

"AZERENERJI" OPEN JOINT STOCK COMPANY

Transmission network strengthening project for integration of renewables to the grid

Environmental and Social Impact Assessment REPORT

September 2024

Azerbaijan: Transmission network strengthening project for integration of renewables to the grid

Final Report on Environmental and Social Impact Assessment

Client: Azerenerji OJSC

Prepared by: "Azerbaijan Scientific-Research and Design-Research Energy Institute"

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Abbreviations

Abbreviation	Definition		
ВАТ	Best Available Techniques		
dB	Decibel		
RP	Resettled Persons		
EBRD	European Bank for Reconstruction and Development		
ED	Effective Date		
EHS	Environmental, Health and Safety		
EIA	Environmental Impact Assessment		
ESIA	Environmental and Social Impact Assessment		
ESIA	Environmental and Social Management Plan		
ЕМР	Environmental Management Plan		
ESMS	Environmental and Social Management System		
FEZ	Free Economic Zone		
RDP	Gross Domestic Product		
GHG	Greenhouse Gas		
GoA	Government of Azerbaijan		
HS	Health and Safety		
НРР	Hydro Power Plant		
EA	Execution Agreement		
IBA	Important Bird and Biodiversity Area		
IBAT	International Biodiversity Assessment Tool		
IDPs	Internally Displaced People		
IFC	International Finance Corporation		
IFI	International Finance Institutions		
ILO	International Labour Organisation		
IPCC	Intergovernmental Panel on Climate Change		
FR	Forced Resettlement		
IRENA International Renewable Energy Agency			
IUCN	International Union for the Conservation of Nature		
MBZ	Main Biodiversity Zone		
PLSN	Law "On the purchase of land for state needs"		

Abbreviation	Definition
MENR	Ministry of Ecology and Natural Resources
MES	Ministry of Emergency Situations
MW	Megawatt
MoE	Ministry of Energy
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organization
OHL	Overhead Transmission Line
OHS	Occupational Health & Safety
OHSP	Occupational Health & Safety Plan
OJSC	Open Joint-Stock Company
РАН	Project affected households
ΡΑΡ	Project Affected Parties
PP	Power plant
RES	Renewable Energy Sources
SARES	State Agency for Renewable Energy Sources
SCADA	Supervisory Control and Data Acquisition
SEP	Stakeholder Engagement Plan
SCRRE	Public Legal Entity "State Cadastre and Registry of Real Estate" under the State Service for Real Estate Affairs under the Ministry of Economy
SOCAR	State Oil Company of Azerbaijan Republic
SPP	Solar Power Plant
ESPPS	Environmental and Social Protection Policy Statement
SS	Substation
TPS	Thermal power station
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Organization for Science, Education and Culture
UNFCCC	UN Framework Convention on Climate Change
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund

Renewables Grid Integration Project

Abbreviation	Definition	
USD	United States Dollar	
VRE	Variable Renewable Energy	
WB	World Bank	
WHO	World Health Organization	
WPP	Wind Power Plant	
WHS	World Heritage Site	

EXECUTIVE SUMMARY

This "Executive Summary" provides a concise overview covering non-technical issues of the Environmental and Social Impact Assessment (ESIA) document prepared for the "Integration of Renewable Energy Sources into the Energy System" Project. This section provides a summary of project activities and design work, issues considered in the ESIA, and key final findings regarding environmental and social impacts.

Background

The project will be financed jointly by the Government of Azerbaijan (see Figure 1.1) and the World Bank (see Figure 1.2). The Government of Azerbaijan will finance the construction of the 500/330/10 kV Navahi substation, as well as 3 transmission lines (Bilasuvar SPP - Navahi SS, Banka SPP - Navahi SS and Navahi SS - Absheron SS), and the World Bank will finance supply and installation of a 500 kV transformer and related equipment for the construction of the 500/330/10 kV for Navahi SS, as well as the OHLs at Mingachevir HPP, Azerbaijan TPP, Alat FEZ SS, including Absheron WPP and Gobu TPP, as well as connection lines between Absheron WPP and Navahi SS.

The project is located 90 km southeast of Baku and 30 km from the Alat Free Economic Zone. In parallel, the AZURE project will support Azerenerji to enhance system operation and control to integrate planned VRE over the next 10 years. This includes investments in SCADA upgrades, control systems, and battery energy storage.



The project is located in the south of Azerbaijan and covers 6 regions of the country, namely Neftchala, Bilasuvar, Salyan, Hajigabul, Gobustan, Garadag, and Absheron regions. Part of the project area is located in the area between Neftchala and Hajigabul districts, along the M60 Baku-Kazakh road and the E119 Baku-Alat-Astara road.



The picture below presents the Project's overhead lines and area map of Navahi substation.

Project overview and the need for an ESIA

The project serves to strengthen the transmission network in order to ensure the integration of renewable energy sources into the grid and will contribute to the integration of 1 GW of renewable electricity from the Banka (315 MW) and Bilasuvar (445 MW) Solar Power Stations (SPP) and the Absheron Wind Power Plant (WPP) (240 MW), into the electricity grid of Azerbaijan.

In consideration of the location, scale and planned activities related to the mentioned infrastructure project, an agreement was reached with the State Environmental Expertise Agency (SEEA) on the preparation of the infrastructure ESIA document for the project according to the existing legislation and international standards. Another ESIA document will be prepared and made available to the public for the main AZURE project works (which will cover other lines and power system upgrade activities).

Environmental impact assessment

Environmental impacts have been assessed for the grid integration of renewable energy sources infrastructure project and the residual impacts are summarized in the table below.

	Case	Scale of case	Sensitivity of receptor	Impact degree
The atmosphere	Air emissions from on-site and off-site construction equipment and machinery	Medium	(people) medium	Medium negative
	Air emissions from topsoil removal and excavated soil transportation.			
Noise	Noise emissions related to construction activities.	Medium	(biological/ecological) medium	Medium negative
Environmental impacts (ecology)	Removal of topsoil and transportation of excavated soil, drainage management works and preparation of the area where the towers will be located	Medium	(biological/ecological) medium	Medium negative
Environmental impacts (soil, groundwater and surface water)	Excavation and soil disturbance	Medium	(soil) Medium (surface water) Medium	Medium negative
Environmental impacts (cultural heritage)	Impacts on a small part of Shirvan National Park as a result of earthworks and installation of towers	Medium	(Physical receptors) Medium	Medium negative

Socio-economic impact

For the infrastructure project of integration of renewable energy sources into the energy system, an assessment of the impacts on the socio-economic field was carried out, and the summary of the residual impacts is presented in the table below. As part of the project, a total of 126 land owners will be affected by the support towers. In general, the land area to be permanently used by Azerenerji JSC within the framework of the project is 132870 m2 for 898 support towers. On the condition that compensation is paid to those owners, the plots of land occupied by OHL support towers will be given to Azerenergy JSC for permanent use.

Case	Geographical	Scale	Probability	Sensitivity of	Impact
	Coverage	Time and Duration		receptor	degree
Direct impacts	Γ	Γ	Γ	1	Γ
Disturbance	Local	The places of the	Highly	Local people	Serious – big
of access and		support towers are	probable	and land	negative
access		taken for permanent		users	
restrictions		use by Azerenerji JSC,			
		that land is			
		nrohihited			
		The use of the land			
		between the support			
		towers is restricted			
		(no construction is			
		allowed) and only up			
		to 10 meters of tree			
		planting and other			
		planting activities are			
		allowed under the			
		OHLS.			
Employment	Local	Employment will be	Highly	Local	Medium –
creation		available during the	probable	community	big positive
		ovported to posk		nign	
	regional	between 2025 and			
		2026	Assumed	Regional	Positive
		2020.		community	
		Temporary impact		medium	
Supply of	Local	Material and	Highly	Local and	Medium –
goods and		technical supply	probable	regional	big positive
services		works will be		business	
		implemented for the		subjects -	
		duration of the		High	
		project and its			
		benefits will cease			
		shortly after the			
		project is completed.			
		Temporary			

Final considerations

The planning of the infrastructure project for the integration of renewable energy sources into the energy system mainly benefited from the experience gained from the construction projects of high

voltage power transmission lines carried out earlier in the country. This infrastructure project is informed by experiences gained from previous projects.

To conclude, this infrastructure project has considered all aspects of its impact on environmental and socio-economic receptors and has included mitigation measures in addition to existing controls to ensure that any negative impacts are minimized as far as practicable.

1. INTRODUCTION

AZERENERJI JSC

"Azerenerji" Open Joint Stock Company ensures the operation of the country's electric power system, coordinates the production and transmission of electric energy, centrally controlled power plants, substations, system-organizing high-voltage - 110, 220, 330, 500 kV power transmission lines and their dispatcher management tools. By applying new technologies, it organizes the increase of generation capacity and the reconstruction of high-voltage power transmission lines in our republic. At the same time, it conducts energy exchange operations with foreign countries. Its shares belong to the state.

In 1935, by the order of the People's Commissar of Heavy Industry of the USSR dated July 29, the "Elektrotok" Department was removed from "Azneft" and placed under the "Bashenergy" General Energy Department ("Glavenergo") of the People's Commissariat of Heavy Industry of the USSR, and on its basis the "Bashenergy" of the General Energy "Azenerji" ("Azenergo") Azerbaijan District Energy Department was established.

By the order of "Azneft" trust No. 23/138 dated 15.08.1935, the "Elektrotok" Department, together with the enterprises within it, was included in the newly created "Azenerji" Azerbaijan District Energy Department, and from October 20, 1935, "Azenerji" Azerbaijan District Energy Department has started its official activities. In 1957, by the Resolution of the Council of Ministers of the Azerbaijan SSR No. 292 dated 08.06.1957, the "Azenerji" Energy Department of the National Economy Council of the Azerbaijan SSR was established.

In 1962, by the Resolution of the Council of Ministers of the Azerbaijan SSR No. 808 dated 16.10.1962, the name of the "Azenerji"Energy Department of the National Economy Council of the Azerbaijan SSR was changed and the General Department of Energy and Electrification was established under the Council of Ministers of the Azerbaijan SSR.

In 1965, by the Decree of the Presidium of the Supreme Soviet of the Azerbaijan SSR dated 20.10.1965, the General Energy and Electrification Department of the Council of Ministers of the Azerbaijan SSR ("Azglavenergo") was established.

In 1970, by the Decree No. 336 dated 16.09.1970 of the Council of Ministers of the Azerbaijan SSR "On the transfer of energy enterprises and organizations located in the territory of the Azerbaijan SSR to the Ministry of Energy and Electrification of the USSR", the Azenerji" Production Union was established as part of the mentioned ministry (Council of Ministers of the USSR No. 611 dated 29.07.1970). In 1971, the Council of Ministers of the USSR accepted the proposals of the Council of Ministers of the Azerbaijan SSR and the Ministry of Energy and Electrification of the USSR on the reorganization of the Azenerji Production Union, and with its Decree No. 196 dated 26.03.1971, the Ministry of Energy and Electrification of the USSR Azerbaijan SSR Energy and Electrification ("Azglavenergo") General Production Union was established.

In 1988, by the order of the Ministry of Energy and Electrification of the USSR No. 296a dated 03.08.1988, the Ministry of Energy and Electrification of the USSR, Azerbaijan SSR Energy and Electrification Main Production Union "Azbashenerji" ("Azglavenergo") was abolished, and on its basis Azerbaijan SSR Energy and Electrification Electrification "Azenerji" Production Union (Order No. 154/L, 05.12.1988.) was established.

In 1993, according to the Decree of the President of the Republic of Azerbaijan No. 571 dated 10.05.1993 and the Decree of the Council of Ministers of the Republic of Azerbaijan No. 301 dated 14.06.1993, the Azerbaijan SSR Energy and Electrification "Azenerji" Production Union has become a Azerbaijan Republic Electric Power and Electrification "Azerenerji" State Company.

In 1996, according to the Decree of the President of the Republic of Azerbaijan No. 423 dated 17.09.1996, with 100 percent of the shares owned by the state at the initial stage, by the Decree of the State Property Committee of the Republic of Azerbaijan No. 200 dated 28.12.1996, "Azerenergy" Open Joint Stock Company was established and registered in the Ministry of Justice of the Republic of Azerbaijan on 17.03.1997 (State registration number 2234).

This Report presents the results obtained within the framework of the Environmental and Social Impact Assessment (ESIA) process of the infrastructure project (Project) to be financed by the Government of Azerbaijan within the framework of the "Integration of renewable energy sources into the energy system in Azerbaijan" project jointly financed by the Government of Azerbaijan and the World Bank. This project was developed by "Azerenerji" JSC and will be implemented. The project is part of the Strategic Development Plan¹ of "Azerenerji" JSC. In this plan, the strategic importance of the proposed Project is determined in relation to the need to increase the sustainability of the grid and to integrate a number of new power generation capacities into the grid. The goal of the project is to integrate variable renewable energy sources into Azerbaijan's energy grid and reduce the level of carbon dioxide emissions in the country's electricity system.

The Government of Azerbaijan, through the state-owned Azerenerji JSC, which is engaged in the production and transmission of electricity, has planned to make the electricity grid ready for the integration of 1 GW of solar and wind energy by 2027. First of all, the Banka (315 MW) and Bilasuvar (445 MW) solar power plants (total 760 MW AC) will be integrated into the power grid by April 2026, then by October 2026 the 240 MW Gobustan wind power plant will be connected to the grid, and 500 kV and 330 kV equipment will be installed in parallel.

BRIEF SUMMARY ABOUT THE PROJECT

The project will be financed jointly by the Government of Azerbaijan (see Figure 1.1) and the World Bank (see Figure 1.2). The Government of Azerbaijan will finance the construction of the 500/330/10 kV Navahi substation, as well as 3 transmission lines (Bilasuvar SPP - Navahi SS, Banka SPP - Navahi SS and Navahi SS - Absheron SS), and the World Bank will finance supply and installation of a 500 kV transformer and related equipment for the construction of the 500/330/10 kV for Navahi SS, as well as the OHLs at Mingachevir HPP, Azerbaijan TPP, Alat FEZ SS, including Absheron WPP and Gobu TPP, as well as connection lines between Absheron WPP and Navahi SS.

For the purposes of clarity, in this document, the part financed by the Government of Azerbaijan will be referred to as the "Project", and the part financed by the World Bank will be referred to as the "AZURE" project.

World Bank financing will also cover energy grid strengthening and system performance improvement, as well as supporting project implementation and capacity building. Construction works financed by

¹ "Azərenerji" ASC-nin 2020-2030-cu illər (daha sonra 2024-2034-cü illər üçün yenilənmişdir) üçün Strateji İnkişaf Planı ("McKinsey" tərəfindən hazırlanmışdır)

the GoA and the WB will be carried out in parallel, during which priority will be given to the early completion of the 330 kV OHL.

The project is located 90 km southeast of Baku and 30 km from the Alat Free Economic Zone. In parallel, the AZURE project will support Azerenerji to enhance system operation and control to integrate planned VRE over the next 10 years. This includes investments in SCADA upgrades, control systems, and battery energy storage.



Figure 1-1: Network infrastructure for the integration of renewable energy sources

The GoA has prioritized the advanced implementation of the Project. Specifically:

Government funding (parallel financing) will comprise

- (i) Construction of 500/330/10 kV 2x500 MVA Navahi substation
- (ii) Construction of 500 kV single-circuit Absheron SS Navahi SS OHL 65 km
- (iii) Construction of 330 kV double-circuit Bilasuvar SPP Navahi SS OHL 90 km
- (iv) Construction of 330 kV double-circuit Banka SPP Navahi SS OHL 100 km
- (v) Installation of 330 kV bay at Absheron substation

World Bank funding will comprise of following components

- Supply and installation of equipment for Navahi SS of 500/330/10 kV
- Construction of 330 kV single-circuit Mingachevir HPP Navahi SS OHL 220 km
- Construction of 500 kV single-circuit Azerbaijan HPP Navahi SS OHL 235 km

- Construction of 330 kV single-circuit "Alat FEZ SS Navahi substation" overhead line 20 km
- Construction of 330 kV single-circuit Gobustan WPP Navahi SS OHL 60 km
- Construction of 330 kV single-circuit Gobustan WPP Gobu TPP OHL 20 km
- Installation of 500 kV substation at Azerbaijan TPP
- Expansion of 500 kV infrastructure in Absheron SS
- Expansion of 330 kV infrastructure in Gobu TPP
- Expansion of 300 kV infrastructure at Mingachevir HPP

1.1 ESIA Schedule

ESIA schedule for the Project is presented below. Different timeline is applied to sub-projects of the AZURE project funded by GoA and WB respectively.

Table 1-1: ESIA schedule

No	Stages	Activities	Timeline (indicative)
1	Scoping for entire Project	Identifying the key issues, stakeholders, and potential impacts that need to be considered in the assessment.	June2024
2	Public Consultation for ESIA	Identifying key issues, understanding stakeholder concerns, and shaping the project's direction.	June-July 2024
3	Baseline Data Collection	Gathering information about the existing environmental and social conditions in and around the project area. This may include data on air quality, water resources, biodiversity, cultural heritage, socio- economic conditions, and more	May-July 2024
4	Impact Assessment for GoA funded parts: 500/330/10 kV Navahi SS Banka-Navahi OHL (80 km) Bilasuvar – Navahi OHL (90 km) Navahi – Absheron OHL (65 km)	Using the baseline data, assessing the potential impacts of the project on the environment and local communities. This may include evaluating both direct and indirect effects, as well as short-term and long-term impacts.	July 2024
5	Mitigation and Management Measures	Based on the impact assessment, recommend measures to mitigate negative impacts and enhance positive	June 2024

		ones. This could involve changes to the project design, implementation of environmental management plans, community engagement strategies, etc.	
6	Draft ESIA Report for WB funded parts	A draft report summarising the results of the assessment and proposals for mitigation and management measures is currently being prepared.	August 2024
7	Public Disclosure of	The draft ESIA report will be disclosed and open for public	August 2024
	ESIA	consultation, where stakeholders such as local	July 2024
	Baseline data collection Impact assessment Management	communities, NGOs, government agencies, and experts are invited to provide feedback and input.	August 2024
		Public consultation will inform each stage of ESIA development. The draft ESIA will be finalized based on the feedback received from the public consultation meetings to be held in June-July 2024	
8	Final ESIA Report	The draft ESIA report will be finalised taking into account the feedback received during the public consultation. The report will address the comments received and revise the assessment or proposed measures as appropriate.	August 2024
9	Approval and Implementation	The final ESIA report will be submitted to the relevant regulatory	August 2024
10	Monitoring	Monitoring of ESIA implementation and management of risks throughout the project implementation	Agust 2024 – April 2027

Table below presents the list of experts involved in the ESIA process for the Project.

Table 1-2: ESIA team for ESIA and GoA funded parts.

Expert name	Title
Yusif Gayibov	Team leader
Amin Mammadov	Environmental expert
Kamran Jabrayilov	Environmental expert
llaha Ilyasova	Social Safeguard/Resettlement expert
Ziba Guliyeva	Stakeholder engagement expert
Razim Amrahov	ESIA evaluator
Ramin Huseynli	ESIA evaluator
Selcan Huseynli	ESIA evaluator

For development of ESIA for WB funded parts a specialized company Iglim have been engaged by Azerenerji JSC. The Draft of ESIA has been completed and submitted to World Bank for review.

1.2 Purpose of the ESIA Report

The ESIA report covers the parts of the Project financed by GoA. This report is prepared covering the construction of 500/330/10 kV Navahi SS and three OHLs, i.e. (i) construction of 500 kV single circuit Absheron SS - Navahi SS OHL - 65 km, (ii) construction of 330 kV double circuit Bilasuvar SPP - Navahi SS OHL - 90 km, (iii) construction of 330 kV double circuit Banka SPP - Navahi SS OHL - 100 km.

This ESIA has the following objectives:

- Provide an overview of the planned infrastructure in the area of the 500/330/10 kV Navahi substation;
- present an analysis of alternatives considered for the project;
- provide information on resources used, emissions, discharges and waste
- describe the situation within the area of influence regarding existing primary physical, biological and socio-economic situation.
- identify and assess potential environmental and social impacts, including human rights, during the various phases of the project (construction, installation, commissioning, operation and decommissioning);
- develop appropriate mitigation measures, management plans and monitoring programs to reduce potential impacts to the practicable lowest level;
- meet the requirements of the environmental permitting process for the project;
- obtain MENR consent for the ESIA report.

1.3 Structure of this Report

This document represents an Environmental and Social Impact Assessment (ESIA) Report for the proposed sub-projects of the Project, as stated below in Chapter 2 'Project Description'.

The report has been prepared in accordance with both the legislation of the Republic of Azerbaijan in the field of environmental protection and with the requirements of environmental and social standards (ESSs) of the World Bank. The Project is to be developed further through reference design stages (i.e.

preliminary design and detailed design) which will inform the detailed environmental and social impact assessment (ESIA) and Management Plan (ESMP).

The Report will also inform the process of early engagement with the key relevant stakeholders and help identify specific potential environmental and social impacts.

The ESIA is organized as follows:

- Chapter 1 provides an introduction
- Chapter 2 provides the Project description.
- Chapter 3 discusses Project alternatives.
- Chapter 4 identifies and describes national institutional and legal framework and the requirements of the relevant Environmental and Social Standards (ESSs) of the World Bank Environmental and Social Framework (ESF).
- Chapter 5 describes the Environmental and Social Impact Assessment (ESIA) Process and methodology with focused on ESIA.
- Chapter 6 describes the stakeholder engagement process.
- Chapter 7 describes the Receiving Environment Characteristics of the Project Area
- Chapter 8 summarises potential Environmental and social risks and impacts.
- Chapter 9 covers the disclosure and consultation process
- Chapter 10 lists references.
- Annex A provides list of stakeholders.
- Annex B presents consultations with stakeholders.
- Annex C presents minutes of the public consultations.
- Annex D lists cultural heritage sites.
- Annex E includes ESIA evaluators' qualification certificates

2. THE PROJECT DESCRIPTION

In this Report the Project shall be understood as the project consisting of GoA funded components which are described in the following sections of the Report in detail.

2.1 Project Location and Area of Influence/Area of Study

The Project is located in the southern parts of Azerbaijan spreading to 6 regions of the country, namely Neftchala, Bilasuvar, Salyan, Hajigabul, Garadagh and Absheron. Some of the project area is found in the area between Neftchala and Hajigabul regions, along the M60, Baku-Gazakh Road, and along the E119 Baku-Alat-Astara road.

The figure below presents the locality map of the OHLs and Navahi substation.



Figure 2-1: The locality map of the project



Figure 2-2: The location of the Navahi SS

Coordinates of the corner points of the land plot of 500/330 kV Navahi YS L=500x600m

No	X	Y
1	343247,327	4432345.314
2	343003.699	4431906.172
3	342461.870	4432163.895
4	342702.435	4432604.652

Figure below shows the regions of the project area within the country.



Figure 2-3: Map of Azerbaijan showing locations of project area

2.2 Project components description

The project will be implemented entirely onshore and will consist of 1 substation and 3 overhead lines: (i) 500/330/10 kV Navahi substation; (ii) 500 kV single-circuit Absheron SS - Navahi SS OHL - 65 km; (iii) 330 kV single-circuit Bilasuvar SPP - Navahi SS OHL - 80 km; (iv) 330 kV single-circuit Banka SPP - Navahi SS OHL - 100 km; (v) Installation of 330 kV substation at Absheron substation. These lines will extend from Navahi settlement to Neftchala and Bilasuvar districts, as well as to Absheron district. In parallel, the project will support Azerenerji to enhance system operation and control to integrate planned VRE over the next 10 years.

The new OHLs are intended to serve two main purposes. First, it will improve reliability of the existing grid. To accomplish this, it will provide necessary backup for existing old lines in the regions that were built in the Soviet period and will help ensure a steady energy supply to west and north-west Azerbaijan and export line to Georgia and Türkiye. Second, the new Navahi substation will increase the capacity for electricity transmission from southern Azerbaijan to western Azerbaijan, and including Alat FEZ, which will further improve reliability of existing supplies. The increase in transmission capacity will be increasingly important as new renewable projects in southern and central parts of Azerbaijan, as well as ambitious renewable energy projects in newly liberated territories will soon begin to supply additional electricity to the national grid.

2.3 Outline of the Project's Components

500/330/10 kV Navahi SS





Figure 2-4: Layout and main parameters of Navahi SS

No	Title	Qty	Note
1	Autotransformer 167 MW	7	
2	500 kV Open switchgear	1	
3	330 kV Open switchgear	1	
4	UIM building	1	
5	Checkpoint station	1	
6	Pump house	1	
7	Water tank V=100 m ³	1	
8	Firefighting water tank V=250 m ³	1	
9	Control chamber of firefighting valves	1	
10	Diesel generator set 636 KVA	1	
11	Oil collector	1	
12	Sewerage pit	1	
13	Waste container	1	
14	Internal fencing	L=364,0 m	
15	Outdoor stone fence and gate	L=2070,0	
		m	
16	Household building (16.40 x 9.0 m)	1	
17	Storage building (24.0 x 9.0m)	1	
18	Closed parking garage (44.40 x 10.0 m)	1	
19	Pool	1	
20	500 kV reactor 60 MW	3	
21	Rest house	2	

In wider context, the main elements of the Project and their inclusion in the environmental and social appraisal comprise the following:

To construct and operate a new 500/330 kV substation Navahi, located in Navahi settlement of Hajigabul region (Sub-project 1) via the following interventions:

- SS will consist of 500 kV distribution unit, 330 kV distribution unit and 10 kV distribution unit, and it is planned to install 7 autotransformers of 167 MVA in SS (1 in reserve). The SS will accommodate 1 pcs 500 kV Open Switchgear and 1 pcs 300 kV open switchgear.
- It will consist of 1 cistern, pumping station, control discharge point, fire reservoir, household area, drinking water reservoir, rainwater drains, oil traps, 1 pcs. 636 KVA diesel generator as backup energy source, 1 septic tank, external and internal fence. The plan of SS is given in Figure 2-1.
- The project will include internal and external security fencing along the perimeters of the site, including checkpoints.
- Internal traffic roads, cable channels, internal video surveillance system, security systems of the site will be organized. According to the project, 7 overhead lines of 330 kV enter from the Eastern part of SS. The SS also includes 10 kV open switchgear and 2 x 630 KVA YSS to meet its own use demand.

500 kV Open Switchgear and its composition

500 kV Az.TPP OHL, 500 kV Absheron OHL input system to 500 kV AT-2 and 500 kV AT-1 input to the receiving part of 500 kV open switchgear have been designed. 2xAS-500/64 mm2 steel aluminium wire was used in the entrance portals.

500 kV surge arresters are installed at each input. 3 voltage transformers with a capacity of 500 kV are planned.

3150 A 500 kV motor driven, one earthing blade disconnectors have been adopted in each OHL and at the entrance of autotransformers.

At the entrance of 500 kV open switchgear, the following equipment is provided in the project:

- 2 units of 50 kV 3150A; 50 A electric switch;
- 2 units of 500 kV 7-core, 2000/1 kA current transformer;
- 3150 A disconnectors with two 500 kV earthing blade motor drives in each phase;
- 500 kV 2000/1 A, 7-core current transformer in each phase;
- 500 kV 3150 A, 50 kA electrical circuit breaker at the entrance;
- 3159 A disconnectors with a 500 kV earthing blade motor drive;
- 3 x AS-500/64 mm2, 3000 A steelaluminum wire;
- 500 kV motor-driven 3150 A disconnector with two earthing blades;
- 3150 A disconnector with 500 kV earthing blade motor drive (per phase);
- 500 kV voltage transformer (at each input)
- 2xAS-500/64 mm2 steelaluminum connecting wire;
- voltage limiter of 500 kV in each phase;
- the project envisages a 500 kV open switchgear, as well as, a 500 kV reactor with a capacity of SR 3x60 MVAr, a synchronous switching device (with RPH-4).

The project includes 3 AODUTH-167000/500/330-Y1 type power transformers (one in reserve). Parameters of autotransformers 167 MVA, $500/330\pm6x12\%$ / 10.5 kV, connection scheme YHavto/ Δ -0-11.

Between phases: Fk(%)= BH(YG)-CH(OG)=9.5 BH(YG)-HH(AG)=67.0 CH(OG)-HH(AG)=61.0

The project envisages a bio protection system to reduce the harmful effects of electric and magnetic fields on the working personnel and the environment in the 500 kV open switchgear. This may be a well-grounded screen-type protection system.

500 kV open switchgear installations and the area around them are protected from the effects of a lightning strike by a lightning rod. It is planned to install 16 lightning rods with a height of H=19.4 m in the area.

The degree of degradation of equipment and others included in 500 kV open switchgear depends on environmental conditions, technology and regular technological control. The service life of properly designed SS is 30-35 years when the equipment load factor is 80%.





Figure 2-5: Input-output system of 330 kV OHL to SS

330 kV Bilasuvar SPP OHL No. 1;

- 330 kV Bilasuvar SPP OHL No. 2;
- 330 kV Banka SPP OHL No. 1;
- 330 kV Banka SPP OHL No. 2;
- Entrance of 330 kV AT No. 1;
- 330 kV Alat FEZ OHL;
- 330 kV Gobustan WPP OHL;

- 330 kV Mingachevir HPP OHL;
- For 330 kV OHL (backup)
- input of 330 kV AT No. 2;
- For 330 kV OHL (backup)
- For 330 kV OHL (backup)
- For 330 kV OHL (backup)

The construction of the following integration lines is planned for the input/output of renewable energy sources to the system:

- 330 kV double-circuit "Bilasuvar SPP Navahi SS" OHL 90 km
- 330 kV double-circuit "Banka SPP Navahi SS" OHL –100 km

330 kV single-circuit "Absheron WPP – Navahi SS" OHL – 60 km 330 kV single-circuit "Absheron WPP – Gobu ES" OHL – 20 km

- 500 kV single-circuit "Absheron SS Navahi SS" OHL 65 km
- 330 kV single-circuit "Mingachevir HPS Navahi SS" OHL 220 km

- 500 kV single-circuit "Azerbaijan TPP Navahi SS" OHL 235 km
- 330 kV single-circuit "Alat FEZ SS Navahi SS" OHL 20 km

Tower supports

Two types of towers are used in the project - anchor and intermediate. It is planned to install anchor towers at turning angles and intermediate towers in the direction of the axis of the OHL route. The size of the land area occupied by the towers varies according to the type of support tower and the load on the base. Intermediate towers occupy less land area, while anchor towers occupy larger land area because of the large load they carry and are relatively large.

Unified metal and support towers were adopted for 500 kV OHL.

ΠΠ750-5 type metal support towers were adopted as intermediate supports in the project.

Anchor metal towers at turning angles of the OHL route and in cases with large anchor crossings Y2+5 type accepted.

Unified metal and towers have been adopted in the designed 330 kV OHL.

ПC330-6 type metal towers were adopted in the project for the intermediate supports.

Y330-2+5 type was adopted in the turning angles of the OHL route and in cases where the anchor passages are large. In some cases, the heights of the supports have been increased by 9 and 14 m in order to wait for the normative clearance in the crossings.

The towers are based on a **metal profile** made of alloy or carbon steel. Structural elements are connected to each other using welded or bolted joints. Each type of connection has its advantages and disadvantages. For example, the use of modern welding methods allows to obtain the most reliable construction, but it is difficult to transport. The use of bolts allows the towers to be transported to the site in small parts and assembled in the field.

The distance between the towers will be 250m-300m depending on the relief, as the OHLs are single and double circuit. Depending on the relief, the height of the towers also varies between 40-49 meters. The technical and economic reasoning was taken into account in the selection of towers. The anchor takes up to 95 m2-470 m2 of land, depending on the type of support and its resistance in the relief.

Each of the towers is installed on 4 foundations. Figure 2.2 shows an example of an anchor support, Figure 2.3 shows an example of an intermediate support and its protection zone.



Figure 2-6. Structure of two-circuit 330 kV anchor tower, protection zone and approximate configuration of the corridor



Figure 2.7. Structure of intermediate two-circuit 330 kV support, protection zone and approximate configuration of the corridor



Figure 2-8. A possible general view of the 330 kV double-circuit intermediate tower



Tower parts



Foundations









Installed towers

Mounted towers

Figure 2-9. An example of installed and assembled towers

The pictures show typical works of OHL construction. After each tower is installed along the route, crews break up the abutment perimeter, ground, soil, etc. it will be levelled, it is made by filling the damaged area with protected soil, and drainage channels are installed if the water flowing from rain causes erosion. Future erosion of plants or plant tissues is prevented. After all the supports are installed, the wires between the supports are laid and tested.

The number of towers and their type as well as the proposed position of each individual tower within the proposed corridor has been identified and confirmed during the Project reference development stages (detailed design) in line with the relevant Azerbaijani legislation. The number of conductors and their disposition on each tower type is two circuits with one conductor per phase and one protective wire at the top of the tower. The maximal footprint area for a tower is approximately up to 100 m2 starting from 64 m2. This land area will need to be permanently acquired in order ensure safe operations and maintenance of the transmission line.

Each tower will have four legs and single foundation per leg, i.e. four foundations for each tower. The foundations will be designed with reinforced concrete blocks with a type of concrete suitable to the

specific bearing capacity of the soil, obtained from the respective site-specific geo-technical investigation.

Phase Conductors

The conductors are attached to the cross-arms at OHL towers by insulator strings, which, in the case of suspension towers, hang vertically below the cross-arms. At angle towers the conductors are again attached to the cross arms by insulators but in this case the insulators are in line with the conductors. Conductors for transmission lines are typically manufactured from aluminium with steel core. For the phase conductors for this 100 kV transmission line, pursuant to the current concept in Azerbaijan, Aluminium Conductor Steel-Reinforced (ACSR) conductors will be used with a normal cross section of 240/40 mm2.

Insulators

The transmission line will be connected to the grid with a directly grounded neutral point and nominal lightning impulse withstand voltage of 550 kV.

The insulator that is to be used will be of a type approved for such transmission lines and appro- priate assembling procedures will be carried out for the various types of insulator chains. Insulators are typically made of toughened glass.

Earthing

Earthing of the towers will be completed with one ring around each tower foundation and additional Fe (iron) wire ring is laid around the entire tower structure, roughly 1 meter away from existing rings and at depth of 1.0 meter, made from Fe wires of a nominal diameter (\emptyset) of 10mm. These rings are connected between them and to the tower steel structure. In cases where earthing needs to be reinforced (e.g. for types of soil with lower conductivity), reinforcement is done by adding two legs (extensions) from FeZn wires or FeZn tapes to existing rings on each tower foundation.

Protective Wires

One ground wire will be strung above the towers arms at the tower peak for protection against lightning strikes.

2.4 Master plan and main parameters of transmission lines

1) 500 kV single-circuit Navahi SS – Absheron SS OHL


Figure 2-10: Master Plan of Navahi-Absheron OHL

N⊵	Tower type	Number	Area of land occupied by 1 tower kvm.	Total land area to be occupied
1	У2+5	58	300	17400
2	ПП750-5	131	470	61570
	Total	189		78970

The height of the foundatons of intermediate supports is 2.70 m in 500 kV OHL. Out of this, 2.50 m is under the ground, and 20 cm is above the ground.

The height of the foundations of the anchor towers in 500 kV OHL is 3,115 m. 2.85 m of it is under the ground, and 26.5 cm is above the ground.

2) 330 kV double-circuit Banka SPP – Navahi SS OHL

Renewables Grid Integration Project



Figure 2-11: Master plan of Navahi-Banka OHL

Nº	Tower type	Qty	Land area occupied by	Total occupied land area
			one tower	
1	У330-3+9	4	120	480
2	У330-2+5	60	95	5700
3	ПС330-6	257	65	16705
4	У330-2+9	22	130	2060
5	У330-2+14	2	170	340
6	У330-3	8	70	560
Total		353		25845

The height of the footprints of intermediate supports is 2.70 m in 500 kV OHL. Out of this, 2.50 m is under the ground, and 20 cm is above the ground.

The height of the foundations of the anchor towers in 500 kV OHL is 3,115 m. 2.85 m of it is under the ground, and 26.5 cm is above the ground.

1) 330 kV double-circuit Bilesuvar SPP – Navahi SS OHL



Figure 2-12: Master plan Navahi-Bilesuvar OHL

Nº	Tower type	Qty	Land area occupied by one tower	Total occupied land area
1	У330-3+9	4	120m2	480
2	У330-2+5	67	95	6365
3	ПС330-6	244	65	15860
4	У330-2+9	25	130	3250
5	У330-2+14	7	170	1190
6	У330-3	13	70	910
	Total	356		28055

The height of the footprints of intermediate towers is 2.70 m in 500 kV OHL. Out of this, 2.50 m is under the ground, and 20 cm is above the ground.

The height of the foundations of the anchor towers in 500 kV OHL is 3,115 m. 2.85 m of it is under the ground, and 26.5 cm is above the ground.

Laying of supports and foundations

A number of different soil foundation types have been evaluated for lowland and upland areas. Depending on soil conditions in certain locations, either anchoring or small piling will have a significant advantage, while also having a smaller footprint and environmental impact.



- In watery soils, a 100mm thick sandy gravel cover is made under each foundation.
- After laying and checking the foundations, the trenches are filled. The soil is poured in 25-30 cm thick layers, mechanically compacted until the volume weight reaches 1.6t/m³. The spilled soil must meet the SNIP requirements.



- When the trenches are filled, it is absolutely forbidden to use turf, silt, soil with plant.
- When the supports are raised on the foundations, the supports that receive the horizontal forces received during the installation should be taken into account
- Foundations are made of sulfate-resistant cement and insulated with bitumen.

Dimensions of the foundation base during excavation, m	2.10x2.10
Dimensions of the foundation base in compression, m	2.10x2.10
Floor depth, m	2.50 - 3.00
Base mm	250
Bolt diameter	36
Concrete class	В30
Water resistance	W8
Unit weight, t	4,30

General parameters of support foundations

2.5 Project stages

2.5.1 Construction and Operation

At the time of the current ESIA report, the mobilization, site preparation, construction and commissioning program is expected to last approximately 20 months between August 2024 and March 2026.

The main activities to be carried out in connection with sub-project 1 (500/330/10 kV Navahi substation) will include:

In the area, usually, for preparatory work will include soil leveling (cutting and filling) for rainwater to flow away from the work areas, installation of drainage pipes, digging of trenches for signal cable, provision of solid soil for placement of infrastructure (buildings, checkpoint, sanitary junction, temporary structures, etc.) and construction of internal roads. The top soil (fertile soil) is scratched and collected outside and used for greening and improvement works in the future.

Bulldozers or excavators will be used for excavating the soil, and dump trucks or bucket loaders will be used for carrying the load to designated areas. On the site, 1503.0 m3 of land volume planning, 102753 m3 of poured earth works, 9965.0 m3 of roadway excavation, 25 m3 of pavement and square excavation works will be carried out. In accordance with international best practice, uncontaminated topsoil and subsoil will be piled at the edges of the work areas for use in backfilling the excavations after completion of the work to aid future restoration of the site. If visibly contaminated soil is found, such soil will be stored in an appropriate location (suitable for temporary storage of hazardous waste) before being transported off-site for treatment or disposal at a licensed facility. In total, 92,260.0 m3 of land will be needed for backfilling according to the relief of the area.

2.5.1.1 Construction of temporary complex areas

Temporary complex areas are envisaged in the construction area. Such a complex may cover an area of up to 20-30,000 square meters (m2) and will include:

- standard areas such as parking for vehicles and equipment,
- space for storage,
- unloading and material storage areas,
- temporary waste collection points, storage areas (hazardous and for safe waste streams),
- sanitary facilities (i.e. toilets and rest areas),
- small workshops, etc.

Phased construction works and proposed areas for parking are described in the SS master plan.

