit lower flights on high slopes. Therefore, further clarifications to baseline will be undertaken prior to operation. During operation, WPP poses a major threat to resident and migratory large soaring species, with collision and electrocution being significant sources of mortality. Migratory birds, especially large soaring species, are of concern due to their activity along the Dardanelles migratory route. The impact extends to songbirds, Eleonora’s Falcon, and breeding species like Short-toed Snake Eagle and Black Stork, albeit with varying degrees. Artificial lights exacerbate mortality risks, particularly for nocturnal migrants. While displacement and avoidance effects are less pronounced, the cumulative barrier effect, heightened by extensive wind energy development in Canakkale, adds to the concern. Other minor influences include disturbance, pollution, and increased collision risks due to artificial lights.

Additional Baseline (2024)

The National EIA baseline collected for the Project includes flora, fauna, bird, and bat surveys. These surveys were conducted according to national frameworks and while highly informative for an otherwise ill-studied region in terms of biodiversity (Boz Mountains), are relatively less comprehensive than as prescribed in international guidelines and best practices. Therefore, several deficiencies with each study were identified in terms of data quality and quantity.

A comprehensive baseline collection study consisting of flora, fauna, birds, bats, and invertebrates was scheduled for 2024 the results of which will enable significant refinement of the present CHA. The studies will close the data gaps described in the previous paragraph.

Flora and terrestrial fauna surveys in ecologically appropriate season will cover sensitive species and areas previously not studied. Bird surveys will complete the second year of surveys for year-on-year coverage, include ETL route, provide better visual and seasonal coverage, and expand the breeding bird surveys with line distance sampling. Bat surveys will significantly expand the spatial coverage, number of consecutive nights per season, and 3 seasons will be covered. Invertebrate surveys were previously not conducted and will enhance the baseline as well.

The updated baseline will;

- Enable revision and refinement of the CHA, and BMP prepared for the Project,
- Inform if development of a Project Specific Biodiversity Action Plan (BAP), is necessary,
- A Shut-down on demand (SdoD) protocol will be developed if necessary,
- Enable refinement of mitigation objectives and measures,
- Inform development of net gain targets, if any.

Mitigation Measures

Mitigation measures are identified and recommended for the following: “Habitat, Flora and Ecosystem Services Loss and Degradation”, “Disturbance to Animal Species, Injury/Mortality”, “Accidental Introduction and Dispersal of Invasive Species”, “Collision, electrocution, and barotrauma”. Mitigation measures for the construction and operation phases will be managed in line with the BMPs prepared specifically for the project. Additionally, a Project BAP framework has been developed to be applied as necessary.

The general impact mitigation measures for construction and operation phases of the Project are shared below:

- All construction and operational working areas should be kept to a minimum to reduce habitat loss,
- All type of impact on natural habitats outside the Project footprint should be avoided during land clearance and topsoil removal,
- Boundaries of the construction areas, including traffic routes, should be limited only to designated sites,
- Seed collection of wildflower species should be conducted for critical habitat trigger species and priority biodiversity features and the seeds may be used during the restoration process.
- On-site vehicle speed limits should be implemented to avoid potential road-kills,
- Dust suppression measures, such as water sprays, should be implemented for reduction of dust during the working period,
- Installing artificial structures for nesting, roosting or hibernating fauna,
- Tree cutting (mainly for ETL) and rock blasting works should be accompanied by an experienced wildlife surveyor to check for nests and roosts.
- Minimise traffic and the distance it has travelled,
- Source goods/materials locally where possible,
- Contain any AIS and report their presence,
- Where AIS have been confirmed, ‘as-new’ wash-down is essential before entering non-infested areas of the site and after working in infested areas,
- Invasive Species Management Plan will be developed to minimize construction and operation impacts.
- Artificial lighting will be managed carefully to avoid attracting and dazing migrants,
- The ETL will be marked throughout to increase visibility,

- A SDoD or equivalent turbine management program will be implemented and maintained unless operation monitoring results strongly suggest negligible/low impact. SDoD will be applied for areas defined as Critical habitat in terms of ornithology. Additionally, BAP Framework will include SDoD commitments.
- The Project components will be managed to not offer perching and nesting opportunities, safe perching, roosting and nesting opportunities will be provided,
- Turbine curtailment approach regarding bat mortality mitigation will be developed,
- A post-construction biodiversity monitoring programme will be scheduled in order to demonstrate the real impact on biodiversity, to further inform mitigation measures and objectives, and track performance with regards to mitigation.
- Trainings will be provided to raise awareness of all site personnel.

3.12 Social Environment

Based on desktop studies conducted using documents shared by the Project Company, it was determined that the social AoI of the Project covers a total of seven villages in Central and Lapseki districts. These are the nearest settlements to the Project area including Yapıldak, Musaköy, Kızılkeçeli and Yukarıokçular which are located in Central district, and Beybaş, Üçpınar and Hacıgelen villages in Lapseki district.

A site visit was conducted by Mott MacDonald Social Team on 30 and 31 October 2023. During this site visit, baseline information on the neighbourhoods affected/will be affected by the construction and operation phases of the Project was collected.

The potential social impacts of the Project identified as a result of these two studies are given below:

- The Project's land acquisition has been performed with valuation of affected assets according to National Law on Expropriation 2942. Areas are needed on 60 parcels located in five settlements in two district and one province for the seven of them are public lands and 461,081.44 m2 forestland. This comprehensive overview will be crucial for planning and managing the Project effectively. The outputs of the field study conducted under RAP reveal the adverse land-based impacts of the Project. Additional PAPs will be affected by ETL which is an AF to the Project.
- Physical displacement is a displacement, whether full or partial and permanent or temporary, that occurs when individuals or communities are no longer able to physically occupy an area and must relocate to a new location. Economic displacement is loss of assets or access to assets that leads to loss of income sources or means of livelihood. The Project's physical resettlement strategy is to avoid relocation in accordance with PS5 and PR5.
- According to the expropriation list, there are no pasturelands affected by the Project. Mukhtars of the five villages who know the lands that the Project will use do not expect any impact on pasturelands or access roads to pasturelands. However, if needed, technical and feasible measures will be explored to provide access to pasturelands, and proper passages will be provided to restore access after construction by the Project Company.
- Within the scope of the Project's planned land transactions, there is a cold storage warehouse with parcel number 176/3 in Yapıldak village where a road widening work will take place. According to RAP studies, observations and interviews, there is also a container on the same land. This container where workers are accommodated is outside the expropriation boundaries. However, as the construction site of the Project is very close to the structure, adverse impacts such as dust, noise, vibration and public health and safety are expected. On the other hand, during the construction period, it is important to manage the risks related to community health and safety such as noise or dust, where the local business located on this parcel is taken into consideration. The Project Company will be contacted

during the traffic management and construction planning process in order not to disrupt the economy-based commercial activities of the local business, especially logistics.

- It should be noted that no physical displacement is observed within the scope of the Project's resettlement field studies as well as the investigations conducted for the structures within the setback distances. The impact assessment studies and investigations conducted for the structures within the setback distances have not been completed yet. Relevant revisions will be made in the RAP once the identification and assessment of structures located in proximity to the turbines are completed.
- An estimated 365 seasonal workers come from Konya province to three of the affected settlements. As it is planned to minimize the impacts on agricultural livelihoods within the scope of the RAP, no income/job loss impact on seasonal workers is expected. According to the information received from the mukhtars, the working and accommodation areas of seasonal workers are not affected by the land acquisition of the Project.
- The dust generated by construction of access roads may negatively impacts nearby agricultural products, reducing their quality and market value.
- Construction activities and increased traffic may cause negative impact on community health and safety (i.e noise, air quality, abnormal load transportation, etc.). Nevertheless, no significant impact is expected on the roads used by settlements nearby.
- Local employment creation during construction may lead to a more positive perception of the Project by the community, reduce unemployment, and improve the well-being of workers and their families.
- During the construction phase of the Project, there will be numerous procurement opportunities which may be beneficial for the local business, enterprises and suppliers in terms of income generation and increase.
- Construction activities may cause disruption in the daily lives of the local community members by causing temporary water shortages or contamination of natural spring water. Additionally, during the construction phase of the Project, various activities such as site preparation, foundation installation, and turbine erection can pose risks to the local community's safety. These activities may involve heavy machinery, increased traffic, and construction materials, which can lead to accidents, air and noise pollution, and disruption of local infrastructure (i.e., drainage channels).
- The potential influx of male workers into neighbourhoods due to the Project construction activities may impacts on women's daily lives and their livelihood activities. Within the scope of the Project, 100 people are expected to work in the Project area during the construction phase. Although for women returning home alone, as the presence of male workers might heighten the risk of harassment or other safety incidents, these concerns are not also mentioned by women community members and mukhtars. However, such concerns were not mentioned by women community members and mukhtars during the site visit consultations.
- The groups who are considered to be vulnerable because of their daily life practices and/or access to certain services (i.e., health facilities in the district) might be affected disproportionately and negatively due to Project impacts. The vulnerable groups are women, the landless/homeless people, the elderly, people with disabilities and unemployed people.

For the operation phase, the number of workforce is estimated to be five, two of whom will be the subcontractors. During the operational phase of the Project, there won't be a substantial impact on the local population. The turbines' control and safety will be managed centrally, eliminating the need for additional local workers. As a result, no adverse impacts are expected on the regional population or any undue pressure created. On the other hand, within the Project area, there are pasture lands and the primary worry expressed by local community members revolves around income reduction for households dependent on animal husbandry. According to the Project Company representatives, the turbine zones will remain unfenced, allowing herds to graze freely. During the operation phase of a wind power plant, one of the notable risks to

community health and safety is associated with blade throw incidents, aviation, electromagnetic interference, traffic, shadow flicker, noise.

Mitigation measures

In order to mitigate the impacts that are identified for the construction and operation phases of the Project, certain measures are identified and listed below:

- The Project-specific SEP and community grievance mechanism will be put in place to consult with the Project affected people and to be able to capture individual grievances related to the land acquisition and expropriation processes.
- For the development and establishment of a systematic way to compensate, the RAP is being prepared and will be implemented once finalized. RAP includes a LRP to restore livelihoods' (mitigations to be carried out the cases of an economic displacement) of those affected PAPs at least to pre-project condition. Livelihood Restoration Plan aims to enchance the long-term resilience and adaptability of livelihoods for Project-Affected Settlements (PASs) and prioritize Project-Affected Households/Persons (PAHs/PAPs) in line with international development guidelines by developing strategies to rehabilitate livelihood activities and ensure the sustainability of the PAHs' livelihoods. The Project's livelihood restoration strategy aims to bolster livelihoods physically, economically, and culturally, making them more resilient to challenges like climate change, land degradation, and project-related impacts. PAPs/PAHs/PASs will be received additional assistance as part of the LRP.
- In accordance with the principle of compensation at full replacement cost of IFC PS5 and EBRD PR5, measures have been taken to ensure that all households can replace the land they have lost. IFC defines the "replacement cost", with regard to land and structures within the scope of the Project, as follows:
  - agricultural land—the market value of land of equal productive use or potential located in the vicinity of the affected land, plus the cost of preparation to levels similar to or better than those of the affected land, plus the cost of any registration and transfer taxes;
  - household and public structures—the cost of purchasing or building a new structure, with an area and quality similar to or better than those of the affected structure, or of repairing a partially affected structure, including labour and contractors' fees and any registration and transfer taxes.
- Potential risks to local communities will be identified by the Project Company and a Code of Conduct (CoC) in local community relations will be prepared. Additionally, the Project workers will receive regular trainings upon the recruitment and throughout the employment on the social sensitivities, prevention and ways to report Gender Based Violence Harassment (GBVH), measures to be taken to avoid social unrest and conflicts, and documents to be disclosed to and signed by the Project. GBVH encompasses sexual exploitation, abuse, and harassment, along with non-sexual violence and harassment which can inflict physical, sexual, or psychological harm, and includes threats, coercion, or arbitrary deprivation of freedom, occurring in both public and private life.
- Within the scope of the SEP and community grievance mechanism of the Project, grievances of residents regarding the infrastructural issues will be monitored by the CLO.
- The Project Company will develop a Local Content and Procurement Procedure (LCPP) by defining the potential local economic and livelihood opportunities.
- Potential risks on the vulnerable groups will be identified by the Project Company and relevant items will be included in the CoC that will be prepared by taking into account the local community structure.

Residual impact significances after mitigation are negligible for all impact categories.

3.13 Labour and Working Conditions

Potential impacts on labour and working conditions, including the occupational health and safety risks associated with the construction and operation workforce of the Project together with its subcontractors are assessed in ESIA Report. The methodology for assessing the impact of labour and working conditions involves two main components:

- **Desktop Studies:** These entail a thorough examination of relevant documents, including materials shared by the Project Company and the primary contractor (Enercon). Additionally, publicly available data, international standards, and best practices are reviewed.
- **On-Site Visit:** A site visit was conducted by Mott MacDonald Social Team on 30 and 31 October 2023.

Occupational Health and Safety

A risk assessment is performed for Occupational Health and Safety to:

- determine the hazards that exist in a workplace or that may come from outside,
- identify the factors that cause these hazards to turn into risks,
- analyse and ratify the risks arising from the hazards and
- define control measures to be taken.

As a result of the risk assessment, following issues were identified:

- Traffic safety: Transport of heavy machinery materials, and increased movement of construction vehicles can lead to altered traffic patterns and heightened risks of accidents,
- Life and fire safety: A number of activities collectively increase the vulnerability of the construction site to fire incidents, jeopardizing the safety of both construction workers and nearby communities,
- Explosive use and blasting: During construction, where soil and rocks cannot be excavated with conventional equipment, ammonium nitrate / fuel oil (ANFO), an explosive made of ammonium nitrate and diesel fuel, can be utilized, which will potentially pose risk on workers,
- Electromagnetic Interference and radiation: The operation of a wind power plant introduces potential risks related to Electromagnetic Interference (EMI), particularly concerning the electricity transmission infrastructure. Moreover, the generation and transmission of electrical power within a wind power plant may also give rise to concerns related to Electromagnetic Radiation (EMR),
- Risk of accidents in result of poor OHS risk management both for construction and operation phases,
- Risk of occupational diseases for construction phase,
- Risk of accidents in result of earthquake and structural failure and risk of fire and explosion accidents for operation phase.

The mitigation measures that will be applied to reduce or avoid the potential occupational health and safety risks during the construction phase will include but not be limited to the following:

- All national health and safety regulations and international requirements will be followed by the Project Company and their contractors,
- Occupational Health and Safety Management Plan, which is structured to cover site specific risks and appropriate mitigation and monitoring requirements, will be developed and implemented. Those mitigations include PPEs usage, induction and regular refresher training courses for personnel, regular audits and inspections in line with the national and international requirements,
- Risk assessments, covering site and Project specific OHS risks, will be conducted.

- OHS mitigation measures will be designed and implemented following a structured Health and Safety Management System as defined in Occupational Health and Safety Management Plan,
- Health and safety organizational structure will be developed which involves sufficiently qualified health and safety personnel for Project specific risks.

Labour and Working Conditions

Potential impacts on labour and working conditions that may occur during the construction phase of the Project are summarized below by considering the whole Project workforce including the main contractor, subcontractors, and supply chain workers:

- Not providing reasonable working conditions and terms of employment poses a risk for the Project workforce. The workforce has a medium sensitivity for this impact.
- Presence of the security personnel may lead to labour rights violation (including gender consideration) and conflicts among the workforce.
- Restricting workers from developing their own organisations and/or unions as well as alternative mechanisms to express their grievances and protect their rights regarding working conditions and terms of employment might be a risk within the scope of the Project.
- Project workers may not be adequately informed about the existing Project grievance mechanism as well as available grievance channels and the terms and conditions of their employment under the Project activities.
- The contractor, subcontractors and suppliers may not have adequate knowledge of international standards and practices regarding the management of contractors, subcontractors, and supply chain. Contracted, subcontracted and supply chain workers have medium sensitivity to this impact.
- Enercon and its subcontractors of the Project may use compulsory overtime to complete the works on time but may not pay for overtime. On the other hand, overtime may exceed 270 hours per year. Workers are sensitive to this impact at medium level.
- GBVH risks towards the workers and residents of the Project affected neighbourhoods may occur unless proper preventive measures are taken.
- The conditions within the workers' camps and/or other facilities (i.e., refectory, toilets) may not meet the international standards (i.e., space per person, number of people per room, hygiene of rooms and other facilities within the camp).
- The management of the demobilisation process at the end of the Project's construction phase and retrenchment process in times of necessity may not meet the international standards. The receptors' sensitivity is medium. The magnitude of the impact is moderate, which corresponds to a moderate level of significance.
- The Project has the potential to employ people from nearby neighbourhoods. People living in neighbourhoods close to the Project have medium sensitivity to this impact.