2.5.1.2. Temporary accommodation for workers

Whether there is a need for the construction of a temporary living area will be determined based on the possibility of attracting labor force from the surrounding areas or providing appropriate living conditions for any workers from other regions of Azerbaijan in the area (ie Navahi). The contractor

will be responsible for the organization of temporary living areas of the employees. This is expected to include a combination of temporary housing for construction crews at the project site and housing for local workers (i.e., existing public housing) in Navahi, with personnel transported by bus to and from the project site during construction.

If construction of a temporary living space for workers is required, a wagon-type living and recreation container can also be placed on the site. For this, the following factors should be considered:

- existing environmental and social restrictions the living space of employees
- does not affect defined ecological or social receptors
- located in the field.
- labor safety, physical safety and welfare of workers housing of workers
- will be located in the area safe with areas cleared and currently uncontaminated.

The accommodation of the employees will mainly include the following:

- living area, kitchen, dining room, food storage, laundry, entertainment
- room, sanitary-hygiene area, office and meeting rooms, medical clinic (mobile wagons),
- generators for electricity supply or temporary power supply and
- associated diesel storage tanks,
- portable and non-portable water tanks or water treatment plant (portable
- container will be used),
- A septic tank capable of storing waste water generated for 5 days
- tanks,
- Storage areas for waste, fuel and hazardous materials,
- Fire fighting equipment,
- Parking lot

The infrastructure will be modularized as much as possible to minimize construction work on site. Cargo trailers will be used to transport the equipment to the sites.

After the site selection process, there will be a change in the activities related to the construction of temporary housing for the workers. However, the following activities are likely to be required before construction begins:

- cleaning of vegetation, profiling and conditioning of the soil surface
- appropriate security measures including fencing and lighting (including lightning protectors if needed) and checkpoints in staff accommodation
- waste and wastewater management (ie septic tanks) and construction works in designated areas for waste storage/collection
- laying of temporary foundation blocks and frames for the construction of residential wagons
- installation of temporary utility lines, including electricity, water supply and sewage
- installation of a lighting system in the main areas around the camp.

2.6. Utilities

2.6.1. Electricity supply

Energy for construction needs will be supplied from the networks of "Azerishiq" JSC or, when there is no connection point, from a diesel generator. Technical condition for temporary electricity supply should be obtained from "Azerishiq" JSC. During the operation phase, it is planned to install a 2x630 kVA transformer station for special needs in the substation for power supply. A 400 KVA diesel generator can also be installed as a backup power source.

2.6.2. Water supply

The project is supplied from an existing off-site source to meet water needs during construction and commissioning. The daily water requirement is 120 m3/day. This is equal to 100 liters per person. When necessary, roads are sprayed with water with a special machine to prevent dust from rising from the construction site. During the operation phase, the project includes drinking water reservoir, fire extinguishing reservoir and technical water reservoir. A special technical condition will be obtained from "Azersu" JSC for these works. A pumping station is designed to organize water supply in the reservoirs during operation.

Kura-Baku water pipeline was chosen as the source to supply Navahi settlement of Hajigabul district with drinking water. 2.4 km main water line was built from this pipeline to Navahi settlement with polyethylene pipes of different diameters. At the same time, 5 km of new water network was created within the settlement, connections were given to about 300 addresses. It is planned to connect water from the main water pipeline of the settlement for Navahi substation. A technical condition has been received from the Hajigabul Sukanal Area of Regional Sukanal Department No. 4 for connection to the water supply network.

Preparatory works related to sub-projects 2 and 3 (500 and 330 kV OHLs)

Various techniques, machinery and tools will be used in the construction of the 330 kV Electric overhead line. The contracting organization will determine and select the exact equipment needed. However, some of the machines and equipment listed below can be used.

iu	commissioning phases			
		Amount	Noise level dB(A)*	
	Туре			
	Bulldozer (soil excavating)	2	120	
	Backhoe loader	2	107	
	Excavator	5	110	
	Trampoline truck	2	117	
	Telescopic fork loader	3	99	
	Cable pulling machine	3	102	
	Dump truck	7	97	
	Pick up	8	108	

Table 2.4. The type and number of vehicles expected to be used in the area during the construction and commissioning phases

Buses	3	108	
Large tonnage (25-50) cranes	6	102	
Heavy duty truck for	3	108	
transporting equipment			
Long-axis cranes with rocker arm	4	108	

During operation, traffic is expected to be limited to pickups for transportation of people, Ural Mobile vehicles, and light equipment (ie, hand tools for maintenance and vegetation control, lawn mowers, mowers, etc.). In addition, there is likely to be limited movement of heavy equipment to supply water to the site, transport other resources and treat waste and wastewater prior to treatment/disposal at an approved facility.

In addition, overhead line installation equipment, tree cutters, various hand tools for cutting bushes, welding machines, etc. will be used. Also, various special-purpose vehicles will be needed to transport water, supplies, and other resources to the site.

One of the teams will be engaged in clearing the area, building roads, digging the foundation, installing the foundation, while the other team will be engaged in transporting and installing the supports. Another team will be engaged in the installation of OHL, insulators, and a group of workers will be engaged in the transportation and unloading of equipment (foundations, support parts, wires, etc.).

2.7 Ancillary Infrastructure

Ancillary infrastructure and equipment likely to be included within the project are as follows:

- For 500/330/10 kV Navahi substation:
 - Construction of access roads, for line and substation construction and maintenance purposes;
 - Equipment room and welfare area;
 - Establishment of construction camps, including temporary workers' accommodation and temporary storage sites for equipment and materials.
 - Construction of internal access roads and hardstand areas
 - Installation and construction of fencing, lighting, signage, and temporary works (eg, drainage and erosion and sedimentation controls).
 - Parking Facilities: Areas designated for parking vehicles related to the project, such as construction equipment, staff vehicles, or visitor parking.
 - Backup power supply (for example a battery energy storage system and/or emergency standby generators).
 - Cranes, excavators and trucks
- For Overhead Transmission Lines:
 - Access roads and staging areas for construction activities
 - Internal access roads between supports of towers.
 - Backup power supply (for example a battery energy storage system and/or emergency standby generators).
 - Cranes, excavators and trucks
 - Tensioning equipment, pulleys, and conductor stringing machines

- Grounding
- Concrete mixers

2.7 Workforce

Yuxarıda qeyd olunan 500 və 330 kV-luq hava elektrik verilişi xətlərinin (ümumilikdə təqribən 250 km) və bununla bağlı 500/330/10 kV-luq "Nəvahi" yarımstansiyasının tikintisi layihəsi (Layihəsi) "Azərenerji" ASC tərəfindən işlənib hazırlanmışdır və yarımstansiyanın, hava xətlərinin tikintisini, istismarı və texniki xidməti əhatə edir. The above-mentioned 500 and 330 kV overhead power transmission lines (about 250 km in total) and the related 500/330/10 kV Navahi substation construction project (the Project) were developed by Azerenergy JSC and the substation, and covers construction, operation and maintenance of overhead lines. The Company will select the contractor(s) through tender procedures for the design, supply, installation and commissioning of the transmission line and substation respectively. Depending on the size of the contract and the experience required to carry out the design and construction works, construction contracts are expected to be awarded to international or local companies and/or supported by Azerbaijani subcontractors.

Given the nature of the project workforce (mainly unskilled and semi-skilled construction workers) and the characteristics of the labor market in Azerbaijan, the number of female workers is not expected to be high. Women are estimated to make up about 5-10 percent of the workforce and will be technical (engineering) and/or workers (maids, cooks, cleaners, etc.) working in operational offices and camps. Based on the experience of "Azerenergy" JSC ongoing projects aimed at strengthening the transmission network, all employees will be over 18 years of age and will probably be between 25-50 years old on average. The exact number of project workers who will be involved in the project is not yet known. Currently, "Azerenerji" is preparing tender documents for the supply, installation and commissioning of the overhead power transmission lines and the substation. It is estimated that the tender will be announced in August 2024. It is expected that the number of workers involved in the construction phase will be based on the experience gained from similar projects implemented in Azerbaijan and around the world.

It is estimated that the total number of workers for the construction of the new power transmission line will be 150-200 people, and about 100-150 people at the substation. No more than 150 people are expected at any construction site. The main construction groups include:

- Four drilling crews Each crew is estimated to employ approximately 10-15 workers. It is likely that most or all of the staff will be drawn from the local and regional workforce.
- Two support installation crews Each crew is estimated to employ 10 workers. On average, some of these are expected to be foreign, but most are expected to be local.
- Four wire-pulling crews each crew will employ approximately 15 workers. They are expected to be mostly local citizens.
- Təmir qrupu Əvvəlki heyətin işi başa çatan kimi zədələnmiş sahələri bərpa etmək/düzəltmək üçün təxminən 2-3 ekipaj üzvü işə götürüləcək.
- Repair Crew Approximately 2-3 crew members will be hired to restore/repair damaged areas once the previous crew has completed the work.
- Construction of the substation It is estimated that around 100-150 workers will be engaged in the construction work. About 40% of these workers are expected to be local workers.

2.8 Associated Facilities for AZURE and for the Project

Associated facilities are facilities or activities that are not funded as part of the Project or AZURE project and, as per the definition given in the WB's ESF are: (a) directly and significantly related to the project; and (b) carried out, or planned to be carried out, contemporaneously with the project; and (c) necessary for the project to be viable and would not have been constructed, expanded or conducted if the project did not exist.

The associated facilities for the Project are the following:

- Banka (315 MWac) SPP will be constructed by private investor (Masdar Company),
- Bilasuvar (445 MWac) SPP will be constructed by private investor (Masdar Company),
- Absheron (240 MW) WPP will be constructed by private investor (Masdar Company).
- 500/330/10 kV Navahi substation supply and installation of equipment (World Bank)
- Construction of 330 kV single-circuit Mingechvir HPP Navahi SS OL 220 km (World Bank)
- Construction of 500 kV single-circuit Azerbaijan TPS Navahi SS OL 235 km (World Bank)
- Construction of 330 kV single-circuit Gobustan WPP Navahi SS OL 60 km (World Bank)
- Construction of 330 kV single-circuit Gobustan WPP Navahi SS OL 20 km (World Bank)
- Construction of 330 kV single-circuit Alat FEZ SS Navahi SS 20 km (World Bank)

As stated earlier, Masdar is responsible for developing, constructing, commissioning and operating the solar and wind power plants. Masdar is also responsible for the environmental and social impacts assessment of the construction and operation of both SPPs and the WPP. Preliminary design information was made available by Masdar in March 2024. As per the implementation schedule of Masdar, two SPPs will be commissioned by April 2026, while WPP by October 2026.

Based on the preliminary design information provided by Masdar, the following figures describe the locations of SPPs and WPP (green circles).



Figure 2-10. Location of Absheron WPP

3. PROJECT ALTERNATIVES

Approach

The Project has developed a framework methodology for the review of alternatives. This framework has been developed to illustrate the design process being applied and the stages at which alternatives have been or could be considered. There are three stages at which alternatives have been considered: strategic alternatives (following 'Power System Level' studies); corridor and node alternatives (following 'Desk Study Level' studies on technical, environmental and social aspects) and finally route optimisation alternatives (at the 'ESIA and Technical Studies Level'). So far works have been completed for the establishment of the 'Strategic Alternatives' as well as for the 'Node and Corridor Alternatives.' The results of ESIA studies has been fed into the route designs to optimise for technical, environmental and social aspects.



Figure 3-1: Framework methodology for review of project alternatives

The scoping study has provided alternative routes to be considered for OHLs to avoid encroachment with protected areas. These routes are described below:

- The scoping study avoided encroachment of 330 kV double-circuit Banka-Navahi OHL with Shirvan National Park and shifted the alignment to south-west of the NP beyond the boundaries (the closest distance is 30 m) of the important protected area (See Figure 3-2 below).

- The scoping study avoided encroachment with important heritage site in Aghsu region (Aghsu Medieval Open Archeological Museum Complex) and shifted the alignment to safe distance from the heritage site. (See Figure 3-2 below)



Conditional sign Blue-white line – borders of Shirvan National Park and Shirvan State Nature Reserve Yellow line – the old route of the Banka-Navahi line

Green line - the new route of the Banka-Navahi line Purple line - route of Bilasuvar-Navahi air line

Figure 3-2: the old and new route of the Banka-Navahi OHL

Alternative concepts and connection options have been considered, including the "do nothing" option.

Do Nothing Option

If the Project is not implemented, this will hinder the objectives of the country's energy sector strategy and renewable energy transition goals. With this option, greater reliance will continue to be placed on generating power from fossil fuel sources. The achievement of the objectives of Azerbaijan's 2025 vision and beyond for the inclusion of renewable energy electricity within its generation mix would not be supported.

Site Options

The Navahi substation is proposed be built within the boundaries of the site allocated to Azerenerji during the Soviet period for the same purpose (construction of the substation). Several options have been considered for placing the substation, and the exact location was chosen taking into account there is a informal settler's house within the boundaries of the site, thus, causing the need to observe a minimum safety distance of 30m.

The sites for the Banka and Bilasuvar SPPs and Absheron WPP have been allocated to Masdar by the Ministry of Energy on behalf of the Government of Azerbaijan from the state land fund allocated for development of solar and wind power development opportunities in Azerbaijan. It is expected that the ESIAs for SPPs and WPPs being prepared by Masdar, will discuss the process of site assessment and alternative selection.

Reconstruction vs New Construction Alternative

Investment Agreements signed between the GoA and Masdar Company envisage the implementation of 445 MW solar power plant in Bilasuvar region, 315 MW SPP in Banka settlement of Neftchala region and 240 MW WPP in Absheron region. The existing 330 kV transmission lines in Neftchala and Bilasuvar regions were built 50 years ago and are currently at maximum load and not capable of receiving an additional 1000 MW of renewable power. Therefore, the reconstruction of the existing grid is not a feasible solution for the evacuation and transmission of energy to be generated at the new SPPs and WPP. Instead, it is important to build a new 500/330 kV "Navahi" substation and connect the solar and wind power stations to the power system via 500/330 kV connecting/evacuation lines.

4. INSTITUTIONAL AND LEGAL FRAMEWORK

The ESIA study for the Project is carried out considering the requirements of national regulations and the Environmental and Social Standards (ESSs) of the World Bank ESF. This chapter outlines national institutional framework, policy and legislation requirements pertinent to the Project as well as WB ESSs relevant to the Project.

Whereas the ESIA study for the GoA funded Project is carried considering the respective requirements of national regulations of Azerbaijan Republic and will be subject to environmental and social due diligence to be conducted by independent consultancy to be arranged by Azerenerji JSC.

Azərbaycan Respublikasının 1. səviyyə konstitusiyası Referendum vasitəsilə qəbul edilmiş hüquqi aktlar Beynəlxalq konvensiya və savivva sazislər •Milli qanunvericilik. parlamentin qəbul etdiyi qanunlar, Prezidentin serencamları, NK-nin 4. səviyy qərarları, Mərkəzi icra hakimiyyəti orqanlarının normativ aktları

The hierarchy of rights related to the project is illustrated in Figure 4.1.

4.1 Azerbaijan Institutional Framework

The ministries, agencies and institutions having key functions with responsibility for the environmental and social aspects of the Project are listed in the following table.

Table 4-1: Overview of Relevant Institutions at Government Level

Entity	Functions
Ministry of Ecology and Natural Resources (MENR)	Representing the central state authority overseeing the environmental protection. The Decree No.485/2001 sets forth provisions on duties and authorities, activities and organization of the MENR, which is seen as the executive central body in carrying out activities in the field of environment such as ensuring environmental protection, developing efficient use of natural resources, groundwater and mineral resources, observing hydrometeorology processes, improving soil fertility, to this end monitoring, surveying and mapping.

Entity	Functions	
Ministry of Energy	Responsible for regulation of activities in the mining and energy industries of the Republic of Azerbaijan, covering the functions of both the abolished Ministry of Industry and Energy and Ministry of Fuel and Energy. The Ministry is responsible for the design and implementation of state policy and regulation in the energy sector, mainly concerning natural gas production, transportation, processing, distribution and supply; electricity generation, transmission, distribution and supply; and energy saving and efficiency. Moreover, the Ministry controls relevant state-owned enterprises. The Ministry has a dedicated department that is responsible for increasing the deployment of energy efficiency and renewable energy policies.	
Ministry of Emergency Situations (MES)	It is a central executive body responsible for the civil defense and the protection of the population from natural and man- made disasters.	
Ministry of Health	It is the state institution controlling the sanitary- epidemiological situation in the country and regulation of health protection in the workplace. MOH Has been involved to issue permit to construct. It has a role during the permit process	
Tariff (price) Council	This is the implementing body for state regulation of energy prices, service fees and collections across all government regulated entities in the economy. The Council is chaired by the Ministry of Economic Development and has 12 members.	
State Agency for Renewable Energy Sources (AREA) under the Ministry of Energy of the Republic of Azerbaijan	Agency driving the development of the country's renewable energy resources and related projects, by preparing state policy, legal acts, regulatory documents and implementing state policy for creation and development of renewable energy sources. The status of the Agency was altered by a Presidential Decree No. 464 of 14 January 2019.	
Azerbaijan Energy Regulatory Agency (AERA)	bringing utility services in line with the requirements of the market economy; achieving sustainable development by further improving control mechanisms; maintaining transparency and flexibility in energy supply; and ensuring accessibility of these services for entrepreneurs.	
Ministry of Labor and Social Protection of Population	Government structure contributing to high-levelled execution of social policy strengthening and improvement of welfare state of country population. The agency is the central executive body implementing the state policy and regulation in the field of protection of	

Entity	Functions
State Tourism Agency of the Republic of Azerbaijan	historical and cultural monuments located in the territories of the state reserves under its subordination. The State service is the executive body exercising state control on usage of immovable historical and cultural monuments (except State Historical-Architecture of "Icheri Sheher" and "Qala" State Historical Ethnographic Reserve) that are under state protection, restoration, reconstruction and protection.
Ministry of Culture (State Service for Protection, Development and Restoration of Cultural Heritage under the Ministry of the Culture of the Republic of Azerbaijan)	Governmental agency within the Cabinet of Azerbaijan in charge of regulation of the activities and promotion of Azerbaijani culture.

Entity	Functions
State Committee for Urban Planning and Architecture	Creates and maintains the state urban planning cadaster, ensures the preparation of the general layout and regional settlement schemes, schemes and projects of Region planning, master plans of cities and other settlements, projects of residential areas, industrial centers, schemes and projects of engineering and communication lines of settlements and projects.
Public Legal Entity "State Cadastre and Registry of Real Estate" under the State Service for Real Estate Affairs under the Ministry of Economy	In charge of implementing land cadastral, monitoring and reforms; restoration and increasing of land productivity, setting territorial units in Azerbaijan Republic. The Department on Land structure, land reform and Work with regions under SLCC is responsible for coordination of Land acquisition and resettlement works with executive agencies.
Azerbaijan National Academy of Sciences, Institute of Geology	The main state research organization and the primary body that conducts research and coordinates activities in the fields of science and social sciences in Azerbaijan. Mud volcanoes have been studied at the Institute of geology.
	They are representative offices of the President of Azerbaijan in places. Within the limits of their authority, they manage a city (region), adopt acts of regulatory and normative nature, dispose of state-owned lands, develop and implement

Entity	Functions
Region / Rayon Executive Authorities	programs for socio-economic development in the territories entrusted.
and Powers	The Region / Rayon Executive Powers are responsible for the local management of state lands within the Rayons territories, and for the supervision of municipal land management.
Municipalities	They are a form of local self-government and non-state system for organizing the activities of citizens within the territories established by the laws of Azerbaijan. Municipalities, within their powers, design and implement programs for social protection and social development, economic development and local environmental programs.

Table 4-2: Overview of Relevant State Energy Entities

Entity	Main Functions
Azerenerji JSC - Electricity generation and transmission	Electricity generation and transmission. Discussion with the Company ongoing defining Project's details and implementation.
Azerishiq JSC - Electricity distribution and supply	Electricity distribution and supply.
State Energy Agency of the Nakhchivan Autonomous Republic	Electricity generation, transmission, supply and distribution in the territory of the Nakhchivan Autonomous Republic of Azerbaijan (regional energy exchanging with Turkey and Iran).
Azalternativenergy LLC	Under the structure of the State Agency on Alternative and Renewable Energy Sources, this 100%-state-owned company was established to implement renewable energy projects; generate, transmit and distribute electricity from alternative and renewable energy; and provide construction and engineering services to both the government and the private sector.

4.2 Policy and Legal Framework

The process of the environmental assessment is governed by the Law on Environmental Impact Assessment (EIA) approved by the Presidential Decree No.193, dated 13 July 2018.

According to this Law, in order to coordinate the planned activity with the State Ecological Expertise of the MENR, it is necessary to develop and submit the EIA report to the representatives of MENR. The purpose of the Law "On EIA" is to create the legal basis for the functioning of the mechanism for the

environmental impact assessment of public and private projects or the types of planned activities to ensure the prevention or reduction of negative impacts on the environment and public health at the earliest stages. The development of the EIA report is mandatory.

In accordance with the provisions of this Law, the EIA is carried out based on the following principles: an integrated environmental, social and economic assessment of the impact of the proposed activity on the environment and human health; ensuring the integrity, transparency and reliability of information about the environmental safety of the proposed activity; the preservation of ecological balance and biodiversity; not to exceed the impacts of the proposed activity on the environment to acceptable standards; forecasting of possible environmental consequences and assessment of the level of environmental risks; ensuring transparency in the EIA, informing the public and taking into account public opinion.

Specifically, the EIA report should include:

- Assessment of the initial and expected state of the environmental and socio- economic environment.
- Determination of the environmental impacts of construction, reconstruction and operation of facilities.
- Environmental Management Plan, combining a system of measures to reduce and mitigate environmental impacts.
- Environmental Monitoring Plan providing for the effectiveness of environmental measures.

4.2.1 Laws Applicable to the Project Purposes

The table below presents a summary of key environmental laws which, in addition to the Law on EIA described above, are applicable to the Project purposes.

Table 4-3: Key Laws applicable to and regulating the Project²

Law Title	Year	Description
Key environmental legislation		
Law of the Republic of Azerbaijan "On Environmental Impact Assessment" No. 1175- VQ	2018	It defines the legal basis for the environmental impact assessment process in Azerbaijan and defines the goals and principles of EIA. The law also provides a list of activities that require an environmental impact assessment, and

² Sources of information:

⁻ http://www.aera.gov.az/en/legal-acts/laws

^{- &}quot;Renewables Readiness Assessment, Republic of Azerbaijan" (IRENA, 2019);

⁻ FAOLEX database: http://www.fao.org/faolex/country-profiles/general-profile/en/?iso3=AZE

Law Title	Year	Description
		defines the rights and duties of all parties involved in its preparation, approval and reporting.
Law of Azerbaijan Republic on the Protection of the Environment, No. 678–IQ	1999 (last amendment in 2014)	This Law governs the legal, economic and social framework for environmental protection. The purpose of this Law is to guarantee environmental safety and the ecological balance of the environment, prevent the impact of socioeconomic and other activities, preserve biological diversity, and effectively manage the use of nature. This Law governs mutual relations between society and nature for the purpose of improving the quality of the environment, using and renewing natural resources efficiently, and enforcing environmental protection laws and legal procedures.
Decision of the Cabinet of Ministers of the Republic of Azerbaijan on the approval of the "Regulation on the implementation of control in the field of environmental impact assessment and strategic environmental assessment" No. 425	2 October 2019	Regulation was prepared based on Article 17.1 of the Law of the Republic of Azerbaijan "On Environmental Impact Assessment" and defines the procedure for implementation of control in the field of environmental impact assessment and strategic environmental assessment.
Decision of Cabinet of Ministers on "Regulation on the form of the qualification certificate of environmental impact assessment evaluators and the issuance of the certificate, suspension of its validity period or its cancellation, as well as on keeping the register of environmental impact assessment evaluators and environmental impact assessment organizations and implementing control over their activities" No. 457	27 November 2019	This Regulation was prepared according to Article 4.15 of the Law of the Republic of Azerbaijan "On Environmental Impact Assessment" and specifies the form of the qualification certificate of environmental impact assessment evaluators and the issuance of the certificate, suspension of its validity period or its cancellation, as well as EIA assessors and environmental impact assessment determines the procedure for keeping the register of assessment organizations and monitoring their activities.

Law Title	Year	Description
362 nömrəli "Ətraf mühitə təsirin, o cümlədən transsərhəd təsirin qiymətləndirilməsinin aparılması Qaydası və müddəti" haqqında NK-nın qərarı Decision of Cabinet of Ministers on "Rules and duration of environmental impact assessment, including transboundary impact assessment" No. 362	21 September 2022	The Regulation was prepared based on Article 4.2 of the Law of the Republic of Azerbaijan "On Environmental Impact Assessment" and defines the procedure and duration of environmental impact assessment, including transboundary impact assessment. This is regulated with the laws of the Republic of Azerbaijan "On environmental impact assessment", "On environmental protection", "On environmental safety", "On administrative proceedings" and "On public participation", as well as the civil, urban planning and construction legislation of the Republic of Azerbaijan and the relations arising in this field regulated in accordance with the requirements of other regulatory legal acts, as well as international agreements to which the Republic of Azerbaijan is a party, and in accordance with this Regulation. The general supervision of EIA activity is carried out by MENR, and the supervision of activity on cross-border impact assessment is carried out by the Ministry in coordination with the Ministry of Foreign Affairs of the Republic of Azerbaijan
Law of Azerbaijan Republic on Ecological Safety, No. 677- IQ	1999 (last amendment in 2013)	The main purpose of this Law is to establish legal basis for the protection of human life and health, environment, including atmospheric air, waterbodies, subsoil, land, vegetable and animal kingdom against risks originating from man's and natural impact thereon.
Law of Azerbaijan Republic on Fauna, No. 675-IQ	1999 (last amendment in 2015)	Bu Qanun bütün növ vəhşi heyvanların mühafizəsinin və onlardan səmərəli istifadənin təmin edilməsi məqsədilə Azərbaycan Respublikasında heyvanlar aləminin qorunmasının hüquqi əsaslarını müəyyən edir. Qanunda dövlət inventarlaşdırması və monitorinqin

Law Title	Year	Description
		aparılması məsələləri, iqtisadi və cəza tədbirləri də nəzərdə tutulur.
Law of Azerbaijan Republic on Green Belts, No. 957-IVQ	2014	This Law aims at conservation of greens (trees, shrubs, flowers, grasses and planting materials) and green areas, also by defining the rights and obligations of state agencies, municipalities, legal entities and individuals.
Law of Azerbaijan Republic on Specially Protected Natural Territories and Objects, No. 840-IQ	2000 (last amendment in 2015)	This Law determines the legal basis for protected natural areas and objects in Azerbaijan.
Law of Azerbaijan Republic on Protected Areas, No. 540- IQ	2000 (last amendment in 2006)	This Law establishes legal basis for the organization, protection and management of protected areas, based on the following main objects: 1) conservation of biological diversity and ecosystem; 2) purposeful use of protected areas for scientific research, culture and education; 3) recreational use; 4) international cooperation (art. 3).
Law of Azerbaijan Republic on Protecting the Atmosphere, No. 109-IIQ	2001	This Law has the purpose of protecting the atmosphere to ensure the people's right to live in a favourable environment and their access to accurate environmental information. It sets general requirements for air protection during economic activities, establishes norms for mitigating physical and chemical impacts to the atmosphere and establishes rules for the State inventory of harmful emissions and their sources.
Law of Azerbaijan Republic on Industrial and Domestic Waste, No. 514-IQ	1997 (last amendment in 2015)	This Code regulates legal relations concerning the protection and use of water bodies in the Azerbaijan Republic, it sets property rights and covers issues of inventory and monitoring.
Law of Azerbaijan Republic on Industrial and Domestic Waste, No. 514-IQ	1998 (last amendment in 2012)	This Law reports the State policy in environmental protection from industrial and household waste including harmful gases, wastewater and radioactive waste. It defines the rights and responsibilities of

Law Title	Year	Description
	2002	the State and other entities, sets requirements for the design and construction of waste-treatment installations, licensing of waste generating activities, and for the storage and transport of waste (including transboundary transportation), encourages the introduction of technologies for the minimization of waste generation by industrial enterprises.
Law of Azerbaijan Republic on obtaining Information on the Environment, No. 270-IQ	2002 (last amendment in 2016)	This Law regulates relations arising in connection with the timely receipt of complete, reliable, timely information about the state of the environment and the use of natural resources from state authorities and local self-government, as well as from responsible persons.
Key health-social-cultural-econ	omic legislation	
Law of Azerbaijan Republic on community health care, No. 360- IQ	1997-ci il (sonuncu dəyişiklik 2020- ci il tarixli 71- VIQD nömrəli Az.Res. Qanunu ilə edilib)	Bu Qanun Azərbaycanda ictimai səhiyyənin əsaslarını və səhiyyə sisteminin əsas prinsiplərini müəyyən edir.
Law of Azerbaijan Republic on Radiation Safety of the Population, No. 423	1998 (last amendment in 2020, No.1592- VQD)	This Law requires compliance with radiation safety in industrial enterprises. The law defines the basic principles of state policy in the field of radiation safety, as well as environmental standards that ensure the safety of workers and the public in territories exposed to potential impacts as a result of the use of radioactive sources.
Law of Azerbaijan Republic on the Protection of Historical and Cultural Monuments, No. 470-IQ	1998 (last amendment in 2020, Decree No. 1054)	This Law establishes the legal framework related to the protection, study and use of historical and cultural monuments in Azerbaijan.
Law of Azerbaijan Republic on employment, No.1196-VQ	2018 (last amendment in 2019)	This Law establishes the legal, economic and organizational foundations of state policy in the field of employment assistance, as well as social protection of unemployed citizens.

Law Title	Year	Description
Law of Azerbaijan Republic on unemployment insurance, No. 765- VQ	2017 (last amendment in 2018)	This Law establishes the basic principles of relations in the labor market of Azerbaijan, the creation of new mechanisms for financing the lost wages of insured citizens, payment of compensations to them and strengthening social protection of the population.
Labor Code of the Republic of Azerbaijan No. 618-IQ	February 1, 1999	Əmək Məcəlləsi müvafiq hüquqi normalar vasitəsilə işçilərin və işəgötürənlərin əmək, sosial, iqtisadi hüquqlarını, habelə işləmək, istirahət etmək və təhlükəsiz və sağlam şəraitdə işləmək hüququnun təmin edilməsi və Azərbaycan Respublikasının vətəndaşlarının digər əsas hüquq və azadlıqlarının təmin edilməsi prinsipləri və qaydalarını müəyyən edir.
Law of Azerbaijan Republic on State Guarantees of Equal Rights for Women and Men.	10 October 2006	The law aims to eliminate all forms of gender-based discrimination and ensure gender equality in the political, economic, social and cultural spheres. All human rights are guaranteed to women and men.
Key Land and Land Manageme	nt legislation	
The Constitution of the Republic of Azerbaijan	Adopted on 1995	Recognizes the citizens' right to own, use and dispose property. It also recognizes three type of property ownership in Azerbaijan - state, municipal and private (Article 13). It guarantees that no one will be dispossessed of their property without their consent or decision by the court of law and that alienation of private property for state needs will be allowed only after payment of fair compensation to the owner (Article 29). The constitutional amendment adopted on 26th September 2016 with regards to Article 29 specifies (i) private land ownership entails social obligations and (ii) property right on land can be restricted by law for social justice and efficient use of land.
The Land Code dated June 25, No. 695-IQ	1999 (last amendment in 2019)	The Land Code is aimed at regulating land relations, fulfilling the obligations of landowners, users and tenant farmers and protecting their rights to land,

Law Title	Year	Description
		creating conditions for the rational use of lands and their protection, restoration and improvement of land fertility.
		Article 101 states that, all damages caused by acquisition of land (compulsory purchase) or temporary detention, as well as limiting the rights of owners, users and lessees or deterioration of the quality of soil should be fully paid to landowners or users. In addition, costs derived from early termination of its obligations against third parties should also be paid to the affected person. Disputes relating to compensation, is being considered in a court in accordance with the procedure established by the legislation.
The Civil Code	Adopted in 1999	Məcəllənin 246, 247, 248 və 249-cu maddələri torpaqların dövlət ehtiyacları üçün alınmasını tənzimləyir. Məcəllə torpaqların dövlət ehtiyacları üçün alınması haqqında müvafiq icra hakimiyyəti orqanının qərarının daşınmaz əmlakın dövlət reyestrində qeydə alınmasını tələb edir. Məcəllədə həmçinin, qeyd edilir ki, müvafiq icra hakimiyyəti orqanı a)torpaqların alınmasının təsirinə məruz qalan bütün şəxslərə bu barədə rəsmi bildiriş göndərməli; b)əməliyyat müqaviləsi bağlandıqdan sonra 90 gün ərzində təsirə məruz qalmış şəxslərə tam kompensasiya ödəməli; c) köçürülmüş insanlara kömək etməli və d) təsirə məruz qalan aktivlər üçün bazar qiyməti üzrə kompensasiya ödəməlidir (bazar qiymətini müəyyən etmək mümkün olmadıqda, əvəzedici qiymətlərdən istifadə olunur).
Law of Azerbaijan Republic Land Expropriation Law for State Needs	April 2010	Specifically address matters related to involuntary resettlement (IR), including the process and institutional arrangement for land acquisition,

Law Title	Year	Description
		compensation and valuation, consultation requirements, entitlements of various categories of displaced persons and grievance mechanism. The law considers various categories of displaced persons, including those without state registration, renters, non-formal long- term users of land, and persons who have no legal rights on the land that they live in. The law entitles persons who have no legal rights on the land to resettlement assistance and compensation for their non-land assets. It includes provision of compensation for loss of business/income, transition allowance and transportation support, and compensation for loss assets based on replacement cost. As per the LAL, in case of physical displacement, the acquiring authority needs to send notification to DPs at least 60 days before resettlement.
Decree on the Land Expropriation Law for State Needs of Azerbaijan Republic	2011	The Decree stipulates additional provisions for the implementation of the Land Expropriation Law. It also assigns government agencies for each case of relevant executive body.
Law of Azerbaijan Republic on land market, No.665-IQ	1999 (last amendment in 2018, No.1287- VQD)	This Law establishes general rules for land market relations in the Azerbaijan Republic and ensures the protection of property rights to land.
Law of Azerbaijan Republic on the state land cadastre, land monitoring and land management No.593	December 22, 1998. The last amendment was introduced by the Decree of the President of the Azerbaijan	This Law defines the legal framework for ordering the state land cadastre, land monitoring and land management works in the Azerbaijan Republic.

Law Title	Year	Description
	Republic dated May 31, 2018, No.1156-VQD	
Law of Azerbaijan Republic on land lease dated December 11, No.587-IQ	The last amendment was introduced by the Decree of the President of the Azerbaijan Republic dated May 31, 2018, No.1156-VQD	This law defines the legal framework for the lease of lands in state, municipal and private ownership, and lease relations in the Azerbaijan Republic. The law states that (Article 16) when the leased land is acquired for state needs, another land plot having a same size and a same quality can be provided to lessee. Losses incurred in this land shall be paid in accordance with the legislation.
Law of Azerbaijan Republic on the management of municipal lands No.160-IIQ	June 29, 2001. The last amendment was introduced by the Decree of the President of the Azerbaijan Republic dated June 19, 2020, No.138-VIQD	This Law regulates the general rules for the transfer of municipal lands to ownership, use and lease, taking into account the peculiarities of their management, legal relations in the field of their use and protection.
Cabinet of Minsters' Resolution No.45	2012	Resolution of the Cabinet of Ministers' of the Republic of Azerbaijan on Approving of guidelines for preparation of Resettlement Plan and Resettlement Guideline.
Rules for assigning lands to categories and transferring them from one category to another", approved by Decision No. 10 of the Cabinet of Ministers	2017	Agricultural lands (arable lands) are specially protected and their transfer to other categories for non-agricultural purposes is permitted in exceptional cases in accordance with the Land Code of the Republic of Azerbaijan and on the basis of the requirements of the "Rules for assigning lands to categories and transferring them from one category to another".
Law of the Republic of Azerbaijan "On the Under ground" No. 439-IQ	1998	It regulates the development, efficient use, safety and protection of underground resources, including the Azerbaijani sector of the Caspian Sea. The law specifies the

Law Title	Year	Description
Law of the Republic of Azerbaijan "On receiving environmental information". №270-IIQ	2002	main property rights and duties of users. Certain restrictions are placed on the use of mineral resources based on environmental protection considerations, public health and economic interests. Defines the classification of environmental information. The public may use the information unless it is clearly classified as "for limited use". Procedures for applying restrictions are described. The purpose of the law is to reflect the provisions of the Aarhus Convention (ratified by Azerbaijan in 1999) in the laws of Azerbaijan.
Key laws relating to Energy Sec	tor	
Law of Azerbaijan Republic on Energy Resources Utilization, No. 94-IQ	1996	The Law on Energy Resources Utilisation defines the legal, economic and social fundamentals for State policy on the use of energy resources as well as the main directions for policy implementation. The Law includes provisions on the certification and standardisation of energy consuming installations, facilities, etc.
Law of Azerbaijan Republic on Energy, No. 541-IQ	1998	This law covers the regulation of the exploration, exploitation, production, processing, storage, transportation, distribution and use of all energy materials and products, including gas.
Law of Azerbaijan Republic on Power Engineering, No. 858- VIQ	2023	The Law on Power Engineering provides the legal background for the generation, transmission, distribution and sale of electricity and heating, aiming at ensuring rational utilisation of power resources as well as environmental protection. The Law appoints the Ministry of Energy as the authority responsible for licensing and regulating electricity generation, transmission, distribution, sale, and import-export activities.
Law of Azerbaijan Republic on Heat and Electric Power Plants, No.784-IQ	2000 (last Amendment in 2019)	This Law determines the legal framework for the design, construction and operation of power plants including independent power plants. Any natural or legal entity has the right to construct, rehabilitate and operate power plants, and activities

Law Title	Year	Description
		related to "industrial power plants" (i.e. excluding small power plants) must be licenced by the Ministry of Energy. The Law also provides for the process and conditions of negotiated access and connection of such licenced facilities to the grid

Table 4-4: Summary of EIA process and mandatory requirements in Azerbaijan

	Scoping definition and requirements for EIA
EIA applicable activities	The list of activities for which environmental impact assessment is required is defined in the appendix to the Law on EIA. The list of these types of activities includes "the design of thermal power plants with a power of 300 MW and more, as well as high-voltage power lines with a power of more than 220 kilovolts and a length of more than 15 km."
	EIA report
General	In accordance with the requirements of the legislation, the EIA report should be prepared at the project development stage and submitted for review by the relevant authority. The report should be drawn up in an easily understandable style, identify the initial state of the environment in the area where the intended activity will be carried out, possible potential effects on the environment and human health, ways to eliminate them and recommendations for minimizing negative effects on the environment, and should consist of introduction and conclusion parts.
Project description	The description of the intended activity, its purpose, stages, types of environmental impact and methods of assessing the level of environmental risk should be provided.
Project alternatives	At least two alternative options for the intended activity (including the option for rejecting that activity), as well as environmental justification of the most efficient technological alternatives applied, should be provided.