The magnitude of the impact is moderate for all potential impacts during the construction period.

Potential impacts on labour and working conditions that may occur during the operation phase of the Project are summarized below by considering the whole Project workforce including the main contractor, subcontractors, and supply chain workers:

- Not providing reasonable working conditions and terms of employment poses a risk for the Project workforce. The workforce has a medium sensitivity for this impact. The magnitude of the impact is moderate, which corresponds to a moderate level of significance.
- Presence of the security personnel may lead to labour rights violation (including gender consideration) and conflicts among the workforce. Workers are sensitive to this impact at medium level. The magnitude of the impact is moderate, which corresponds to an impact with a moderate level of significance.

- Restricting workers from developing their own organisations and/or unions as well as alternative mechanisms to express their grievances and protect their rights regarding working conditions and terms of employment might be a risk within the scope of the Project. The workforce has a medium sensitivity for this impact. The magnitude of the impact is moderate, which corresponds to a moderate level of significance.
- Project workers may not be adequately informed about the grievance mechanism and the terms and conditions of their employment under the Project activities. Workers are sensitive to this impact at a medium level. The magnitude of the impact is moderate, resulting in an impact with a moderate level of significance.
- GBVH risks towards the workers and residents of the Project affected neighbourhoods may occur unless proper preventive measures are taken. The sensitivity of the receptors to this impact is medium and the magnitude of the impact is moderate. This results in an impact with a moderate level of significance.
- The Project is estimated to contribute to the overall human resource capacity that is competent in operation of wind turbine projects at national context. The number of experienced and expert personnel is expected to increase in line with the Project improvements. In this regard, the sensitivity of the people in Türkiye has negligible sensitivity about this impact. The magnitude of the impact is moderate. Overall, this will lead to an impact with negligible significance level.

Regarding the potential impacts of the Project on labour and working conditions during the construction and operation phases, the following mitigation and enhancement measures will be applied:

- HR & Worker Management Plan (covering both the management of contractor and subcontractor labour) will be developed for construction and operation phases of the Project separately,
- HR & Worker Management Plan for the construction phase will include Workers' Accommodation Plan to ensure that necessary camp management actions are applied within the Project's mobilization area in line with the Lenders' standards and requirements. The assessment of environmental and social conditions of all mobilization areas will be undertaken with respect to the specified requirements.
- HR & Worker Management Plan together with the HR Policy and other relevant corporate policies of the Project Company as well as the HR and worker management procedures and other applicable corporate level policies of Enercon that address non-discrimination and equal opportunity, workers' rights and benefits, right to unionization, grievance mechanism, child and forced labour in line with the national and international requirements will be implemented throughout the Project lifecycle and disclosed to all Project workers including subcontractors.
- Corporate level GBVH Policy of the Project Company will be implemented once it is finalized and established.
- Enercon will finalize and implement the HR and worker management procedures covering the processes from recruitment and employment.
- Contractor Selection, Evaluation and Management Procedure will be applied.
- A Project Grievance Mechanism Procedure already be established, and this procedure incorporates key principles, including confidentiality and anonymity, and define available channels for submitting complaints. It also specifies timeframes for acknowledging receipt of complaints and subsequent resolution. Additionally, the procedure outlines the management and resolution process, with clear responsibilities assigned to the relevant Project staff,
- The fact that vulnerable workers (i.e., women, disabled, migrant workers) are included and protected will be ensured through the items specified within the Code of Conduct in line with the Lenders' standards and requirements.

- The Project Company will conduct periodic labour audits that will be taken internally as well as by the external parties to determine the labour management performance and identify the gaps related to the labour management as per the national legislation, Lenders' standards and requirements as well as ILO and other applicable international requirements.
- Corporate level Retrenchment Policy of the Project Company will be implemented once finalized.
- The Project Company will conduct periodic labour audits that will be taken internally as well as by the external parties to determine the labour management performance and identify the gaps related to the labour management as per the national legislation, Lenders' standards and requirements as well as ILO and other applicable international requirements.

3.14 Community Health and Safety

The Turkish legislative framework adhering to rules such as the EIA Regulation, OHS legislation, zoning plans and land use regulations, and the Noise Pollution Control Regulation, was addressed to assess community health and safety issues in wind power projects. The assessment of the community health and safety issues was also performed based upon international regulatory framework and applicable standards for the Project such as IFC Performance Standard 4, IFC General EHS Guidelines: Community Health and Safety, IFC EHS Guidelines: Wind Energy, and EBRD Performance Requirement 4.

The baseline conditions regarding community health and safety are shared below for the Project:

- Life and Fire Safety and Emergency Response: AFAD in Turkey, with 81 branches and eleven units, has successfully coordinated Turkey's response to earthquakes and floods over the past seven years. There are operating police departments and hospital, which are located in central and outer districts. The police department, and hospital situated in in Central district, is 17km from the Project area. Additionally, there are two different fire watchtowers located in the Project Area which are also approximately 17km from the Project area.
- Traffic & Transport: The project area's traffic and transport features have been assessed using Harmancık WPP National EIA Report, Open Street Map Geodatabase, Google Earth Satellite Images, and General Directorate of Highways, 14th Regional Division Traffic Volume Maps.
- The traffic volume estimations of the state roads within the General Directorate of Highways, 14th Regional Division jurisdiction is also evaluated. The closest junction to the Project area is located in Central District of Çanakkale Province. Accordingly, it is estimated that total of 12,106 vehicles passing through this location per day (9,651 Automobiles, 762 medium load commercial vehicles, 181 busses, 541 trucks, and 971 trailers, tractors, semi-trailers). The figure below demonstrates the sensitive receptors within the Project Area.

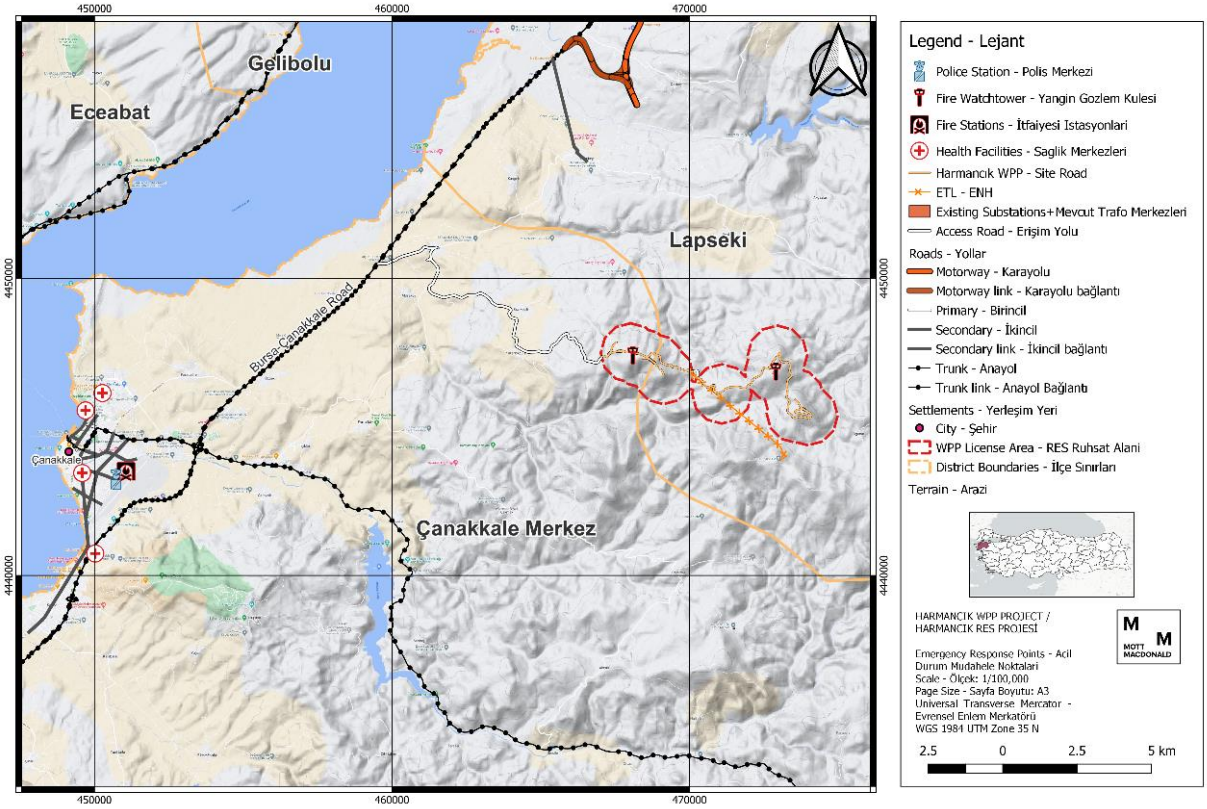

Figure 3.4: Emergency response points

- Community Grievances: the Project Company has been organizing stakeholder engagement and consultation activities together with the support of the appointed social consultancy company. As per the documents provided by the Project Company, a number of concerns which were raised by the local community members with regards to community health and safety were noted and similar concerns were observed during the site visit consultations in October 2023. Accordingly, consulted local community members have some concerns about the potential adverse impacts, including noise, damage on the natural water resources, road access and traffic safety, change in the current climate (i.e., less rain), and loss of trees, agricultural products, and animals due to the Project together with the climate change.As stated in the PID of ETL, Regarding the parts remaining in Agricultural Areas, permission for non-agricultural use will be obtained according to Article 13 of the Soil Conservation and Land Use Law No. 5403. According to the permissions to be received from the Ministry of Agriculture and Forestry, there are no agricultural infrastructure on these routes that would prevent the land use.

Construction impacts were assessed as they may poses significant risks to community health and safety, particularly in mountainous terrain. Some of the impacts that are considered to be minor and moderate after the mitigation measures are as follows,

Water, Noise and Air Quality: According to the detailed assessment of runoff from construction, stormwater runoff and groundwater contamination, minor risks were foreseen for water sources due to the project's distance from surface water bodies and limited activities affecting groundwater. Moreover, there are no agricultural infrastructure that would prevent the usage for non-agricultural purposes on the footprint of the Project Area as "Permission for non-agricultural use" is obtained from the Ministry of Agriculture and Forestry. People engaged in livestock activities and drivers using highways near the site may be exposed to air emissions and noise. However, according to the assessment performed in Chapters 7 and 9 of Harmancik WPP ESIA

Report and Section 3.3, 3.5 and 3.7 of Harmancik WPP NTS but no significant impact is anticipated from air quality and noise.

Structural Safety of Project Infrastructure: It had been identified that Turbine and Switchyard locations have been located on areas where low or very low erosion risk exist, except for T4 where there is medium risk of erosion. Moreover, Chapter 6 of Harmancik WPP ESIA Report and Section 3.4 of this NTS highlight that after implementing mitigation measures in the Erosion Control Management Plan, there is a minor risk to structure stability.

Life and Fire Safety (L&FS): The Project Area, located far from settlements, poses no significant fire risk due to construction activities.

Traffic Safety: The construction phase of a project near the access road is expected to increase traffic load by around 12,106 vehicles, affecting the existing traffic load by 0.04%. The project's impact on traffic load is negligible, as most locals engage in livestock activities, and the interaction between the construction and local agricultural activities is negligible. The traffic load of the ETL construction is calculated to be 0.07 %. However, the construction phase of the Project will cause additional traffic load on the existing road network due to transportation of materials and waste. The maximum daily heavy vehicle operation is estimated to be 6. Project Vehicles will exclusively use designated access roads to minimize traffic load and its adverse effects. There may be impacts on individual houses or hamlets along the route between the access road and main highway, but that these impacts will be managed via stakeholder engagement, implementation of the Traffic Management Plan, close monitoring of impacts (e.g. dust and noise, checks on vehicle speeds, etc) and the grievance mechanism.

Transport and Storage of Hazardous Materials: Chemical transportation and storage will be conducted in small quantities, avoiding nearby settlements. No significant chemical and hazardous management are expected to impact soil contamination, ensuring minimal environmental impact.

Disease Prevention: The project is a large scale WPP those construction period will last around 16 months. There will be 100 workers at the time of construction at its peak. However, these workers will be residing in a camp site where they will be in no contact with the local people. Hence, the risk of disease spread in Social AoI communities will be insignificant.

Emergency Preparedness and Response: The construction phase of a project can cause risks to local communities, including dust emissions, noise pollution, ecosystem disruption, and strain on emergency response capabilities, while the installation of turbines may increase electrical hazards. Hence, the impact is considered to be moderate.

Explosive Use and Blasting: The blasting project using ammonium nitrate/fuel oil can cause respiratory issues, hearing damage, and structural damage due to dust particles, airborne pollutants, and noise. However, due to regular monitoring, strict safety protocols, training programs, and emergency responses, the impacts considered to be minor.

Ecosystem Services: The Project's impact on priority ecosystem services may pose health and safety risks (e.g. increased traffic load, impact due to possible blasting activities, wildfires etc.) and affect local community members. The Project's scope includes using water sources from local authorities, which may impact livestock and agricultural activities. Regular environmental monitoring of construction activities and continuous engagement with local authorities will be implemented. Hence, the overall impact is considered to be minor.

Public Access: Construction activities could disrupt daily life and cause conflicts due to restricted access to certain areas**.** The project footprint is not on common routes; some routes may be temporarily affected for livestock activities. The wind turbines and switchyard construction areas may pose a temporary public access risk during the construction phase due

to animal husbandry activities near these areas. However, Regular updates through community engagement programs will be implemented. Hence, the overall impact is considered to be minor.

Security Personnel: The construction phase's deployment of security personnel raises concerns about community safety. Mismanagement or perceived threats could lead to tensions, affecting community well-being. Detailed mitigation measures for the security personnel and security management area outlined in the Security Management Procedure that will be complied with. Hence, the impact is considered to be minor.

Ice and Blade Throw: Blade/Ice throw incidents in wind power plants may pose a significant risk to community health and safety due to the rotating blades. Factors like material fatigue, manufacturing defects, or weather conditions can cause blade detachment, causing debris to be thrown over a significant distance. Blade/Ice throw incidents in wind power plants may pose a significant risk to community health and safety due to the rotating blades. Factors like material fatigue, manufacturing defects, or weather conditions can cause blade detachment, causing debris to be thrown over a significant distance. Within this scope, an assessment has been made for ice and blade throw separately. With this regard, there is one unused structure within the setback distances and ice throw distances were identified for blade/ice throw risks; in addition, blade loss risks were also evaluated for average and maximum wind speed as well and found out that there are no structures within average and maximum wind speed throw zone. Given that there is only one structure within the setback zone, the ice and blade throw impact is considered to be negligible. Advanced technologies and operational controls, such as sensors, monitoring systems, de-icing systems, and adherence to the Community Health and Safety (CHS) Plan and EPRP, are used to mitigate risks associated with blade and ice throw incidents.

Some of the impacts that are considered to be minor and moderate after the mitigation measures that may occur during the operation phase are as follows,

Aviation: Wind power plant operation poses aviation safety risks due to towering turbines near flight paths. Pilots face collision risks with turbine blades or turbulence. The closest airport is Çanakkale Airport which approximately 16 km away from the WPP License Area. An opinion letter is received from the Department of Aviation indicating that it would be appropriate to make day and night marking and lighting in international standards in a way to indicate that the planned WPP and related facilities are obstacles. With this regard, the impact is considered to be low.

Electromagnetic Interference and Radiation: The National EIA Report found that electromagnetic pollution around power plants and turbines is below WHO and ICNIRP limits, with the highest values found in Phase-1 (measurements taken from the planned turbines and their surroundings and close settlements within the social AoI) at 11.97 V/m and 0.07 µT and Phase-2 (analysis of the potential impact of wind turbine start-up using previous studies and academic literature) at 3.8 V/m and 0.13 µT. The electromagnetic environment created by WPP turbines is expected to remain below these limits. Also, in the measurements, both electric field and magnetic field (Table 3.3). It was observed that the effect decreases as you move away from the source and the measurements are below WHO and ICNIRP limits.