Legal requirements	A summary of the normative legal framework and legal and			
	normative documents referred to during the preparation of the			
	EIA document should be included.			
Description of	The current environmental and socio-economic situation and			
environment and	sensitivity of the area where the intended activity will be			
socio-economic field	implemented should be described.			
Impact assessment and mitigation	All impacts (direct and indirect, on-site and off-site, acute and			
	chronic, one-time and cumulative, extraordinary and irregular,			
	temporary and permanent) should be identified and evaluated			
	according to their significance and severity, and measures to			
	prevent, reduce and mitigate these effects should be provided.			
	When cross-border impacts are detected, MENR carries out			
	monitoring of cross-border impact assessment activities in			
Transboundary	coordination with the Ministry of Foreign Affairs of the Republic of			
impacts and impacts	Azerbaijan. Transboundary impacts must be evaluated in			
on	accordance with the procedure and conditions defined in the			
emergencies/accide	decision on "Rules and duration of environmental impact			
nts	assessment, including transboundary impact assessment".			
	Prediction of impacts related to emergencies and accidents should			
	be included in the EIA report.			
Environmental	An overview of the environmental management plan adopted for			
management and	all phases of the project, including relevant management and			
monitoring	monitoring plans, should be included.			
Residual effects	A summary of residual effects and predictions of their significance			
	should be included			
Disclosure of EIA				
	The law requires that the public who will be affected by the			
Public participation	planned activities be informed during the EIA process. The client is			
	expected to engage the affected public in discussions regarding			
	the proposed activities.			
	"Ətraf mühitin mühafizəsi haqqında" Qanuna uyğun olaraq ƏMTQ			
	hesabatı ETSN tərəfindən nəzərdən keçiriləcək (3 ay müddətində)			
	və ETSN ekspert rəyi hazırlayacaq. Bu rəy nəşr ediləcək və nəzərdə			
	tutulan fəaliyyətin həyata keçiriləcəyi ərazidə müvafiq icra			
State environmental	hakimiyyəti orqanlarına təqdim ediləcək.			
expertise	In accordance with the Law "On Environmental Protection", the			
	EIA report will be reviewed by MENR (within 3 months) and MENR			
	expert opinion will be prepared. This opinion will be published			
	and submitted to the relevant executive authorities in the area			
	where the intended activity will be implemented.			

4.2.2 Renewable energy related laws

Azerbaijan has a dedicated, comprehensive laws governing the various aspects of renewable energy development. The existing legal and regulatory framework for energy also consider specific provisions for the use of renewable energy, such as the following secondary laws aimed at promoting the use of renewable energy through special concessions³.

Relevant laws and normative legal acts have been adopted in order to develop the renewable energy sector in our country, to improve the legislative and institutional environment in this area. In recent years, the work carried out in the field has been continued and the law of the Republic of Azerbaijan No 339-VIQ, dated 31 May 2021 On the use of renewable energy sources in the production of electricity, which makes a special contribution to the development of renewable energy has been approved.

The State Program on the Use of Alternative and Renewable Energy Sources, adopted in 2004, aims to determine the potential of alternative energy sources in the production of electricity, increase the efficiency of national energy sources, guarantee national energy security, decrease CO2 emissions, and support job creation via renewable energy sector development.

The amendments of March 2014 to the two Cabinet of Ministers Decrees on Rates of custom duties for export–import operations in Azerbaijan Republic and List of goods exempted of VAT imported to Azerbaijan Republic territory state that the import of equipment, facilities, parts and tools used in the renewable energy industry and in achieving energy efficiency are exempt from customs duties and VAT.

The Decree of the Cabinet of Ministers On determination of electricity production and power limits for the commissioning of electrical installations (No. 482/November 2016) states that special permits for alternative and renewable energy power plants are required only for power plants with a capacity of more than 150 kW, and for hydropower plants and biogas power plants with a capacity of more than 500 kW.

4.3 National Strategies and Plans

The strategic document Azerbaijan 2030: National Priorities for Socio-economic Development approved by the Order of the President of Azerbaijan Republic dated 2 February 2021⁴, states five priorities, one of which is Clean Environment and Green Growth Country, targeting increased share of the use of renewable energy in all sectors of the economy based on the principles of green energy. The Socio-Economic Development Strategy⁵ of Azerbaijan for 2022-2026 provides specific actions to promote the application of renewable energy sources, and within the work carried out in this area, cameral investigations were continued throughout the country in the direction of identification and prioritization of areas with potential for renewable energy sources. The above-mentioned national

³ "Renewables Readiness Assessment, Republic of Azerbaijan" (IRENA, 2019).

⁴ https://president.az/en/articles/view/50474

⁵ https://static.president.az/upload/Files/2022/07/22/5478ed13955fb35f0715325d7f76a8ea_3699216.pdf Environmental and Social Impact Assessment Page **67** of **356**

priorities are of particular importance in the direction of implementation of the obligations arising from the UN "World Transformation: Agenda for sustainable development until 2030".

On 12 December 2015, in accordance with the Paris Agreement adopted at the 21st Conference of the Parties, the Republic of Azerbaijan submitted its contributions to the Convention Secretariat determined at the intended national level. As a contribution to global climate change mitigation initiatives, Azerbaijan has set a target to maintain a 35% reduction in greenhouse gas emissions by 2030 compared to the base year (1990). In November 2021, at the COP26 conference in Glasgow, Azerbaijan adopted a new commitment to reduce emissions by 2050 by 40% as a voluntary commitment and to create a "Netto Zero Emission" Zone in the liberated territories⁶. Azerbaijan submitted its revised NDC in October 2023. The revision of the NDC was supported by the European Union (EU) through the EU4Climate initiative. To achieve these goals, by 2030, the Ministry of Energy has set the main target to increase the share of the installed capacity of renewable energy to 30% in the country's overall energy balance. In addition, Azerbaijan's support was expressed for the joint initiative Global Promise on Renewable Energy and Energy Efficiency to triple and double energy efficiency of renewable energy potential in the world by 2030.

On 15 December 2022, a Framework agreement was signed between Ministry of Energy and Australia's Fortescue Future Industries (FFI) on joint cooperation on the study and development of renewable energy projects and the potential of "green hydrogen" in Azerbaijan. The agreement envisages the investigation and implementation of projects with a total capacity of up to 12 GW for the production of renewable energy and "green hydrogen" in Azerbaijan.

On December 17 2022, the Agreement on Strategic Partnership in the Development and Transmission of Green Energy between the Governments of the Republic of Azerbaijan, Georgia, Romania and Hungary was signed in Bucharest. In order to implement the agreement, regular Ministerial Meetings are held, starting with the 9th Ministerial Meeting of the Southern Gas Corridor Advisory Council and the 1st Ministerial Meeting of the Green Energy Advisory Council. According to the agreement, it is planned to export green energy to be produced in the Caspian Sea to Europe.

Within the pilot project "Knowledge Exchange and Technical Assistance on the Development of Floating Solar Panels System" implemented with the support of Asian Development Bank, the installation of a photovoltaic system with a capacity of up to 100 kW on Boyukshor Lake, as well as the development of business models to encourage the participation of the private sector in the installation of solar panels, strengthening national capacity through trainings are envisaged.

On 22 February 2021, the Ministry of Energy of the Republic of Azerbaijan and British Petroleum (BP) signed a Memorandum of Understanding on cooperation in assessing the potential and conditions required for large-scale de-carbonized and integrated energy and transport systems, including renewable energy projects in the regions and cities of Azerbaijan. The memorandum was signed in the context of Azerbaijan's economic diversification, the creation of a competitive energy market, a clean environment and a country of "green growth" and bp's announcement of "net zero emissions" targets in 2020. According to the memorandum, it is planned to create a Steering Committee and a Working Group for the implementation of the activity, as well as to prepare a Master Plan on decarbonization for the relevant regions and cities of Azerbaijan. The Master Plan will cover clean energy projects, low-

⁶ https://unfccc.int/sites/default/files/NDC/2023-10/Second%20NDC_Azerbaijan_ENG_Final%20%281%29.pdf Environmental and Social Impact Assessment Page **68** of **356**

carbon transport, green buildings, waste management, clean industry, natural climate solutions, integrated partnerships, as well as the development of integrated and de-carbonized energy and transport systems. In addition, on 3 June 2021, the Ministry of Energy of the Republic of Azerbaijan and bp signed an implementation agreement on cooperation in the field of evaluation and implementation of the project for the construction of a 240 MW solar power plant in the Jabrayil region. Cooperation within the implementation agreement covers such areas as feasibility study of the solar energy project, plant design, financing and final investment decision.

On 3 May 2021, the President of the Republic of Azerbaijan Ilham Aliyev signed an order on measures to establish a Green Energy Zone in the liberated territories of the Republic of Azerbaijan. An agreement was signed between the Ministry of Energy and Japanese Company TEPSCO in the direction of attracting a specialized international consulting company for the implementation of the instructions arising from the order, as well as preparation of the concept and master plan for the establishment of the Green Energy Zone in the liberated territories. During the relevant period, the measures envisaged in the framework of the contract were carried out and as a result, a concept document on the establishment of the Green Energy Zone was prepared. In order to ensure the implementation of part 3 of the Order of the President of the Republic of Azerbaijan No. 2620 dated 3 May 2021 on measures related to the creation of a green energy zone in the liberated territories of the Republic of Azerbaijan, the Action Plan for the creation of a green energy zone in the liberated territories of the Republic of Azerbaijan for 2022-2026 was approved by the order of the Cabinet of Ministers of the Republic of Azerbaijan No 357s dated 21 June 2022. The first meeting of the Working Group on Coordination and Monitoring, established by the Order of the Cabinet of Ministers of the Republic of Azerbaijan No. 459s dated 3 August 2022, on the application of green technologies and energy efficiency requirements in the liberated territories of the Republic of Azerbaijan was held. Regular meetings of the Working Group and the sub-Working Group are held in order to discuss obligation in "Action plan for the establishment of the green energy zone in the liberated territories of the Republic of Azerbaijan in 2022-2026" and tasks set in relation to the issue of creating a "green energy" zone in the liberated territories. In order to evaluate the projects implemented or envisaged in the liberated territories on the application of green technologies and energy efficiency measures, monitoring has been started in the liberated territories since June 2023 according to the Monitoring implementation schedule approved by the decision of the Working Group meeting.

About 25% of Azerbaijan's internal water resources falls to the share of the liberated territories, which is approximately 2.56 bcm annually. In particular, it should be noted that there is a favorable potential for the implementation of solar energy projects in the liberated territories. Thus, Zangilan, Jabrayil, Gubadli and Fuzuli regions are the second most favorable regions in the country followed by Nakhchivan AR according to the solar radiation observed. The territory of Jabrayil and Zangilan regions was considered expedient on the basis of preliminary studies, topography for solar power projects, climatic conditions, proximity to the network, energy production potential, transport infrastructure and comparative analysis of other technical factors. The presence of favorable wind potential in the liberated territories, especially in the mountainous parts of Lachin and Kalbajar, was determined according to preliminary researches.

Working groups consisting of representatives of relevant institutions were established in both directions according to the implementation of the subsection "Expanding the bioenergy and geothermal energy use opportunities" under action direction 5.2.3. "Increasing the use of renewable

energy sources" of the Action Plan of the "Socio-economic development strategy of the Republic of Azerbaijan for 2022–2026" approved by the Order of the President of the Republic of Azerbaijan No. 3378 dated 22 July 2022. As a result of the activities of the mentioned Working Groups, data on the bioenergy and geothermal energy potential assessment were collected and analyzed, and the project directions considered effective were determined.

In accordance with the implementation of the subsection Development of the National Plan for Electromobility mentioned in the 5.2.5 action directions of the mentioned strategic document, the work on the establishment of the working group has been started. In order to develop this document, Terms of Reference was prepared to attract an international consulting company.

On 22 December 2022, Ministry of Energy and the European Bank for Reconstruction and Development (EBRD) have signed a Memorandum of Understanding on technical support for the development of the power sector in online format. The memorandum, aimed at low-carbon power development, will foster the renewable energy advancement, improve the energy efficiency, reduce methane emissions, as well as provides for the phased research cooperation and application of innovative technologies, including "green hydrogen". Within the framework of this cooperation, the project "Technical Assistance to Increase the Share of Renewable Energy in Azerbaijan's Electricity System" will be implemented by the CESI consulting company with the support of the World Bank. In this context, it is planned to prepare a roadmap consisting of recommendations on appropriate policies and technologies for decarbonization of the energy sector.

On 3 February 2023, within the 9th Ministerial Meeting of the Southern Gas Corridor Advisory Council and the 1st Ministerial Meeting of the Green Energy Advisory Council, the Ministry of Energy and the Kingdom of Saudi Arabia ACWA Power signed an Implementation Agreement on the implementation of the offshore wind project up to 1.5 GW, Implementation Agreement relating to an Onshore Wind Project with capacity of up to 1 GW and Memorandum of Understanding on the development of battery energy storage systems in the Republic of Azerbaijan.

According to the "Detailed Action Plan for 2023-2024" of the State Program on Socio-Economic Development of the Nakhchivan Autonomous Republic for 2023-2027, it is planned to create a Green Energy Zone, develop a concept and Action Plan. Contracts on implementation of renewable energy projects in Nakhchivan with Nobel Energy Management, TotalEnergies and A-Z Czech Engineering on green energy projects with a total capacity of more than 1000 MW were signed.

4.4 International Conventions, Protocols and Agreements

The following table presented the list of the main international and regional conventions which Azerbaijan has ratified over years and are relevant to the Project. Many of the international ones are incorporated into the EPs, IFC PSs, EBRD PRs, ADB Safeguard Policy and associated guidance.

Table 4-4: International and regional conventions

International and Regional Convention	Year of Ratification
International Labour Organization (Fundamental)	
C029 - Forced Labour Convention, 1930, (№ 29) C087 - Freedom of Association and Protection of the Right to Organise	1992
Convention, 1948 (№ 87)	1992
C098 - Right to Organise and Collective Bargaining Convention, 1949 (№ 98)	1992
C100 - Equal Remuneration Convention, 1951 (№ 100)	1992
C105 - Abolition of Forced Labour Convention, 1957 (№ 105)	2000
C111 - Discrimination (Employment and Occupation) Convention, 1958 (№ 111)	1992
C138 - Minimum Age Convention 1973 (№ 138)	
Minimum age specified: 16 years	1992
C182 On the prohibition of the worst forms of child labor and urgent measures for their elimination Convention, 1999 (№ 182)	2004

Stockholm Convention on Persistent Organic Pollutants	Acceded in 2004
Convention on the Transboundary Effects of Industrial Accidents*	Acceded in 2004
Basel Convention on the Control of Transboundary Shipment of	
Hazardous Wastes	2001
Kyoto Protocol, 1997	Acceded in 2000
UN Convention on the Protection of the Ozone Layer (Vienna Convention)	Acceded in 1996
Montreal Protocol on Substances that Deplete the Ozone Layer, 1987	Acceded in 1996
United Nations Framework Convention on Climate Change, 1992	Acceded in 1992

Pollution prevention

International and Regional Convention	Year of Ratification
UNECE Geneva Convention on Long-Distance Transboundary Air Pollution	2002
UN Convention on Control of Transboundary Movements of Hazardous	2001
International Carriage of Dangerous Goods by Road European	2001
Agreement *	
Espoo Convention * (To promote environmentally sound and sustainable development	Accorded in
through the application of ESIA, especially as a preventive measure against transboundary environmental degradation)	1999
(To guarantee the rights of access to information, public participation in	Acceded in
decision-making and access to justice in environmental matters)	2000
Biodiversity Protection	
UNESCO Convention on Wetlands of International Importance especially	2001
as waterrowi Habitat / RAMSAR Convention	2001
Bern Convention on conservation of Europe's wild flora and fauna and	In force since
their natural habitats	2002
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	1999
Cultural Heritage	
Convention for the Safeguarding of the Intangible Cultural Heritage.	
Paris 2003	2007
Convention concerning the Protection of the World Cultural and Natural	1002
Heritage. Paris, 16 November 1972. European Convention on the Protection of the Archaeological Heritage	2000
European convention on the Protection of the Archaeological Hentage	2000
Human Rights	
European Convention for the Protection of Human Rights and	2002
Fundamental Freedoms	2002
Women	1995
UN Convention against Torture and Other Cruel, Inhuman or degrading	
treatment or punishment	1996
UN International Convention on the Protection of the Rights of All Migrant Workers and Mombers of Their Families	1000
UN International Covenant on Economic, Social and Cultural Rights	1992
International and Regional Convention	Year of Ratification
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UN Convention on the Rights of the Child / Protocol Faculty in connection	
with the participation of children in armed conflicts	1992/2002
UN Convention on the Elimination of All Forms of Racial Discrimination	1996
Regional Framework Convention for the Protection of National	2000
Minorities	
UN Convention on the Rights of Persons with Disabilities	2009
UN International Covenant on Civil and Political Rights	1992
The high-level conference on the future of the European Court of Human	
Rights. Interlaken Declaration	2010
The high-level conference on the future of the European Court of Human	
Rights. Izmir Declaration	2011
The high-level conference on the future of the European Court of Human	
Rights. Brighton Declaration	2012
*UNECE agreement; Azerbaijan became a member of the UNECE in 1993.	The major aim
of the UNECE is to promote pan-European integration through the es	stablishment of

norms, standards and conventions.

4.5 International Guidelines and Standards

The World Bank requires that the projects it finances meet the Bank's Environmental and Social Standards. In addition to Azerbaijan's legal requirements, the World Bank's requirements are detailed in the following documents:

- World Bank Environmental and Social Framework (ESF)
- World Bank ESF's Environmental and Social Standards
- IFC Performance Standards for Social and Environmental Sustainability, 2012.
- World Bank Group General Environment, Health and Safety Guidelines, 2007.
- World Bank Group Environment, Health and Safety Guidelines for Electricity Transmission and Distribution, 2007.

4.5.1 IFC Performance Standards

The IFC Performance Standards are detailed below:

- IFC Performance Standard 1 Assessment and management of environmental and social risks and impacts.
- IFC Performance Standard 2 Labor and working conditions.
- IFC Performance Standard 3 Efficient use of resources and prevention of environmental pollution.
- IFC Performance Standard 4 Community health, safety and protection.
- IFC Performance Standard 5 Land Acquisition and Involuntary Resettlement.
- IFC Performance Standard 6 Conservation of biological diversity and sustainable management of living natural resources.
- IFC Performance Standard 7 Indigenous Peoples.

• IFC Performance Standard 8- Cultural heritage.

PS 1 identifies the importance of assessment, effective community involvement and disclosure of information about the project and consultation with local communities affected by the Project and environmental and social management measures to determine the environmental and social impacts associated with the development. Thus, the current ESIA was conducted in accordance with the requirements of the 1st performance standard of the IFC.

The remaining PSs of the IFC set out objectives and requirements to prevent and minimize negative ecological and social impacts on the environment and offset/compensate for any residual impacts. Thus, PSs 2 to 8 were considered as part of the assessment process and discussed accordingly in the subject-specific sections of the ESIA report.

4.6 WB ESF Environmental and Social Standards

Sub-projects to <u>be supported by the World Bank through Investment Project Financing under AZURE</u> <u>and by the GoA</u> are required to meet the following Environmental and Social Standards (ESSs). The WB also requires the associated facilities to meet the WB's E&S requirements through Environmental Social Due Diligence (ESDD) and corrective action measures that will be applied to ESIA/ESMP to be developed for GoA funded project:

- Environmental and Social Standard 1: Assessment and Management of Environmental and Social Risks and Impacts This establishes the importance of integrated assessment to identify the social and environmental impacts, risks, and opportunities in the project's area of influence. This standard requires that social and environmental assessment and management systems are in place for managing social and environmental performance throughout the project life cycle. Its main elements include: (i) social and environmental assessment; (ii) management program; (iii) organizational capacity; (iv) training; (v) stakeholder engagement; (vi) monitoring; and (vii) reporting.
- Environmental and Social Standard 2: Labor and Working Conditions It requires that the workermanagement relationship is established and maintained, compliance with national labour and employment laws and safe and healthy working conditions are ensured for the workers. This standard is very important as the project will employ workers to execute the project.
- Environmental and Social Standard 3: Resource Efficiency and Pollution Prevention and Management - This gives an approach to pollution prevention and abatement in line with Internationally accepted technologies and practices with objectives to a) avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from activities; and b) promote the reduction of emissions that contribute to climate change. Under this standard, a project is required to avoid, minimize, or reduce adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. This standard is relevant in that there is a possibility of pollution into the water resources as well as air quality.
- Environmental and Social Standard 4: Community Health and Safety It outlines the responsibility to be undertaken by the client to avoid or minimize the risks and impacts to the community's

health, safety and security that may arise from project activities. The project activities for the AZURE Project are likely to cause health and security risks if not managed properly.

- Environmental and Social Standard 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement - This standard requires that the project does not result in involuntary resettlement or at least, if unavoidable, it is minimized by exploring alternative project designs. It also requires that the project ensures that social and economic impacts from land acquisition or restrictions on affected persons' use of land are mitigated. The AZURE Project may involve the acquisition of land.
- Environmental and Social Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources – This standard aims to protect and conserve biodiversity, the variety of life in all its forms, including genera, species and ecosystem diversity and its ability to change and evolve, which is fundamental to sustainable development. The AZURE Project will try to avoid or mitigate threats to biodiversity arising from project activities and where this cannot be avoided relevant mitigation measures will be in place.
- Environmental and Social Standard 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities – This standard is not relevant as there are no indigenous peoples who meet the definition of this Standard in Azerbaijan.
- Environmental and Social Standard 8: Cultural Heritage It aims to protect the irreplaceable cultural heritage and to guide project proponents on protecting cultural heritage in the course of project operations. In cases where the project finds items of cultural importance, notification procedures will have to be followed to ensure protection of cultural heritage of the area and the country.
- Environmental and Social Standard 9. Financial Intermediaries This standard is not relevant as The Project does not support any financial intermediaries.
- Environmental and Social Standard 10: Stakeholder Engagement and Information Disclosure This ESS recognizes the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation. The proposed AZURE project will require extensive stakeholder engagement because its success will depend on how it is received by the communities. In addition, its design will have to be informed by the involvement of the affected communities and other stakeholders.

In accordance with the WB's Environmental and Social Framework (ESF), the WB assesses the environmental and social risk of Project as **Substantial**, indicating that the potential adverse environmental and social risks and impacts are site-specific, largely reversible, and can be readily mitigated through standard management practices. This classification is due, in part, to the sensitive environments that may be affected, and the need for land acquisition and involuntary resettlement. The ESIA process identified key risk areas including habitat disruption, air and water quality degradation, and impacts on local communities. These risks were assessed through preliminary site visits, stakeholder consultations, and baseline environmental and social data collection. Mitigation strategies will be developed in alignment with World Bank Environmental and Social Standards (ESS),

particularly ESS1 (Assessment and Management of Environmental and Social Risks and Impacts) and ESS4 (Community Health and Safety), to ensure sustainable and responsible project implementation.

4.7 Gap analysis: World Bank's ESS and Azerbaijan's Legislation

The Table 4-4 below provides an analysis of the WB's Environmental and Social Standards (ESSs) relevant to AZURE in comparison with relevant Azerbaijani legislation. As noted, the more stringent of the requirements will apply.

FSS & Tonic	Major	Key requirements/gaps in Azerbaijan	Rules to be applied to
255 010010	requirements	Legislation	the project
	ESS 1: Assessment a	nd Management of Environmental and Social Risks and Im	pacts
Scope of	• ESSs apply to Associated	 Associated facilities not covered by Azerbaijan EIA law 	• An ESIA covering the entire
application	Facilities to extent of		project prepared for this project
	Borrower's		
	control/influence		
E&S Assessment	• E&S screening is required	• E&S screening is required only for the listed in Annex I	• ES screening is performed for all
	for all activities financed	of the law of EIA;	activities in accordance with ESS1
	under the WB loan;	• E&S impact assessment (EIA) is required for the	• An ESIA was prepared for this
	• E&S impact assessment	activities provided in Annex I of law of EIA, and those	project
	(ESIA), is required for all	included Annex I and determined as subject to EIA	 Social impacts and mitigation
	activities involving high and	according to the screening procedure;	measures are included in the ESIA
	substantial risks of impact	• Law of EIA has much less emphasis on social conditions	and E&S management and
	on social and physical	and impacts, however includes a provision on complex	monitoring plans
	environment;	assessment of social and economic impacts.	• Implementation of EIAs will be
	• equal requirements for	• Law on Protection of Public Health partly fill this gap,	monitored in the project
	assessment and	but do not fully cover social impacts mainly focusing on	• In accordance with the ESIA,
	management of social and	assessment of health impacts	residual impacts will be mitigated
	environmental conditions	 Application of EHSGs is not required; 	where necessary
	and impacts;	 Do not offset significant residual impacts; 	• The project will take differential
	Application of national	• No differential measures for vulnerable and	measures to ensure that
	framework, ESSs, EHSGs is	disadvantaged people are provided;	vulnerable and disadvantaged
	required;	• E&S requirements for primary suppliers are not	groups are not disproportionately
	 Offset significant residual 	considered	affected and can benefit
	impacts;	 No coverage of primary suppliers 	equitably from the project.
	• Sets up differential		• The project considers
	measures for vulnerable or		requirements for key suppliers
	disadvantaged people;		

Table 4-5: High-level summary of key gaps between the Bank's requirements and Azerbaijan's requirements

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Legislation	Rules to be applied to the project
	Consider E&S requirements		
	for primary suppliers		
Project monitoring	• Permanent monitoring of	• Permanent monitoring of the activities and application	• As outlined in this document, all
& reporting	the activities proportionate	of measures as per ESMP is not required. Monitoring is	activities will require ongoing E&S
	to nature of project, risks	carried out randomly;	monitoring and reporting.
	and impacts, and	• Majorly focused on quantitative monitoring paying less	• Performance and compliance
	application of measures as	attention to other performance and compliance issues;	monitoring will be subject to
	per ESMP is required;	• Requirement for reporting and its timing is determined	particular attention throughout
	 Several levels and timing of 	by environmental decision, no permanent reporting on	the project
	reporting, including to the	ESMP implementation is required	
	World Bank is required		
Stakeholder	• For all projects involving	• The EIA Law requires disclosure of information and	• For this project, stakeholder
engagement and	E&S risks of impacts and	public involvement during the EIA period. There is no	engagement will adhere to both
information	benefits as well,	requirement to involve stakeholders throughout the	national regulations in Azerbaijan
disclosure	information disclosure and	project life cycle	and the World Bank's
	engagement of the	• The processes required by law concerning public	Environmental and Social
	stakeholders is required	participation and consultations are also more limited	Framework (ESF). In Azerbaijan,
	through the life cycle of the	under national practices than those envisioned by ESS1,	stakeholder engagement is
	project	not specifying, for example, engagement with	governed by the Law on
		academia and NGOS.	the Dublic Desticipation in
			the Public Participation in
			Decision-Waking Process Law,
			which mandate public
			disclosure for environmental
			alsolosure for environmental
			projects. These national
			World Bank's Environmental and
			requirements align with the World Bank's Environmental and

ESS & Topic		Major	Key requirements/gaps in Azerbaijan	Rules to be applied to
•		requirements	Legislation	
				Social Standard 10 (ESS10), which
				emphasizes meaningful
				consultation, timely disclosure of
				relevant project information, and
				ongoing communication with
				stakeholders throughout the
				project lifecycle. To ensure
				compliance, the project will
				implement a Stakeholder
				Engagement Plan (SEP) that
				incorporates both local legal
				requirements and ESS10
				guidelines, focusing on inclusive
				engagement, addressing
				stakeholder concerns and
				ensuring transparency and
				accountability in the decision-
				making process
		ESS2: Labor and	Working Conditions	
	of	• ESS2 applies to workers	A Labor code of Azerbaijan applies to an employer's	• IMP was developed for the
scope	01	• ESS2 applies to workers	• Labor code of Azerbaijan applies to an employers	• LIVIP was developed for the
application		employed by Azerenerji	direct employees and contracted workers	Project which will be applicable to
		who work on the project		all workers related with Project
		and to contracted workers,		and its sub-projects
		primary supply workers,		
		and community workers		
Working		Written labor management	• Written employment contract required, including	• LMP was developed for the
conditions	and	procedures	procedures and employment conditions	Project which will be applicable to

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Legislation	Rules to be applied to the project
management of labor relations	 Terms and conditions of employment Nondiscrimination and equal opportunity Worker's organizations 	 Specific nondiscrimination and equal opportunity requirements Organizations are allowed Government's moratorium on labor inspections since November 2015, impedes active supervision or enforcement mechanism to monitor labor regulation implementation or apply remedial actions as needed to labor 	all workers related with Project and its sub-projects
Worker Health and Safety	 ESF provides detailed requirements for Labor and Working Conditions and application of World Bank Group and sector-specific EHS Guidelines is required; Clear clarifications of overtime work, compensation and benefits, working conditions is required; 	 Azerbaijan's Labor Code are aligned with the ESF's standard for Labor and Working Conditions, but the Labor Code lacks an enforcement mechanism; Clear Legal provisions on overtime work, compensation and benefits, assessment of young workers' working conditions are not provided; No requirement for establishment of grievance mechanisms for employees; 	 Lack of requirement to establish grievance mechanisms for employees; The OHS requirements of national legislation and ESS2 will be followed as specified in the Project LMP and EMP

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Legislation	Rules to be applied to the project
Occupational	Measures relating to	• New (2018) law is generally in line with WB	Provisions of LMP will be applied
Health and Safety	occupational health and	requirements but implementation requirements are	to the Project related works
(OHS)	safety applicable to the	not yet fully developed	• Expected lifting of the
	Project:	• Current legislation does not set minimum requirements	moratorium will enable for
	Apply World Bank Group	for worker accommodations although it does require	supervision and enforcement of
	General and sector-specific	per diem for work at distances from home; the amount	labor legislation in line with good
	EHS Guidelines	is low and payments over that level is subject to	international practice.
	• Requirements to protect	taxation.	
	workers, train workers,	OHS-related risks and non-compliances beyond the	
	document incidents,	supervision by government authorities due to above	
	emergency preparation,	said moratorium.	
	addressing issues		
	• Provide safe working		
	environment		
	• Workers allowed to report		
	safety issues and refuse to		
	work under certain		
	circumstances		
	Provide appropriate		
	facilities (canteens, toilets,		
	etc.) and ensure		
	accommodations meet		
	needs of workers		
	• All employers to		
	collaborate on applying		
	OSH requirements		
	Monitor OSH performance		

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Leaislation	Rules to be applied to the project
Protecting the work force	 Child labor Forced labor 	 <i>Legislation</i> The minimum working age in Azerbaijan is 15, children under 18 are not allowed to do dangerous work. Employment is allowed between 15-18 years (with permission of parents/guardians). A stricter application of the terms of the law is required. 	 the project LMP was developed for the Project which will be applicable to all workers related with Project and its sub-projects In this Project, employment will be offered to those who are at least 18 years old to work in AZURE project related work which may have hazardous potential. Given that the Labor Code will be followed, which also prohibits child and forced labor, the risks related to labor flows and related gender-based violence (GBV) and labor resources, including child labor, are low. Mitigation measures to address GBV risks are included in the Company's Social Responsibility Policy and Discrimination, Harassment and Retaliation Policy. The LMP includes a generic sample Code of Conduct to be adopted by all contractors and other employers
			in the Project.
Contracted	Reasonable efforts to verify	• Azerbaijan national law applies to contracted workers	• Grievance mechanism will be
workers	contractors have labo	including employees of subcontractors	developed for contracted

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Leaislation	Rules to be applied to the project
	requirementsmanagementprocedurestomeetrequirementsofESS2(exceptthosethatapplytocommunityandprimarysupplyworkers)•Proceduresformanagingandmonitoringperformance•Accesstogrievance	Legislation	the project workers specified in the Project LMP and EMP
Community workers	 Requirements for working conditions and OHS applied to community labor 	No such requirements	 Provisions specified in LMP will be applied to community workers
Primary supply workers	• Depending on level of GSE/contractor control/influence assess risk of child labor, forced labor, and safety issues and require suppliers to address significant risks	 No such requirements, although Azerbaijan law would apply to the suppliers 	 Provisions specified in LMP will be applied to primary supply workers
	ESS3: Resource	ce Efficiency and Pollution Prevention and Management	
Resource Efficiency			
Scope of application	 Borrowers must apply feasible resource efficiency and pollution prevention measures in accordance with mitigation hierarchy 	 No specific requirements, however Azerbaijan law is generally consistent with EU legislation and directives 	 Project will follow EHSG requirements.

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Legislation	Rules to be applied to the project
Energy use	 Adopt measures in EHSGs if project is significant energy use 	• There are not specific standards and rules for the efficient use of energy.	
Water use	 Assessment of water use needs and related impacts to the environment and communities and adopting relevant mitigation measures is required 	 National legislation prioritizes municipal water supply for domestic consumption over other types of water use. No specific requirements and principles of water sharing and prioritization (e.g. for irrigation, power generation, etc.) are stipulated explicitly. 	 Water use needs and associated impacts are assessed in the current ESIA and appropriate mitigation measures consistent with ESS3 will be implemented
Raw material use	• Use GIIP to reduce significant resource usage	No specific requirements.	• Not relevant for this project and no action will be considered for this item.
Pollution prevention	n and management		
General requirements	Avoid, minimize, and control release of pollutants, apply the more stringent of EHSGs and national law Historic pollution and non- degradation requirements	In general, requirements are consistent with ESS	
Management of air pollution	 Requires assessment of potential air emissions and implementation of technically and financially feasible and cost-effective options to minimize emissions for all type activities 	 The requirement for assessment of potential air emissions and implementation of relevant mitigation measures for the activities where stationary air pollution sources do not exist, are not established; 	 The project assesses potential air emissions and will implement technically and financially feasible and cost-effective options to minimize emissions for all types of activities.

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Legislation	Rules to be applied to the project
Management of hazardous and non-hazardous wastes	 Apply mitigation hierarchy to waste management National and international conventions for hazardous waste management and movement Verify hazardous waste management contractors are licensed and disposal sites operate to meet standards 	 Mechanisms for non-hazardous waste separation and management are not developed No significant gaps, but enforcement is not consistent No specific requirements to verify contractor haulers or disposal sites 	 A mitigation hierarchy will be applied to waste management Contractors will be requested to develop Waste Management Plan reflecting consistent best international practice
Management of chemicals and hazardous materials	 Minimize use of hazardous materials Avoid use of internationally controlled materials 	• No gaps identified. Little or no relevance to this project.	
		ESS4: Community Health and Safety	
Community health	and safety		
Community health and safety	 Evaluate risks to community health and safety and apply mitigation hierarchy and GIIP to reduce risks Consider third-party safety risks in designing infrastructure and equipment, with regard to high-risk locations 	 EIA law requires assessment and control No specific requirements for design, or GIIP No services to be provided General traffic laws apply, and EIA law requires assessment of risks No specific requirement for ecosystem services No specific requirements for labor influx, including genderbased violence, communicable diseases, etc. General health requirements generally meet ESS, but no requirement for vulnerable groups Detailed requirements for emergency planning 	 Projects' Environmental and Social Management Plans (ESMPs) will should include requirements for establishing a code of conduct for all project staff that includes sexual exploitation, abuse, and harassment (SEAH) prevention and mitigation The contractors will be requested to draft rules and practices as

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Legislation	Rules to be applied to the project
	• Ensure safety of services		well as mechanisms to engage
	provided to communities		with and inform communities of
	Identify traffic/road risks,		the potential risks and hazards
	assess risks if needed,		early in the project cycle and
	consider safety in fleet		throughout implementation.
	decisions, take measures to		
	protect public		
	• Assess and avoid <i>impacts</i>		
	on provisioning and		
	regulating ecosystem		
	services as appropriate		
	Avoid or minimize potential		
	for disease transmission		
	and communication,		
	considering vulnerable		
	groups		
	 Address risks to community 		
	of hazardous materials		
	management		
	• Prepare of and respond to		
	emergencies, consider in		
	EIAs, prepare response		
	plans		
	Assess and address risks of	• NO specific requirements, nowever limitations on	• Unarmed security personnel
Security personnel	security arrangements	armed security personnel	(guards) will be provided in all
			implementation
			implementation.

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Leaislation	Rules to be applied to the project
	 Apply principles of proportionality, GIIP, and law Verify contracted workers are not implicated in past abuses and are trained Investigate incidents, report unlawful acts to authorities 		
	ESS5: Land Acquis	sition, Restrictions on Land Use and Involuntary Resettlem	ent
Applicability	 Assessment of needs for Land Acquisition, Restrictions on Land Use and Involuntary Resettlement during ESIA process is required; Applies to permanent and temporary displacement, listing types of infringements Assessment of impacts, compensation and rehabilitation measures consistent with ESS5 will be applied, as outlined in the 	 Assessment of needs for Land Acquisition, Restrictions on Land Use and Involuntary Resettlement during EIA process is not required. Only environmental impacts resulting to social impacts are included; Applies only to the legal and 'legalizable' owners (i.e., ones with legitimate claims to land and property that may be registered under national law), not to illegal land users 	 Assessment of impacts, compensation and rehabilitation measures consistent with ESS5 will be applied, as outlined in the Project's Resettlement Action Plan.

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Legislation	Rules to be applied to the project
	Project Resettlement Action Plan. • Applies to land users (formal and informal) and owners ESS5: Land Acquis	sition, Restrictions on Land Use and Involuntary Resettlem	ent
General	 Design project to avoid/minimize displacement; Provide replacement cost and assistance (including livelihood restoration), disclose standards, offer land-for-land where possible, pay compensation before displacing people where possible; Engaged with affected communities, including women and other vulnerable groups; Establishment of GM is required; 	 No specific requirement to avoid displacement Provide replacement cost and offer land for-land payments where possible, no requirements for livelihood restoration or other allowances; No requirements for public consultations, and no additional requirement to women and other vulnerable groups; No requirement for establishment of GM (beyond measures envisioned in the Administrative Code of Azerbaijan); No requirements for cut-off dates, notices; detailed plan and monitoring; No requirement for displacement audit 	 As outlined in the Project Resettlement Action Plan, ESS5- compliant impact assessment, compensation and rehabilitation measures will be implemented. The complaint handling mechanism will be created and implemented by Azerenerji JSC in accordance with ESS5

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Legislation	Rules to be applied to the project
	 Census, cut-off dates, notices; detailed plan and monitoring is required; Require audit if significant displacement 		
Displacement	Detailed requirements for assessment of physical and economic displacement, including special consideration for vulnerable people consultations, livelihood restoration and development relevant mitigation measures	 Less detailed requirements for physical displacement Much less detailed requirements to address economic displacement, and no special consideration for vulnerable people 	 Assessment of impacts, compensation and rehabilitation measures consistent with ESS5 will be applied, as outlined in the Project Resettlement
Collaboration with other responsible agencies or subnational jurisdiction	 Provides requirements for all involved agencies to be involved and support PIU in Land Acquisition and Involuntary Resettlement procedures, including development and implementation of Resettlement Action Plan (RAP) 	• For Land Acquisition and Involuntary Resettlement procedures involvement of other parties are also required, but specific collaboration and support requirements are not provided	• Assessment of impacts, compensation and rehabilitation measures consistent with ESS5 will be applied, as outlined in the Project Resettlement Action Plan

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Legislation	Rules to be applied to the project
Grievance handling	 Complaints and grievances are resolved with community participation at the Grievance Commission (GCC), Local government bodies and NGOs and/or Community Based Organizations (CBOs) at the local level. 	 Grievance Redress Committee (Land Acquisition for State Purposes - TDEA Act, Section 75, 2010) will be appointed in large scale projects as necessary. The Executive Body, Land Acquisition Group, Supervisory Body, local Executive Authority, municipalities and the PIU shall receive, investigate and resolve complaints and grievances. 	• This project implies compliance with ESS5
	ESS6: Biodiversity Cons	ervation and Sustainable Management of Living Natural R	Resources
General	 ESS 6 classifies habitats into transformed, natural and critical habitats. ESS requirements apply to all groups equally and requires relevant mitigation and compensation measures for expected impacts; Sets strict requirements for affecting critical habitats, requires Biodiversity Management Plan (BMP) 	 Azerbaijan has a strong regulatory framework for protecting, conserving, and restoring biodiversity. However, less attention is given to preserving habitats. There is no differentiated approach for transformed, natural, and critical habitats No requirements for affecting critical habitats and developing BMP 	 ESS6 requirements will apply to the Project, including assessment of critical habitats and development of a BMP where applicable
Primary suppliers	Requirements when Borrower purchases	Not relevant for this project	

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Legislation	Rules to be applied to the project					
	natural resource commodities							
	ESS7: Indigenous Peoples/Sul	o-Saharan African Historically Underserved Traditional Loc	cal Communities					
		Communities						
		Not applicable for the project						
		ESS8: Cultural Heritage	1					
Application	• Covers tangible and intangible (limited) cultural heritage, whether legally protected or not and whether previously identified or not	 Covers tangible and intangible (limited) cultural heritage, whether legally protected or not and whether previously identified or not Equivalent applicability. Intangible cultural heritage can be registered, and it is protected similarly to other cultural heritage objects, although assessments for impacts is not generally not required or practiced. 						
General	 Requires development and following the chance find procedure if a find is encountered; Requires involvement of Cultural Heritage experts if project provides risks of 	 Azerbaijan Law on Cultural Heritage provides required procedures in case of chance findings. No requirements for developing project specific chance find procedures 	 No impact on cultural heritage has been identified during the project development, the prospecting procedures will be carried out as described in the current ESIA and in accordance with ESS8. 					