Table 3.3: Electric and magnetic field measurement results for ETL

Type of facility	Electric field (kV/m)	Magnetic field (mG)
154 kV Electricity Transition L–ne	0.3 - 1	9-14
154 kV transfer station	0.1-2	30-140
Limits	5	2000

Noise: During the operation phase, the turbines will produce noise from their mechanical and electrical components, as well as from the aerodynamic effects of the blades. However, there are no receptors identified in terms of this impact and the sensitivity of the receptors regarding this impact is low and the magnitude is minor. The significance level of the impact is assessed as minor. No significant land users located in vicinity to the Project which will be subject to noise impacts.

The impact mitigation measures for construction and operation phases of the Project are shared below:

- *Life and Fire Safety:* The project involves strict safety protocols, fire prevention measures, emergency evacuation plans, and firefighting equipment. Regular drills and training for construction personnel will ensure worker well-being and prevent fire incidents. Local communities will also be informed about potential risks and regular consultations are conducted to ensure safety. Furthermore, the CHS Plan and EPRP, which include the necessary protocol for responding to any occurrences, will be followed as part of the mitigating measures.
- *Traffic Safety:* The project will implement a Traffic Management Procedure, focusing on minimizing disruptions and maintaining a safe traffic environment. It will comply with the Motorway Traffic Law and include measures like regular consultations with school administration, awareness raising, and driver training. Furthermore, the CHS and Traffic Management Plan will be followed as part of the mitigating measures.
- *Disease Prevention:* Hygiene practices, sanitation facilities, health and safety guidelines, regular screenings, vaccinations, awareness campaigns will be implemented for preventing disease spread during construction. Furthermore, the CHS and EPRP will be followed as part of the mitigating measures.
- *Emergency Preparedness and Response:* An EPRP is prepared to be implemented during construction phase, involving key measures for all project stages, and shared with local authorities to increase awareness of potential risks and mitigations. Furthermore, the CHS and EPRP will be followed as part of the mitigating measures.
- *Explosive Use and Blasting:* Risk assessments and safety standards in blasting operations will be complied, ensuring the safety of construction personnel and the surrounding community through advanced warning systems. Blasting will take place only in daytime hours. Furthermore, the CHS Plan and EPRP will be followed as part of the mitigating measures.
- *Ecosystem Services:* To minimize ecosystem impacts, planning, erosion control, habitat restoration, sustainable construction practices, regular environmental monitoring, and engagement with local authorities will be ensured for preserving vital services. Furthermore, the CHS Plan will be followed as part of the mitigating measures.
- *Public Access:* The Security Management Plan will be implemented to address construction-related limitations, ensuring transparency and compliance with the necessary requirements for public understanding. Furthermore, the CHS Plan will be followed as part of the mitigating measures.
- *Security Personnel:* Positive interactions with the local community during construction, effective communication channels, community liaison officers, and regular feedback mechanisms will be established to foster a safe and secure construction environment. Furthermore, the Security Management Procedure will be followed as part of the mitigating measures. It shall be noted that the SMP also include the necessary provisions to respect human rights as well.
- *Aviation:* Radar systems, clear communication with air traffic control, warning lights on wind turbines, and ongoing engagement with aviation stakeholders might be implemented to ensure airspace safety, reducing collision risks. Furthermore, the CHS Plan will be followed as part of the mitigating measures.

- *Electromagnetic Interference and Radiation:* Compliance with safety standards that involves electromagnetic shielding, maintaining safe distances, and implementing advanced monitoring systems will be ensured to minimize electromagnetic interference and radiation risks. Furthermore, the CHS Plan will be followed as part of the mitigating measures.
- *Noise:* The CLO will continue organizing consultations and stakeholder engagement activities under the SEP, while establishing a community grievance mechanism for easy access for teachers and students to voice their grievances. Furthermore, the CHS Plan will be followed as part of the mitigating measures.

CHS related residual impacts during operation phase of the Project are negligible. Residual impacts during construction phase of the Project is minor for life and fire safety, traffic safety and emergency preparedness and response impacts.

3.15 Cultural Heritage

The determined AoI of the Cultural Heritage Impact Assessment (CHIA) for tangible and intangible cultural heritage assets are as described in Table 3.4.

Table 3.4: CHIA Borders[7]

	Tangible Cultural Heritage	**Intangible Cultural Heritage**
Impact Assessment AoI	All Project Area[8] (Project License Area, Access and Site Roads, Switchyard and Turbine Locations, Energy Transmission Line)	Çanakkale/ Merkez - Yukarıokçular Village, Çanakkale/ Lapseki - Üçpınar Village

Four phases have been undertaken in evaluating the present status of the tangible and intangible cultural heritage assets for the Project under CHIA. These phases are as follows:

- Desktop Research Study Phase
- Field Research Phase
- Impact Assessment Phase
- Reporting Phase

In summary, there is one unregistered cultural asset within the Project area. Apart from these cultural assets, no other cultural asset was identified within the Project area.

There is no legal protected site or registered cultural heritage site within the study area (including the Energy Transmission Line, Access Road etc.) that can be considered as Critical Cultural Heritage.

World Heritage List[9] and World Heritage Tentative[10] List of UNESCO are considered under the internationally recognised cultural heritage sites. Among the sites included in the World Heritage

[7] The AoI for tangible cultural heritage was limited by the area where Project activities to be conducted, i.e., the Project licence boundaries. The boundaries for intangible cultural heritage were determined by taking into consideration the settlements where cultural elements can be found around the Project area.

[8] The "archaeological walkover survey" to identify the possible cultural heritage assets within the Project license area was carried out in accordance with 2 different digital datasets (“YEKA RES-2.kmz” – “Phase-1 Construction Projects.kmz” and “Energy Transmission Line.kmz” – “Approach Roads.kmz”). The Client provided these datasets on 14 September 2023 and 18 September 2023, respectively. The conducted intensive surveys have only focused on turbine locations, access roads, site roads, switchyard, the Energy Transmission Line (ETL), and other Project facilities in accordance with the provided datasets. The remaining Project license area has been observed and the data is collected. The updated Project digital dataset (labelled as 01_DESIGN) was provided by the Client on 1 November 2023. According to the updated Project location data, it is understood that several turbine locations have been changed and new site roads have been added to the Project. Therefore, detailed intensive surveys could not be carried out in the newly added areas to the Project. The general observation and obtained data for the Project area were taken into consideration for these revised locations to prepare the CHIA report prepared for the Project.

[9] UNESCO World Heritage Convention. (n.d.) *World Heritage List*. https://whc.unesco.org/en/list/

[10] UNESCO World Heritage Convention. (n.d.) *Tentative Lists*. http://whc.unesco.org/en/tentativelists/

Tentative List of UNESCO, 2 sites are located in the wider region of the Project. The closest site to the Project is the “Archaeological Site of Assos” in Çanakkale, which is located at a distance of 79 km to the southwest of the Project area. None of the internationally recognised cultural heritage sites is overlapping with the Project area. Therefore, project activities do not have any impact on the areas listed neither in the World Heritage List or the World Heritage Tentative list.

There is no identified “Replicable Cultural Heritage” within the Project license area (including the ETL, site and access roads, etc.). Since the cultural heritage assets identified within the Project license area are evaluated with the natural, visual and historical landscape, the cultural heritage assets may be considered immovable and non-replicable cultural heritage assets.

The study area's settlements are not expected to experience harm due to the Project activities, as per desk studies and field works. Access to intangible cultural heritage elements, such as the Energy Transmission Line and Access Road, is not restricted in the license area. Hence the impact of the project activities are expected to be negligible.

Provided that mitigation measures are implemented during the construction phase, the impact on cultural heritage during the operating phase will be negligible.

Mitigation Measures

Additional mitigation measures to be taken by the Project Company for the construction phase are summarized below:

- In order to clarify the vibration caused affects that may occur on the cultural heritage assets during the construction phase, a risk analysis report will be prepared, and the report will be shared with Project's shareholders and Çanakkale Regional Council for the Conservation of Cultural Property. Additional measures (such as structure reinforcement, creating for a buffer zone for the cultural heritage assets, selection, and mobilisation of proper construction equipment to minimize vibration near the archaeological assets during the construction phase etc.) will be taken according to the result of the report.
- A complaint mechanism will be established within the scope of the Project, through which complaints related to cultural heritage can be submitted and the complaints and producing solutions are periodically monitored.
- In case of a cultural heritage related salvage and/or test excavation (including restoration/conservation) required, it will be ensured that necessary staff, technical assistance, other necessary services and equipment are provided.
- An archaeologist (as a cultural heritage monitoring specialist) will be employed under the Project organisation chart or a cultural heritage monitoring consultancy service will be assigned to make daily archaeological monitoring during the construction phase. The mobilisation of the monitoring archaeologists or consultancy service will be made before the construction activities of the Project, and the name and posts of the archaeologists or consultancy service will be specified in the organization chart of the project in all documents.
- The cultural heritage/archaeological monitoring expert/s will work with the equipment operators and have authority to stop the work. The expert/s will accompany all ground disturbance activities of the Project.
- The expert/s will instruct the operator to stop the work in case of a chance find. Continuation of the ground disturbance activities after a chance find will also be under the authority of the expert/s.
- The expert/s of the Project will train the employees about Cultural Heritage Management Plan and Chance Find Procedure.
- The expert/s will ensure that Cultural Heritage Management Plan and Chance Find Procedure are adequately enforced during all ground disturbance activities.

3.16 Cumulative Impacts

Within this scope of Cumulative Impact Assessment (CIA), the process identified within IFC's *Good Practice Handbook: Cumulative Impact Assessment and Management*[11] has been followed.

According to this Guideline, Valued Environmental and Social Components (VECs) are environmental and social attributes crucial for risk assessment, including physical features, ecosystem services, natural processes, social conditions, and cultural aspects. VECs are the ultimate recipients of impacts, often at the ends of ecological pathways. The CIA process uses these VECs as assessment end points.

In this context, VECs that may be potentially affected by the Project are considered. The VECs have been identified based on the available information obtained for the activities/developments in the vicinity of the Project site and considering the environmental and social conditions of the study area.

The VECs that have been identified for this Project are identified as follows:

Table 3.5: Valued Environmental and Social Component (VECs)

Area of Concern	VEC
Land Loss	Forestry
Air emissions, noise	Air quality and noise levels in settlements nearby the Project area
Landscape & Visual	Quality of landscape and visual
Biodiversity	Critical Habitat / Critical Habitat Trigger Species
	Natural Habitats
	Flora and Fauna Species with High Conservation Priority
Cultural Heritage	Unregistered Cultural Heritage Sites
Socio-Economic Environment	Land and Assets
	Economy
	Quality of Life
Community Health & Safety	Safety from blade and ice throw and shadow flicker risk
	Traffic Safety
	Fire safety

Within the scope of the CIA, a variety of methods were used to assess the foreseen impacts on VECs. These methods encompass spatial analysis using geographical information systems (GIS).

Several projects have been evaluated as part of the cumulative impact assessment including mining projects, wind power plants, and geothermal power plants of which details are provided in Table 3.6.

Table 3.6: Details of Existing and Planned Activities and Environmental Drivers

Name	Activity	Capacity	Distance to WPP License Area	Project Owner	Status
Ucpinar WPP	Wind Power Plant	112,2 MWm/109 Mwe (35 turbines)	~850 m	Derbent Enerji Üretim Pazarlama İthalat ve İhracat A.Ş.	Existing

[11] IFC's Good Practice Handbook Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets, 2013

Name	Activity	Capacity	Distance to WPP License Area	Project Owner	Status
Saros WPP	Wind Power Plant	138 MWm / 138 Mwe (69 turbines)	~5.50 km	Boylam Enerji Yatirim Üretim ve Ticaret A.Ş.	Existing
Akfen Kocalar WPP	Wind Power Plant	55.6 MWm/51 Mwe (14 Turbines)	~6.90 km	Isıder Enerji Üretim Pazarlama Ithalat ve Ihracat Anonim Şirketi	Existing
Borusan Koru WPP	Wind Power Plant	55.2 MWm /55.2 MWe (16 Turbines)	~8.70 km	Borusan EnBW Enerji	Existing
Mutlu Yenikoy WPP	Wind Power Plant	48 MWm /48 MWe (24 Turbines)	~11.20 km	Mutlu Gelibolu Elektrik Üretim Yat. İnş. San. Ve Tic.A.Ş.	Existing
Can - Canakkale ETL	Electricity Transmission Line	154 kv	~1.80 km	TEIAS	Existing
Canakkale Koru WPP ETL	Electricity Transmission Line	154 kv	~4.50 km	TEIAS	Existing

Impact assessment:

By considering these criteria in the cumulative impact assessment process, significance of each concern on VECs was assessed as below:

- Considering the fact that the identified environmental drivers are existing structures and no planned activity had been determined within the boundaries of Cumulative AoI, no additional land loss is foreseen.
- Similarly, the cumulative impact on air emissions, noise will also be negligible as the identified VECs area located far from the drivers and currently no significant concern is in question.
- Habitat fragmentation, migration route changes due to avoidance, and collision risks on birds and bat species are expected to increase cumulatively with the enhancement of WPP in the region. Additionally, for some species that are sensitive to issues such as high temperatures, the combined effects of project activities and the projected climatic conditions may increase the challenges. It is also possible that the habitat of some species could be altered as a result of the combination of climate change and project activities. Following the 2024 studies, Project impacts will be assessed in more detail via updated CHA, a Project specific BAP will be prepared if deemed necessary. The BAP will re-assess the risks arising from the cumulative impacts of the projects in terms of habitats/species identified as critical habitats and define net gain targets. A wider area than 15 km was assessed for migratory avifauna. Although the projects are associated with minor migration routes, the overlap with KBAs containing large bodied soaring trigger species, the presence of the project in relation to important wetlands in the western part of the projects and the increased barrier effect along a sensitive point on the transit route due to the high level of wind development in the Çanakkale region have cumulatively led to the collision risk being assessed as moderate to high. However, the lack of an inventory of species in the area does not allow for a detailed assessment. Therefore, a regional impact assessment was carried out at high level. Project spesific collision risk assessment will be conducted after 2024 site survey. Development each of 9 WPP Project collision risk assessment will inform this collision risk at regional level. BAP will cumulatively include this assessment.

- As there are no expected future developments in the near vicinity of Akbunar Slope Settlement other than the Project, no significant cumulative impacts on the tangible cultural heritage site is expected.
- Since there are no planned investments in the region, no significant cumulative impact stemming from further land acquisition and expropriation activities is anticipated within the scope of the Project. Similarly, existing investments are not estimated to create major cumulative impacts on the economic and livelihood activities. It is also estimated that the Project-related impacts will not interact with or trigger the other investments around the region. During the consultations with the local community members in October 2023, a few grievances related to the specified VECs were received. Therefore, the impacts on the Project affected local communities' quality of life will be taken into consideration during the Project phases due to the proximity of two WPPs (Ucpinar WPP and Akfen Kocalar WPP) to the Project's social AoI.
- As there is not any concern or grievance regarding ice throw and considering the fact that the nearest settlements are located far away from the critical distance of any wind turbine, no cumulative impact on ice & blade throw is expected. Additionally, no observation or grievance regarding any shadow flicker is in question. Moreover, surface runoff flooding (pluvial flooding) may increase as a result of both development and changes in land cover and changes in precipitation events. Depending on projected changes in extreme precipitation events, sudden downpours and flash floods may become more frequent. In addition, warmer temperatures may increase the drying of soils and their inability to absorb rainfall, thereby increasing the potential for surface runoff and the risk of flash floods. The community health and safety could be at risk from all these effects of climate change. However, the risk is considered to be negligible because the relevant climate variables show a slight change from the baseline in the worst case.

Mitigation Measures

This ESIA Report's chapters separately define mitigation strategies at the project level. Collaborative participation in regional management strategies will be required when project-specific mitigation measures prove insufficient and project mitigation alone is unable to avert an undesirable cumulative impact[12]. The IFC suggests taking the following particular steps, which might be necessary to manage cumulative impacts in an efficient manner:

- Adaptations to the project design (where possible, timing, location, and technology) to prevent cumulative impacts.
- Project mitigation techniques, such as adaptive management techniques, are used to reduce cumulative impacts.
- Project impacts mitigated by other projects (not managed by the proponent to further reduce impacts on VECs).
- Protection and improvement through cooperation in other regional programs for cumulative effect management.
- Participation cooperatively in other regional strategies for managing cumulative impact.
- Taking part in regional monitoring programs to evaluate the effectiveness of management initiatives and the realized cumulative impacts.