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Legislation	Rules to be applied to the project				
	impacts to the monuments of Cultural Heritage						
Stakeholder consultation and identification of cultural heritage	 Identify and consult with affected and interested stakeholders Maintain confidentiality if needed Allow continued access to affected sites 	 No specific requirements for stakeholder identification and consultation No provisions for confidentiality 	 Azerenerji will consult with cultural heritage protection agency with inquiry of information on presence of culturally important objects along the OHL's alignment 				
		ESS9: Financial Intermediaries					
	Not applicable for the projec	t as the Project does not have any financial intermediaries					
	ESS10: S	Stakeholder Engagement and Information Disclosure					
Requirements	• Engage stakeholders throughout project life cycle, determine how they wish to be engaged Provide stakeholders with information, Maintain documented record of engagements	 Basic legal background exists in Azerbaijan concerning public participation and information disclosure. ESIA legislation requires scoping as well as disclosure of and consultation on EIA 	• SEP prepared for the Project will be followed throughout the implementation of the Project				

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Legislation	Rules to be applied to the project
Engagement during project preparation	 Requires identification and analysis of stakeholders, including disadvantaged or vulnerable groups; Disclosure, timing of consultations, measures for disadvantaged or vulnerable groups, etc. preparation of a Stakeholder Engagement Plan (SEP) with detailed requirements is required; Early disclosure of information to allow consultation in design phase All stakeholders will be meaningfully consulted and their input will be taken into account during the design and implementation stages of the project. 	 Absence of special requirements for stakeholder identification and analysis; Stakeholder engagement and information disclosure requirements are included in the screening, scoping and EIA process. SEP development is not required; Disclosure and consultation are not required at the initial design stage 	 Stakeholders, including vulnerable and disadvantaged groups, were identified and analyzed during project development. The Engagement of Stakeholders (SEP) was prepared in accordance with the guidelines of ESS10. As outlined in the project's SEP, meaningful consultation and information will be shared with stakeholders throughout the life of the project.

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Legislation	Rules to be applied to the project
Engagement during project implementation and external reporting	• Engagement and disclosure of information to continue throughout implementation, following Plan	• No similar requirement	 SEP prepared for the Project will be followed throughout the implementation of the Project
Grievance Redress Mechanism General	 Build and implement a fast, effective, culturally appropriate and flexible GM; Both informal and formal complaints should be dealt with equally. Procedures for handling anonymous complaints are required 	 Absence of requirements for establishment and maintenance of GRM; Only official correspondence and claims are recorded and responded to. 	 The AZURE project will operate a grievance redress mechanism in accordance with the requirements of ESS10 and as described in SEP. A GRC will be formed by Azerenerji-PIU at the local level which shall consist, as a minimum, of representatives from: (i) the people, through recognized local leaders (e.g., officials of local executive power); (ii) the Contractor; (iii) Owner's Engineer (OE), to represent Azerenerji-PIU). The GRC will act as the mediator between aggrieved parties and will make efforts to resolve conflicts through mutual consent. The court of the law will be the last resort. In principle, the

ESS &Topic	Major requirements	Key requirements/gaps in Azerbaijan Legislation	Rules to be applied to the project
			Project- Affected Parties can appeal to a relevant court anytime they disagree with the activity or inaction of the Project Implementors.
			• The protocols and procedures for serious grievances will be developed

5. THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT PROCESS AND METHODOLOGY

The environmental and social risk of the Project is rated as Substantial, which requires undertaking a full Environmental and Social Impact Assessment (ESIA) and preparing an Environmental and Social Management Plan (ESMP). The main purpose of the ESIA is to determine whether it is environmentally, socially, technically and economically feasible to develop and implement the Project. The main objective is to identify and avoid, minimize and manage potential adverse environmental and social impacts whilst enhancing positive impacts. The main steps of the ESIA are as follows:

Stage 1: Environmental and Social Impact Assessment Scoping Report (Scoping Report)

This is a stage where an environmental and social scan of potential issues is evaluated through a consultative exercise. This is where the public is informed about the project. The exercise helps to get the public's comments/concerns and also assist to identify people likely to be affected by the development. The public consultation informs the ESIA process of environmental social issues and other environmental concerns which may arise. It is of paramount importance to obtain contributions from the public or interested parties which will ensure that all impacts that may arise from the project, be they negative or positive, are adequately addressed. According to the agreement reached with the World Bank, the Scoping Report was prepared both for the part financed by the Government of Azerbaijan and for the part to be financed by the World Bank.

Stage 2: ESIA/ESMP

The second stage of the process includes conducting surveys and compiling an ESIA report. Various surveys are conducted such as socio-economic surveys which is a continuation of consultations with the community through questionnaires, interviews etc. All the information collected is then used to compile an ESIA report. The ESIA report identifies positive and adverse impacts that the project is likely to have on the environment. An ESMP is then developed to propose measures to enhance positive impacts and minimize or prevent adverse impacts. The ESIA and ESMP reports are submitted to the World Bank for review. Once the WB is satisfied that the reports adequately addresses all impacts of the project, the reports are taken for public review.

Stage 3: Public Review

This involves review of the prepared ESIA/ESMP document to ensure that all public comments and environmental issues have been addressed. After review by the WB, documents are circulated in strategic places for review by interested and affected (IAPs). This helps to ensure that concerns that were raised during stage 1 are adequately addressed in the ESIA. When the EEA is satisfied that all public concerns about the project have been adequately addressed in the ESIA, an Ecological Examination Opinion is issued by the relevant government institution.

The process outlined by the local legislation is aligned with the WB requirements. Further Consultations will be carried out as outlined in the Environmental and Social Commitment Plan (ESCP) developed for this project.

5.1 Screening Assessment

Key aspects considered in the screening assessment include the Project's scale, nature of activities, potential environmental and social impacts, stakeholder engagement, and regulatory context. The

Project area is primarily rural and semi-desert zone. There are nearby communities in vicinity of subproject 2 and sub-project 3. Some of the OHLs will pass through the protected areas.

The following methodology has been applied for initial screening and collection of baseline information important for the project:

- Screening and categorization of the project by Azerenerji JSC and the Ministry of Ecology and Natural Resources against Azerbaijan legislation and by the World Bank against World Bank requirements in terms of project categorization and the level of impact assessment needed.
- Preliminary screening of key receptors and potential impacts during the feasibility study carried out in early 2024 by Azerenerji's Power Engineering Institute.
- Detailed study of baseline environmental conditions within and adjacent to the project areas conducted in early 2024.

This Report identified several potential impacts associated with the Project, including but not limited to land use changes, air emissions, water usage, noise, community disruptions, etc. Mitigation measures were proposed to address these impacts, including but not limited to:

- Wherever feasible, when in forest land, placing towers on high ground so that conductors can pass high over trees and not require cutting;
- The rules set by the European Standard EN 50341-1:2012 regarding conductor clearances considering maximum conductor sag and swing due to wind will be applied together with the requirements of Decree No 103 dated 10 June 2005 of Cabinet of Ministers of AR regarding the protection zones of high voltage transmission lines;
- Limiting the construction footprint to the absolute minimum needed. This will include demarcating and marking all construction areas and roads, and training workers to remain within authorized demarcated areas;
- Keeping all construction vehicles and equipment on prepared roads and construction areas and prohibiting moving onto adjacent lands, as well as effective community engagement with regards to traffic management on the existing road network;
- Limiting impacts away from construction zones by controlling drainage and erosion, implementing proper spoil and waste management practices;
- Providing prompt compensation in case of damages to crops or property;
- Siting and operating construction worker camps and laydown sites to minimize disturbance and disruption to local communities;
- Routing the OHLs to avoid displacement as far as possible;
- Designing the OHLs to minimize bird strike and electrocution by implementing International Best Practice regarding provision of bird diverters and consideration of perching sites for large birds such as raptors (insulator spacing etc).

In order to assess environmental and social category of the Project components, a typical screening matrix tailored to the Project specifics was used to assess their likely E&S aspects. It is based on specific environmental and social criteria that reflect the nature, location, sensitivity and scale of the Project components with an aim to support their categorisation. This screening exercise is summarized in the Table below.

Following a comprehensive review and analysis, it has been determined that the project meets the criteria for a full ESIA due to the potential for significant environmental and social impacts that cannot be ad/equately addressed through the proposed mitigation measures.

Table 5-1: Project screening exercise

						Proje	ect Com	ponent	s (Sub-P	rojects)							
		Sub-P	roject 1			Sub-Project 2				Sub-Pro	oject 3		Sub-Pro	iect 4			
Screening item	Project phase					Project phase				Project	phase	Project phase					
	Construction		Operation		Construction		Oper	ation	Constr	uction	Oper	ation	Const	Construction		Operation	
	Yes	No	Yes No Yes No Yes N		No	Yes	No	Yes	No	Yes	No	Yes	No				
1. Location																	
Is the project site		Х		Х	Х		Х		Х		Х			Х		Х	
adjacent to or within any																	
of the following sensitive																	
areas?																	
Proximity of people and		Х		Х		Х		Х		Х		Х		Х		Х	
settlements																	
Legally protected area or		Х		Х	Х		Х		Х		Х			Х		Х	
area proposed of legal																	
protection (e.g. National																	
Park, Monument of																	
Nature, etc.)																	
Internationally		Х		Х	Х		Х		Х		Х			Х		Х	
designated area																	
(UNESCO World Heritage																	
site, Ramsar site, etc.) or																	
internationally																	
recognised area (Emerald																	
site, Important Plant																	
Area (IPA), Important																	
Bird Area (IBA)																	
Other areas of		Х		Х	Х		Х		Х		Х			Х		Х	
conservation interest																	
Cultural heritage site		Х		Х	Х		Х		Х		Х			Х		Х	

						Proje	ect Com	ponent	s (Sub-Pi	rojects)							
		Sub-Pi	roject 1			Sub-Proj	ject 2			Sub-Pro	oject 3			Sub-Project 4 Project phase Operation onstruction Operation es No Yes No X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X			
Screening item	Project phase				Project phase				Project phase				Project phase				
	Constr	uction	Operation		Constru	Construction		ation	Constru	uction	Operation		Construction		Operation		
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	
Significant land		Х		Х	Х		Х		Х		Х			Х		Х	
occupation																	
Is the project location		Х		Х	Х		Х		Х		Х			Х		Х	
susceptible to extreme																	
natural hazards																	
(earthquakes, landslides,																	
erosion, flooding or																	
extreme or adverse																	
climatic conditions)?																	
2. Potential																	
environmental &																	
social impacts																	
Will the project use		Х		Х		Х		Х		Х		Х		Х		Х	
natural resources which																	
are non-renewable or in																	
short supply?																	
Will the project cause		Х		Х		Х		Х		Х		Х		Х		Х	
significant impact on air																	
quality (increase the dust																	
level or level ofair																	
pollutants)?																	
Will the project lead to		Х		Х		Х		Х		Х		Х		Х		Х	
significant risks of																	
contamination of land or																	

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		Project Components (Sub-Projects)														
		Sub-Pi	roject 1			Sub-Project 2					Sub-Project 3				iect 4	
Screening item	Project phase				Project phase				Project phase							
	Constr	uction	Operation		Constru	iction	Oper	ation	Constru	uction	Opera	ation	Construction		Оре	ration
	Yes No		Yes	No	Yes No		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
water from releases of																
pollutants onto the																
ground or into surface																
waters or groundwater?																
Will the project cause		Х		Х		Х		Х		Х		Х		Х		Х
change of surface water																
bodies, increase water																
turbidity due torun-off																
and erosion?																
Will the project lead to		Х		Х		Х		Х		Х		Х		Х		Х
risks to any other areas																
on or around the location																
which are important or																
sensitive for reasons of																
their ecology e.g. priority																
/ critical habitats, wet-																
lands, watercourses,																
coastal zone, mountains,																
forests or woodlands?																
Will the project lead to		Х		Х		Х		Х		Х		Х		Х		Х
significant loss of																
vegetation and/or																
habitat fragmentation?																

						Proje	ect Com	ponent	s (Sub-Pi	ojects)						
		Sub-Pi	roject 1			Sub-Pro	iect 2			Sub-Pro	oject 3			Sub-Pro	iect 4	
Screening item		Projec	t phase		Project phase				Project phase				Project phase			
	Constr	Construction		Operation		uction	Oper	ation	Construction		Opera	ation	Construction		Ope	ration
	Yes	No	Yes	No	Yes No		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Will the project cause		Х		Х		Х		Х		Х		Х		Х		Х
significance visual																
changes to a valued																
landscape?																
Will the project cause	Х			Х		Х		Х		Х		Х		Х		Х
generation of significant																
waste quantities?																
Will the project generate		Х		Х		Х		Х		Х		Х		Х		Х
significant quantities of																
hazardous wastes																
(including PCBs from																
transformers)																
Will the project cause	Х			Х	Х			Х	Х			Х	Х			Х
noise and/or vibration?																
Will the project cause		Х		Х		Х		Х		Х		Х		Х		Х
release of																
electromagnetic																
radiation?																
Will the project involve		Х		Х		Х		Х		Х		Х		Х		Х
use, storage, transport,																
handling or production																
of hazardous substances																
and explosives?																

						Proje	ect Com	ponent	s (Sub-Pi	rojects)						
		Sub-Pi	roject 1			Sub-Proj	iect 2			Sub-Pro	oject 3			Sub-Pro	iect 4	
Screening item	Project phase				Project phase			Project phase				Project phase				
	Constr	uction	Oper	ation	Constru	iction	Oper	ation	Constru	uction	Opera	ation	Const	ruction	Оре	ration
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Will the project cause		Х		Х	Х		Х		Х		Х			Х		Х
any permanent and/or																
temporary land																
acquisition?																
Will the project cause		Х		Х		Х		Х		Х		Х		Х		Х
any physical																
resettlement?																
Will the project result in	Х			Х		Х		Х		Х		Х		Х		Х
social changes (in																
demography, traditional																
lifestyles, employment,																
etc.)?																
Will the project require		Х		Х		Х		Х		Х		Х		Х		Х
new access road(s)?																
Will the project cause		Х		Х		Х		Х		Х		Х		Х		Х
disturbance to the																
existing traffic /																
transportation in the																
affected area?																
Will the project cause	Х			Х		Х		Х		Х		Х		Х		Х
occupational and/or																
community health and																
safety risks?																

						Proje	ect Com	ponent	s (Sub-Pi	rojects)						
	Sub-Project 1				Sub-Project 2				Sub-Project 3				Sub-Project 4			
Screening item	Screening item Project		ct phase		Project phase			Project phase			Project phase					
	Constr	ruction	Oper	ation	Constru	uction	Oper	ation	Constru	uction	Opera	ation	Const	ruction	Оре	ration
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Will the project cause	Х		Х			Х		Х		Х		Х		Х		Х
improvement in regard																
to the current																
community health and																
safety risks?																

5.2 Environmental and social impact assessment

Different aspects of the Project are to be considered when assessing the impact of the proposed developments on the biophysical and societal environment. The table below shows the main environmental and socio-economic aspects associated with expansion, construction and operation of the proposed transmission infrastructures (substations and OHLs) that will be addressed in the subsequent sub-project specific ESIAs, covering components to be financed by both GoA and the Bank. Each of these issues is further described in this ESIA Report.

Table 5-2: Main environmental and socio-economic asp	ects
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Торіс	Key issues/notes
Climate-related aspects	Climate change assessment - the main sources of greenhouse gas emissions during construction. During the construction phase of the project, GHG emissions are related to the use of fuel for aspects such as generators, transportation, field equipment and machinery. Although emissions have not been quantified, they are expected to be low and significantly less than 25,000 tonnes of CO2 equivalent (t CO2eq) based on previous experience and available literature. During the operational phase, there will be minimal GHG emissions, limited to vehicle movement during maintenance and repair work. Due to the nature of OHL and substation facilities, no emissions will be released during the operational phase.
Air Quality	 As the project will have negligible emissions during normal operation, air quality impacts are proposed to be excluded from the ESIA. During construction - change of air quality due to fugitive dust (movement of vehicles; preparatory works; earthworks; construction of access roads, and substation and towers; surfacing works) and vehicle exhaust emissions. These are anticipated as not significant and, therefore scoped out from the present ESIA During operation - not anticipated as significant and, therefore, scoped out from the present ESIA
Geology and soils	 During construction - disturbance of geological deposits due to construction of the Project; risks to the soils (loss of deposits; erosion; pollution risk) During operation - not anticipated as significant since the Project area is not susceptible to geological hazards (e.g. erosion, landslides, etc.) and, therefore, scoped out from the present ESIA
Water Environment	 During construction - risk to water environment (excavation, pollution risk, physical modification) During the operation - pollution risk at substation (accidental spillage of transformer oils)
Noise and vibration	- During construction - noise and/or vibration from

Торіс	Key issues/notes
	site clearance, earth-works, construction of access roads, and substation and towers, attachment of conductors as well as the related construction traffic - During operation – operational noise due to
	"corona discharge"
Biodiversity and natural heritage	 During construction - Impacts to biodiversity receptors (loss of habitats, flora and fauna, disturbance of species, risk of forest fires, pollution risk) During operation – habitat conversion and fragmentation, potential risk to avian fauna (collision risk and electrocution of birds), pollution risk
Landscape	 During construction - temporary physical and visual change to the landscape of negligible significance and, therefore, scoped out from the present ESIA During operation - changes in visual aspects for Project elements which include construction of new structures - not anticipated as significant and, therefore, scoped out from the present ESIA
Waste	 During construction – waste generation During operation - not anticipated as significant since waste generation is expected to be very small during operational maintenance of the Project and no hazardous wastes (e.g. PCBs) will be generated during operational life of the Project. Therefore, this is scoped out from the present ESIA.
Socio-economic aspects	 During Project life: Positive impacts (improvement of the national / regional power system, employment opportunities during construction, local economy and trading opportunities (delivery and selling of local goods/fruits/vegetables to the workers during construction) Bringing good SIA practice to the project areas, which will involve full stakeholder participation, including consultation with affected communities, local authorities and relevant organizations. Improving community health and safety, livelihoods and social cohesion.
Labour and Working conditions	Impact to workers (labour standards and working conditions, including occupational health and safety) Workers occupational hazards during construction, maintenance, and operation activities occur (e.g.): working at height electrocution hazard contact with live power lines
Community health and	Construction traffic
safety	Health and safety and security of people / local
	communities during operation of the Project

Торіс	Key issues/notes
	Construction works Health and safety and security of people / local communities / workers during construction of the Project
Land acquisition and livelihood	- Temporary or permanent acquisition of private assets - involuntary economic resettlement, as well as land-take (arable agricultural land) and restriction on rights of use.
Land use / land conversion	 During construction - land use change, habitat loss, loss of agricultural land due to temporarily and permanent land take During operation - land use restriction to ensure public safety and safe operation of the Project
Cultural heritage	 During construction - risk of partial or total removal of unknown heritage assets (undiscovered archaeological sites) Access limitation
Cumulative effects	Main cumulative impacts - inter-project effects - the effects of a series of other developments of similar type and scale in the vicinity of the Project and effect interaction in the Project itself.
Transboundary effects	Project has no cross-border context and no transboundary impacts shall occur during the Project life and, therefore, scoped out from the present ESIA

5.3 Study corridor

5.3.1. Methodology for detailed environmental and socio-economic survey of the corridor

The desk study was conducted during April-May 2024, followed by field works. For environmental assessment, the 200-meter corridor was assumed to be sufficient to characterize conditions and assess impacts.

Although the final approved tower locations are not determined until final design, the 200 metre corridor was selected so that relatively minor changes in the tower positions from their indicative positions would not make a significant difference to the results of the analysis. The study area along a section of the corridor is shown in Figure 5-1. The outer lines show the 200 metre wide corridor, the blue lines show the indicative 60 metre 'safety zone' where no building is permitted, and the green and blue lines show the indicative tower and transmission line locations.



Şəkil 5-1. 60 metrlik təhlükəsizlik zonasını göstərən 200 metrlik tədqiqat dəhlizinin səciyyəvi bölməsi

5.4. ESIA main consultation stage

Subsequent engagement activities in the main phase of the ESIA are designed to conduct consultations to inform key stakeholders, including project-affected and project-beneficiaries, about the design, explore their concerns and high-level issues, and form the basis for developing mitigation measures for the project. This consultation allowed the ESIA team to conduct the ESIA analysis by formulating additional feedback on the ESIA approach, key issues and analysis of potential impacts (eg assessing their relative importance).

5.4.1. Stakeholder identification

Stakeholders are individuals or groups who can affect, or are affected by, or have a legitimate interest in the Project results and performance. Some stakeholders are obvious, such as government authorities responsible for permitting and local communities adjacent to the Project. However, preliminary stakeholder identification intends to include other groups, organizations and individuals that may not appear to be directly involved. Health professionals and educators, for example, may not be directly involved in the Project development, but are familiar with the existing community and socio-economic dynamics and can help improve the quality of impact analysis. Such consultation also helps ensure that mitigation and social investment are coordinated with existing initiatives. Expanding stakeholder identification beyond government and local residents increases the likelihood that a wide representation of interests and opinions will be considered in the development of the Project.
For the AZURE Project, the following stakeholders have been identified and analyzed per project component. These stakeholders include affected parties (as defined in section 5.4.2.1), other interested parties (as defined in section 6.2) and disadvantaged/vulnerable individuals or groups (as defined in section 6.3).

5.4.2 Project Stakeholders

Affected parties include local communities, community members and other parties that may be subject to direct impacts from the Project. In particular, the following individuals and groups belong to this category:

Table 5.3.1: Project affected	l parties for t	he project
-------------------------------	-----------------	------------

Stakeholder Major Group	Project Site Stakeholder
	Private land owners
	Owners of public and private lands whose land or
Property owners along the routes	properties may be impacted by construction works
OHLs	(village, rayon, or national levels)
	Organizations owning lands (religious, socio-civic
	and other groups)
	In the framework of the current project, a second key
	category of PAPs will be people living along the
	transmission line route, the access tracks and in the
	vicinity of the proposed substations. These PAPs are
People residing in the project areas	likely to be affected by disturbances caused by the
	Project's heavy vehicles traffic, construction
	impacts, etc., but may also benefit from project-
	related employment opportunities.
	A third category of important PAPs will be village
Municipality and village	representative offices. It is represented by
representatives	representative of head of executive power office of
	the region.
	Restaurants and public catering
	Shops
Businesses located in the project area	Car wash
who may be positively or negatively	Private Products
affected by the project	Small private hotels for tourists
	(Farmers') Markets (both formal and informal
	traders)
	Other services
Businesses located in the target	Residents and community members
Regions who may be positively or	(Farmers') Markets (both formal and informal
negatively affected by the project	traders)
	Restaurants
	Other services

5.4.3 Other Interested Parties

Other Interested Parties (OIPs) are those who may have an interest in the project and would have different concerns and priorities about project impacts, mitigation mechanisms and benefits, and who may require different, or separate, forms of engagement (ESS10 pars. 5&11). Generally, these are people, social groups and organizations who may have a possibility to influence and make decisions on implementation of the project and/or may have an interest in the Project. This group includes governmental entities, Non-Governmental Organizations (NGOs) and private businesses, who may benefit from the project. It is envisaged that all three components of AZURE share the same Other Interested Parties (OIPs) as shown below:

Stakeholder Major Group	Project Stakeholder
	Ministry of Energy
	Azerbaijan Railways
	Ministry of Culture
Ministries and sourcement	State Tourism Agency
agencies	Ministry of Finance
	Ministry of Economy
	Ministry of Emergency Situations
	Ministry of Agriculture
	Ministry of Ecology and Natural Resources
	Ministry of Labor and Social Protection of Population
	State Committee for Family, Women and Children Affairs
	Rayon Local Executive Powers
Civil society organizations	Local NGOs, Social Economy Organizations Trade Unions; Foundations; Social Enterprises; Cooperatives
Other project developers	Other project developers, International NGOs, and
International NGOs, and	implementation agencies (e.g., United Nations
implementation agencies	Development Program (UNDP), GIZ, Food and Agriculture Organization (FAO) etc.)

Table 5-4: Other Interested Parties for the AZURE project

5.4.4 Disadvantaged / vulnerable individuals or groups

Disadvantaged/vulnerable individuals and groups are those who may not have the voice and agency to express their concerns or understand the impacts of project, and can thus be excluded from stakeholder engagement or project benefits.

Vulnerable groups under this project may include (i) women: ensure that community participation groups are gender-balanced and promote women's leadership within these groups, design online and in-person surveys and other engagement activities so that women in unpaid care work can participate; consider provisions for childcare, transport, and safety for any in-person community engagement activities; promote gender-segregated consultations and other approaches allowing for the free and enabling participation of women and girls, including groups of women and girls who are particularly vulnerable to exclusion and risks potentially associated with the project; consult with women's organizations, including organizations advocating for survivors' rights (ii) Elderly and people with existing medical conditions: develop information on specific needs and explain why they are at more risk & what measures to take to care for them; tailor messages and make them actionable for particular living conditions (including home for aged), and health status; target family member; (iii) Persons with disabilities: present information in accessible formats such as braille, large print; offering multiple forms of communication, such as text captions or signed videos, text for the hearing impaired, online materials for people using assistive technology; carefully consider gender and other dimensions of identity and vulnerability.

The project will incorporate differentiated measures to ensure that these groups receive project related information, are consulted with, and have the means to participate and express their views and concerns on the project.

Consultations were conducted with local communities (open public meetings) and small groups of key stakeholders in the communities (key informants and focus groups), sampled landowners within the study area. Representatives of these communities who have a risk profile sample were invited to these meetings. The purpose of these meetings was to lay the groundwork for a preliminary social survey to be conducted to better understand these stakeholders. Public hearings were announced through appropriate channels, including local media and municipalities. The hearings were open to the public. The draft report and final reports have been submitted to the public.

5.5 Baseline Data Collection

A comprehensive understanding of existing environmental and social baseline conditions in the Project regions is an essential prerequisite for sound identification and assessment of potential impacts from the proposed sub-projects. Understanding the baseline allows the measurement of changes that would be caused by the Project.

The process for collecting the baseline environmental and social data is based on:

Desk studies (i.e. legally defined quality standards for environmental media and emission limit values; existing literature, strategic / planning documents, statistics, databases and reports from various relevant organizations; as well as available internet sources and other similar projects). Site visits and walkover observations to identify the area of influence (study area) and to collect required supplementary data at substation location and along the OHL corridors (i.e. biodiversity survey; landscape assessment; land-use observation; etc.), as well as benefiting from various field surveys carried out for the purposes of the engineering design.

5.5.1 Scoping Surveys

In order to determine relevant scoping environmental and social conditions within the study areas surveys outlined in the table below were undertaken during the ESIA scoping exercise. The scope of these surveys was determined through desk study and an initial field work as per work undertaken by the topographic team during March-May 2024. The field surveys were undertaken during April 2024. The findings obtained from these surveys for each relevant topic are reported in respective sections in the ESIA.

Scoping survey	Goal and Scope
Scoping survey	Goal and Scope
Air quality	Key sources of air emission within 200 m of the centreline of the alignments of the transmission lines and 200 m around the proposed location of the substation - were observed to gain indicative air quality baseline situation. There are no measurements of the ambient air quality within the study area or in wider region. Key air pollution source is the traffic network. Other sources of seasonal air pollution in the environment are the air emissions during heating season and from agricultural activities. No significant industrial facilities are present in the area. The area is not densely populated and is predominantly rural in nature.
Geological and water environment	The geological environment within 500 m wide corridor along the transmission lines (within 250 m of the centreline of the alignments), including the proposed location of the substation was observed. The Neocene and Anthropogenic sediments cover the surface of the plain. The soil of the Project area is composed of grey-brown, grey-meadow, saline soils. The terrain in the study area as a whole is considered as stable, without occurrence of geological hazards (slips and landslides, erosion). Site specific issues may be possible but these were not taken into consideration in this Project development stage. Visual inspections carried out in project site and OHLs' routes witnessed groundwater levels within the expected range for periods of the year when (February-April) the surveys were carried out. In addition, to the already known prominent water bodies that would be affected by the Project, smaller watercourses, with their character of flow (continuous or occasional) were registered.
	lines (within 1,000 m of the centreline of the alignments), including the

Table 5-5: Results of visual surveys

Scoping survey	Goal and Scope	
Noise	proposed location of the substation - were observed to gain indicative noise baseline situation. There are no measurements of the environmental noise neither within the study area nor in wider region.	
	Key noise source is the traffic network, as well as agricultural activities. No significant industrial facilities are present in the area.	
	The area is not densely populated and is predominantly rural in nature	
Land use / land cover	Land cover was assessed within 1,000 m wide corridor along the transmission lines (within 500 m of the centreline of the alignments), including the proposed location of the substation. The land cover was calculated in ArcGIS for both sub-projects, separately. A land cover map was also elaborated and presented in this ESIA. The land cover in Sub-project 1 is dominated by agricultural land (40%) and Halocnemetum vegetation (30%). Again, the land cover in Sub-project 2 and Sub-Project 3 is dominated by agricultural land cover types and small percentage of industrial areas. There are no forest massifs along the OHL routes.	
Biodiversity and natural heritage	An area of 1,000 m wide corridor along the transmission lines (within 500 m of the centreline of the alignments), including the proposed location of the Navahi substation was used to present the biodiversity baseline in wider context, which is considered as representative and sufficient to identify the current biodiversity status in the broader area and to assess indirect impacts from the Project. The baseline is determined from the desk-review information, map of ecosystems of Azerbaijan, and biodiversity field surveys. Most of the data on habitats and species presented in this ESIA are from the desktop studies and small part came from field observations.	
	The sub-projects were separately analyzed from the aspect of their vegetation, flora and habitats as well as presence of protected and designated sites (with national or international importance). Habitats were identified according to different classification systems (EUNIS, Ramsar, CLC) and were classified in accordance with provisions of ESS 6.	
	Semi-desert habitats are dominated by wormwood (Artemisia fragrans), either alone or associated with saltwort (Salsola spp) or Bothriochloa. Pockets of more typical desert vegetation also occur in this area. Steppe vegetation occurs in the lowlands and foothills around 300 to 700 m and is largely the result of human influence on woodland and shrub habitats.	
	The dominant species are grasses (Bothriochloa spp). Rich floristic communities have developed in the Bothriochloa ischaemum/ Glycyrrhiza glabra steppes of the lowlands. Thorny shrubs, notably Christ's Thorn (Paliurus spina-christii), are typical. In the western part of the region, small patches of the endemic pine (Pinus eldarica) are found.	

Scoping survey	Goal and Scope
	At present, over 58% of the agricultural land in the Project area is used
	for farming (cotton, vineyards, cereals, vegetables). Considerable areas
	are used for winter grazing pastures for domestic livestock.
	Although sub-project 3 (330 kV overhead lines) does not pass through
	the territory of Shirvan National Park, which serves the Persian gazelle,
	waterfowl and plants of the Shirvan plain, 4 towers traverses the reserve
	area by passing parallel to the boundaries of the Shirvan Nature Reserve.
	It belongs to the semi-desert grassland and wetland ecosystem.
	In Azerbaijan, landscapes are divided into mountainous and plain
	landscapes. Among them, a number of landscape types and subtypes are
	distinguished. Three landscape types were identified within the study
Landscape	area - 1,000 m wide corridor along the transmission lines (within 500 m
	of the centreline of the alignments), including the proposed location of
	the substation: (i) lowland semi-desert landscape; (ii) dry-desert
	landscape of the plains; (iii) semi-desert landscape of lowlands and
	plains.
	These landscape types are described in terms of their appearance,
	matrix and patches, their connectivity as well as according to their
	presence in sub-projects.
Social-economic context:	All potentially affected residential areas within the study area were
Settlements	visited, including a 1000 m wide corridor along the power transmission
	lines (at a distance of 5.00 m from the center line of the tracks), the
	proposed location of the substation, and on-site observation was
	conducted to identify residents' general lifestyle, livelihoods, habitat,
	state of public infrastructure, road connections, availability and use of
	social facilities, administrative facilities and other features that will
	successfully facilitate a proper understanding of local life and the
	needs/desires of these people. The collected data were recorded and
	analyzed accordingly.
	Fach of the much estimates included in the study area was surround
	Each of the rural settlements included in the study area was surveyed
	and an unstructured interview (informal) was conducted with randomly
	selected/interviewed local residents (1-3 people) in all potentially
	anected settlements. The information collected from the executive
	to identify the vulnerable groups of the period time the villages
	to identify the vulnerable groups of the population in the villages.
	No residential properties or other properties have been identified pear
	the proposed location of the new substation (sub-project 1) that would
	restrict its future development.
Socio-economic context:	Field surveys conducted along existing power lines proposed for
Housing and other	construction have shown that there are no residential properties that
properties	will be directly affected by the project. All nearby residences and other
	facilities are located at a safe distance from overhead lines.

Scoping survey	Goal and Scope
Socio-economic context:	Overhead lines pass through non-residential areas, with the nearest
Vulnerable groups	settlement being at least 1 km (visual observations) from the project
	area (Navahi substation). Therefore, it was determined that vulnerable
	groups of the population do not live here. Impacts by restricting access
	to assets have also been studied within the ESIA framework.
Cultural Heritage	The field studies included a thorough examination of the visible
	elements of the presence of certain cultural heritage objects of the
	transmission line corridors. There are no cultural heritage monuments
	near the infrastructure facilities to be built within the project. Detailed
	information about historical and cultural heritage monuments in the
	regions and villages covered by the project is given in Appendix D.

5.6 Interaction with Design and Decision-Making

The Environmental and Social assessment and detailed design development processes interact with each other, with both being informed by two-way communication, combined with ongoing consultation and discussion with various relevant project stakeholders. The Environmental and Social assessment identifies potential (negative) effects which potentially lead to design refinements to avoid or reduce the significance of those effects. This process of synergy, based on the views / inputs from the E&S assessment, interacts with the design process from the earliest Project development stage. Such approach has informed the design process with relevant early E&S-related proposals in the scope of the process for selection of the preferred Project options, especially for the corridors of transmission lines thus achieving 'mitigation through design' precautionary goal for impact avoidance. This approach will further continue throughout next stages in order to reduce the likelihood of the Project being designed on a basis that already has built-in negative E&S effects which could have been avoided. The process of synergy allows for the engineering design to duly incorporate the recommendation of the ESIA and ESMP. The ESIA report will also help to get information for local content (workforce).

5.7 Assessment of Impacts and Mitigation

The ESIA review has entailed:

- Site visits to proposed 500/330kV substation and transmission lines' sites
- Discussions with detailed engineering personnel during site visits regarding scope of works locations and alignments of subproject components
- Review of project information provided by the Design Institute
- Professional opinion and experience of WB's International Environment Specialists
- Confirmation with WB regarding the methodology of the ESIA study given the large number and similarity of subproject components with low potential for environmental impacts.
- Discussions with WB project officers including environmental and social specialists

The overall findings of the ESIA review are briefly summarized below:

• Proposed new 500/330kV substation are located within the boundaries of land parcel owned by Azerenerji.

- Proposed extensions at substations to be connected with Navahi ss are located within the boundaries of existing substation sites.
- The site of the substations to be expanded and the proposed Navahi substation sites are located in what can be described as industrial, peri-urban or rural areas with low environmental values.
- Significant portion of the proposed new 330kV lines will be constructed along the existing corridors.
- The Banka-Navahi OHLs runs parallel edges of the Shirvan Nature Reserve, and 7 towers are located in the outskirts of the Shirvan National Park.
- Based on site observations and discussions with design institute the overall project is likely to give rise to moderate temporary environmental impacts that can be easily mitigated.
- The most significant potential environmental impact will be associated with construction of Banka-Navahi transmission line that will pass through the Shirvan Nature Reserve.
- It will be important to design the OHLs following best international industry standards, with inclusion of bird diverters and and consideration of perching electrocution risks, as well as taking into account bird migration and breeding times during design of construction works.
- All construction worker camps and laydown sites will be designed to minimize impacts and disturbance to local communities.
- The project will trigger land acquisition (land easement) for footprints of tower supports
- The project will improve local infrastructure in Navahi village due to construction of Navahi ss by creating employment opportunities, paved roads
- The Project will increase investment attractiveness of project covered area where there will be clean energy generated from renewables

The environmental and social impact assessment for the parts financed by the GoA was carried out in accordance with the relevant national legislation and WB ESF standards. Thus, for the sub-projects financed by the Government of Azerbaijan (330 kV side of 500/330 kV Navahi substation; Bilasuvar SPP - Navahi SS overhead line (90 km), Banka SPP - Navahi SS overhead line (80), Navahi SS - Absheron SS (65 km) an ESIA/ESMP has been prepared to be approved by the State Environmental Expertise Agency of the Ministry of Ecology and Natural Resources. An independent consulting company will conduct a comprehensive environmental and social due diligence of the reports for ESIAs/ESMPs on Government-funded sub-projects by Azerenergy, as well as for the ESIA reports prepared by Masdar for its facilities, in order to take corrective measures before starting work.

An independent E&S due diligence together with corrective actions to be in place prior to start of works will be arranged by Azerenerji for site-specific ESIAs/ESMPs of GoA funded sub-projects, as well as for ESIA reports prepared by Masdar for its facilities.

Azerenerji will prepare separate ESIA and ESMP for the World Bank funded sub-projects in accordance with the Bank's Environmental and Social Framework.

Besides there will be separate ESIAs prepared by Masdar for the construction and operation of solar and wind power plants in Banka, Bilasuvar and Absheron regions.

To ensure cohesion between the ESIAs developed for associated projects, PIU of Azerenerji has adopted a harmonized approach that integrates consistent methodologies, shared data, and aligned objectives across all assessments. This entails the establishment of a central coordination framework

that facilitates regular communication and information exchange among the ESIA teams involved in each project. By standardizing baseline data collection, impact assessment criteria, and mitigation measures, the team can create a unified understanding of cumulative and synergistic impacts. Moreover, aligning the stakeholder engagement processes will ensure community concerns and feedback are consistently addressed across all projects, fostering transparency and trust. Regular joint review sessions and integrated reporting mechanisms will further ensure that the ESIAs not only stand as comprehensive individual documents but also collectively contribute to a coherent and holistic environmental and social management strategy.



5.8 Impacts and Mitigation Measures Due to Project Location

Light purple line - Navahi SS - Bilasuvar SPP OHL - 90 | Dark purple line - Navahi SS – Absheron Green line - Banka SPP - Navahi SS OHL - 80 km SS OHL - 65 km



Banka SPP

Bilasuvar SPP



Location of Shirvan National Park



Absheron (Gobustan) HPP

Figure 5-2. Location of Project's sub-projects

5.8.1 Sub-project 1: 500/330/10kV Navahi Substation

Location of 500/330/10 kV Navahi SS

This subproject involves construction of a new substation within the boundary of the land parcel owned by Azerenerji. The site is located in rural area with low environmental values. No impact on land value is expected.

No encroachment into precious ecological areas or areas of historical / cultural value. There are no significant sensitive receptors including ecologically sensitive areas or historical / cultural monuments nearby the substation site that will be impacted from the construction or operation of the substation.

Interference with other utilities and traffic. As per regulations enacted by GoA, it is mandatory for Azerenerji to seek requisite clearance prior to construction from agencies like departments of railways, roads, telecommunication, and wherever necessary, from aviation authorities that could be affected by the construction of power transmission infrastructure. Given that new substation will be

constructed within the boundaries of existing land parcel owned by Azerenerji, no significant interference with other utilities and traffic is expected.

Interference with water drainage patterns. Construction of new substation infrastructure within the boundaries of land parcel owned by Azerenerji will include provision of effective drainage design such that there will be minimal changes to the natural flow of storm water entering and leaving the site. Drainage will be designed to route water runoff from the substation to designated places to avoid flooding of access roads and nearby areas. Storm water management shall conform to governmental agency requirements. No significant impacts on water drainage patterns is expected.

Construction of access roads. The road heading to the brick factory located at 500 meter distance from the Navahi substation is the access road to the Project site which is branched from Alat-Gazakh-Georgian Border Highway. It will be necessary for the access road (app. 150 m) to be asphalt paved along its full length to allow HGV traffic (transport trucks, supply or large equipment, etc) to access the site.



Figure 5-3: Location of Navahi SS

5.8.2 Sub-project 2: 500kV Transmission Lines

For this subproject the works involve construction of transmission lines and installation of poles/towers with wires. In some sections the new lines will go in parallel to existing transmission lines operated by Azerenerji. The line passes through agriculture fields and dry-saline lands far from residential areas where land use is unlikely to change in the foreseeable future. Impact on land value is expected subject to study dueiring separate Resettlement Action Plan for the lines.

There is no encroachment on valuable ecological sites or historical/cultural sites. There are no significant sensitive receptors, including ecologically sensitive areas or historical/cultural monuments, within or near the routes of 500 kV distribution lines. Thus, there will be no impact on these ecological values.

Impact to social and economic values. The construction of the 500 kV OHLs is not expected to intersect various areas of significant social and economic value. Key areas of concern include agricultural lands, and culturally significant sites. Cultural heritage sites (Gobustan mud volcanoes) along the proposed route will also be protected to preserve local traditions and history.

Interference with other utilities and traffic. As per regulations enacted by Government of Azerbaijan, it is mandatory for Azerenerji to seek requisite clearance prior to construction from agencies like departments of railways, roads, telecommunication, and wherever necessary, from aviation authorities that could be affected by the construction of power distribution lines. However, it is unlikely that the new lines will result in any interference with the existing traffic lines.

Whenever the distribution line crosses a railway track, clearance will be sought from the railways department. The new line is properly planned and executed to maintain sufficient distance between gas/oil/water distribution lines and railways, civil aviation and civil defense installations. There are no airports located along the route of the new OHLs.

Interference with water drainage patterns. As the 500 Kv OHLs are constructed aerially and the blockage of ground surface is limited to the area of tower footings, which is very small, impacts on drainage patterns will be negligible. In the infrequent instances where drainage is affected, flow will be diverted and guided to safe zones.

Construction of access roads. There will be no need for construction of access roads for the transmission lines. Existing roads and tracks will be used to get vehicles and equipment to the tower sites. Where necessary, access roads will be constructed. Establishment of roads may require creation of tracks across open land or bulldozing a path.

It may be necessary to bring vehicles and equipment to the locations of electrical towers to perform repair and service work.

As with initial construction, existing roads and tracks will be used; in some cases, however, temporary roads may need to be used. Any damage to land that occurs during repair and maintenance operations will be reinstated when activities are complete.

5.8.3 Sub-project 3: 330 kV OHL

The work to be done under this sub-project includes construction of transmission lines and installation of poles/towers along with wires. In some sections, the new lines will run parallel to the existing power transmission lines managed by Azerenerji. The lines pass through residential and non-residential areas (sanitary zone protection), agricultural areas and desert-saline lands that will not be used in the future.

Impacts on land values are expected and these impacts will be studied in separate Resettlement Action Plans for the lines.

There will be no encroachment on valuable ecological sites or historic/cultural sites. The routes of 330 kV distribution lines (Navahi SS – Banka SPP OHL) and Navahi SS – Bilasuvar SPP OHL) pass close to important sensitive receptors, including ecologically sensitive areas (national parks and reserves, resting places of migratory birds). Due to the specific mitigation measures to be taken, the impact on these environmental assets will be minimal. There are no historical/cultural monuments on OHL routes.

Impact on social and economic values. The construction of 330 kV OHLs is expected to pass through various areas of significant social and economic value, which requires careful consideration and management. The main areas of concern are agricultural land, residential communities and culturally significant areas. The route of the transmission line passes through agricultural regions important for local food production and livelihoods. Encroachment on these areas can lead to economic losses for farmers and reduced production of agricultural products. Impacts on the nature reserve (Shirvan Nature Reserve) located along the proposed route will be minimal and special mitigation measures will be taken during the construction of the line passing through the area close to the boundaries of the reserve.

Interference with other utilities and traffic. According to the rules adopted by the Government of Azerbaijan, "Azerenergy" must obtain appropriate permission from railways, highways, telecommunication institutions and, if necessary, aviation institutions that may be affected by the construction of electricity distribution infrastructure, before construction. However, the new lines are unlikely to cause any interference with other lines of communication and traffic beyond the existing situation.

In the places where the power transmission line crosses the railway road, permission has been obtained from the railway department. The new line is properly planned and executed to maintain sufficient distance between gas/oil/water distribution lines and railways, civil aviation and civil defense installations. There are no airports located along the route of the new OHL.

Interference with water drainage regimes. As the new 330 kV OHL is built aerially and occupies a very small area on the ground surface for the tower foundations, the effects on the drainage regimes will be negligible. In the rare event that drainage is affected, flow will be diverted to safe zones.

Construction of access roads. Existing access roads along the route of 330 kV substations will be used to transport conductors and supports to considered places.

5.8.4 Sub-project 4: Expansion works in existing substation

This sub-project involves installation of new extension bays within the boundaries of existing substation.

There will be no encroachment into precious ecological areas or areas of historical / cultural value such that there will be no impacts on these values. All of the expansion works will be implemented and the bays will be installed within the territory of existing substation.

There will be no impacts on other utilities and traffic. Rather, any existing impacts on other utilities due to the current condition of these service lines will be mitigated by the rehabilitation works.

There will be no impacts on water drainage patterns resulting from these subproject.

No new access roads will be required since all lines and bays are on and within existing access roads of the substations.

5.9 Impacts and Mitigation Measures Due to Project Design Phase

5.9.1 Sub-project 1: 500/330kV Substation

The construction of the 500/330 kV substation will be guided by stringent environmental sustainability principles and the application of Best Available Techniques (BAT) to minimize its ecological footprint. Comprehensive environmental assessments will be undertaken to identify and protect sensitive ecosystems, local wildlife, and natural resources in the vicinity of the project site. Specific attention will be given to preserving native vegetation, managing water resources, and preventing soil erosion and contamination during construction and operation.

Adhering to BAT, the substation design will incorporate advanced technologies and practices that promote high environmental performance standards. These include the use of low-noise and low-emission equipment to minimize air and noise pollution, as well as state-of-the-art insulation and cooling systems that enhance energy efficiency and reduce greenhouse gas emissions. Furthermore, construction activities will employ methods that reduce land disturbance and waste generation, such as modular construction and the recycling of construction materials.

Environmental monitoring systems will be installed to ensure ongoing compliance with environmental regulations and standards, allowing for real-time tracking of environmental parameters and swift mitigation of any identified impacts. By integrating these environmental and BAT considerations, the substation project aims to support sustainable development while ensuring the reliability and efficiency of the electrical grid.

Escape of Polluting Materials. The main potential source of polluting materials arising from the substation subproject is oil spill/leakage from substation transformers entering the soil and groundwater either directly or indirectly through the substation drainage system. Whilst no PCB oils will be used as per international standards, alternative oils can still adversely affect soil and water quality if released to the environment.

Oil filling of transformers occurs when the equipment is initially installed. Periodic reprocessing or replacement of the oil may be necessary to ensure that proper insulation qualities are maintained. Under normal operating conditions some very minor loss of oil may occur over time through leaking seals and gaskets. Otherwise electrical failure or accident/fire could result in a more catastrophic loss of oil to the surrounding environment. Adequate oil containment systems are required at the new substations to ensure that oil that leaks from transformers or other oil filled equipment is contained and does not migrate from the site. For all new substations under the project, the following IEEE Guidelines should be followed:

- IEEE Guideline № 1127-2013: IEEE Guide for the Design, Construction and Operation of Electric Power Substations for Community Acceptance and Environmental Compatibility
- IEEE Guideline Nº 980-12013: IEEE Guide for Containment and Control of Oil Spills in Substations.

Replacement of transformer oil, as well as lubricating oil, solvents, and fuel that may be used by the substations, should be stored within concrete or brick buildings designed for such purposes. It is anticipated that no more than about 500 litres of transformer oil, and 100 litres of fuel and lubricating oil would be stored on site at any one time. The oil/fuel storage building should be a well-ventilated, roofed structure, with an impermeable concrete floor. A concrete berm should be integrated into the entranceway, so as to create a shallow holding tank in the event that oil or fuel products are accidentally spilled or released from a drum or tank. Fire extinguishers of the type suitable for fighting an oil or fuel fire should be positioned within and outside of any oil/fuel storage building.

Oil spill clean-up materials (sorbent pads, loose sorbent material, etc.) should be stationed in any oil/fuel storage building in clearly labelled containers. Substation operators will need to be trained in good housekeeping practices, including how to clean up oil/fuel spills and dispose of contaminated sorbent material.

Liquid waste management systems will be installed to ensure that there will be no unacceptable impacts on the surrounding land or water bodies. The substation drainage system should be carefully designed to prevent possible flooding of the substation area and should be directed through an oil and grease separator before discharge to the ground outside the site.

Provided the above measures are implemented the potential impacts due to the escape of polluting materials from substations will be insignificant.

Explosion/fire hazards. Modern transformers are oil-cooled devices equipped with fire control systems, including firewalls that separate one transformer from another. These measures help to ensure that transformers do not overheat and catch fire and, on the rare occasion that they do catch fire, the fire does not spread to adjacent transformers.

The substation designs will include modern fire control systems such as those specified in IEEE standard 979: IEEE Guide for Substation Fire Protection (2012). Fire extinguishers of the type suitable for fighting an oil or fuel fire shall be positioned where oil-filled transformers or other oil-filled equipment is used. A fire emergency action plan shall be prepared for the substation and training given to staff on how to use firefighting equipment and how to implement the action plan.

Noise/Vibration nuisances. The equipment installed at substations are mostly static and are designed so that the noise level always remains within permissible limits. Furthermore, the substation site to be constructed is located at distances well away from residential areas and other noise sensitive receivers such that noise impacts will be insignificant.

Proposed new 500/330kV substation is located in rural areas well away from potential sensitive receptors.

5.9.2 Sub-project 2 and 3 – 500 and 330 kV Transmission Lines

The design of the new alignments of all the transmission lines proposed under the project will be in accordance with internationally recognised design and safety standards. This will result in improved community safety and operational efficiency with respect to all transmission infrastructure as well as improved power transfer.

5.9.3 Sub-project 4: Expansion works in existing substation

During the design phase of the new bay at the existing substation, environmental considerations will play a crucial role in ensuring sustainable and responsible project development. The design process will incorporate a range of environmental mitigation measures aimed at minimizing potential impacts on the surrounding environment. These measures are aligned with regulatory requirements, industry best practices, and environmental standards to promote environmental stewardship and resource conservation.

The design of the new bay will prioritize energy efficiency, resource conservation, and green building principles. Sustainable design features, such as energy-efficient equipment, renewable energy integration, and passive cooling strategies, are considered to reduce environmental footprint and promote long-term sustainability.

There will be no noise impacts arising from the new bays.

5.10 Impacts and Mitigation Measures Due to Construction Activities

5.10.1 Sub-project 1: 500/330/10kV Substation

Erosion and sedimentation hazards. Very limited excavation will be required and confined to soil removal and platform preparation for transformers and substation structures/switchyards etc. within the substation site. Limited excavation combined with the prevailing dry climate means that potential impacts related to erosion and sedimentation due to construction activities will be minor.

Measures to minimize erosion and sedimentation will be incorporated into contract documents. These will include minimizing removal of existing vegetation and topsoil, re-surface any areas where excavation works are done. Topsoil disturbed during the development of sites will be used to restore the surface of the excavated area. Infertile and rocky material will be dumped at designated, licensed dumping areas or where applicable, used as fill material.

Nuisance to nearby properties. Potential nuisance to nearby properties during construction includes:

- Noise and vibration from construction works and heavy vehicles transporting materials to the sites
- Dust arising during excavation and transport of materials
- Air pollution due to exhaust gases from construction plant and heavy transport vehicles
- Gaseous emissions from welding

The construction activities will involve temporary and periodic use of powered mechanical equipmentover a short time period with much of the work carried out using manual labour. The main noise andEnvironmental and Social Impact AssessmentPage 124 of 356

dust generating activities will be associated with minor excavation for platform preparation and periodic transport of materials and equipment to the sites. The potential impact of noise, dust nuisance and air pollution on nearby communities from these activities will be insignificant to minor, and periodic in nature. However, good construction practice to minimize these impacts shall be specified in contract documents.

According to Azerbaijan noise standards⁷ the maximum allowable noise levels in residential areas is 50 dB (A) during daytime hours (0700-2300hrs) and 40 dB(A) during night-time hours (2300-0700 hrs). Periodic noise monitoring (at least 4 times during the construction period) during noisy construction activities such as excavation for platform preparation and delivery of equipment to sites, will be undertaken during the construction of these subprojects. Monitoring points will be located at the façade of the nearest residence where the nearest residence is less than 100m from the construction site. Should noise levels greater than the allowable standard be recorded during noise monitoring, and unequivocally associated with project construction activities, the contractor will be required to implement additional noise mitigation measures such as adjusting his working methods or placing of temporary noise barriers to ensure the noise standard is met.

Mitigation measures for noise shall include:

- Scheduling activities during day time working hours
- Maintenance of machinery and vehicles to be enhanced to keep noise at a minimum

Mitigation measures for dust/air pollution shall include:

- Water to be sprayed on unpaved roads to suppress dust in the vicinity of communities through which transportation of construction materials passes
- Vehicles delivering construction materials shall be covered.
- Vehicles and construction equipment shall be regularly serviced and well maintained
- Vehicles and construction equipment shall comply with statutory emission standards

Water quality impacts. During construction wastewater will arise from domestic sewage from site workers, contamination due to spillage of oil and other lubricants, contamination due to disposal of construction wastes and wastewater from washing of construction equipment and vehicles. Such waste water if not properly controlled has the potential to pollute nearby water bodies namely drainage channels and irrigation canals.

The contractors will be required to implement measures to prevent wastewater produced during construction from entering directly into the adjacent drainage channels and irrigation canals. Such measures shall include:

- Provision of adequate on-site sanitation facilities including septic tanks and soak-away pits or alternative sanitary facilities that do not allow untreated disposal of sewage to adjacent water bodies
- Provision of an appropriate domestic solid waste and construction waste collection and disposal system

⁷ DUST 17187 (State General Standards and Requirements), Presidential Decree No. 796 dated July 8, 2008) Environmental and Social Impact Assessment Page **125** of **356**

- Provision of bunded hard standing areas for equipment servicing, refueling and wash down where drainage is directed through oil and grease interceptors before being discharged into a settling pond prior to discharge into offsite drainage channels.
- Implementation of good operation and maintenance practices for construction equipment
- Preparation of an oil spill response plan

Proper implementation of the above measures will ensure that the potential water quality impacts during construction will be insignificant.

Interference with utilities, blockage of access ways. The proposed new substation site is accessible by public roads and construction traffic to and from the site will be minimal and periodic in nature. The contractors will be required to post signs and manage traffic to protect the travelling public and its workers as necessary. Contractors will be required to ensure that existing access ways to public and private amenities are maintained throughout the construction period.

Health and Safety. The construction work force and the public face a number of safety risks due to potential accidents during construction. These include *inter alia*: explosions, falls from towers and buildings, unsafe power supply and equipment failure. Potential health risks include: inadequate sanitation and infectious diseases. To minimize such risks Azerenerji will ensure that contractors comply with statutory requirements for worker and public safety related to electric power infrastructure and other internationally recognized safety guidelines.

Labour and Working Conditions. The contractor shall provide all necessary safety appliances such as safety goggles, helmets, masks, boots, gloves etc. to workers and staff. Adequate precautions will be taken to prevent danger from electrocution. Measures such as signboards, danger/red lights, fencing and lights will be provided to protect the public and workers. The contractors will be required to submit a Worker Health and Safety Plan for approval prior to commencement of construction activities. In addition, the contractors will be required to provide adequate health and safety training for workers.

The Project recognizes the critical importance of addressing Sexual Exploitation, Abuse, and Harassment (SEA/SH) both within the workplace and in interactions between workers and the local community.

Zero Tolerance Policy: The Project enforces a zero-tolerance policy towards any form of SEA/SH. All workers, regardless of their position, are expected to adhere to this policy.

Training and Awareness: Mandatory training programs on SEA/SH awareness and prevention will be conducted for all employees. This training will include recognizing SEA/SH behaviors, understanding the consequences, and knowing how to report incidents.

Grievance Mechanisms: A confidential and accessible grievance mechanism will be established for workers to report SEA/SH incidents. This mechanism will ensure anonymity and protection from retaliation for those who come forward.

Support Services: Victims of SEA/SH will have access to support services, including counseling and legal assistance. The project will collaborate with local organizations to provide comprehensive support to affected individuals.

Code of Conduct: A clear code of conduct outlining acceptable behavior and the consequences of SEA/SH will be distributed to all workers. Compliance with this code will be a condition of employment.

Community Interaction Measures

Community Engagement: Regular engagement with the local community will be conducted to inform them about the project's SEA/SH policies and grievance mechanisms. Community members will be encouraged to report any SEA/SH incidents involving project workers.

Worker Conduct Training: Workers will receive specific training on appropriate behavior when interacting with community members. This training will emphasize respect, cultural sensitivity, and the importance of maintaining professional boundaries.

Collaboration with Local Authorities: The project will work closely with local authorities and community leaders to address SEA/SH issues promptly and effectively. Joint efforts will be made to raise awareness and foster a safe environment for both workers and community members.

Monitoring and Evaluation: Continuous monitoring and evaluation of SEA/SH risks will be conducted to identify potential issues and implement corrective actions. Feedback from the community will be incorporated into this process to ensure ongoing improvement.

Public Awareness Campaigns: The project will support public awareness campaigns to educate the community about SEA/SH, promoting a culture of zero tolerance and encouraging collective action against such behaviors.

5.10.2 Sub-projects 2 and 3: 500 and 330 kV Transmission Lines

Social impacts. The construction of pylons for the 500 kV and 330 kV OHLs and the associated easement restrictions are expected to have significant social impacts on affected communities. The land take required for the installation of pylons may lead to loss of some portion of agricultural land, which maybe an important source of livelihood for many local families. The reduction in available arable land could result in decreased agricultural productivity and economic hardship for farmers.

Furthermore, the easement zones established around the OHL will potentially impose restrictions on land use, limiting activities such as building construction, tree planting, and certain agricultural practices. These restrictions can disrupt community development plans, hinder local businesses, and affect the overall quality of life for residents. Property values in the vicinity of the transmission line may also be negatively impacted due to the visual intrusion and perceived health risks associated with high-voltage power lines.

To mitigate these social impacts, a comprehensive Resettlement Action Plans has been developed, involving extensive stakeholder consultations to understand the concerns and needs of affected

communities. Compensation schemes will be developed to fairly address the loss of land and livelihoods. Additionally, community engagement programs will be established to provide clear information about the project, address misconceptions, and explore opportunities for local benefits, such as job creation and infrastructure improvements.

By proactively managing the social impacts of land take and easement restrictions, the project aims to minimize adverse effects and foster positive relationships with local communities.

Erosion and sedimentation hazards. The project will involve only minimal excavation that could contribute to soil erosion and the potential for sedimentation of watercourses. Excavation will be mainly limited to the following:

• acquring of footprint for four holes for each lattice tower concrete support bases in the impact corridor

Excavations for tower bases will be limited to the immediate area of the tower legs. At most the foot print of a 500 kV and 330 kV tower would be (about 20 m²), therefore, the area that would be exposed to the forces of erosion is limited.

As much as possible existing line maintenance tracks will be used to access the tower/pole sites.

Given the small scale nature of the excavations required for tower/pole foundations in a generally dry climate, the impacts associated with uncontrolled erosion and silt runoff will be minor to insignificant.

Measures to minimize erosion and sedimentation will be incorporated into contract documents. These will include minimizing removal of existing vegetation and topsoil, re-surface any areas where excavation works are done. Topsoil disturbed during the development of sites will be used to restore the surface of the excavated area. Infertile and rocky material will be dumped at designated dumping areas or where applicable, used as fill material.

Nuisance to nearby properties. Potential nuisance to nearby properties during construction includes:

- Noise and vibration from construction plant and heavy vehicles transporting materials to site
- Dust arising during excavation and transport of materials
- Air pollution due to exhaust gases from construction plant and heavy transport vehicles
- Gaseous emissions from welding

The construction activities for transmission lines will involve temporary and periodic use of powered mechanical equipment such as an augur and mobile crane. The main noise and dust generating activities will be associated with periodic transport of materials and equipment to the sites. The potential impact of noise, dust nuisance and air pollution on nearby communities from these activities will be insignificant to minor, and periodic in nature. However, good construction practice to minimize these impacts shall be specified in contract documents.

According to Azerbaijan noise standards⁸ the maximum allowable noise levels in residential areas is 50 dB (A) during daytime hours (0700-2300hrs) and 40 dB(A) during night-time hours (2300-0700 hrs). Periodic noise monitoring (at least 4 times during the construction period) during noisy construction activities such as auguring of holes and use of a mobile crane, will be undertaken during the construction of these subprojects. Monitoring points will be located at the façade of the nearest residence where the nearest residence is less than 100m from the construction site. Should noise levels greater than the allowable standard be recorded during noise monitoring, and unequivocally associated with project construction activities, the contractor will be required to implement additional noise mitigation measures such as adjusting his working methods or placing of temporary noise barriers to ensure the noise standard is met.

Mitigation measures for noise shall include:

- Scheduling activities during day time working hours
- Maintenance of machinery and vehicles to be enhanced to keep noise at a minimum

Mitigation measures for dust/air pollution shall include:

- Water to be sprayed on unpaved roads to suppress dust in the vicinity of communities through which transportation of construction materials passes
- Vehicles delivering construction materials shall be covered.
- Vehicles and construction equipment shall be regularly serviced and well maintained
- Vehicles and construction equipment shall comply with statutory emission standards

Water quality impacts. During construction wastewater will arise from domestic sewage from site workers, contamination due to spillage of oil and other lubricants, contamination due to disposal of construction wastes and wastewater from washing of construction equipment and vehicles. Such waste water if not properly controlled has the potential to pollute nearby water bodies namely drainage channels and irrigation canals.

The contractor will be required to implement measures to prevent wastewater produced during construction from entering directly into the adjacent drainage channels and irrigation canals. Such measures shall include:

- Provision of adequate on-site sanitation facilities including portable toilets or alternative sanitary facilities that do not allow untreated disposal of sewage to adjacent water bodies
- Provision of an appropriate domestic solid waste and construction waste collection and disposal system
- Provision of hard standing areas for equipment servicing, refueling and wash down where drainage is directed through oil and grease interceptors before being discharged into a settling pond prior to discharge into offsite drainage channels.
- Implementation of good operation and maintenance practices for construction equipment
- Preparation of an oil spill response plan

Proper implementation of the above measures will ensure that the potential water quality impacts during construction will be insignificant.

⁸ DUST 17187 (State General Standards and Requirements), Presidential Decree No. 796 dated July 8, 2008) Environmental and Social Impact Assessment Page **129** of **356**

Interference with utilities, blockage of access ways. Erection of new towers/poles and lines occurs in a progressive manner from location to location such that traffic disruption along the roads where construction crews are unloading materials from trucks will be minor. The contractors will be required to post warning signs and manage traffic to protect the travelling public and its workers as necessary.

In the event that stringing conductors presents a possible risk to traffic on roads or rivers, scaffolds will be constructed to protect pedestrians and vehicles (and the conductor itself) from potential injury /damage during conductor stringing. Contractors will be required to ensure that existing access ways to public and private amenities are maintained throughout the construction period.

Health and Safety. The construction work force and the public face a number of safety risks due to potential accidents during construction. These include *inter alia*: explosions, falls from towers and buildings, unsafe power supply and equipment failure. Potential health risks include: inadequate sanitation and sexually transmitted diseases introduced from migrant workers. To minimize such risks Azerenerji will ensure that contractors comply with statutory requirements for worker and public safety related to electric power infrastructure and other internationally recognized safety guidelines.

Labour and Working Conditions. The contractor shall provide all necessary safety appliances such as safety goggles, helmets, masks, boots etc. to workers and staff. Adequate precautions will be taken to prevent danger from electrocution. Measures such as signboards, danger/red lights, fencing and lights will be provided to protect the public and workers. The contractors will be required to submit a Worker Health and Safety Plan for approval prior to commencement of construction activities. In addition, the contractors will be required to provide adequate health and safety training for workers.

The Project recognizes the critical importance of addressing Sexual Exploitation, Abuse, and Harassment (SEA/SH) both within the workplace and in interactions between workers and the local community.

Zero Tolerance Policy: The Project enforces a zero-tolerance policy towards any form of SEA/SH. All workers, regardless of their position, are expected to adhere to this policy.

Training and Awareness: Mandatory training programs on SEA/SH awareness and prevention will be conducted for all employees. This training will include recognizing SEA/SH behaviors, understanding the consequences, and knowing how to report incidents.

Grievance Mechanisms: A confidential and accessible grievance mechanism will be established for workers to report SEA/SH incidents. This mechanism will ensure anonymity and protection from retaliation for those who come forward.

Support Services: Victims of SEA/SH will have access to support services, including counseling and legal assistance. The project will collaborate with local organizations to provide comprehensive support to affected individuals.

Code of Conduct: A clear code of conduct outlining acceptable behavior and the consequences of SEA/SH will be distributed to all workers. Compliance with this code will be a condition of employment.

Community Interaction Measures

Community Engagement: Regular engagement with the local community will be conducted to inform them about the project's SEA/SH policies and reporting mechanisms. Community members will be encouraged to report any SEA/SH incidents involving project workers.

Worker Conduct Training: Workers will receive specific training on appropriate behavior when interacting with community members. This training will emphasize respect, cultural sensitivity, and the importance of maintaining professional boundaries.

Collaboration with Local Authorities: The project will work closely with local authorities and community leaders to address SEA/SH issues promptly and effectively. Joint efforts will be made to raise awareness and foster a safe environment for both workers and community members.

Monitoring and Evaluation: Continuous monitoring and evaluation of SEA/SH risks will be conducted to identify potential issues and implement corrective actions. Feedback from the community will be incorporated into this process to ensure ongoing improvement.

Public Awareness Campaigns: The project will support public awareness campaigns to educate the community about SEA/SH, promoting a culture of zero tolerance and encouraging collective action against such behaviors.

5.11 Impacts and Mitigation Measures from Operation

Operation & Maintenance (O&M) staff/skills less than acceptable resulting in a variety of adverse effects:

Potential impacts related to O&M will be avoided by Azerenerji through implementation of the following measures:

- (i) Operation & Maintenance of all transmission lines is performed by trained and experienced staff of Azerenerji's various Regional Electricity Service and Supply Departments (RESSD)
- (ii) Operation & Maintenance of 500/330 kV substation is performed by trained and experienced staff of Azerenerji's various Regional Electricity Service and Supply Departments (RESSD)
- (iii) The maintenance of all the substations is being performed by staff trained by the RESSDs only.

Exposure to Electro Magnetic Fields (EMF):

There have been some concerns about possible increased risk of cancer from exposure to electromagnetic radiation from overhead transmission lines. Research has been undertaken into this matter throughout the world. A World Health Organization (WHO) review in 1996 concluded that: "From the current scientific literature, there is no *convincing evidence that exposure to radiation field shortens the life span of humans or induces or promotes cancer".*

Law on Radiological Safety of Population (1997) of Azerbaijan establishes the main principles of Government policy on meeting radiation safety requirements as well as environmental norms providing safety of employees and population in areas affected by use of radioactive sources. The law provides for compensation which can be claimed by people for damage to their health, property and life during accidents.

No EMF exposure guidelines have been drawn in Azerbaijan though exposure guidelines have been drawn up outside Azerbaijan including:

- State Transmission Lines Standards and Guidelines in the USA;
- International Commission on Non-Ionizing Radiation Protection (ICNIRP);
- US National Council on Radiation; and
- American Conference on Government and Industrial Hygienist (ACGIH).

The ICNIRP guidelines recommends limiting exposure to EMFs, although it adds that the levels quoted should not be interpreted as distinguishing 'safe' from 'unsafe' EMF levels. The ICNIRP guideline for the general public (up to 24 hours a day) is maximum exposure levels of 1,000 mG or 100 μ T. The impact of EMF is also dependent on the duration of exposure and therefore no significant adverse impact is envisaged. Azerenerji complies with international norms for field strength limits. Azerenerji is also following approved international design standards and complies with the World Bank Group's Environment, Health and Safety (EHS) Guidelines.

Within inhabited communities the existing environment includes EMF from a number of sources including the use of electrical appliances and equipment, ground current in residential water pipes and the electric distribution circuits that serves the residences. The EMF from distribution circuits can vary widely in the communities depending upon the number of phases and whether the circuit is overhead or underground. A typical 12.5kV overhead distribution line with 300amps current can result in magnetic field of 22mG below the line dropping to 15mG at 7.5m from the line and 8mG at 14m distance⁹.

The project acknowledges community concerns regarding the potential health risks associated with Electromagnetic Fields (EMF) generated by high voltage transmission grid. The following actions outline the measures and communication strategies implemented to address these perceptions and provide accurate information based on scientific evidence.

Community Engagement and Education

- Scientific Information Dissemination: The project will provide clear, accessible information on EMF and its health effects based on the latest scientific research and guidelines from reputable health organizations, such as the World Health Organization (WHO) and the International Commission on Non-Ionizing Radiation Protection (ICNIRP).
- **Public Meetings and Consultations**: Regular public meetings and consultations will be held to discuss EMF concerns with community members. Experts will be available to answer questions, address misconceptions, and provide reassurance based on scientific evidence.

⁹ Washington State Electric Transmission Research Needs Task Force.

- Information Materials: Brochures, fact sheets, and online resources will be developed and distributed to explain what EMF is, the levels typically associated with high voltage transmission lines, and the findings of health risk assessments.
- **Transparency and Monitoring**: The project will conduct regular EMF measurements in the vicinity of the transmission lines/substation and make the results publicly available. This transparency will help build trust and demonstrate that EMF levels are within safe limits established by international standards.
- **Engagement with Health Authorities**: Collaboration with local and national health authorities will be established to ensure that the information provided to the community is accurate and endorsed by health professionals.

Risk Mitigation Measures

- **Design and Siting:** The transmission lines will be designed and sited to minimize EMF exposure to populated areas. This includes maintaining appropriate distances from residential areas, schools, and other sensitive locations.
- Adherence to Standards: The project will comply with all relevant EMF exposure guidelines and standards set by international and national regulatory bodies. These standards are designed to protect public health and ensure safe levels of EMF exposure.
- **Community Feedback Mechanism:** A feedback mechanism will be established for community members to voice their concerns and receive timely responses. This will include a dedicated helpline and an online portal for submitting inquiries and feedback.

Azerenerji complies with international norms for field strength limits. Azerenerji is following the approved international standards and design, which are absolutely safe. Detailed discussion on health impacts associated with EMF are presented in respective sections of ESIA.

Community Impacts

Within the framework of the ESIA stage, a public hearing process was conducted in 6 districts where the project will be implemented (Hajigabul, Salyan, Neftchala, Bilasuvar, Garadag and Gobustan). Participants during consultations representing the various stakeholder groups outlined in the SEP supported the Project. People living in project areas expect various project elements to improve energy supply, stimulate economic development, and thus gain direct and indirect benefits.

For the most part the impact of the proposed power transmission project on the socio-economic environment will be significantly beneficial. The project will strengthen the transmission grid and enhance system operation and support project implementation and capacity building. In parallel, the project will support Azerenerji to enhance system operation and control to integrate planned VRE over the next 10 years. Improved access to uninterrupted renewable electricity supply will be a major stimulus to economic growth, particularly in rural areas of the regions. During construction, benefits to local people can be maximized if the contractor recruits construction workers locally. Wherever possible, the contractors should also not discriminate in the employment of women. The long-term effects of the proposed project in poverty reduction are expected to be largely positive.

5.12 Climate-related Aspects

In principle, the climate topic includes two separate assessments:

- Greenhouse gas (GHG) impact assessment the effects on the climate from GHG emissions arising from the Project.
- Climate resilience assessment the resilience of the Project to adapt to the impacts resulting from a changing climate, including how the Project design would take into the account the projected impacts of climate change.

This section provides an overview of the climate-related impacts of the Project and sets out why the assessment of these has been scoped out of the assessment.

Greenhouse Gas (GHG) Impact Assessment

Study Area

The study area for GHG impact assessment would need to cover all direct GHG emissions arising from activities undertaken within the Project boundary during the construction, operation and maintenance of the Project. It would need to include emissions based on a lifecycle approach.

Potential Impacts and Principle Mitigation

The key identified contributing GHG emission sources and/or activities associated with the Project, based on a lifecycle approach, are presented in the Table below.

Lifecycle stage	Project activity	Key GHG emission sources
Preparation stage	Construction site preparatory	Fuel use - for vehicles, generators on
	WORKS	site, etc.
	Clearance works	Losses of carbon sink - removal of a
	1. Vegetation clearance;	natural environment that has the
	2. Land use change	ability to absorb GHGemissions (e.g.
		woodlands)
Pre-fabrication stage	Use of products and/or materials	Embodied GHG emissions within the
	required to build the Project (e.g.	construction materials - emissions
	concrete, steel, conductors, other	resulting from the
	metallic materials, insulators,	manufacturing/processing of
	etc.)	materials into secondary/final
		products for use and the
		transportation of those materials

Table 5-6: GHG emission sources and/or activities

Lifecycle stage	Project activity	Key GHG emission sources
Construction stage	 On-site construction activity, e.g.: Transport of materials and equipment to the construction site; Transportation of construction workforce to the construction site; Use of construction vehicles andplant at the construction site; Disposal of any waste generated by the construction processes. 	 GHG emissions from vehicle and equipment use GHG emissions from disposal of waste
Operational & maintenance stage	 Operation of substation, including lighting Maintenance operations, including vehicle journeys, replacement of SS and OHL equipment 	 GHG emissions from energy and fuel use. Embodied emissions associated with replacement of equipment / materials (e.g. OHL tower elements, conductors, insulators, SS equipment) These emissions are expected to be minimal

The principle mitigation measures to reduce GHG emissions across the lifecycle of the Project would include:

- Specification of alternative materials with lower embodied GHG emissions such as locally sourced products and materials with a higher recycled content.
- Low carbon design specifications such as energy-efficient lighting (at the substation) and durable construction materials to reduce energy consumption and maintenance and decrease replacement cycles.
- A Construction Environmental and Social Management Plan (CESMP) prepared and implemented by the selected construction Contractor to include a range of best construction practice measures with an aim to reduce GHG emissions.

Construction phase

During the construction phase of the project, GHG emissions are related to the use of fuel for machinery such as generators, transportation, field equipment and machinery. Although emissions have not been quantified, they are expected to be low and significantly less than 25,000 tonnes of CO2 equivalent (tCO2eq) based on previous experience and available literature.

During the operation and maintenance phase, GHG emissions are expected to be very low and will be minimal mainly limited to vehicle movement during maintenance and repair activities during Project operation. Therefore, these have been scoped out from the ESIA.

Climate Resilience Assessment

Study Area

The study area for the climate resilience assessment covers all elements (SS and OHLs) which constitute the Project.

Potential Impacts and Principle Mitigation

The project area is likely to be vulnerable to a range of climate change risks – extreme events (e.g. an increased frequency and severity of prolonged and/or heavy precipitation events and lightning, heat waves, an increased risk of storms with high wind speed, etc.).

These extreme weather events associated with the expected climate changes may result in the following principle impacts:

- Material deterioration due to high temperatures and also from periods of heavy rainfall.
- Flood risk at the substation location, and damage to drainage systems and equipment.
- Erosion and subsidence undermining structures.
- Storm damage to OHL tower structures and substation equipment and other project's assets.
- Asset deterioration from exposure to heat.

Periods of dry weather and strong winds may damage the Project's infrastructure. It is intended to insure against these extreme weather events and thereby reduce the medium and high impacts to a low level.

Rising temperatures and irregular rainfall can affect water availability. Water conservation measures, including water recycling will be implemented during construction (eg using greywater for dust dampening measures where required).

Permanent effects and summary

Due to the implementation of mitigation measures, the permanent risks related to climate change for the Project are expected to be low. No significant lasting effects are expected. In addition, the role played by the project will ensure that the country meets its requirements to reduce GHG emissions and achieve the NDC target.

6. STAKEHOLDER ENGAGEMENT

Constructive engagement and continuous dialogue with stakeholders is an essential part of good business practices and corporate responsibility and is key to the success of any renewables integration project such as the present one.

The stakeholders of any infrastructure project are many and varied. They include, first of all, local people who may be affected by the project, as well as local authorities with jurisdiction over the project to be implemented, national authorities that implement and ensure the implementation of laws related to the environment, social issues and energy, non-governmental organizations, members of the scientific community and other stakeholders with expertise in these issues.

Stakeholder engagement is an integral part of project development and implementation and should begin as early as possible in project development and continue throughout the project life cycle. As of November 2023, Azerenergy has started planning for the transmission lines and substation, and the initial scope of work was prepared in early 2024. Since February 2024, Azerenergy and its ESIA team have started working formally and informally with local authorities and local communities to gather information about the project and learn about people's concerns. The information on the letters sent to various authorities are given in Appendix C.

6.1 Objectives of Stakeholder Engagement

Effective stakeholder engagement and consultation is seen as fundamental to the success of the proposed Project.

The Project has a wide range of stakeholders (including statutory consultees that are required to be consulted by law, local communities, property owners and landowners, businesses and other affected groups) with differing interests that will require varied levels of information. Specific communication activities therefore need to be focused to meet the needs of particular individuals and groups, particularly vulnerable groups. This requires an understanding of the stakeholders and their interest in the proposed project.

- Stakeholder engagement for the Project would be based on the following principles:
- Early and ongoing engagement with relevant stakeholders to inform and influence the Project development process;
- Seeking an appropriate level of feedback at each development stage in order to achieve iterative design process by ensuring that comments and concerns received are taken into consideration.
- Building of long term relationships with key stakeholders throughout the different stages of the Project to help better understand their views;
- Where possible and practicable ensuring concerns are addressed; and
- Ensuring appropriate statutory consultation is undertaken in compliance with national requirements and best international practice.

Azerenerji intends to implement the Project as an example of good practice in the development of transmission infrastructure with the aim of involving stakeholders and maintaining good

communication practices throughout the life of the Project. Therefore, stakeholder engagement process has been initiated in the scoping stage and have been further carried on based on the technical analysis and environmental and social appraisal performed so far.

6.2 Approach to Stakeholder Engagement for ESIA

This process will be guided by the Stakeholder Engagement Plan (SEP) that has been prepared during the ESIA stage. This SEP (Annex 2) has been prepared to meet WB standards, as well as the national stakeholder engagement requirements.

This ESIA and SEP were disclosed and publicly consulted at a very early stage before the implementation of the main ESIA document. The disclosure and consultation activities carried out have been added to the updated version of the SEP.