Enerjisa Üretim will be responsible for being included within the collaboration regarding the cumulative impact management process. Enerjisa Üretim will ensure that all stakeholders identified during stakeholder management studies are informed about the progress of project operations.

[12] IFC's Good Practice Handbook Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets, 2013

3.17 Stakeholder Engagement, Information Disclosure and Consultation

A SEP has been developed, outlining the identification of project stakeholders and detailing past and future consultation activities that the Project Company is planning. The SEP also establishes a grievance mechanism accessible to both internal and external stakeholders. Mott MacDonald Social Team conducted a site visit on 30-31 October 2023 within the scope of the ESIA study of the Project. Out of the seven affected villages, only two were visited by the Consultant as a part of the site visit conducted in October 2023. The aim of the site visit included collecting baseline data about the Project affected neighbourhoods, understanding the Project-related concerns and expectations of the PAPs, reflecting the views of key stakeholders, and identifying vulnerable groups. In line with these aims, key district-level governmental bodies, mukhtars and local residents were consulted during the site visit in order to identify PAPs and other Project stakeholders, understand their perceptions about the Project, address any concerns they may have about the Project, and identify the Project impacts.

The public participation meeting was carried out in Çanakkale, Lapseki District, Üçpınar village province within the scope of the National EIA Studies on 13 December 2021.

The participants had a number of questions about the Project regarding the following:

- Concerns about the potential impact on the basic livelihoods of the residents (land acquisition, expropriation, construction process, environmental impacts, etc.)
- The potential positive and adverse impacts of the Project on the Project affected villages
- The human resource for the Project workforce
- The impacts on roads due to construction activities of the Project
- Mitigation measures for any damage due to the Project
- The possibility of constructing a new road within the scope of the Project
- If there would be any construction vehicles passing through the villages during the construction phase of the Project
- The current status of the legal permitting about the Project activities
- The potential support to provide to the local communities through the generated electricity
- The method of communication between the turbines and if it would be underground or not
- The impact of noise during the operation phase of the Project

The Project Company will make available a comprehensive disclosure package on their website. This package will consist of the Final Draft ESIA Report, the SEP, the Non-Technical Summary (NTS), Resettlement Framework (RF), stand-alone CHA, Framework BAP, summary of HRIA (Human Rights Impact Assessment), and summary of Climate Change Risk Assessment (CCRA) all provided in both English and Turkish. The primary goal is to allow Project stakeholders to examine the findings of the ESIA study and provide their feedback and inquiries. The disclosure period for this information will span 60 days. In addition, during the resettlement specific disclosure and consultation meetings, Project-specific RAP will be disclosed to the PAPs directly affected by the Project.

The documents in the disclosure package will be revised and finalized in line with the feedback from the Project stakeholders. Finalized disclosure package will also be published on the Project Company's website.

The main point of contact for the Project stakeholders will be the CLO. Accordingly, disclosure, consultation and engagement activities of the Project will also be managed by the CLO on the basis of the stakeholder engagement and consultation program defined in the SEP. The Project Company will be involved in the stakeholder engagement and consultation activities when necessary. The CLO will also be responsible for registering the stakeholder engagement and consultation activities into the Project-specific consultation log.

The Project Company has a grievance mechanism for the Project stakeholders. There is a grievance register form used for registration of the grievance. The form is saved within the eBA software system of the Project Company, which is used for documentation and workflow management. The mechanism includes anonymity, confidentiality and transparency principles and accessible for both internal and external stakeholders.

The channels listed below can be used for receiving grievances. The Corporate Communication Department of the Project Company manages these grievances per the Corporate Communication Procedure and Crisis Management Procedure.

Grievance Mechanism Channels

- Official letter and/or petition to;
  - The Head Office (Barbaros Mah, My Office İş Merkezi, Çiğdem Sok. No:1/16 34746 Ataşehir/İstanbul), or
  - The Project Administration Office (Yukarı Okçular Mah, Çukurtarla Mevkii, Merkez/Çanakkale)
  - Phone number of the Head Office: (0216) 512 40 00
- Project e-mail address: mailto:yekares2@enerjisauretim.com
- Project website: https://yekares2.enerjisauretim.com
- Posters that are hung in common areas of the Project affected neighbourhoods (i.e., teahouses and/or mukhtars' offices), indicating what the clear communication channels are.
- The grievance form disclosed on the Project website[13] that enables anonymous grievance applications.

Contact Details of the CLO

The information contained herein is excluded from the publicly disclosed version of this document in compliance with personal data protection regulations.

3.18 Human Rights Impact Assessment

HRIA is a systematic process designed to evaluate the potential effects of the Project and its activities, ensuring that they uphold and respect fundamental rights and freedoms. The methodology and scope of HRIA are essential components in identifying, assessing, and addressing human rights risks and impacts associated with various aspects the Project.

As demonstrated in Guidance Note on Implementation of Human Rights Assessments Under the Equator Principles, the interplay of the factors explained below analysed for each human rights issue:

- Scale: This factor assesses how serious the impacts are for the PAP or victim. It considers the severity of harm caused by a violation of human rights.
- Scope: Scope evaluates the potential reach of the harm. It asks how many people could be affected by the violation. A broader scope indicates a higher risk.
- Remediability: Remediability focuses on whether a remedy can restore the victim to the same or an equivalent position before the harm occurred. It also considers the ease or difficulty of obtaining a remedy.
- Likelihood: Likelihood assesses the probability of the impact occurring. Higher likelihood increases the risk.

The scope of this HRIA encompasses a wide range of human rights considerations across different potential thematic areas:

[13] The link of the grievance form on the Project website will be included once finalized.

Table 3.7: Harmancık WPP Human Rights Issues

Human Rights Issue	Current - Residual Risk Ranking
Human Rights Category: Labour	
Supply chain management	**Medium - Low**
Child labour	**Medium - Low**
Collective bargaining and freedom of association	**Low - Low**
Forced labour	**Low - Low**
Grievance mechanism and remedy	**Low - Low**
Job security and right to work	**Low - Low**
Non-discrimination	**Low - Low**
Occupational health and safety	**Medium - - Low**
Wages (pay equity, standard of living)	**Low - Low**
Working hours & overtime payments	**Low - Low**
Human Rights Category: Civil and political	
Freedom of expression	**Low - Low**
Privacy	**Low - Low**
Right to life and security of person	**Low - Low**
Human Rights Category: Economic, Social and Cultural	
Right to health	**Low - Low**
Right to water	**Low - Low**
Social insurance	**Low - Low**
Right to own property and right to own land	**High - Low**
Human Rights Category: Group Rights / Heightened Risk of Vulnerability	
Rights of persons with disabilities	**Low - Low**
Rights of older people	**Low - Low**
Rights of women	**Low - Low**
Rights of migrant workers and their families	**Low - Low**

Details of issues with medium and high human rights risks are summarised below.

Supply Chain Management

While considering suppliers involved in turbine production, steel production, and cement production is essential, the responsibilities of the Project Company and the EPC Contractor for the management of almost all of the labour-related human rights risks assessed under Labour should be clarified.

- Scale: High, as poor value chain management can lead to incidents or corruption.
- Scope: Applies to all supply chain workers and subcontractor companies. The scope is based on potential risks, with subcontractors not yet specified.
- Remediability: The Project Company has a Supplier Selection, Evaluation, and Management Plan requiring suppliers to have ISO certifications and Environmental and Social Management Systems. Human rights issues, such as health, safety, forced labour, and child labour, are addressed. Due diligence and quarterly reporting are conducted, but unknown subcontractors present management challenges.
- EPC Contractor's Human Rights Code of Conduct includes:
  - Prohibits child labour.
  - Rejects forced labour and modern slavery.

  - Ensures no discrimination or harassment.
  - Mandates good working conditions and freedom of association.
  - Requires respectful use of security personnel and fair disciplinary measures.
  - Prioritizes occupational safety and health.
  - Avoids minerals from conflict areas.
  - Engages with local communities and prevents unlawful evictions.
- Likelihood: Medium. Plans are in place, but unknown subcontractors and international supply chains pose challenges.