The following measures were implemented during the ESIA phase:

- Letter was sent to State Ecological Expertise Agency (SEEA) of MENR for discussing the Scoping Report content and TOR for ESIA
- A meeting was held with deputy chairman of SEEA and relevant staff where the ESIA report content and routes of OHLs presented to the audience and raised questions were answered accordingly by PIU staff
- Letter was sent to the Public Legal Entity "State Cadastre and Registry of Real Estate" under the State Service of Real Estate Affairs under the Ministry of Economy with the request of submission cadastral information with regard to land ownership status along the proposed alignments of 3 OHLs covered by the Project.
- Letter was sent to the to the Public Legal Entity "State Cadastre and Registry of Real Estate" under the State Service of Real Estate Affairs under the Ministry of Economy with the request of submission new format (national) land title document for assigned territory of Navahi substation based on old soviet type land title document issued to Azerenerji JSC in 1980s for construction of nuclear power station.
- A meeting was held with the management of to the Public Legal Entity "State Cadastre and Registry of Real Estate" under the State Service of Real Estate Affairs under the Ministry of Economy to discuss the alignments and establish priorities for submission of information requested for the Project's OHLs
- Letter was sent to the Chief of State Service for Protection, Development and Restoration of Cultural Heritage under the Ministry of Culture with request of submission of available data and list of cultural heritage objects along the proposed routes of OHLs
- Azerenerji applied to Azerbaijan Raiways CJSC for obtaining technical conditions for crossing the railway lines by OHLs across the Project covered regions. The respective technical conditions were provided by the Azerbaijan Raiways CJSC and transferred to the design team for consideration in design of OHLs
- Azerenerji applied to State Agency on Protection of Strategical Objects for obtaining technical conditions for strategic crossing the oil and gas pipelines by OHLs across the Project covered regions. by OHLs across the Project covered regions. The respective technical conditions were provided by the Agency and transferred to the design team for consideration in design of OHLs

- Azerenerji applied to State Agency on Water Reserves for obtaining technical conditions for crossing the river and channels by OHLs across the Project covered regions. The respective technical conditions were provided by the Agency and transferred to the design team for consideration in design of OHLs
- Azerenerji applied to SOCAR for obtaining technical conditions for crossing the oil and gas pipelines by OHLs across the Project covered regions. The respective technical conditions were provided by the SOCAR and transferred to the design team for consideration in design of OHLs
- Azerenerji applied to BP for obtaining technical conditions for crossing the oil and gas pipelines by OHLs across the Project covered regions. The respective technical conditions were provided by the BP and transferred to the design team for consideration in design of OHLs
- A meeting was held with chairman of Navahi village municipality to inform the construction of Navahi SS/associated OHLs and discuss their concerns, collect baseline data

The Scoping Report was submitted to the SEEA and MOC and their recommendations and opinions were collected and reflected in the ESIA. In particular, according to the request of the MOC, the route of the Navahi-Mingachevir overhead lines were changed to ensure a safe distance from the Medieval Agsu Archaeological Tourism Complex. Disclosure of the Scoping Report to the SEEA also resulted in the rerouting of the Banka-Navahi overhead line, which initially traversed through the territory of the Shirvan National Park.

A full ESIA Public disclosure package for Project will contain:

- ESIA Report
- Non-technical Summary (NTS)
- Stakeholder Engagement Plan (SEP), including Project Grievance Form
- Environmental and Social Management Plan (ESMP)
- Environmental and Social Commitment Plan (ESCP)
- Resettlement Policy Framework (RPF).

6.3 Project Stakeholders

For the GoA funded Project and AZURE project, stakeholders have been identified and analyzed per project component. These stakeholders include affected parties, other stakeholders and disadvantaged/vulnerable individuals or groups. The following tables present the main stakeholder groups:

Table 6-1: Project affected	l parties for the	project
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Stakeholder Major Group	Project Site Stakeholder
	Private land owners
	Owners of public and private lands whose land or
Property owners along the routes	properties may be impacted by construction works
OHLs	(village, rayon, or national levels)
	Organizations owning lands (religious, socio-civic
	and other groups)

Stakeholder Major Group	Project Site Stakeholder
People residing in the project areas	In the framework of the current project, a second key category of PAPs will be people living along the transmission line route, the access tracks and in the vicinity of the proposed substations. These PAPs are likely to be affected by disturbances caused by the Project's heavy vehicles traffic, construction impacts, etc., but may also benefit from project- related employment opportunities.
Municipality and village representatives	A third category of important PAPs will be village representative offices. It is represented by representative of head of executive power office of the region.
	Restaurants and public catering
	Shops
Businesses located in the project area	Car wash
who may be positively or negatively	Private Products
affected by the project	Small private hotels for tourists
	(Farmers') Markets (both formal and informal traders)
	Other services
Businesses located in the target	Residents and community members
Regions who may be positively or	(Farmers') Markets (both formal and informal
negatively affected by the project	traders)
	Restaurants
	Other services

Table 6-2: Other Interested Parties for the project

Stakeholder Major Group	Project Stakeholder		
	Ministry of Energy		
Ministries and government agencies	Azerbaijan Railways		
	Ministry of Culture		
	State Tourism Agency		
	Ministry of Finance		
	Ministry of Economy		
	Ministry of Emergency Situations		
	Ministry of Agriculture		
	Ministry of Ecology and Natural Resources		
	Ministry of Labor and Social Protection of Population		

	State Committee for Family, Women and Children Affairs Rayon Local Executive Powers		
Civil society organizations	Local NGOs, Social Economy Organizations Trade		
	Unions; Foundations; Social Enterprises;		
	Cooperatives		
Other project developers	Other project developers, International NGOs, and		
International NGOs, and	implementation agencies (e.g., United Nations		
implementation agencies	Development Program (UNDP), GIZ, Food and		
	Agriculture Organization (FAO) etc.)		

Disadvantaged / vulnerable individuals or groups

Disadvantaged/vulnerable individuals and groups are those who may not have the voice to express their concerns or understand the impacts of project, and can thus be excluded from stakeholder engagement or project benefits.

6.4 Stakeholder Engagement Process for ESIA

The Stakeholder Engagement Process includes the following phases: ESIA, Construction, Operation and Decommissioning. Updates will provide brief summaries of issues, concerns and questions raised in the previous year, as well as information on changes between planned activities and actual activities and events. Stakeholder engagement is one of the fundamental processes that provide information for sustainable environmental and social management processes. The SEP developed for the project will provide a list of environmental and social reports that are made available to the public on a regular basis.

6.5 Feedback mechanism

An effective feedback mechanism is an essential component of the Stakeholder Engagement Plan (SEP) to enable effective communication, gather valuable feedback, address concerns and promote continuous improvement in our engagement efforts. The feedback mechanism is intended to be inclusive and transparent, responding to the diverse views and needs of the stakeholders involved in the projects. The main elements of the feedback mechanism are as follows:

- Feedback collection channels: Application of various feedback collection channels such as surveys, feedback forms, specific email addresses, online portals and interactive workshops to collect feedback from stakeholders. These channels will be accessible and user-friendly to encourage active participation.
- Regular feedback sessions: Organize regular feedback sessions, focus group discussions and stakeholder forums for stakeholders to express their views, give feedback, ask questions and share ideas on project activities, decisions and results.

- Feedback analysis and reporting: Collect, analyze and summarize feedback from stakeholders to identify common issues, concerns, priorities and suggestions. Summary feedback reports will be developed and shared with stakeholders to demonstrate transparency and accountability in the management of stakeholder contributions.
- Response and action plans: Develop response and action plans to quickly and effectively manage feedback received from stakeholders. Practical steps, timeframes, responsibilities and deliverables will be clearly outlined to demonstrate the importance we place on incorporating stakeholder views into the decision-making process.
- Continuous engagement process: Creating a continuous feedback loop involving stakeholders at key stages throughout the project life cycle. Feedback received will be used in current engagement strategies, communications and development of adjustments to ensure alignment with stakeholders' expectations and needs.
- Capacity building and support: Provide capacity building resources, guidance materials and training sessions to enable stakeholders to participate meaningfully in the feedback mechanism. This includes education about the purpose of feedback, methods of providing constructive feedback, and the impact of stakeholder feedback on project outcomes.
- Integrating feedback into decision-making: Ensuring that stakeholder feedback is integrated into decision-making processes, project planning, risk management and performance evaluation. Stakeholder feedback will be taken into account in the formulation of policies, initiatives and measures that reflect their interests and priorities.

The feedback mechanism described in the SEP aims to build trust, cooperation and positive relationships with stakeholders by valuing stakeholder feedback, addressing their needs and demonstrating accountability in our engagement practices.

This report is available on the website of Azerenergy JSC for government agencies, local municipalities and the general public. Also, the report can be accessed in hard copy from:

- Head office of "Azerenerji" JSC, A. Alizade str. 10, Baku 1005, Azerbaijan;
- Municipal offices of the following regions:

0	Neftchala	0	Salyan	0	Hacıgabul
_	Dileasuran	_		-	Cabuatan

o Bilesuvar o Absheron o Gobustan

Any comments regarding the present report, the Project or the proposed studies may be directed to Azerenergy through the following contact information:

• Yusif Gayibov, Director of the Project Implementation Unit, head office of "Azerenerji" JSC,

- A. Alizade str. 10, Baku 1005, Azerbaijan;
- E-mail: yusif.qayibov@azerenerji.gov.az

6.6 Disclosure and Consultation Activities

The next stage of the stakeholder engagement process focuses on disclosure and consultation of the preliminary results of the ESIA process. This stage is called "public disclosure". The specific objectives for involvement in the public disclosure phase of the ESIA are as follows:

- Acquaint the stakeholders with the preliminary version of the impact assessment and relevant measures for impact management/mitigation; and
- Collect stakeholders' opinions and views on the preliminary version of the impact assessment and relevant measures for managing/mitigating the impacts.

At this stage, disclosure and consultation activities are designed according to the following general principles:

- Consultation events and opportunities will be advertised widely and in advance especially among project-affected parties and at least 2 weeks before any meeting.
- Before any event, a non-technical summary will be prepared and made available to inform people about the content and results of the assessment;
- The location and time of any meeting are scheduled as necessary to maximize accessibility to project-affected stakeholders;
- The information presented will be in clear and non-technical language and presented in Azerbaijani and English languages;
- Moderation was provided at the event so that stakeholders could express their concerns; and
- The issues raised were either answered at the meeting or the necessary steps were actively taken and followed up after the event.

The public ESIA Report will be available in the following manner: (i) online through the website of "Azerenerji" (www.azerenerji.gov.az) in both Azerbaijani and English languages; (ii) In each municipal office where the project is passed, in printed form.

7. ASSESSMENT OF THE CURRENT CONDITION OF THE ENVIRONMENT IN THE PROJECT AREAS

This Chapter describes the current environmental and social conditions that could be affected by the project.

Hajigabul

According to the territory of Hajigabul district, it borders Kurdamir, Sabirabad, Salyan, Agsu, Shamakhi, Gobustan, Absheron districts of the republic, Garadagh district of Baku city and Shirvan city. In terms of administrative territory division, there are 1 city, 5 settlements, and 25 rural settlements in the district. The center is the city of Hajigabul. 18 administrative territorial circles and 15 municipalities operate in Hajigabul district.

Hajigabul district is located in the southeast of Kur-Araz plain, in the area known as Shirvan plain. A large part of the territory of the district is below sea level. A large number of mud volcanoes can be found in mountainous areas. A dry, hot semi-desert and dry steppe subtropical climate prevails here. The average annual temperature in the area is 14-15 degrees. Atmospheric precipitation falls mainly in the form of rain and its amount does not exceed 200 millimeters per year.

The relative annual average humidity is 72 %, ranges between 52-8% within a year. The annual precipitation amount in the rayon is 300 - 400 mm. The precipitation mostly falls in spring and autumn. The potential evaporation occurs 1000 - 1100 mm in summer, and 198 – 236 mm in winter.

Soil formation is affected by the different levels of solutions in most part of Shirvan lowland. The dry climate sucks moisture containing dissolved salt out of the ground. The soils of these semi-deserts, therefore, are strongly salted and also lack humus because there is a lack of decomposing vegetation. Grey earth is the predominant type of soil formation, ash grey in colour. Nevertheless, some of these kinds of whitish soil are fertile, since the great number of insoluble minerals are suitable for use in irrigation. The lowland was affected by both recent and ancient alluvia of the many rivers.

7.1 Physical description of the 500/330 kV Navahi substation

The project area is geographically located on the eastern side of Navahi settlement in the southern part of Hajigabul region. The land of the area belongs to the state and was given to the use of "AzerBashEnergy" (now "Azerenergy" OJSC) by the Decree No. 166 of the Council of Ministers of the Azerbaijan SSR dated May 18, 1984 (presented in Appendix 3.4 of the State Act). The site is empty. The site is located 1.2 km away from Navahi settlement in the north-east of Hajigabul region, 20 km from Hajigabul city, and 90 km from Baku city in the southeast direction. During the Soviet Union, it was planned to build a nuclear power plant in the area. After the accident at the Chernobyl nuclear power plant, the construction of the station was stopped. A brick factory and warehouse buildings are located 500 m from the project area. Baku-Gazakh railway passes 1.25 km away. Figure 7.1 shows project location and 7.2 shows the view of the field.

The role of radiation and heat balance, temperature, precipitation and wind regime in the development and formation of ecosystems of the project area in Navahi settlement is huge. Solar radiation is the main source for the development of all natural processes. There are many sunny hours in the plain areas of our republic. Its value in the study area is 2200-2500 hours/year. The main amount
of sunny hours falls in the summer months, and almost 1/3 of the incoming heat occurs during this period. The amount of total solar radiation is 125-134 kcal/cm2, of which 90-95 kcal/cm2 coincides with the hot period of the year (A.M. Shikhlinski 1968). While the effective radiation is 55-56 kcal/cm2 in the Kura-Araz plain, its value is 38-43 kcal/cm2 in the Caspian coastal areas.



Figure 7-1: Project location



Figure 7-2: View of the SS field

7.2 Physical description of the OHLs routes

This section provides an overview of existing conditions along the proposed routes for overhead transmission lines. The routes are described as follows:

7.2.1 90 km long 330 kV double-circuit "Banka SPP-Navahi SS" OHL

Through this OHL, Banka SPP with a capacity of 390 MW, which will be installed in Banka settlement of Neftchala region, will transfer the generated electric power to Navahi SS for integration into the energy system. This OHL will pass through the administrative territories of Neftchala, Salyan and Hajigabul regions.



Desert areas

Renewables Grid Integration Project



Wasteland



Bushes



Salyan district area of the route Figure 7.3. View along the Banka SPP - Navahi SS OHL route

The part of the OHL route that falls on the territory of Neftchala, Salyan and Hajigabul districts was agreed upon through correspondence with the relevant executive local authorities (see Appendix 1). The total length of the route is 90 km.



Figure 7-4: Crossing of Banka SPP - Navahi SS OHL through the territory of Shirvan National Park

Taking into account the conditions of dense population in the area where the OHL route falls, a small part of the route passes through the territory of Shirvan National Park at 2 points, and 4 (four) and 7 towers with seating dimensions of 5.5 m x 3.5 m will be installed in those areas. This OHL will be constructed in parallel (at a distance of 20 m) to the 110 kV OHL belonging to Azerenerji JSC, which currently exists in the territory of the OHL National Park, and the service road currently existing in the area will be used for this route. Special mitigation measures will be taken to protect animals and plants in the reserve area during the installation of these supports towers and lines.

Azerenergy JSC sent a letter to MENR for the support towers of the Banka SPP – Navahi SS OHL for part falling on the territory of the Shirvan National Park, and the ministry gave the appropriate consent for the support towers and overhead lines for part falling on the territory of the National Park.



Figure 7-5: Banka SPP – Navahi SS OHL - Part traversing on the territory of the Shirvan National Park

7.2.2 90 km long 330 kV double-circuit Bilesuvar SPP - Navahi SS OHL

Through this OHL, Bilasuvar SPP with a capacity of 445 MW, which will be installed in Bilasuvar district, will be transferred to Navahi SS to integrate the electric power produced into the energy system. This OHL will pass through the administrative areas of Bilasuvar, Salyan and Hajigabul districts.

The part of the OHL route that falls on the territory of Bilasuvar, Salyan and Hajigabul districts was agreed upon through correspondence with the relevant local executive authorities (see Appendix 1). The total length of the route is 90 km.



Figure 7-6: Bilesuvar SPP – Navahi SS OHL route (purple line)

The 90 km length "Bilasuvar SPP-Navahi SS" route of the 330 kV OHL is similar to route No. 1. In other words, the route will pass from the desert area, light bushes, above the 110, 35, 10 kV OHL, above the Kura river, above the "Mil-Mugan" collector, from the agricultural area, near to the Salyan Agro Park area, above 220 kV "Shirvan-Salyan" OHL, near the old fish pond, away from the greenhouse complex, through a small wooded area, a small wetland. The route then passes away 70 meters parallel to the "Astara-Alat" highway. It turns and passes at a distance of 300 meters from the fish pond.

Bilasuvar SPP – Navahi SS line and Banka SPP-Navahi SS go in parallel route till 22-23 km to Navahi 500/330 kV substation. This line passes through the route of 110, 35, 10 kV OHL, the "Baku-Astara" road, some underground communications, near the sand quarry, agricultural fields and enters the 330 kV portals of Navahi SS along the edge of the pond. The intersection with all communications is designed in accordance with EQQQ-ПУЭ standards, taking into account the protection zone of the 330 kV line.

Images of the overhead lines of Bilesuvar SPP-Navahi SS are provided below.



Desert, plain area



Edge of agricultural land

Above the Shirvan collector

Figure 7-7: Images along Bilesuvar SPP – Navahi SS OHL route

7.2.1. 65 km long 330 kV single-circuit Absheron SS - Navahi SS OHL

This OHL will be constructed for transmission of electricity from Navahi substation to Absheron substation. The route will be constructed on a flat and slightly hilly terrain and the route will be easily accessible. It will pass through the administrative areas of Hajigabul, Gobustan and Absheron regions.

The part of the route of OHL that falls on the territory of Hajigabul, Gobustan and Absheron regions was agreed upon through correspondence with the relevant executive local authorities (see Appendix 1). The total length of the track is 65 km.



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Figure 7-8: Absheron SS – Navahi SS OHL route

In the area where the Absheron SS - Navahi YS OHL route passes, the relief mainly consists of low and medium hills and plains, the absolute elevation values of the relief vary between 21.2 (Navai y/s)-223.0 (Gobustan) m.



Figure 7-9: Images along the Absheron SS – Navahi SS OHL route

The following sections describe the initial conditions recorded as part of field reconnaissance during route optimization and preliminary environmental studies.

7.3 Biological Environment

7.3.1 Flora

The territory of the Republic of Azerbaijan has a rich flora. Almost all the world's plant species are spread on the territory of this small country. About 4,500 species of higher, sporulating flowering plants growing in Azerbaijan are united in 125 groups and 920 genera.

The plant species found in the republic make up 66% of the total number of plant species growing in the Caucasus. In addition to plant species widely distributed in the Caucasus and other regions, there are about 240 endemic plant species characteristic of Azerbaijan.

The spread of vegetation is determined by the physical and geographical formation of the region, modern soil and climate conditions, vertical zonation and a number of other factors. Thus, in the lowland part of the republic, desert and semi-desert plant types and wetland plants have developed up to 200 meters high.

Desert-type plant groups are found mainly on the Caspian coast, southeast Shirvan, Mil, Mughan and Shirvan plains. Depending on the salinity of the soil, blackberry, khasevdi, meaty and winter grass plants are common here. Semi-desert vegetation occupies a large area in the steppes of Shirvan, Salyan, Mugan, Mil and Karabakh, as well as in the plains of Jeyranchol, Gobustan and Arazboyu. In Kura-Araz, Gobustan and Jeyranchol, wormwood semi-desert is dominant as a zonal formation. Among other formations, Karagan (Kur-Araz) and Dengiz (Gobustan, Nakhchivan) formations are more typical for Azerbaijan. Other plants that are common in semi-deserts are: bulbous sedge, Japanese tongalotu, hard gouramat, eastern bozag, chilingburnu, grain grasses and a number of salt grasses (cheran, khasevdi, saribash, wintergreen, etc.). Unique to these areas are tugai forests. Basically, the main trees of the forests spread in the valleys of the Kura, Araz and Gabirri rivers are oak, birch, birch, willow, etc.

In the foothill plains of the Greater Caucasus and the Lesser Caucasus, mainly annual and perennial xerophytic plants and shrubs are distributed at an altitude of 200 m to 600-700 m, sometimes up to 1200 m. Higher up, the areas limited to 1800-2200 meters are made of forests.

The total area of the territory of the Republic of Azerbaijan is 86.6 million hectares, of which 1213.7 thousand hectares are forests. Out of this, the area covered by forest is 989.5 thousand hectares, which is 11.4% of the total area. Forest area per person is approximately 0.12 ha, which is 4 times less than the corresponding global average (0.48 ha).

Although forests in Azerbaijan are small in area, they are famous for their richness of species. 435 species of trees and shrubs grow here, 70 of which are endemic species. Broad-leaved forests are typical for the entire territory of the republic. This type of forests is widespread in the Greater and Lesser Caucasus, Talysh mountains.

Forests consist of three main tree species - beech, hemlock and oak. They make up 86.2 percent of the entire forest cover. Besides these, birch, elm, linden, alder, poplar, linden, willow, etc. broad-leaved trees grow. Coniferous forests make up 1.7 percent of the republic's forests. 7 out of 107 tree species growing naturally in Azerbaijan are conifers. They include European larch, Eldar pine, hook pine, multi-fruited, pungent red, and long-stemmed junipers.

There are no forest massifs in the area where the OHLs pass under the project.

7.6.2 Fauna

97 species of mammals, 357 species of birds, 67 species of amphibians and reptiles, 1 species of roundmouth, 97 species of fish, and more than 15,000 species of invertebrates are known in the territory of the Republic.

As already mentioned, most of the project sites are located in urban areas with high anthropogenic influence. Therefore, the mammalian wildlife that inhabits the areas around the site is dominated by

species tolerant to permanent agricultural conditions, such as the common fox (*Vulpes vulpes*), the striped mouse (*Apodemus agrarius*) and the grain mouse (*Microtus socialis*).

There are 10 types of aquatic animals and 54 types of reptiles in Azerbaijan. The project sites are located in semi-arid drylands, which provide a suitable habitat for various reptiles, especially European grass lizard (*Pseudopus apodus*), swift lizard (*Eremias velox*). Common aquatic animals such as the marsh frog (*Rana ridibunda*) or the European tree frog (*Hyla arborea*) are seen in nearby ponds and other bodies of water.

Azerbaijan has a diverse avifauna with 394 bird species recorded from 60 families. About 40% of these species are born in Azerbaijan, and the rest migrate. Although individual species are not mentioned, many birds are observed in the project areas. Agricultural areas are generally more "bird-friendly" environments than other areas.

The names of 108 species of animals are included in the "Red Book" of the Republic of Azerbaijan. Among them, 14 species are mammals, 36 species are birds, 13 are reptiles and amphibians, 5 are fish, and 40 are insects.

As a result of anthropogenic activity, the fauna of the area has continually decreased. The number of wild animals found in the area has decreased due to high population density. In general, the types of wild animals living in the surroundings are as follows:

- Mammals Golden Jackal, Red Fox, hare, porcupine, Pipistrelle Kuhli's Bat, common rat and red-tailed gerbil;
- Birds Common Kestrel, Field Pigeon, Barn Owl, Barn Owl, Pied Wagtail, Black Bird, Nightingale, Rook, Hooded Crow, Common Starling, Blackbird and House Sparrow;
- Reptiles Mediterranean turtle, Caspian gecko and Viper Snake;
- Aquatic and terrestrial green toad.
- Most of the animals and birds settled in the gardens of private houses. Two main mammals (red fox and golden fox) are observed on the nearby slopes and can only be found in the project area at night.

One species of tortoise found in the project area, the Mediterranean tortoise (*Testudo graeca*), is both an internationally and locally protected species, but only inhabits individual fruit and vegetable gardens. Thus, the impact on these animal species is minimal. However, the Contractors must be extremely careful and cautious when operating heavy machinery during the construction phase of the project to avoid injuring animals passing through the project areas. Similarly, the impact on other species is expected to be low. Also, it is recommended not to cut trees during the breeding season (end of April to end of July) to avoid damage to the nests.



Figure 7-10: Zoogeographical map of Azerbaijan

7.6.2.1 Fauna species found in the project area

The current status assessment given below focuses on typical species for the project areas: mammals, reptiles, amphibians and birds. assessment below focuses on species typical of the project areas: mammals, reptiles, amphibians and birds.

Mammals

In general, only a limited number of small and medium-sized mammals were found in habitats that characterized the wider Study Area. In contrast, use of the impact corridor by medium- and large-sized species is likely to be limited to rare occasional visits. Common mammals include jackals (Canis aureus, low concern) and wolves (Canis lipus, low concern) following flocks of sheep to their wintering grounds, and the common (red) fox (Vulpes vulpes, low concern), one of the permanent residents of the study. Other typical mammals found in the area include species of house mice, bats, rabbits, shrews, leeches and badgers.

As shown in Figures 7-10, several tracks and droppings of red fox (Vulpes vulpes) and European hare (Lepus europaeus) were observed during field surveys. Several mouse nests were found in all studied areas.

Based on a review of the available literature and evidence collected during site visits, a total of 38 mammal species (see Table 7-1) can potentially be found within the impact zone. Of these types:

- Safsar (Vormela peregusna) is the only species considered globally vulnerable (vulnerable) according to the IUCN Red List. This type of impact was not detected in the corridor, but is sometimes found in areas with little anthropogenic impact.
- Two species (safsar, sensitive Vormela peregusna and curved-winged bat (endangered) Miniopterus schreibersii) are included in the Red Book of Azerbaijan, they were not found within the impact corridor.
- Three mammal species (grey wolf, low concern Canis lupus, safsar, (vulnerable) Vormela peregusna and big-nosed bat, endangered Miniopterus schreibersii) are included in Appendix II of the Berne Convention, while two other listed species (European badger, low disturbance Meles meles and safsar) are included in Annex III of the Berne Convention.
- Limited species of striped field mouse (Apodemus agrarius) and gray rabbit (Cricetulus migratorius Pallas) have been confirmed in the impact corridor, especially in nearby livestock farms.
- No endemic or range-restricted species have been detected or are expected to be present within the corridor of influence.





Common (red) fox tracks (vulpes vulpes)



Jackal nests

Mouse nests



Nests belonging to rodents

Şəkil 7-11: Mammals' tracks

Table 7-1: Species of mammals potentially present in the impact zone

	Group	Family	Types	En d	Conservation status	Protecti on status	Observat ion/Liter ature.
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			•	IUCN	Az. RDB	BERN	CITES	
		Golden Jackal (<i>Canis</i> <i>aureus)</i>	-	Low concern	no	-	-	L
	Canidae	Wolf (Canis lupus)	-	Low concern	no	Annex II	Anne x. ll	L
Carolivora		Common fox (Vulpes vulpes)	-	Low concern	no	-	-	L
Carnivora	Felidae	Wild cat (Felis chaus)		Low concern	no	-	Anne x. ll	L
	Mustelidae	European badger (<i>Meles meles</i>)	-	Low concern	no	Annex III	-	L
		Safsar (Vormela peregusna)	-	Sensitive	yes	Annex II	_	L
		Leech (Mustela nivalis)	-	Low concern	no	Annex III	-	L
Cetartiodac tyla	Suidae	Wild boar (Sus scrofa)	-	Low concern	no	-	-	L
Chiroptera	Miniopterid ae	Common Curve-winged Bat (Miniopterus schreibersii)	-	endange red	yes	Annex II	-	L
	Vespertilion idae	Asian long- nosed bat (Barbastella leucomelas)	-	Low concern	no	Annex II	-	L

Reptiles

Based on a review of the available literature, species reported to be present in the wider study area include several reptiles, represented by snakes and lizards. Based on the information gathered from the literature review and field observations, a total of 18 reptile species could potentially be present in the study area (Table 7-2). Of these types:

- Two species have been observed (Figure 7-1) the rattlesnake (Dolichophis schmidti, low concern) and the European pond turtle (Emys orbicularis) in the project areas.
- The common tortoise (Testudo graeca) is the only globally threatened (Vulnerable) species according to the IUCN Red List and is included in the Red Book of Azerbaijan. No turtles were

encountered during the observations and there is no indication of their presence in the impact corridor.

- Includes two species of snakes (roof snake, LC Telescopus fallax and checkered water snake -Natrix tessellata) and two species of turtles (European pond turtle - Emys orbicularis and Common turtle - Testudo graeca). Almost all listed species are included in Appendix III of the Berne Convention.
- No endemic or restricted-range species have been found or are expected to be present in the study area.

Sensitive periods for reptiles in the impact corridor should be considered April-August, when reproduction and incubation take place, as well as wintering periods (from mid-October to March) in case of excavation works.



Figure 7-12: Reptiles found in the project area



Group	Family	Туреѕ	End.	Conservation Status		Protection Status		Observa ion/Lite ature.
				IUCN	Az. RDB	BERN	CITES	
	Gekkonidae	Caspian Scarecrow/ Red-bellied Scarecrow (Tenuidactylus caspius)	-	Low concern	no	Annex III	-	L
		Colorful lizard (Eremias arguta)	-	NT	no	Annex III	-	L

Squamat a	Lacertidae	Central Asian colored lizard (Eremias velox)	-	Low concern	no	Annex III	-	L
		Snake-eyed lizard (Ophisops elegans)	-	Low concern	no	Annex II	-	L
		Round- headed lizard (Phrynocephal ushelioscopus)	-	Low concern	no	Annex III	-	L
	Boidae	Sand boa snake (Eryx jaculus)	-	Low concern	no	Annex III	Ann ex ll	L

		Red- bellied/Gol den Scarecrow (Dolichoph isschmidti)	_	Low concern	no	Annex III	-	O/L
	Colubridae	Collared dwarf snake (Eirenis collaris)	-	Low concern	no	Annex III	-	L.
Squamat a	nat	Ring-headed dwarf snake (Eirenis modestus)	-	Low concern	no	Annex III	-	L.
		Olivey Scarecrow (Platyceps najadum)	-	Low concern	no	Annex III	-	L.
		Roof snake (Telescopus fallax)	-	Low concern	no	Annex II	-	L.
	Natricidae	Yellow blindworm (Natrix tessellata)	-	Low concern	no	Annex II	-	L.

	Psammophii dae	Snake (Malpolon monspessulanus	-	Low concern	no	Annex III	-	L.
Testudios	Scincidae	Long-legged skink (Eumeces schneideri)	-	Low concern	no	Annex III	-	L.
s s	Viperidae	A giant snake (Macrovipe ralebetina)	-	Low concern	no	Annex III	-	L.
	Emydidae	European bog turtle (Emys orbicularis)	-	Endanger ed	no	Annex II	-	0
Emydidae		Caspian turtle (Mauremys caspica)	-	Not evaluated at the national level	no	-	-	L
	Testudinidae	Common turtle (Testudo graeca)	-	Sensitive	yes	Qoşm II	Annex II	L

Amphibians

The occurrence of amphibian fauna species is strongly related to the presence of wetlands and wetland vegetation, as these fauna species depend on water, at least for their reproduction.

Sensitive periods for amphibian species in the project area are April-August, when reproduction and incubation take place, as well as wintering periods (from mid-October to March) if excavation works are carried out.

Although data collected during the review of available literature identified four different types of amphibian fauna potentially present in the project area, no amphibian species were observed during site visits (Table 7-3).

None of the species listed in the table below are considered threatened species according to IUCN standards. However, the European tree frog (Hyla arborea) is included in the Red Book of Azerbaijan, and all reported species are included in Appendices II and III of the Berne Convention. No endemic species have been found or are expected to be present in the study area.

No endemic or range-restricted species have been found or are expected to be present in the project area.

Group	Breed	End.	Conservation Status		Protection status		Observation/ Literature
			IUCN	Az. RDB	BERN	CITES	
	Eurasian green frog (Bufotes varia bilis)	-	Limited information	no	-	-	L
Tailless	European tree frog (Hyla arborea)	-	LC	yes	Annex II	-	L
	Long-legged tree frog (Rana macrocnemis)	-	LC	no	Annex III	-	L
	Swamp frog (Pelophylax ridibundus)	-	LC	no	Annex III	-	L

Table 7-3. Amphibians potentially present in project areas

7.8 Biodiversity, Protected Areas, Wetlands

The Project has the potential to affect the biodiversity (habitats and species of flora and fauna). Special attention will need to be paid to the designated areas, important species and habitats with global, European or national importance (according to the international documents and Azerbaijani legislation). A biodiversity protection plan will be prepared as a separate document within the project.

In 2020, the Institute of Geography of Azerbaijan National Academy of Sciences (ANAS) developed an ecological risk map of Azerbaijan based on natural and man-made hazards (main Figure 7-7). This is the first large-scale digital ecological risk map of Azerbaijan based on multi-parameter data. According to that map, the project areas are located in the zone of weak and medium environmental risks.



Figure 7-13: Environmental risks map of Azerbaijan

7.8.1 Study area

An area of 1,000 metres wide OHL corridor(s) (500 metres on both sides from the longitudinal axis of the transmission line), including the SS location, is used for this ESIA scoping phase to present the baseline in wider context, which is considered as representative and sufficient to identify the current biodiversity status in the broader area and to assess indirect impacts from the Project. For Prime Biodiversity Features and critical Habitats an Ecologically Appropriate Assesment Area (EAAA) will be designed. The baseline area is based on the desk-based information, map of eco-systems of Azerbaijan, and biodiversity surveys undertaken from February to April 2024. Most of the data on habitats and species are from the observations during the executed surveys.

The description of habitats and species composition provided in this ESIA Report was based solely on fieldwork observations. Habitats were identified during the field work based on the present plant associations, dominant (edifier) plant species, preservation status and composition of plant species in all layer of the habitat (trees, shrubs and herbs layers).

For the purposes of the ESIA Report, the study area within the infrastructure corridors (defined for the purpose of this appraisal as 100 metres wide corridor) will be used for consideration of the direct effects on the key biodiversity components affected by the Project – especially habitats. This area is generally considered as zone of influence encompassing the main likely significant ecological effects of the Project, including those which would occur by habitat loss or degradation. However, the study area

may be extended to a broader context for important habitats (patches of larger size), disturbance of species, etc.

For the purposes of the ESIA, each site designated for nature conservation interest or proposed for designation (legally protected area and/or internationally recognised area), likely to be affected by the Project, is considered as a study area as a whole in terms to the potential of the project to impact its conservation objective and integrity.

7.8.2 Protected areas

The Caucasus has been designated by the World Environment Fund (WWF) as one of the 25 hotspots in the world in terms of ecological productivity. The Caucasus region has been recognized as a major global ecological area based on criteria such as variety of species, endemism and taxonomic rarity.

The system of protection of public territories is based on multiple structures with different levels of use and protection applied to different categories, as in many countries.

Categories are defined under the State Protected Areas and Controls Act (2000)¹⁰. The protected sites of Azerbaijan are as follows:

- **National parks**: state-owned, environment, history, etc. land and water areas of special importance. The territory of these areas is used for educational, scientific and cultural purposes.
- **Restricted areas:** these areas are similar to National parks, but they do not need to be publicly owned.
- **The State Nature Reserve** was created to protect nature, wild animals and vegetation and the environment. Only scientific research is allowed.
- **The State Nature Sanctuary** is designed to protect endangered species of animals or plants. According to Azerbaijani legislation, any industrial development, interference with animals and vegetation is strictly prohibited.
- **State hunting reserve:** in these areas, the continuous use of wild animals is allowed by hunting.
- Rare trees, caves or paleontological sites are protected under the name of "natural monuments".

The total area of Azerbaijan with specially protected natural areas is 892546.49 ha or 10.3% of the country's territory. There are 10 National Parks (4,87 % of the territory), 10 State Nature Reserves (1,39%) and 24 State Nature Sanctuaries (4,05%) (Table 8). In addition, there are 1038 protected trees (Natural Monuments) and 37 protected geological and paleontological sites. Figure 7-9 shows the locations of protected areas in Azerbaijan.

¹⁰ 5th National Report of the Republic of Azerbaijan to the Convention on Biological Diversity (GEF) and the United Nations Development Program (UNDP). 2014 https://www.cbd.int/doc/world/az/az-nr-05-en.pdf Environmental and Social Impact Assessment
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Figure 7-14: Map of Protected Areas of Azerbaijan

	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number of national parks	8	8	8	8	9	9	9	9	9
Area, thousand hectares	265,3	296	310,5	310,5	322,3	322,3	322,3	322,3	322,3
The number of state nature reserves	12	11	11	11	11	11	11	11	11
Area, thousand hectares	177,4	216,8	209,3	209,3	209,1	209,1	209,1	209,1	209,1
The number of state nature reserves	x	24	24	24	24	24	24	24	24
Area, thousand hectares	x	363,4	361,2	361,2	361,2	361,2	361,2	361,2	361,2

Table 7-4: Protected territories of the Republic of Azerbaijan

As can be seen from the table above, there are a number of protected areas of international/national importance in Azerbaijan. The ESIA phase contributed rerouting of Sub-project 3 to avoid traversing Shirvan National Park (which also includes Shirvan State Nature Reserve) and consulted with design team to consider alternative route. After the land structure plan was prepared by the State Cadastre and Register of Real Estate Public Legal Entity under the Ministry of Economy, the "Cadastre and Geostructure Project-Research Center" LLC of the State Cadastre and Registry of Real Estate under the *Environmental and Social Impact Assessment* Page **164** of **356**

Ministry of Economy of the initial route selected for the said overhead lines, it has been identified that 57 towers fall into the territory of the Shirvan State Nature Reserve. For this reason, the route of the overhead lines was changed and those supports were removed from the territory of the Reserve. We would like to emphasize that because there is no other alternative (otherwise the transition from residential areas is inevitable, which violates the requirements of the protection zone), the route of the overhead line of 7 supports forcible traverse into the territory of Shirvan National Park with 7 supports. The new route will pass through the southwestern part of the National Park.

Azerenerji JSC applied to MENR for permission for OHL to pass through the borders of the National Park, and the relevant consent was given by the ministry. The figure below shows old and new alignment of 330 kV Banka-Navahi OHL.



Figure 7-15: Old and modified routes of the Banka-Navahi overhead line (Exit from the Reserve)

7.8.3 Wetlands

Wetlands of Azerbaijan perform functions such as flood control, water purification, water regulation, production of fish and etc. They exist at all elevation zones from marches in river deltas, to swamps, lakes, and creeks in alpine regions. There are 250 wetland areas, including mountain lakes with total area of 250 km². Ten of which have the surface area more than 5 km². Some of the lakes are freshwater and others are saltwater lakes. Wetlands are being categorised as followings:

- 1. Wetlands of Kura-Araz lowlands
- 2. Wetlands of Absheron;
- 3. Mountain wetlands

Within the framework of the project, the closest wetland to sub-project 1 and sub-project 3 (Navahi
substation and Banka-Navahi and Bilasuvar-Navahi OHL) is Hajigabul Lake. The lake is located near the
city of Shirvan, in the south-east of the Shirvan plain, on the left bank of the Kura river. The lake receives
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water from the Kura River through artificial channels. Until the Mingachevir reservoir was put into use, the floodwaters flowed directly into the Hajigabul lake, which was located closer to the Kura river. All solids brought to the lake settle here, and only after the level drops in Kur, the flow starts in the opposite direction. The thickness of bottom sediments in the lake is more than 1 m everywhere, and their total volume is 9 mln. more than m3. Thus, during its existence, Hajigabul Lake lost 40% of its volume due to siltation and accumulation of vegetation.

Oil products, pesticides and phenols, which are the main pollutants, were observed to be many times higher than normal in Hajigabul Lake. In addition, in 2000, the biological world in the lake was almost destroyed as a result of the toxic substances thrown into the lake by the military unit in Hajigabul.



Figure 7-16: Wetlands near sub-projects 1 and 3.

As we can see from the Figure 7-12 above, wetland area is far away (app. 20-25 km) from the OHLs of Sub-Project 1 and 3 (Navahi SS and Banka SPP-Navahi OHL, Bilasuvar SPP-Nəvahi SS) and will not be impacted by the project construction activities. In addition, project-related infrastructure facilities (eg construction camps, access roads, material plants, etc.) will not be located in the immediate vicinity of the wetlands to avoid any impact on them. Details of mitigation measures will be provided in the ESIA/ESMP for the relevant area.

Mahmudchala Lake, which is an important bird wintering area, is located about 1 km from OHL, which is one of the components of the project Bilasuvar SPP – Navahi SS OHL, which is close to the point of taking energy from Bilasuvar SPP. This lake is the natural habitat of little bustards. Although the option of laying the OHL to the east from the SPP was investigated, since that area is important agricultural land, it was decided to remain on the previous route of the OHL and to take special protective measures for birds in the overhead lines.



Figure 7-17: Lake located in proximity to Bilesuvar SPP – Navahi SS OHL.

7.9. Geology and land

This section deals with key aspects of geology and rock background as well as assessment of potential impacts to those receptors in the Project area.

7.9.1 Assessment methodology

Information on the current situation has been gathered from field visits and desk research, particularly through the Project Institute's geotechnical and geological field survey activities in March-April 2024.

7.9.2. Geology

Geographically, the Project is located on the slope of the eastern belt of the Greater Caucasus. The landscape of the project corridor is completely flat at an altitude of about 100m. However, the surrounding landscape is characterized mostly as arid hills, topped by mud volcanoes.

The dominant geological structures of the Caspian region were formed during the period of tectonic movements resulting in the formation of the Caucasus Mountains and the related basin and plateau structures that make up the Caspian Sea and adjacent land regions. After the initial structures were formed, numerous erosional changes took place in the landscape. Subsequent periods of tectonic compression (mainly during the Late Pliocene) resulted in the formation of a series of fold structures within the region, forming a series of anticlines (upward-trending folds).

Neogene and Anthropogenic sediments are common in the project areas.

The soil is gray-brown. These soils are usually observed at a maximum height of 100 m. Gray-brown soils are typical for dry climates with a maximum annual precipitation of 350 mm. Bio-climatic potential indicator is 0.8 as the lowest soil index for Azerbaijan. Some characteristic features of gray-brown soils are: moisture content: 0.10 - 0.15; decay coefficient 1.0 (not more than 3%); pH: 8.7 - 9.0; water stability in the structure: 22 (this means that the water stability of the composition of the facilities is 22%, and this is the lowest indicator, except for salt and brine); granulometric content: clay content – 0.78; amount of heavy clay – 0.60; average clay content – 1.0; the amount of light clay - 0.73; no loamy sand. Erosion flux varies between 0 and 0.20 km/km2 (this indicates the gully length in 1 km2 area), salinity varies between 0.42 and 1.0 g/m3.

The areas of the project passing through Gobustan and Absheron regions are located in the southeastern part of the Absheron peninsula, at the southeastern end of the Great Caucasus Mountains, within the Samakhi-Gobustan structural zone. The topography in this region is relatively flat near the coastline. It passes through the most asymmetric part of the subzone represented by the Dashmerdan, Galacik-Baridash, Kilic-Goltug, Solakhay, Ayrontokan, Goturdag and Dashgil-Delaniz anticlinal highs. The apical parts of these anticlines are complicated by a series of reverse faults and thrusts and transverse faults and thrusts. Usually at the junctions between these dislocations there are large mud volcanic hills.

7.9.3 Mud volcanoes

The eastern territory of Azerbaijan is characterized by the presence of all existing mud volcanoes. The total number of mud volcanoes and mud volcanic manifestations in Azerbaijan is 353 (154 of them are in the sea).

Compared to other geographical regions, the mud volcanoes of Azerbaijan also differ in terms of the number of eruptions and the daily activity of griffon, sopka and salsa.

The eruption of a mud volcano is usually accompanied by a powerful explosion, deep fissures extending up to several kilometers, a flame 300-350 m high (carbon predominates, the eruption occurs without a flame) and the release of large volumes of mud.

Like other parts of the Langebiz-Alat sub-zone and the rest of the Shamakhi-Gobustan zone, especially the parts of the Project area in Gobustan and Absheron regions are characterized by high mud volcanic activity.

Around the Navahi-Absheron line and the Absheron substation, there are more than 30 mud volcanoes of different sizes and activity characteristics. All volcanic hills are bounded by faults.

The largest volcanoes form conical landforms up to 500 m high with slopes covered by volcanic ejectors, e.g. clayey mud is observed with rock fragments.

Four volcanoes are known near the project area (Navahi SS - Absheron SS line), including three in the east (Goyarchin, Dilangaz and Dashgil – the last one is officially the Gobustan Mud Volcano) and one in the south (Goturdag), but the area is the most common mud volcanoes zone in the country.

Goturdag and Dashgil are also of tourist interest, and the other two volcanoes are sensitive ecological elements. Goturdag and partly Dashgil can also be considered as a potential source of danger in the area. Only two of the four volcanoes (Dashgil and Goturdag) are considered active.

The largest of the listed volcanoes, Goturdag Volcano is 153 m high, located 4.7 km south of the site and is known as one of the largest mud volcanoes in South Gobustan. The first historically recorded eruption of the volcano occurred in 1989. Several more eruptions have occurred since then, including the most powerful eruption in 2005, which produced 235,000 m3 of breccia.

7.9.4 Geomorphology

The project area is located in the southeastern part of the Transcaucasian depression, on the western side of the Baku-Alat-Astara and Baku-Alat-Kazakh highways, characterized by low hills, as shown in Figure 8-1. The area is a plateau area with a slightly sloping, uneven topography, and the grassland is replaced by hills sloping to the north in the southeast, south, southwest direction. In general, the southwestern sides of the Project area are characterized by relatively high hills.

According to the topographic plan, the elevation values of the area vary from a minimum of 60 m AMSL to a maximum of 149.0 m AMSL. The slope of the terrain varies from 1-2° for the total area. Geomorphologically, it consists of Neogene deformed sedimentary rocks located on moderate and weakly dissected synclinal plateaus and ridges.



Figure 7-18. Geomorphological map of Azerbaijan

7.9.5 Seismicity

The territory of the Republic of Azerbaijan is located in the Caucasus segment of the Alpine-Himalayan fold complex. Earthquakes of different intensity in the region are caused depending by a number of factors, including the characteristics of the tectonic structure and geological environment, the depth of the seismic focus, the amplitude of tectonic movement, the type of deformation, etc.

Historically, there have been many catastrophic earthquakes ($M \ge 6$) in the territory of Azerbaijan. Devastating earthquakes in recent years include Agdash (June 1999), Lankaran (1999), Baku (November 2000) and Zagatala (2012). Different intensity levels are regularly observed in the project areas.

According to the Seismic Activity Classification Map of the Republic of Azerbaijan, the Garadagh district of Greater Baku is in the zone of 8-point earthquakes on the Richter scale. Most of the earthquake epicenters are located in the sea, but some may fall in the Achichay-Alat fault dislocation zone.

The strongest earthquake in the history of the region was the earthquake in Baku in 2000. It happened on November 25 at 22:09 local time (UTC 18:09) and the epicenter of the earthquake was the Baku city and the Caspian Sea. This earthquake measured 6.8 on the magnitude scale and the maximum felt intensity was VII on the Mercalli intensity scale. Three minutes later, an earthquake with a magnitude of 5.9 occurred.

7.9.6 Situation in project areas

Seismic surveys were conducted by the Project Institute during the field research activities conducted in March-April 2024. Layer boundaries and thicknesses were determined using the Refracted Wave Method (RDM) and Multichannel Analysis of Surface Waves (MASW). According to the seismic zoning map of the Republic of Azerbaijan, the background seismicity of the area is 82 points (an 8 point earthquake once in 1000 years).

As a result of the research, according to the local norms of Azerbaijan (AzDTN Seismic map), the seismic soil class can be classified as 2 for calculations. The main features are:

- Soils: Rock soils with voids in structure, low moisture content or moist, coarse and medium density, coarse and medium-grained sand, gravelly sand, consistency coefficient iL ≤ 0.5; solid clays and loams with porosity coefficient e < 0.9, sands with e < 0.7;
- Spread speed (m/s): 500-800;
- Calculated soil resistance (R0kgq/cm2): 3-10.

The ThinkHazard website¹¹details how the project districts are classified as moderate and high in earthquake hazard. This means that the probability of a potentially devastating earthquake in the next 50 years is 10%. Based on this information, the impact of earthquakes should be considered at all stages of the Project, especially during design and construction.

¹¹ https://thinkhazard.org/en/report/19-azerbaijan/EQ Environmental and Social Impact Assessment



Figure 7-19: Seismological map of Azerbaijan

7.9.7. Engineer-geological conditions of project components

7.9.7.1. 500/330/10 kV Navahi substation

In order to assess the engineer-geological conditions of the area where the designed objects are located, the engineer-geodetic and engineer-geological search works were performed by the Institute's Engineer-Search Department in January-February 2024.

Cameral processing of field and laboratory studies was performed by the camera team of the department.

The main tasks facing the engineering-geological research works were to determine the geologicallithological structure of the research area, to study the physical-mechanical (geotechnical), chemical properties of the soils underlying the facilities, to study the hydrogeological conditions and exogenous geological processes.

In order to fulfill the issues ahead, initially, the geological fund materials related to the research area were collected, studied, summarized and conclusions were drawn. Then, engineer-geological excavation works, field-test research works were performed in the field, physical-mechanical and chemical analyzes of the samples taken from the wells during the drilling process were carried out in stationary laboratory conditions. Later, statistical calculations of the results of laboratory analyzes were carried out in chamber conditions, geological-lithological columns and geological-lithological sections of the wells were drawn up, and the current technical report was drawn up. The composition, volume and locations of the drilling wells of the planned engineering-geological research works were carried out in accordance with the normative documents, and some corrections were made in accordance with the specific geological conditions. On the other hand, the existing State technical *Environmental and Social Impact Assessment*

norms, rules and standards of the Republic of Azerbaijan were also observed while performing engineering-geological research works and tests for the research area.

It should be noted that necessary measures were taken for the safe execution of works while conducting engineering-geological researches and also to prevent environmental damage during the field work process.

500/300/10 kV "Navahi" substation is administratively located approximately 5 km east of Navahi settlement located on the left bank of Pirsaat river in Hajigabul district, \approx 20 km from Hajigabul city center and 119 km southeast of Baki city.

The area of the substation is rectangular, its dimensions are 435×600 meters, and its area is 26.1 hectares. The following buildings and facilities are planned to be built in the area of the substation:

- 500 kV Open Switchgear;
- 330kV Open Switchgear;
- a 1-story general management station with a 3.0m deep basement measuring 38.4×32.6m;
- pumping station, dimensions 6.0×6.5 meters;
- control launch point, dimensions 15.0×8.0 meters;
- household-drinking and fire-proof water reservoirs, etc.;

- For the engineering-geological justification of the 500/330/10 kV "Navahi" substation, the following research works were performed:

N	Name of study work	The volume, quantity, or number of work								
1	2	3								
A. Field work										
1	Drilling of 127 mm diameter wells using the column method using the UQB-50VS-01 device (80 m x 71 wells)	568 poq.m.								
2	Sampling of wells: a) clay soils	93 sample								
	B. Cameral works									
3	Laboratory tests of physical-mechanical properties of soils	93 sample								
4	Camera processing of field and laboratory studies									
5	Compilation of the engineering-geological report.	1 report								

7.9.7.2 Brief information about the physical-geographical conditions and geological structure of the research area

Orography

The territory of Hajigabul region, which is part of the research area, covers the southeastern part of the Kur-Araz lowland, the southeastern part of the Shirvan plain and the Great Harami ridge. The lowland part of its territory is below sea level.

In the area where the substation is located, the relief consists of low hills and mostly plains, the absolute elevation values of the relief vary between 19.5-21.5 m.

The climate of Hajigabul region belongs to semi-desert and dry desert climate. The hottest months are July-August, with a maximum of 42 degrees, and the coldest months are January and February, with an average monthly temperature of 2.0-3.6 degrees. In some years, the minimum temperature drops to -23 degrees. According to the nearest weather station located in Hajigabul, the average annual temperature is 14.5 degrees.

The long-term average annual precipitation is 254 mm. The maximum amount of precipitation falls in the form of rain in spring and autumn, and the minimum in summer. Precipitation falls in the form of snow only in very harsh winter months.

The main winds are from the northeast and east, with a frequency of about 50%. The repetition of the wind blowing from the western directions is not more than 15-20%. The average wind speed is 3.7 m/s. In summer it is 4.0-4.3 m/sec, and in winter it is no more than 2.7-3.4 m/sec. In the cold period, the relative humidity of the air reaches 85%, and in the summer it does not exceed 51%.

Hydrology

The Pirsaat River flows through the territory, its length is 119 km, the area of its basin is 2280 km². Its source starts from the southern slope of the Main Caucasus (2400 m). Most of its flow comes from rain (70%), snow (14%), and groundwater (16%). Rainfall during the year causes flooding in the river. The average annual water consumption of the river is 1.55 cubic meters per second. 60-70% of its annual flow passes in spring and summer. Its water is sulfate-sodium and has high mineralization (more than 1000 mg/l). A reservoir was built on it.

Soil-vegetation cover

Gray-brown, gray-meadow, meadow-swamp, saline soils are spread in the research area. Vegetation is desert and semi-desert type.

Tectonics, stratigraphy and lithology

<u>Tectonics</u>. The considered region is tectonically within the Shamakhi-Gobustan synclinorium located on the southeastern edge of the Big Caucasus meganticlinorium. The substation area is within the boundaries of the Navahi syncline, which is bounded by the brachyanticlinal folds of the Langebiz-Alat anticlinorium from the north, and the Harami-Mishovdag-Kalmas anticlinal folds from the south. Anticlinal folds are strongly compressed, sometimes they are inverted and split along the arch. The surface of the base of the area is cut in the northeast by the deep southeast-oriented Achichay-Alat fault, and in the southeast by the southeast-oriented Western Caspian fault. The top of the Mesozoic sediments in the study area consists of a relatively low-sloping wing of a large anticlinal uplift. This anticline passes into a deep syncline outside the region in the southeast. The top of the Paleogene-nepgene consists of mudstone, and it is surrounded by anticlinal uplifts from the north and south, which are complicated by large faults, in which mud volcanoes are connected.

The Navai synclinal depression took its modern shape in the Caspian period, separated from the surrounding Harami and Mishovdag ridges, and the cones of the Kalmas and K. Mishovedag mud volcanoes were formed.

The geological structure of the researched region includes Paleogene-Neogen age rocks and up to modern sediments. The total thickness of the Paleogene-Neogene sediments reaches 5-10 km. The oldest sand, sandstone and clay sediments come to the surface in the form of small islands in the rise of the Alat ridge. Quaternary sediments occupy the main part of the area. They consist of marine and continental facies. Their thickness varies from 31 meters in the northwest to 400 meters in the center of the syncline along the Navai valley talverg.

Although the area of the Khval transgression is slightly smaller than that of the Caspian transgression, the sediments of the Upper Quaternary Khval floor are more widespread in the Navai syncline. In the synclinal boundaries, they are spread slightly to the southeast, their thickness reaches 30-40 meters. They mainly consist of thin clayey arragatic clays, lying intermittently and angularly unconformably on the underlying layers.

The terraces of Khvali are noted along the Alat height and in the Langebiz sira mountains at heights of 14-33 meters.

Geomorphology

The research area is located in the lower part of the alluvial-proluvial valley of Pirsaatchay and is called Navai valley. This plain is connected to intermountain depressions, it is bounded by the Alat height from the northwest and north, and the Mishovdag-Kalmas range from the south.

The Navai plain stretches 35 km from the northwest to the southeast and varies in width from 8 to 14 km. Its surface is plain, in some places there are small hills, there are many depressions connected to the ancient course of Pirsaatchay. The relief height varies from 43-45 meters in the northwestern edges to 0-minus 10 meters in the southeast, where the valley widens and merges with the Caspian basin. The height of the surrounding peaks is between 200-300 meters.

The elevations of the Alat range are submeridional, the eastern slopes are slightly inclined, the southwestern slopes are steep on the side of the Navai depression, divided by numerous ravines. In some places, the remains of the terraces of the fourth period can be observed. The highest places of the ridges surrounding the valley belong to the cones of mud volcanoes.

Waste from active mud volcanoes do not reach the Navai Valley. However, floodwaters bring sopka breccias and colluvial sediments into the valley. These sediments cover the valley with a narrow plume. The course of the Pirsaat river has not kept its original form. This course has been strongly modified by leading irrigation canals. The existing channel is 3-4 meters wide and has steep banks 12 meters

(sometimes 4 meters) high. During flood periods, water flows out of the river channel and leading channels and floods the surrounding low-lying areas. In addition, the fields are specially kept under water during irrigation.

Since the soils have low water permeability, the area is subject to swamping. Intensive evaporation dries up the earth's surface and at the same time causes the formation of salinities.

7.9.8. Volume and methodology of engineering-geological research works 7.9.8.1. Drilling of engineering-geological wells, sampling

Thus, for the engineer-geological and hydrogeological grounding of the planned 500/330/10 kV "Navai" substation, field excavation works were performed in the area. 71 drilling wells with a depth of 8.0 have been drilled, total drilling works constitutes - 568.0 p.m. The wells were drilled with a rotating rotor type UQB-2A type drilling rig, with a diameter of 127 mm by column pipe drilling method. Drilling works were mainly carried out without pouring water into the well.

The rock samples taken from the extracted cores for laboratory analysis were placed in boxes with labels in 2 layers of plastic packages to preserve their natural moisture and sent to the stationary laboratory located in Baku.

Laboratory analyzes of physical and mechanical properties of 93 soil samples taken from these wells were performed.

As a whole, the volume and methodology of drilling engineering-geological wells, taking rock samples, packing, transporting, storing and other works related to drilling were performed in accordance with the requirements of Azerbaijan State standards.

7.9.8.2. The scope and methodology of laboratory works

According to the results of field excavations, cast and fine-grained sand soils were found in the studied area. The samples taken from these soils were analyzed in the following composition and volume (quantity).

Nº	Composition of laboratory tests	Volume	
		(quantity)	
1	Tests of physical properties of clay rocks	93 determination	
2	A complete comprehensive determination of the physical	41 complete	
	properties of clayey rocks	physical properties	
3	Tests of fully complex physico-mechanical properties of clay rocks	12 fully complex	
	(including shear resistance determination tests)		
4	Tests of full complex physico-mechanical properties of clay rocks	9 fully complex	
	(including compression tests)		
5	Tests of granulometric composition of clay rocks	93 determination	
6	Tests of swelling parameters in clay rocks	24 determination	

7 B. Chemical analysis of water extracts of soils 13 analys

7.9.9. Engineer-geological conditions of the study area

7.9.9.1. Geological-lithological structure of the area

As mentioned, in order to determine the geological and lithological structure of the area, 71 drilling wells with a depth of 8.0 m were dug, and laboratory analyzes of the physical, mechanical and chemical properties of the soil samples taken from the wells were performed.

Based on these, geological-lithological cross-sections reflecting the geological structure of the field (29 profiles for the field), geological-lithological columns for 71 wells were drawn up.

According to the stock materials and as it can be seen from the performed engineering-geological studies, the geological-stratigraphic structure of the area covered up to the depth of 8.0 m includes the sediments of the Khval floor (Q3 hv) of the fourth period. According to their lithological composition, these sediments mainly consist of clay soil-vegetation cover and clay sediments of the Khval floor in the lower part.

According to the wells dug to a depth of 8.0 m in the research area, soils can be divided into 2 types of layers:

- layer 1 clay with yellowish-gray color, solid and sometimes semi-solid consistency, sometimes with plant roots. It is found at a depth of up to 0.9 m from the earth's surface, and its thickness varies between 0.3-0.9 m, mostly 0.5-0.6 m. Physical and mechanical indicators of these soils vary by area and depth, plant roots are noted in their composition. For this reason, it is recommended to remove the buildings and facilities from their foundation, they are not marked as MGE.
- layer 2 clay is yellowish-gray, dark-yellowish in color, hard and sometimes semi-hard consistency, sometimes with clay aragats, mostly weak and medium swelling.

7.9.10. Physical and mechanical properties of soils

The layer-2 type separated by physical-mechanical indicators and properties is considered as a separate engineering-geological element (MGE-1).

so that,

<u>MGE-1</u> - clay of yellowish-gray and dark-yellowish color, mostly heavy, hard sometimes semi-hard consistency, with clay aragats, sometimes with pebbles (Q3hv).

MGE-1 was found in all soils and drilled wells which forms the basis of the study area. The thickness discovered in the wells varies between 7.0-8.0 meters.

According to the results of swelling tests on 20 samples, these soils have swelling properties. The value of relative free swelling varies in the range of 0.02-0.117, rarely reaching 0.22 (Q-71). So, according to the results of the tests, MGE- 1 soils are weak and mostly medium swelling. The inflation pressure is also variable (Ps=50÷150 kPa).

N	Indicators				N of destination	Medium value	Threshold prices
	Granular 1-0.5mm			D	93	0.1	0.0-0.2
	composition,%		0.5-0.25mm	D	93	0.1	0.0-0.7
			0.25-0.1mm	D	93	0.2	0.1-1.1
			0.1-0.05mm	D	93	6.0	1.8-14.6
		Duct	0.05-0.01mm	D	93	15.7	5.0-52.1
		Dust	0.01-0.002mm	D	93	26.0	18.8-34.3
		Clay	<0.002mm	D	93	51.8	21.0-67.3
2	Natural moistur	e, unit		W	93	0.186	0.107-0.319
3	Plasticity numbe	er, unit		İp	93	0.24	0.19-0.29
4	Flow rate, unit			İL	93	-0.21	-0.58- 0.24
5	Porosity coeffici	ent <i>,</i> unit		е	41	0.759	0.598-0.957
6	Density, q/sm ³	In natural moi	sture	ρω	41	1.90	1.80-2.03
		Dry soil	Dry soil			1.57	1.41-1.72
7	Relative swelling, percent				24	8.9	2.2-22.4
8	Swelling pressur	e, kPa		Ps	10	100	50-150

MGE-1 - gray clay, solid consistency, sometimes	with more than	10% gravel,	medium s	welling
properties;				

According to AzDTN2.15-1 and laboratory research, the following normative values can be accepted for this soil (MGE-1):

Density at natural moisture pnw=1.90 g/cm3 Dry density pn=1.57 g/cm3 Internal friction angle ϕ n=180 55' Clamping force cn=53.5kPa General deformation modulus E(natural)=20.8 MPa Relative inflation=8.9 % Swelling pressure=100 kPa Conditional calculated pressure Ro=340kPa Specific electric resistance of soils p0=100 Ohm*m

The results of laboratory tests of soils, the results of statistical processing of their properties, normative and calculated values for separated MGE-1 are reflected in the tables attached to this report (table 1÷5).

The normative and calculated values of the physical properties of MGE are given according to static calculations, the normative and calculated values of mechanical indicators for MGE-1 are given according to the normative document No. "TN and Q 2.02.01-83".

7.9.11 Chemical aggressiveness of soils against construction structures

Chemical analyzes of water extracts from 13 samples taken from the soil at a depth of 2.5 m to 7.5 m from the surface were carried out in order to determine the chemical aggressiveness of the soils that make up the site against construction structures (table 3).

As can be seen from the results of the chemical analysis, the amount of quickly and moderately soluble salts in the soil varies from 0.54 to 2.92% with an average of 1.97%.

According to the 25100-95 State standard, soils are considered non-saline based on this value of indicators.

The amount of sulfate salts in the soils is between 3127.0-16007.0 mg/kg, and the average value is 11078.0 mg/kg. According to TN and Q 2.03.11-85, the soils are highly aggressive against W4, W6, W8 brand concrete due to the amount of sulfate salts, and strongly aggressive against reinforced concrete structures due to the amount of chloride.

7.9.12. Hydrogeological conditions of the site

No groundwater was found in wells dug to a depth of 8.0 meters in the field.

7.9.13. Anti-processing group of soils

According to TN and Q IV-2-91, the anti-processing for development of soils during the opening of construction pits:

-MGE-1 - 8 "d" (IV)

7.9.14. Conclusion and recommendations

1. The performed engineering-geological and hydrogeological research works allow to illuminate the lithological structure of the research area, hydrogeological conditions, physical and strength properties of soils with sufficient accuracy.

In the geological-stratigraphic structure of the research area, the deposits of the Quaternary Khval floor **(Q3hv)** are widespread. These sediments consist mainly of moderately and weakly swelling clays with a hard sometimes semi-solid consistency, marked by thin clay veins. From the top, 0.3-1.0 meters, mostly 0.5-0.6 meters thick, is covered with a clay layer containing plant roots. The physical and mechanical indicators of the soils of this top layer vary by area

and depth. For this reason, it is recommended to remove the buildings and facilities from their foundation, they are not marked as MGE.

In the research area, 1 main type of soil layer selected according to its lithological composition, degree of density and engineering-geological properties is noted:
 MGE-1 (clay with solid consistency, sometimes with clay aragats), Q3hv.

Clays of MGE-1 have medium, sometimes weak swelling properties. The swelling pressure is on average 100 kP.

Taking into account the swelling property of clays in contact with water, it is recommended to take protective constructive measures on the basis of buildings and facilities.

- 3. The results of laboratory studies of physical-mechanical and chemical properties of different soil layers are reflected in tables 1÷3 attached to this text, normative and calculation values of soils in tables 4÷5 attached to this report.
- 4. No groundwater was found on the site up to a depth of 8.0 meters.
- 5. The amount of sulfate salts in the soils is between 3127-16007 mg/kg, and the average value is 11078 mg/kg. According to TN and Q 2.03.11-85, the soils are evaluated as highly aggressive towards concrete due to the amount of sulfate salts, and strongly aggressive towards reinforced concrete constructions due to the amount of chlorine.
- 6. According to Appendix No. 1 of AzDTN 2.3-1 regulatory document, Hajigabul district, which is administratively part of the research area, belongs to the seismic zone of 82 points (on the MSK scale). Based on physical properties, the soils that make up the research area are according to AzDTN 2.3-1 normative document 1 According to Table 1, they are classified as II class due to their seismic properties.
- 7. The depth and type of the foundation of the building designed on the site should be selected based on the physical-mechanical and normative indicators of the soil, the engineering-geological and seismic conditions of the site.
- 8. Anti-processing group of soils during the opening of construction pits: MGE-1 8 "d" (IV)

Thus, the engineering-geological conditions of the 500/330/10kV "Navai" substation of the projected area are considered relatively complex, but they do not have a counter-indicator for the construction of the projected facilities, provided that the above-mentioned recommendations (swelling property of the soil, strong aggressiveness against concrete) are taken into account.
7.10. 500 kV Navahi SS – Absheron SS OHL

The current 500 kV overhead line is designed from the 500/330/220/1010kV "Absheron" substation to the junction of the 500/330/10kV "Navai" SS, the total length of the overhead line is 59,500 m.

Engineer-geological excavation works on the route of OHL were performed in March-April 2024, engineer-geological chamber works were performed in July 2024 by the employees of the engineering-geology department.

For this purpose, the following amount of research work has been carried out for the engineeringgeological justification of the 500kV "Absheron" SS-"Navai" SS overhead line designed for this purpose:

Ν	Name of study work	The volume, quantity, or
		number of work
1	2	3
	A. Field work	
1	Drilling of 127 mm diameter wells using the column method using the UQB-50VS-01 device (6.0 m x 208 wells)	1248.0 poq.m.
2	Sampling of wells: 14 clay soils 15 gravel soils 16 rock type soils	200 sampling 18 sampling 3 sampling
	B. Cameral works	
3	Laboratory tests of physical-mechanical properties of soils	221 sampling
4	Camera processing of field and laboratory studies	
5	Compilation of the engineering-geological report	

The main tasks facing the engineer-geological research work on the OHL route consisted of determining the geological-lithological structure of the research area, studying the physical-mechanical (geotechnical), chemical properties of the soils underlying the facilities, studying hydrogeological conditions and exogenous geological processes.

In order to fulfill the issues ahead, initially, the geological fund materials related to the research area were collected, studied, summarized and conclusions were drawn. Then, engineer-geological excavation works, field-test research works were performed in the field, physical-mechanical and chemical analyzes of the samples taken from the wells during the drilling process were carried out in stationary laboratory conditions. Later, statistical calculations of the results of laboratory analyzes were carried out in camera conditions, geological-lithological columns and geological-lithological sections of the wells were drawn up, and the current technical report was drawn up. The composition, volume and locations of the drilling wells of the planned engineering-geological research works were carried out in accordance with the normative documents, and some corrections were made in

accordance with the specific geological conditions. On the other hand, the existing State technical norms, rules and standards of the Republic of Azerbaijan were also observed while performing engineering-geological research works and tests for the research area.

It should be noted that necessary measures were taken for the safe execution of works while conducting engineering-geological researches and also to prevent environmental damage during the field work process.

7.10.1 BRIEF INFORMATION ABOUT THE PHYSICAL AND GEOGRAPHICAL CONDITIONS AND GEOLOGICAL STRUCTURE OF THE RESEARCH AREA

The route of the 500 kV OHL between the 500/330/220/10 kV "Absheron" substation and the 500/330/10 kV "Navai" substation administratively passes through the territory of Absheron and Hajigabul districts. The total length of the route is about 59.5 km.

Thus, the 500/330/220/10 kV "Absheron" substation is located 39 km northwest of Baku city, 4 km south of the Baku-Shamakhi highway. This area administratively belongs to Absheron district.

500/300/10 kV "Navai" substation is administratively located approximately 5 km east of Navai settlement located on the left bank of Pirsaat river in Hajigabul district, \approx 20 km from Hajigabul city center and 119 km southeast of Baki city. In some places, there are agricultural fields in the area. At the same time, in some parts of the communication lines pass the territory crossed by OHL.

Orography

The area through which the OHL route passes from Absheron region belongs to the southeastern foothills of the Greater Caucasus, orographically, this region consists of a mountainous area with relatively low elevation values and a terraced plain of the Caspian depression, which gradually descends towards the sea. In the suburbs, the terraces are vertically separated from each other by a height of about 10-20 meters. Within the limits of the research area, the ground surface is smooth, the absolute height values of the terrain vary between 174-190 m, and the general trend is towards the southeast.

The territory of Hajigabul region, which is part of the research area, covers the southeastern part of the Kur-Araz lowland, the southeastern part of the Shirvan plain and the Great Harami ridge. The lowland part of its territory is below sea level.

In the area where the air line route passes, the relief mainly consists of low and medium hills and a plain, the absolute elevation values of the relief vary between 21.2 (Navai y/s)-223.0 (Gobustan) m.

Climate

The climate of the Absheron and Hajigabul regions, through which the OHL route passes, is characterized by a moderate - hot semi-desert and dry desert climate and semi-desert and dry desert climate.

A brief description of the main elements of the climate of the "Absheron" SS area (air temperature, humidity, atmospheric precipitation, wind) is given based on the observations made by the Shubani meteorological station (located at an altitude of 237 m according to the Baltic altitude system, the airfoil height is 110 m), located 20 km from the territory of the substation.

Climate indicators of Absheron region are given in the following tables:

IV

9.2

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4.1

			Averu	iye mc	nitiny (unu un	ուսս բ	necipi	ution	(11111)				
Ν	Name of	1	11	<i>III</i>	IV	V	VI	VII	VIII	IX	X	XI	XII	Average
	settlement													annual
1	Absheron	16	12	14	14	7	6	3	4	9	22	22	16	145
			Avera	ige mo	nthly a	and an	nual a	ir tem	peratu	re, C ⁰				

VI

20.8

VII

23.9

VIII

23.7

IX

19.5

Χ

14.4

ΧI

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Average monthly and annual precipitation (mm)

Relative humidity of the air, %

16.0

V

Ν	Name of	1	11	111	IV	V	VI	VII	VIII	IX	X	XI	XII	Average
	settlement													annual
1	Absheron	78	78	77	69	64	57	58	63	68	74	77	76	70

Recurrence of winds in different directions an	d complete calm	throughout the ver	r (%)
Recurrence of winds in different directions and	a complete cum	tiniougnout the yet	11 (70)

Ν	Name of	N	NE	Ε	SE	S	SW	W	NW	Complete
	settlement									calm
1	Absheron	44	6	3	6	18	12	3	8	4

The hottest months in Hajigabul are July-August, with a maximum of 42 degrees, and the coldest months are January and February, with an average monthly temperature of 2.0-3.6 degrees.

In some years, the minimum temperature drops to -23 degrees. According to the nearest weather station located in Hajigabul, the average annual temperature is 14.5 degrees.

The long-term average annual precipitation is 254 mm. The maximum amount of precipitation falls in the form of rain in spring and autumn, and the minimum in summer. Precipitation falls in the form of snow only in very harsh winter months.

The main winds are from the northeast and east, with a frequency of about 50%. The repetition of the wind blowing from the western directions is not more than 15-20%. The average wind speed is 3.7 m/s. In summer it is 4.0-4.3 m/sec, and in winter it is no more than 2.7-3.4 m/sec. In the cold period, the relative humidity of the air reaches 85%, and in the summer it does not exceed 51%. In winter, the depth of soil freezing does not exceed 0.4 m.

Hydrology

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1

Name

settlement

Absheron

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The hydrographic network in the area where the route of the 500 kV OHL passes is very weak.

In the western part of the Absheron peninsula, where the 500/330/220/10 kV "Absheron" substation is located, the largest water artery is the Ceyrankechmez river (Sumgayitchay in its lower stream), which passes 5-6 km north of the research area.

The Pirsaat River flows through the area where the 500/330/10 kV "Navai" substation is located, its length is 119 km, and the area of its basin is 2280 km². Its source starts from the southern slope of the Main Caucasus (2400 m). Most of its flow comes from rain (70%), snow (14%), and groundwater (16%). Rainfall during the year causes flooding in the river. The average annual water consumption of the river is 1.55 cubic meters per second. 60-70% of its annual flow passes in spring and summer. Its water is sulfate-sodium and has high mineralization (more than 1000 mg/l). A reservoir was built on it.

Soil-vegetation cover

The territory of the 500 kV OHL line is covered with sandy-clay and sandy gray soil. Here there are plant species typical of semi-deserts. Vegetation almost consists of grasses, meadow-swamp, saline soils are common. Vegetation is desert and semi-desert type. Only residential areas have artificial greens.

7.10.2. Tectonics, stratigraphy and lithology

According to the taxonometric scheme of engineering-geological zoning of Azerbaijan, the territory of the section of the 500kV "Absheron" SS - "Navai" SS OHL route, passing through Absheron region, belongs to the research region Gobustan-Garadagh foothill province. This province covers the western part of the Absheron Peninsula, the eastern foothills of Gobustan and partly the low-lying mountainous part. Tectonically, this province is part of the Shamakhi-Gobustan synclinorium. Here, Pliocene rocks up to the Quaternary are collected in dome-shaped brachyanticlines complicated by faults. These brachyanticlines are separated from each other by wide, slightly inclined synclines. The sediments of the mollas formation are mainly distributed in the province, and the surface sediments consist of the formations of the mud volcanoes of the mountain slopes and the transgression of the Caspian Sea. Among the bedrocks, clays, marls, sands, gravelites of the Upper Cretaceous, sandy-clay sediments of the Paleogene-Neogene, clays of the Absheron and Agchagil floors, and detrus limestones of the middle and upper Absheron are found here.

The immediate area is formed from the sediments of the Caspian floor of the fourth period to a depth of 25-30 m from the ground surface. These sediments consist of clays, clays, and gravels with clay-clay fillers.

The terrain of the route is mainly hilly plain and hilly. The surface of the territory consists of wide plains, ridges, plateaus and hills separated from each other by valleys and depressions.

Hajigabul region is tectonically within the Shamakhi-Gobustan synclinorium, which is located on the southeastern edge of the Great Caucasus meganticlinorium. The area of the substation is within the boundaries of the Navai syncline, which is bounded by the brachyanticlinal folds of the Langebiz-Alat anticlinorium from the north, and the Harami-Mishovdag-Kalmas anticlinal folds from the south.

Anticlinal folds are strongly compressed, sometimes they are inverted and split along the arch. The surface of the base of the area is cut in the northeast by the deep southeast-oriented Achichay-Alat fault, and in the southeast by the southeast-oriented Western Caspian fault.

The roof of the Mesozoic sediments in the study area consists of a relatively low-sloping wing of a large anticlinal uplift. This anticline passes into a deep syncline outside the region in the southeast. The top of the Paleogene-nepgene consists of mud, surrounded from the north and south by anticlinal uplifts, which are complicated by large faults, in which mud volcanoes are connected.

The Navai synclinal depression took its modern shape in the Caspian period, separated from the surrounding Harami and Mishovdag ridges, and the cones of the Kalmas and K. Mishovedag mud volcanoes were formed.

Paleogene-Neogene (P2+N1) age rocks and up to modern sediments are involved in the geological structure of the researched region. The total thickness of the Paleogene-Neogene sediments reaches 5-10 km. The oldest sand, sandstone and clay sediments come to the surface in the form of small islands in the rise of the Alat ridge. Quaternary sediments occupy the main part of the area. They consist of marine and continental facies. Their thickness varies from 31 meters in the northwest to 400 meters in the center of the syncline along the Navai valley talverg.

Although the area of the Khval transgression is slightly smaller than that of the Caspian transgression, the sediments of the Upper Quaternary Khval floor are more widespread in the Navai syncline. In the synclinal boundaries, they are spread slightly to the southeast, their thickness reaches 30-40 meters. They mainly consist of thin clay arragatic clays, lying intermittently and angularly unconformably on the underlying layers.

The terraces of Khvali are noted along the Alat height and in the Langebiz sira mountains at heights of 14-33 meters.

No tectonic disturbances were noted in the bedrock in the research area.

Thus, based on the stock materials and as can be seen from the performed engineering-geological studies, up to a depth of 6.0 m, the geological-stratigraphic structure of the area mainly includes the sediments of the Caspian and Khval floors (Q2+3) of the Quaternary period, clay according to its lithological composition, clay and gravel sediments and Paleogene-neogene (P2+N11) age sediments are present and lithologically they are represented by semi-rock type (weak sandstone) soils.

7.10.3. Geomorphology

The territory of Absheron district, where the highway of OHL passes, geomorphologically belongs to the low mountains. Arid-denudation, erosion-denudation, abrasion and accumulation relief processes are predominant here. Coastal processes, in particular, the formation of a coastal ridge consisting of modern Caspian sediments, have led to the creation of lagoons here. So, relatively small lagoons are around Gilazi cape. It is necessary to mention swamping in some places as a result of exogenous geological processes in the area.

At the same time, a part of the research area (Hajigabul district) is located in the lower part of the alluvial-proluvial valley of Pirsaatchay and is called Navai valley. This plain is connected to intermountain depressions, it is bounded by the Alat height from the northwest and north, and the Mishovdag-Kalmas range from the south.

The Navai plain stretches 35 km from the northwest to the southeast and varies in width from 8 to 14 km. Its surface is plain, in some places there are small hills, there are many depressions connected to the ancient course of Pirsaatchay. The relief height varies from 43-45 meters in the northwestern edges to 0-minus 10 meters in the southeast, where the valley widens and merges with the Caspian basin. The height of the surrounding peaks is between 200-300 meters.

The elevations of the Alat range are submeridional, the eastern slopes are slightly inclined, the southwestern slopes are steep on the side of the Navai depression, divided by numerous ravines. In some places, the remains of the terraces of the fourth period can be observed.

The highest places of the ridges surrounding the valley belong to the cones of mud volcanoes.