Mitigation Measures / Remedies /Standard Controls

- Plans and procedures to be followed: Contractor Selection, Evaluation and Management Procedure, Local Content Procedure, Stakeholder Engagement Procedure
- Human Rights Due Diligence: Both the Project Company and the EPC Contractor will identify human rights risks in the supply chain, evaluating subcontractors on labour and materials before deals.
- Material Origin: Most materials for wind turbine production are initially exported from China. Special attention will be given to child labour, forced labour, and working conditions in mining.
- EPC Production Sites: Located in Germany, Poland, Portugal, Turkey, and in collaboration with China, India. Local legislation and gaps with international standards will be considered.
- Subcontractor Declaration: Upon identification, subcontractors must declare they do not use child labour or forced labour. Summary reports will be prepared on the supply chain management process.
- Grievance Mechanism: Follow-up on grievances and suggestions is mandatory, with responses within five business days, extendable if needed. Annual evaluations will include feedback from suppliers.

Child Labour

Since the supply chain consists of international companies operational in various countries, the assessment of the risk of child labour is of particular importance. Each internal stakeholder, in particular the EPC, should be assessed including those that are contracted to provide low-skilled roles, or from the suppliers of construction materials.

- Scale: High, as incidents could result in injury or death of a child.
- Scope: Individual children and their households could suffer from human rights abuses.
- Remediability: Primary supply chain companies will be screened for child labour policies and controls. Audits and inspections will be conducted to ensure no tolerance for child labour by the Project Company and EPC Contractor.
- Likelihood: Medium. Child labour is very unlikely due to existing controls, but ongoing monitoring is necessary.

Mitigation Measures / Remedies /Standard Controls

- No Child or Forced Labour Commitment: Fully enforce no child labour and forced labour policies during project construction, operation, and within the supply chain.
- Inspections: Expand work environment inspections to evaluate child labour risk in more detail.
- Awareness Gap: Contractors, subcontractors, and suppliers may lack knowledge of international labour standards. Risk assessments will be conducted for workers aged 15-18. The Project Management Team will maintain verified records, including birth dates, and monitor child labour through regular evaluations.

- Tracking and Auditing: Include feedback from internal and external stakeholders, including children and families. Conduct external social audits by a third-party, publish reports, and ensure compliance with the Project Company's Code of Conduct. Child labour should be detailed separately in supply chain due diligence reports, with particular attention to the raw material stage, especially cobalt production. Use ILO's Child Labour Guidance Tool for Business to guide audits.

Occupational health and safety

- Scale: High, as an occupational health and safety incident could result in injury or death.
- Scope: Human rights abuses could affect both workers and their households.
- Remediability: The Project Company has plans like the Community Health, Safety and Security Plan, EPRP, Traffic Management Plan, and Security Management Plan. Primary suppliers will be checked for effective task execution, proper PPE use, adherence to high-risk activity procedures, compliance with permit-to-work systems, emergency response measures, and medical evacuation facilities.
- Likelihood: Medium. Construction activities of subcontractors are considered as a potential risk since they cannot be monitored during the construction process.

Mitigation Measures / Remedies /Standard Controls

- When construction activities start with subcontractors, reports of OHS orientated inspections will be prepared and shared with relevant stakeholders.
- Near-miss incidents will be documented and presented as records.
- It is important to provide employees with comprehensive training and education on occupational health and safety practices, including the correct use of equipment, emergency procedures and hazard recognition. Awareness regarding near-miss incidents will be raised.

Right to own property and right to own land

- Scale: High. Construction requires areas on 60 parcels across five settlements, with 53 private and 7 public lands, causing several PAPs to lose land.
- Scope: 75 PAPs are owners/shareholders of private lands.
- Remediability: A Project-specific RAP identifies impacts on households due to land acquisition and expropriation, without physical displacement. Seven affected lands have structures, detailed in the RAP along with compensation amounts. Economic displacement compensations are covered in the LRP. The Project Company prioritizes consensual parcel acquisition, offering higher compensation than expropriation. The entitlement matrix in RAP outlines compensations and actions, clarified through fieldwork. Asset inventory and census studies are completed.
- In the light of the field work carried out within the scope of RAP and interviews with the owners whose lands are affected, land transactions in the Project do not create any risk of homelessness. No cases of physical displacement have been observed. There is no demolition of a structure where any PAP regularly resides. Therefore, there are no PAPs at risk of homelessness.
- Likelihood: High. Economic displacement will occur. Mitigation includes standard control measures in the RAP/LRP, landowner engagements, and a grievance mechanism.

Mitigation Measures / Remedies /Standard Controls

Plans and procedures to be followed: RAP/LRP, SEP, Community Grievance Mechanism

ESIA studies point out that there are structure owners whose structures are within the turbine setback area of the Project. However, it should be noted that no physical displacement is observed within the scope of the Project's resettlement field studies. Still, impact assessment

studies have not been completed yet. Relevant revisions will be made once the identification and assessment of structures located in proximity to the turbines are completed.

4 Project Environmental and Social Management System

The primary aim for formulating and implementing the Environmental and Social Management Plan (ESMP) is to safeguard the environment, Project personnel and the local population against Project activities which may cause harm or nuisance. For the purposes of the ESMP, “management” will be the control or mitigation measures and procedures required in managing key environmental and social effects. In addition, the ESMP will outline monitoring requirements, and these will be defined as monitoring, measurement, site inspection and audit.

The ESMP will:

- Present the Lenders’ standards, guidelines and legal requirements that should be adopted during construction and operation (including any additional environmental permitting requirements) and also be structured in line with International Standardisation Organisation (ISO) Standards ISO 14001;
- Set out the institutional framework for implementing the measures including where further strengthening is required or where the proponent may be required to put additional measures in place;
- Describe the proposed measures, including their timing and implementation arrangement;
- Define responsibilities for implementing the proposed measures, including for monitoring and evaluation;
- Establish the environmental and social monitoring and evaluation plan for construction and operation phases;
- Identify monitoring activities and key performance indicators that the Project should aim to achieve;
- Present construction guidelines that address how contractors should incorporate environmental and social considerations in their overall work. These would be presented as an Environmental and Social Checklist during the construction phase; and
- Provide a framework for the management of emergency situations during construction and operation.

Further detailed sub-management plans that are listed below, will be developed for the construction and operation phases by the Consultant in accordance with the policies, guidelines and legislation.

The E&S management plans as well as corporate E&S Policies of Enerjisa Üretim will be communicated to and adopted by contractors. As such,

- Once the ESMP and sub-management plans are finalized, necessary clauses indicating the contractors' obligations to comply with these documents will be included in their contracts. Contractor Selection, Evaluation and Management Procedure will be applied.
- Sub-management plans will be included as appendix to their contract. They will be advised to either develop their own E&S management plans/procedures or comply with the Project Company's documents.
- On site implementation will be monitored by Enerjisa Üretim Team (inspections, audits, etc.) by adhering to the monitoring requirements specified in subject-specific management plans as part of the ESMS.

- Trainings will be provided to both Enerjisa Üretim and contractors' personnel in order to increase the capacity and awareness.

The ESMS and specific management plans describes mitigation measures for impacts specific to project activities and discuss implementation mechanisms. To conclude, the implementation of ESMS will help the Project Company in complying with national regulatory as well as to meet applicable international standards' requirements.

The ESMS plans and procedures which are prepared by the Consultant for both construction and operation phases of the Project are listed below.

- Landscape and Visual Impacts Management Procedure
- Noise Management Plan
- Biodiversity Management Plan
- Waste and Wastewater Management Plan
- Air Quality Management Plan
- Occupational Health and Safety Management Plan
- Community Health and Safety Plan
- Emergency Preparedness and Response Plan
- Cultural Heritage Management Plan (including Chance Find Procedure)
- HR & Worker Management Plan including Workers' Accommodation Plan
- Erosion Control Management Plan including Drainage and Sediment Management Procedure
- Water Quality Management Procedure
- Procurement and Local Content Procedure
- Contractor Selection, Evaluation and Management Procedure
- Security Management Procedure
- Traffic Management Procedure
- GHG Assessment Procedure
- Associated Facilities Management Procedure
- Change Management Procedure