Waste from active mud volcanoes do not reach the Navai Valley. However, floodwaters bring sopka breccias and colluvial sediments into the valley. These sediments cover the valley with a narrow plume. The course of the Pirsaat river has not kept its original form. This course has been strongly modified by leading irrigation canals. The existing channel is 3-4 meters wide and has steep banks 12 meters (sometimes 4 meters) high. During flood periods, water flows out of the river channel and leading channels and floods the surrounding low-lying areas. In addition, the fields are specially kept under water during irrigation.

Since the soils have low water permeability, the area is subject to swamping. Intensive evaporation dries up the earth's surface and at the same time causes the formation of salinities.

It is necessary to mention swamping in some places as a result of exogenous geological processes in the area.

7.10.4. Volume and methodology of engineering-geological research works 7.10.4.1 Drilling of engineering-geological wells, sampling

For the engineering-geological and hydrogeological justification of the 500 kV "Absheron" SS-"Navai" SS OHL, the following studies have been carried out in the area:

- 208 drilling wells with a depth of 6.0 meters were dug in the area; total excavation works – 1 248.0 meters;

- damaged and intact samples - 221 samples.

The wells were drilled with a rotating rotor type UQB-2A drilling rig, with a diameter of 127 mm, using column pipe drilling. Drilling works were carried out mainly without pouring water into the well in clay soils, by the "dry" method, and by pouring water into the well in gravelly soils. The cores were obtained by means of two-layered column tubes with a diameter of 127 mm, by the method of slow rotation drilling.

Intact rock samples taken from extracted cores for laboratory analysis were wrapped in a filter, paraffined, then equipped with labels, packed in core boxes in plastic bags, and sent to a stationary laboratory located in Baku.

As a whole, the volume and methodology of drilling engineering-geological wells, taking rock samples, packing, transporting, storing and other works related to drilling were performed in accordance with the requirements of Azerbaijan State standards.

7.10.4.2. The scope and methodology of laboratory works

According to the results of field excavations, cast and fine-grained sand soils were found in the studied area. The samples taken from these soils were analyzed in the following composition and volume (quantity).

Nº	Composition of laboratory tests	Volume
		(quantity)
	A. Tests of physical and mechanical properties of soils	
1	Tests of physical properties of rocks	221 tests
2	A complete comprehensive determination of the physical	95 complete
	properties of clayey rocks	physical properties
3	Tests of fully complex physico-mechanical properties of clay rocks	22 fully complex
	(including shear resistance determination tests)	
4	Tests of full complex physico-mechanical properties of clayey	20 fully complex
	rocks (including compression tests)	
5	Tests of granulometric composition of rocks	218 tests
6	Analysis of physical properties of rock-type rocks	3 tests
7	B. Chemical analysis of water extracts of soils	37 analysis

7.10.5. Engineering – geological conditions of Study area

7.10.5.1. Geological-lithological structure of the area

As mentioned, in order to determine the geological and lithological structure of the area, 208 drilling wells with a depth of 6.0 m were dug, and laboratory analyzes of the physical, mechanical and chemical properties of the soil samples taken from the wells were performed.

Based on these, geological-lithological cross-sections reflecting the geological structure of the level (12 profiles along the EVX line), geological-lithological columns for 208 wells were drawn up.

Thus, based on the fund materials and as can be seen from the performed engineering-geological studies, up to a depth of 6.0 m, the geological-stratigraphic structure of the area mainly contains the sediments of the Caspian and Khval floors of the Quaternary period (Q2+3) and Paleogene-neogene (P2+N11) older sediments are involved.

7.10.5.2. Physical and mechanical properties of soils

Based on the wells dug to a depth of 6.0 m on the planned 500 kV "Absheron" SS-"Navai" SS OHL line, 4 types of layers can be distinguished:

- layer 1 – grayish-brown clay, solid sometimes semi-solid consistency, sometimes with pebbles;

- layer 2 brown clay, solid and sometimes semi-solid consistency, sometimes with pebbles;
- layer 3 pebble sediment with clay filler;
- layer 4 semi-rock type soil sandstone, weak hardness, in clay-carbonate cement.

The 4 types of layers separated based on their physical-mechanical indicators and properties are treated as separate engineering-geological elements (MGE).

so that,

- MGE-1 – grayish-brown clay, solid sometimes semi-solid consistency, sometimes with pebbles (Q₂₊₃);

- MGE-2 – brown clay, solid and sometimes semi-solid consistency, sometimes with pebbles (Q_{2+3}) ;

- MGE-3 – pebble sediment with clay filler (Q_{2+3}) ;

- MGE-4 - semi-rock type soil - sandstone, weak hardness, in clay-carbonate cement ((P₂+N¹₁).

Below are the physical and mechanical properties of soils by engineering-geological elements.

<u>MGE-1</u> – grayish-brown clay, solid sometimes semi-solid consistency, sometimes with pebbles (Q_{2+3}). This element is the bedrock of the OHL route crossing and is traced along the entire line. This element route is found as the first layer above the ground surface, the thickness of the layer opened by wells varies between 0.9-6.0 meters and it is found at a depth of 0.0-4.0m from the ground surface.

N		Indic	ators	indekx	Destinatio number	Medium value	Threshold value
			40-20mm	D	105	2.6	0.0-14.1
		Dobblo	20-10mm	D	105	2.9	0.0-0.4
			10-5mm	D	105	2.5	0.0-11.0
			2-5mm	D	105	3.2	0.0-17.0
	ion, %		2-1 mm	D	105	4.0	0.0-17.0
			1-0.5mm	D	105	2.8	0.1-15.1
1	osit	Sand	0.5-0.25mm	D	105	3.2	0.1-+16.6
	npa		0.25-0.1mm	D	105	2.7	0.1-20.9
	CO		0.1-0.05mm	D	105	23.3	1.5-51.3
	ular	Duct	0.05-0.01mm	D	105	24.8	4.4-42.9
	anı	Dust	0.01-0.002mm	D	105	17.8	4.7-29.8
	Gr	Clay	<0.002mm	D	105	22.3	8.7-29.9

2	Natural moistur	e, unit	W	105	0.124	0.073-0.175
3	Plasticity numb	er, unit	İp	105	0.13	0.08-0.16
4	Flow rate, unit		İL	105	-0.53	-0.98- (-)0.21
5	Porosity coeffic	е	50	0.641	0.547-0.729	
6	Density, q/sm ³	natural moisture	ρω	50	1.86	1.76-1.93
		Dry soil	$ ho_d$	50	1.66	1.58-1.75

The density of soil particles in these soils is equal to 2.72 q/sm³.

According to TN and Q 2-02.01-83 and laboratory research, the following normative values can be accepted for this soil (MGE-1):

Conditional calculated pressure Ro=265 kPa Adhesion force cⁿ =31.5 kPa Internal friction angle ϕ n=240 General deformation modulus E(natural)=22.5 MPa Density at natural moisture ρ^n_w =1.86 q/sm Dry density ρ^n =1.66 q/sm³

MGE-2 – brown clay, solid and sometimes semi-solid consistency, sometimes with pebbles (Q_{2+3}). Along the route, these rocks can be followed until the end of the section, sometimes with a local character. The exposed thickness of the layer varies between 2.0-6.0 meters and is found at a depth of 0.0-0.9m from the ground surface.

N		Indic	ators	indekx	Destinatio number	Medium value	Threshold value
			40-20mm	D	95	0.4	0.0-0.4
		Dobblo	20-10mm	D	95	1.5	0.0-3.6
		PEDDIE	10-5mm	D	95	0.7	0.0-1.3
			2-5mm	D	95	2.5	0.0-5.0
	%		2-1 mm	D	95	3.8	0.0-10.5
	ion,		1-0.5mm	D	95	1.4	0.0-9.1
1	osit	Sand	0.5-0.25mm	D	95	1.6	0.0-+11.0
	npa		0.25-0.1mm	D	95	1.2	0.1-7.3
	col		0.1-0.05mm	D	95	11.4	2.3-26.6
	llar	Dust	0.05-0.01mm	D	95	19.2	5.0-34.3
	anı		0.01-0.002mm	D	95	21.7	9.7-31.0
	g	Clay	<0.002mm	D	95	43.1	30.5-62.6
2	Natural mo	isture, unit.		W	95	0.171	0.134-0.300
3	Plasticity nu	umber, unit		İp	95	0.21	0.18-0.29
4	Flow rate, u	ınit		İL	95	-0.29	-0.56- 0.15
5	Porosity co	efficient, unit		е	45	0.641	0.547-0.729
6	Density, q/s	sm ³ natural n	noisture	ρω	45	1.86	1.76-1.93

ρ_d 45 1.66 1.58-1.75	
----------------------------------	--

The density of soil particles in these soils is equal to 2.74 q/sm³.

According to TN and Q 2-02.01-83 and laboratory research, the following normative values can be accepted for this soil (MGE-2):

Conditional calculated pressure R_0 =460 kPa

Adhesion force cⁿ=68.0 kPa

Internal friction angle $\phi^n=20^0$

General deformation modulus E(natural)=24.0 MPa

Density at natural moisture ρ^n_w =1.95q/sm

Dry density ρ^n =1.66 q/sm³

MGE-3 – pebble sediment with clay filler (Q_{2+3}) .

The distribution of this element along the route, the intersection is only Pk 527÷Pk 577 (Q-185÷ Q-202) is followed in the part. The exposed thickness of the element is 1.0-4.5 meters.

N		Indica	ators	index	Destinatio umber	Medium value	Threshold value
			40-20mm	D	18	16.0	1.7-22.9
		Dobblo	20-10mm	D	18	24.9	3.0-37.9
		PEDDIE	10-5mm	D	18	19.0	11.9-23.0
	%		2-5mm	D	18	4.5	2.0-18.2
	ou,		2-1 mm	D	18	2.5	0.7-15.3
	siti		1-0.5mm	D	18	1.4	0.1-3.1
1	bdu	Sand	0.5-0.25mm	D	18	1.4	0.3-3.1
	cor		0.25-0.1mm	D	18	2.2	0.3-23.9
	lar		0.1-0.05mm				
	nue	Duct	0.05-0.01mm	D	18	28.0	1.5-27.3
	5 5	Dust	0.01-0.002mm				
		Clay	<0.002mm				
2	Plasticity n	umber (filler), ι	init	İp	18	0.15	0.05-0.24

According to TN and Q 2-02.01-83 and laboratory research, the following normative values can be accepted for this soil (MGE-3):

Conditional calculated pressure R_0 =450 kPa Sticking force cⁿ=2 kPa Internal friction angle ϕ^n =43⁰ General deformation modulus E(natural)=50 MPa Density at natural moisture ρ^n_w =2.00q/sm³ Dry density ρ^n =1.82 q/sm³ Particle density ρ_s =2.66 q/sm³

MGE-4 – semi-rock type soil – sandstone, weak hardness, in clay-carbonate cement, softened in water $((P_2+N_1^1))$. This element is local in cross-section and is found only in 4 wells (Q-131÷134), thickness 1.5-It varies between 4.0m.

Uniaxial compressive strength is on average 2.5 MPa when dry, 1.1 MPa when saturated with water, and the softening factor is 0.43.

Thus, due to its resistance to uniaxial compression when saturated with water, this soil (according to AUSS 25100) is classified as a weakly hard, water-softening semi-rock type soil.

Based on CH_MΠ 2-02.02-85 (Basics of hydraulic installations) applied to rock-type soils and static processing of laboratory studies, the following normative values can be accepted for this soil (MGE-4):

Adhesion force cⁿ=30 kPa Internal friction angle ϕ^n =26°24['] General deformation modulus E(natural)=1000 MPa Density at natural moisture ρ^n w=1.80 q/sm Dry density ρ^n =1.71 q/sm³ Dry uniaxial compressive strength - 2.5 MPa Uniaxial compressive strength when saturated with water is 1.1 MPa The conventional calculated pressure for this soil is R₀=210 kPa.

7.10.5.3. Chemical aggressiveness of soils against construction structures

In order to determine the chemical aggressiveness of the soils that make up the area against construction structures, chemical analyzes of water extracts from 37 samples taken from clay soil and gravel sediment filler at a depth of 1.0 m to 3.5 m from the surface of the earth were carried out. As can be seen from the results of the chemical analysis, the amount of quickly and moderately soluble salts in the soil varies between 0.14-0.44% with an average of 0.26%. Due to this value of the indicators, according to the State standard 25100-96, the soils are considered non-saline.

The amount of sulfate salts in the soil ranges from 4,670 to 26,109 mg/kg, and the average value is 12,428 mg/kg. Due to the amount of sulfate salts, the soils are strongly aggressive against W4 brand concrete (portland cement) according to TN and Q 2.03.11-85. Due to the amount of chlorides, it is considered highly aggressive against reinforced concrete structures.

7.10.5.4. Hydrogeological conditions of the area

Groundwater was not found in wells dug to a depth of 6.0 meters along the route of the planned 500 kV "Absheron" SS - "Navai" SS OHL line.

7.10.5.5. Anti-processing group of soils

TN and Q IV-02-91 due to the difficulty of mechanical mechanisms and manual soil digging (pit digging); On the basis of table 1 of IV-05-91 (soil works), the clauses and groups to which the soils belong are (manually) reflected in the "N-H" table. Group of soils against development:

- MGE-1- 35g(III); - MGE-2- 8d(IV); - MGE-3- 6a(I);
- MGE-4-30a(V).

7.10.5.6. Conclusion and recommendations

1. The performed engineering-geological and hydrogeological research works allow to show the lithological structure of the area, hydrogeological conditions, physical and strength properties of the soil with sufficient accuracy.

The geological-stratigraphic structure of the area through which the route passes, up to a depth of 6.0 m, mainly includes sediments of the Caspian and Khval floors of the Quaternary period (Q_{2+3}) and $(P_2+N_1^1)$ age sediments are present and lithologically they are represented by semirock type (weak sandstone) soils.

2. In the research area, 4 main types of soil layers selected according to their lithological composition, degree of density and engineering-geological properties are noted:

- **MGE-1** – grayish-brown clay, solid sometimes semi-solid consistency, sometimes with pebbles (Q2+3);

- MGE-2 – brown clay, solid and sometimes semi-solid consistency, sometimes with pebbles (Q2+3);

- MGE-3 – pebble sediment with clay filler (Q2+3);

- **MGE-4** - semi-rock type soil - sandstone, weak hardness, in clay-carbonate cement $((P_2+N_{-1}^1)$.

- 3. Groundwater was not found in wells dug to a depth of 6.0 m in the area along the route of OHL.
- 4. The amount of sulfate salts in the soil ranges from 4,670 to 26,109 mg/kg, and the average value is 12,428 mg/kg. Due to the amount of sulfate salts, the soils are strongly aggressive against W₄ brand concrete (portland cement) according to TN and Q 2.03.11-85. Due to the amount of chlorides, it is considered highly aggressive against reinforced concrete structures.
- 5. Absheron and Hajigabul districts, which are administratively part of the research area, belong to the 8₂ -point (MSK scale) seismic zone according to Appendix No. 1 of the AzDTN 2.3-1 normative document operating in the territory of the Republic of Azerbaijan.

According to table 1 of AzDTN 2.3-1 normative document, the soils that make up the research area on the basis of physical properties are classified as II class due to seismicity characteristics.

The area is located in the low and medium mountainous belt. An example is the formation of ravines from exogenous geological processes and manifestations in the area.

6. Anti-processing group of soils during opening of construction pits TN and Q IV-02-9; According to IV-05-91:

- MGE-1- 35g(III); - MGE-2- 8g(IV) - MGE-3- 6a(I)

- MGE-4- 30a(V)

Thus, the engineering-geological conditions of the territory of the planned 500V "Absheron" SS - "Navai" SS overhead line do not have an adverse indicator for construction.

7.11. 330 kV Banka SPP – Navahi SS and Bilasuvar SPP – Navahi SS OHLs

Engineer-geodesic and engineer-geological search works were carried out by the institute's Engineer-Search Department in June-July 2024 to assess the engineer-geological conditions of the OHL route. The length of the overhead line is 89 km.

Cameral processing of field and laboratory studies was performed by the camera team of the department.

The main tasks facing the engineering-geological research works were to determine the geologicallithological structure of the research area, to study the physical-mechanical (geotechnical), chemical properties of the soils underlying the facilities, to study the hydrogeological conditions and exogenous geological processes.

In order to fulfill the issues ahead, initially, the geological fund materials related to the research area were collected, studied, summarized and conclusions were drawn. Then, engineer-geological excavation works, field-test research works were performed in the field, physical-mechanical and chemical analyzes of the samples taken from the wells during the drilling process were carried out in stationary laboratory conditions. Later, statistical calculations of the results of laboratory analyzes were carried out in chamber conditions, geological-lithological columns and geological-lithological sections of the wells were drawn up, and the current technical report was drawn up. The composition, volume and locations of the drilling wells of the planned engineering-geological research works were carried out in accordance with the normative documents, and some corrections were made in accordance with the specific geological conditions. On the other hand, the existing State technical norms, rules and standards of the Republic of Azerbaijan were also observed while performing engineering-geological research works and tests for the research area.

It should be noted that necessary measures were taken for the safe execution of works while conducting engineering-geological researches and also to prevent environmental damage during the field work process.

For its engineering-geological justification, the following amount of research work has been carried out:

Ν	Name of study work	The value, quantity, or number of work
1	2	3
	C. Field work	

1	Drilling of 127 mm diameter wells using the column method using the UQB-50VS-01 device (6 m x 298 wells)	1788 poq.m.
	Sampling of wells:	
2	a) clay soils	248 sampling
-	b) sandy soils	42 sampling
	c) rock-type soil	3 sampling
	D. Cameral works	
3	Laboratory tests of physical-mechanical properties of soils	293 sampling
4	Cameral processing of field and laboratory studies	
5	Compilation of the engineering-geological report.	1 report

7.11.1. BRIEF INFORMATION ABOUT THE PHYSICAL-GEOGRAPHICAL CONDITIONS AND GEOLOGICAL STRUCTURE OF THE RESEARCH AREA

The projected 330 kV overhead line is between "Navahi SS" and "Neftchala SPP" OHL, its length is 89,002 km. Thus, the route of the 330 kV "Navahi SS"-"Neftchala SPP" OHL administratively passes through Hajigabul, Salyan and Neftchala regions.

Navai settlement is located on the left side of the Pirsaat river in the north-east of Hajigabul region. It is located 20 km from Hajigabul district and 90 km from Baku city in the southeast direction.

The distance from Baku to the center of Salyan region is 126 km. The territory of the district is located in the plains of Mugan and Southeast Shirvan in the Kura-Araz plain.

Neftchala district is located in the southeastern part of the Republic of Azerbaijan, in the area where the Kura River flows into the Caspian Sea, in the east of the Kura-Araz plain. It is surrounded by the Caspian Sea from the east, Shirvan State Reserve from the north, and Gizilagac State Reserve from the south.

The surface of the region is a plain. The southeastern Shirvan and Salyan plains are located partly in the Mughan plain. Its territory is 23 m below sea level.

7.11.2. Climate

A brief description of the main elements of the climate of the study area (air temperature, humidity, atmospheric precipitation, wind) are provided based on observations of Hajigabul (A) and Salyan (B) meteorological stations (located at (-7) m and (-21) m altitude, respectively, on the Baltic altitude system)

Air temperature. The table below shows the multi-year average monthly and annual air temperatures (t⁰s).

N⁰		II	Ш	IV	V	VI	VII	VIII	IX	Х	XI	XII	11
Α	2.7	4.1	7.5	13.6	19.7	24.7	27.8	26.8	22.5	16.2	10.1	5.0	15.0
В	3.2	4.2	7.4	13.1	19.0	23.8	26.6	25.8	21.9	15.9	10.5	5.6	14.7

The table below shows the absolute maximum and absolute minimum air temperatures (t⁰s).

NՉ	Ι	II	III	IV	V	VI	VII	VIII	IX	Х	XI	XII	İL
Mütləq maksimum													
А	19	25	31	36	37	40	42	42	38	36	27	25	42
В	22	26	30	32	37	40	41	40	37	32	30	24	41
					Мü	tləq	minin	num					
А	-23	-20	-7	-2	5	7	12	12	9	-3	-10	-20	-23
В	-22	-20	-8	-2	4	6	13	14	6	-3	-12	-18	-22

Air humidity. The relative humidity of the air below is expressed in %.

N⁰		II	III	IV	V	VI	VII	VIII	IX	Х	XI	XII	11
Α	85	82	79	70	62	53	41	54	63	75	82	85	70
В	84	83	80	74	68	61	60	64	70	77	82	83	74

Atmospheric sediments. The distribution of precipitation by month, in cold and hot periods (mm) is given in the table below.

N⁰	I	II	III	IV	V	VI	VII	VIII	IX	Х	XI	XII	XI-III	IV-X	11
А	17.9	20.4	28.6	30.2	26.6	19.3	5.9	6.2	14.4	30.6	27.3	22.5	116.7	133.2	249.9
В	23.8	27.0	30.1	33.7	26.7	17.6	4.0	7.8	14.2	37.2	35.0	28.1	144.0	141.2	285.2

The wind. The average monthly and annual wind speed (m/s) is given in the table below.

NՉ	I	Ι	III	IV	V	VI	VII	VIII	IX	Х	XI	XII	II
Α	2.8	3.4	4.0	3.8	4.0	4.3	4.2	4.2	4.1	3.7	3.1.	2.7	3.7
В	2.9	3.3	3.6	3.2	3.3	3.3	3.2	3.0	3.0	2.9	2.9	2.6	3.1

According to observations of Hajigabul and Salyan meteorological stations, east, north-east, west and south-east direction winds prevail in the area.

The table below shows the recurrence of wind direction throughout the year and total calm in %.

Nº	Ş	ŞŞr	Şr	CŞr	С	CQ	Q	ŞQ	Tam sakitlik
A	1	23	26	8	12	7	15	8	21
В	6	16	26	14	12	4	12	10	11

According to the observations of Hajigabul and Salyan meteorological stations, the recurrence of winds in different directions during the year for the research area is shown in graphs 1 and 2.

N⁰	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	II
Α	1.3	1.1	2.7	1.9	2.5	2.0	2.1	2.6	1.9	1.6	1.9	1.2	23
В	0.4	0.7	1.7	0.9	1.1	0.8	1.0	0.9	1.0	1.3	1.0	0.7	12

The average number of days with strong wind (≥ 15 m/s) during the year is given in the table below.

Average perennial wind dose for the city of Hajigabul.

Graph 1



Graph 2



Neftchala district has a mild hot <u>semi-desert</u> and dry <u>steppe climate</u> with dry summers. The average <u>temperature</u> is about 3 °C in January and 25–36 °C in July. The amount of annual precipitation is 300 mm. The windy nature of the area causes a sharp change in climate. Semi-desert steppe and saline soils are widespread.

The climate of Banke settlement is dry desert and semi-desert climate. The soils of the areas near the Caspian Sea are saline. In general, the settlement is 26 or 28 meters below sea level. Rainfall here is 250-400 mm per year. Winter is mild and not often cold.

Orography

The territory of Hajigabul region, which is part of the research area, covers the southeastern part of the Kur-Araz lowland, the southeastern part of the Shirvan plain and the Great Harami ridge. The lowland part of its territory is below sea level.

Salyan region is bordered by the Caspian Sea in a small area from the east. There are ridges and hills of Babazanli, Khidirli, Bandovan, etc. Most of the area lies up to 28 meters below sea level. Neogene and Anthropogenic sediments are common. There are Kursangi, Kalmas, Khidirli, Babazanli, etc. mud volcanoes. The territory of the region is rich in oil and gas fields. Kursangi, Bandovan, Galmas, Mishovdag, Durovdag (Ilandag), Aghzibir, Aralig, Babazanen, Kirlig, Dovshandag mud volcanoes are located here.

Neftchala district is located in the southeastern part of the Republic of Azerbaijan in the area where the Kura River flows into the Caspian Sea, in the east of the Kura-Araz plain. It is surrounded by the Caspian Sea from the east.

The surface of the region is a plain. The southeastern Shirvan and Salyan plains are located partly in the Mughan plain. Its territory is located 22 m below sea level. Anthropogenic sediments are widespread. As the territory of the region is below sea level, the rise and fall of the level of the Caspian Sea has a direct impact on the region. Kura Dili, located in the region, sometimes becomes an island when the water level rises, and a peninsula when it falls. There are several mud volcanoes on land in the region. In the Caspian Sea, there is a Kura stone island near the coast of Neftchala region. This island was formed as a result of mud volcanoes.

The Baku Archipelago region in the classification of mud volcanoes covers the wide western part of the Caspian Sea, starting from Balıgchi Cape in the north and extending to Gizilagac Bay in the south. The mud volcanoes and cones of this province consist of rivers or underwater rivers. On the shores of Neftchala there are also many underwater numbers. These include Borisov, Kalmychkov, Karagedov, Kornilov-Pavlov, Kura, Pogorelaya Plate reef, and Golovachev submarines. When the water level in the Caspian Sea is low, these rivers become islands.

Between Babazanen and Durovdag heights, there is Duzdag lake, a salt lake, on the border with Salyan region. Banke settlement is 26 or 28 meters below sea level.

Hydrology

The hydrographic network of the region is formed by the Kura river, which is an important main water artery of Azerbaijan. Its former tributary, Bala Kur, is widely used for irrigation.

The Pirsaat River flows through the territory, its length is 119 km, the area of its basin is 2280 km². Its source starts from the southern slope of the Main Caucasus (2400 m). Most of its flow comes from rain (70%), snow (14%), and groundwater (16%). Rainfall during the year causes flooding in the river. The average annual water consumption of the river is 1.55 cubic meters per second. 60-70% of its annual flow passes in spring and summer. Its water is sulfate-sodium and has high mineralization (more than 1000 mg/l). A reservoir was built on it.

Between Babazanen and Durovdag heights, there is Duzdag lake, a salt lake, on the border with Salyan district. The area is characterized by a wide spread of groundwater.

Kura River - is 1515 km long and flows through the territory of three countries - Turkey, Georgia and Azerbaijan. 906 km of it passes through the territory of the Republic of Azerbaijan. It takes its origin from the glaciers in the north-east of Turkey and flows into the Caspian Sea in the territory of Neftchala region. The area of its basin is 188 thousand km². Snow (36%) and underground water (30%) take the main place in the feeding of the Kura River. Rainwater (20%) and water from melting glaciers (14%) make up a third of Kur's nutrition. The lush period of the river starts from the end of March and lasts until June.

Since the speed of water in the river in Kura-Araz plain is very weak, it deposited the suspended materials brought with it on the edges of the bed and formed an accumulative flat beam along the bed. The bed of the river is cut into the axial zone of this accumulative thrust. Along the length of the bed, the beam is several meters higher than the surrounding areas. Therefore, when very strong floods occur in the river, it carries it from its bed and floods the surrounding areas.

In the lower reaches of the Kura River, there are numerous streams on both banks of the river. Due to the flood waters, a number of lakes have also appeared in this part.

Lake Hajigabul - the area of this lake is about 16 km², in order to keep the water level stable, water is pumped here from the Kura River. The water of the lake is sweet.

As the territory of Neftchala region is below sea level, the rise and fall of the level of the Caspian Sea has a direct impact on the region.

Soil-vegetation cover

Gray-brown, gray-meadow, meadow-swamp, saline soils are spread in the research area. Vegetation is desert and semi-desert type.

7.11.3. Tectonics, stratigraphy and lithology

Tectonics. The considered region is tectonically within the Shamakhi-Gobustan synclinorium located on the southeastern edge of the Big Caucasus meganticlinorium. The substation area is within the boundaries of the Navai syncline, which is bounded by the brachyanticlinal folds of the Langebiz-Alat anticlinorium from the north, and the Harami-Mishovdag-Kalmas anticlinal folds from the south. Anticlinal folds are strongly compressed, sometimes they are inverted and split along the arch. The surface of the base of the area is cut in the northeast by the deep southeast-oriented Achichay-Alat fault, and in the southeast by the southeast-oriented Western Caspian fault.

The top of the Mesozoic sediments in the study area consists of a relatively low-sloping wing of a large anticlinal uplift. This anticline passes into a deep syncline outside the region in the southeast. The top of the Paleogene-Neogene consists of mud, surrounded from the north and south by anticlinal uplifts, which are complicated by large faults, in which mud volcanoes are connected.

The Navai synclinal depression took its modern form in the Caspian period, separated from the surrounding Harami and Mishovdag ridges, and the cones of the Kalmas and Mishovedag mud volcanoes were formed.

The geological structure of the researched region includes Paleogene-Neogen age rocks up to modern sediments. The total thickness of the Paleogene-Neogene sediments reaches 5-10 km. The oldest sand, sandstone and clay sediments come to the surface in the form of small islands in the rise of the Alat ridge. Quaternary sediments occupy the main part of the area. They consist of marine and continental facies. Their thickness varies from 31 meters in the northwest along the Navai valley thalweg to 400 meters in the center of the syncline.

Although the aureole of the Khval transgression is slightly smaller than that of the Caspian transgression, the sediments of the Upper Quaternary Khval floor are more widespread in the Navai syncline. In the synclinal boundaries, they are spread slightly to the southeast, their thickness reaches 30-40 meters. They mainly consist of thin argillaceous clays, lying on the underlying layers with facies and angular unconformity.

The terraces of Khvali are noted along the Alat height and in the Langebiz sira mountains at heights of 14-33 meters.

7.11.3.1 Geomorphology

The research area is located in the lower part of the alluvial-proluvial valley of Pirsaatchay and is called Navai valley. This plain is connected to intermountain depressions, it is bounded by the Alat height from the northwest and north, and the Mishovdag-Kalmas ridge from the south.

The Navai plain stretches 35 km from the northwest to the southeast and varies in width from 8 to 14 km. Its surface is plain, in some places there are small hills, there are many depressions connected to the ancient course of Pirsaatchay. The relief height varies from 43-45 meters in the northwestern edges to 0-minus 10 meters in the southeast, where the valley widens and merges with the Caspian basin. The height of the surrounding peaks is between 200-300 meters.

The elevations of the Alat range are submeridional, the eastern slopes are slightly inclined, the southwestern slopes are steep on the side of the Navai depression, divided by numerous ravines. In some places, the remains of the terraces of the fourth period can be observed. The highest places of the ridges surrounding the valley belong to the cones of mud volcanoes.

Waste from active mud volcanoes do not reach the Navai Valley. However, floodwaters bring sopka breccias and colluvial sediments into the valley. These sediments cover the valley with a narrow plume. The course of the Pirsaat river has not kept its original form. This course has been heavily modified by leading irrigation canals. The existing channel is 3-4 meters wide and has steep banks 12 meters (sometimes 4 meters) high. During flood periods, water flows out of the river channel and leading channels and floods the surrounding low-lying areas. In addition, the fields are specially kept under water during irrigation.

Since the soils have low water permeability, the area is subject to swamping. Intense evaporation dries up the earth's surface and at the same time causes the formation of salinities.

7.11.4. VOLUME AND METHODOLOGY OF ENGINEERING-GEOLOGICAL RESEARCH WORKS

7.11.4.1 Drilling of engineering-geological wells, sampling

For the engineering-geological and hydrogeological justification of the construction of the planned 330 kV two-phase "Navahi SS"-"Neftchala SPP" OHL, the following studies were carried out in the area:

- 298 drilling wells with a depth of 6.0 meters were dug in the area; total excavation works 1788 p. meters;
- damaged and intact samples 293 samples.

The wells were drilled with a rotating rotor type UQB-50M drilling rig, with a diameter of 132 mm using the column pipe drilling method. Drilling works were mainly carried out by the "dry" method, without

pouring water into the well. The cores were obtained by means of two-layered column tubes with a diameter of 127 mm, by the method of slow rotation drilling.

Intact rock samples taken from extracted cores for laboratory analysis were wrapped in a filter, paraffined, then equipped with labels, packed in core boxes in plastic bags, and sent to a stationary laboratory located in Baku.

As a whole, the volume and methodology of drilling engineering-geological wells, taking rock samples, packaging, transporting, storing and other works in connection with drilling were performed in accordance with the requirements of Azerbaijan State standards.

7.11.5. The scope and methodology of laboratory works

According to the results of field excavations, clay rocks were discovered in the studied area. The samples taken from these rocks were analyzed in the following composition and volume (amount).

Nº	Composition of laboratory tests	Volume								
		(quantity)								
	A. Determination of physical and mechanical properties of soils									
1	Tests of fully complex physico-mechanical properties of clay rocks	34 fully complex								
	(including shear resistance determination tests)									
2	Tests of incomplete complex physico-mechanical properties of	32 incomplete								
	clay rocks (including compression tests)	complex								
3	A complete comprehensive determination of the physical	248 complete								
	properties of clay rocks	physical properties								
4	Testing of granulometric composition of clay rocks	89 analysis								
5	Testing of the granulometric composition of sand rocks	42 analysis								
6	Testing of physical properties in rock-type rocks	3 analysis								
7	Testing of compressive strength in rock-type rocks	3 analysis								
8	Testing of organic substances in soils	35 analysis								
9	B. Chemical analysis of water extracts of soils	61 analysis								
10	C. Chemical analysis of water	33 nalysis								

7.12 Socio-economic development perspectives of the Project areas

7.12.1 Initial socioeconomic environment

The Project has the potential to affect the living of the local population and communities in the Project region, thus initiating a need for land acquisition and causing minor potential disruption of life during the construction phase. This section provides an overview of the current social baseline and potential impacts of the affected local communities and individuals and describes the principle mitigation approach.

In Azerbaijan Republic, the calculated number of population in accordance with the results of the 2019 population census at the beginning of 2023 made 10127,1 thousand persons (with the exception of the population living on the territory of the Republic of Azerbaijan, where the Russian peacekeeping contingent is temporarily deployed). 5527,2 thousand persons or 54,6% of population live in urban areas and 4599,9 thousand or 45,4% - in rural areas, 5039,6 thousand persons or 49,8% of total population of the country make men, 5087,5 thousand persons or 50,2% - women. There are 1010 women per 1000 men¹². Distribution of population by administrative territorial units of the Republic of Azerbaijan at the beginning of 2023 is given in Figure below.



¹² <u>https://www.stat.gov.az/source/demoqraphy/</u> Environmental and Social Impact Assessment Figure 7-20: Distribution of population by administrative territorial units

7.12.2 Study area

For the purposes of the assessment, the study area is extended to a distance of 500 m from the Project elements (the substation location and OHL corridors) to include communities where private assets (e.g. residential properties, facilities and businesses) or community facilities (e.g. schools, religious temples, cemeteries) may potentially be affected during the Project implementation.

7.12.3. Current situation

The project area is located in the southern and central part of Azerbaijan and covers the territory of six districts (municipalities): Neftchala, Bilasuvar, Salyan, Hajigabul, Garadag and Gobustan.

Employment

According to the preliminary data as of July 1, 2023, the number of economically active population in Azerbaijan was 5 million 224.3 thousand people, of which 4 million 934.5 thousand people were employed, 289.8 thousand people (or 5.5%) constituted an unemployed population. Azerbaijan's total GDP was just over USD 78 billion in 2022. The GDP annual growth rate was 2.2% for 2019, and -5% for 2020, 1.9% for 2021 and 4.5% 2022. Per capita income has increased significantly in recent years growing to 7 762,07 USD in 2023. The highest unemployment rate was observed in Baku (21 %). See the table below for employment rates across the regions covered by the Project.

Table 7-5: Number of unemployed population by economic regions and administrative-territorial units¹³

Territorial unit	2018	2019	2020	2021	2022
Azerbaijan Republic	253827	252076	368667	310485	293286
Baku city - total	74906	57861	86459	74959	70931
including:					
Absheron region	4187	10236	15557	12560	11744
including:					
Bilasuvar region	2194	2379	3578	2944	2787
Hajigabul region	1795	2123	3098	2595	2457
Neftchala region	2300	2572	3738	3079	2917
Salyan region	2902	3470	5078	4181	3964

The employment rate in the villages, adjacent to the proposed power lines is similar to the average values indicated for the municipalities. The people in the villages are mostly self-employed involved in non-intensive agricultural activities. The main sectors of agricultural activities are related with cattle breeding and cultivation of annual crops like maize, beans and vegetables. It should be mentioned,

that majority of population is presented by aged people, mostly pensioners, due to the fact, that the young population has already migrated in country to the main cities looking for employment opportunities or abroad, with the same reason.

The self-employment in agricultural activities is the main source of income for local population except Garadagh region. Locals are selling primarily milk products to the local markets or to the towns in southern and central Azerbaijan. The number of employed people in the target villages is very low. The industrial facilities or large-scale farms practically does not exist and employment is related mostly with government structures, education sector and services in the region.

Economy within the Garadagh region is dominated by the industrial sector, primarily including oil and gas (State Oil Company of Azerbaijan Republic "SOCAR" facilities), cement production factories, and stone quarries, followed by services (i.e., school, kindergarten, shops), agriculture, and tourism (related to the presence of Gobustan Reserve, mud volcanoes and new geopark to be established) sectors. Based on the information gathered via interviews held with local administrations (community leaders and municipalities' representatives) and operating companies, main local businesses in Gobustan and Alat municipalities' area include trading, small farming, animal husbandry (i.e., sheep-breeding), and heavy vehicle transportation of gravel and sand.

Most of employees are locals or residents of other regions of the country, while foreign specialists are generally less involved. However, within local communities in Garadagh, there is the feeling that more labour force is attracted from other regions of Azerbaijan and the local residents are thus left without work. The average daily income ranges approx. between 10 and 30 AZN in the investigated area, corresponding to approx. 6-18 USD (considerably lower if speaking about herders especially during drought), and labour conditions are considered generally good by stakeholders engaged. No inequalities for gender in terms of income / employment are perceived.

Job opportunities in Gobustan and Alat municipalities slightly increased over the last five years, with reference to positions like electrician, foreign language teacher, crane operator, welder, computer science specialist, and metal worker.

1) Sub-project 1: 500/330kV SS - New 500/330 kV Navahi SS

Table 7-6: Basic socio-economic data on Navahi settlement

Se	ettlements near the sub-p	roject 1 in Hajigabul distri	ct	
	- New 500/330	0 kV Navahi SS		
Region	Residential area	Population	Approximate to residential	distance area (m)
Hacıgabul	Navahi	3000	1200	

2) Sub-project 2 – Construction of 500 kV OHL

Sub-project 2 passes through the following regions: Hajigabul, Gobustan and Garadag. Residential areas near the Project and within the study area, as well as their relative distance to the Project, are listed in the Table below.

Regions	Settlement	Population in	Relative distance
		2022	to settlement
Construction of 500) kV-single-circuit "Abshe	ron SS - Navahi SS"	OHL- 65 km
Hacıgabul	Navahi	3000	1200 m
Gobustan			
Garadağ	Lokbatan	42000	25 km
Absheron	Gobu	18900	22 km
	Atyali	12000	1.5 km
	28 may	2400	1.5 km
Total		78300	

Table 7-7. Settlements by regions in close proximity to sub-project 2

3) Sub-project 3 –Construction of 330 kV OHL

Sub-project 3 passes through the following regions: Neftchala, Bilasuvar, Salyan, Hajigabul, Gobustan, Absheron and Garadag. Settlements near the Project and within the study area, as well as their relative distance to the Project, are listed in the Table below.

Regions	Residential area	Population in 2022	Relative distance to residential area			
Construction of 330	kV double-circuit Bilesu	var SPP - Navahi SS	OHL - 90 km			
Bilesuvar	Bilesuvar city	23600	20 km			
Salyan	Ashagı Noxudlu	700	1 km			
	Salmanly	1000	1 km			
	Gardili	500	1 km			
	Xalaj	1300	500 m			
	Kursangi	400	1 km			
Hacıgabul	oul Navahi 3000		1200 km			
Construction of 330 Kv single-circuit Banka SPP - Navahi SS OHL - 80 km						
Neftchala	Banka	3700	700 m			
Salyan	Xıdırlı	10000	500 m			
Hacıgabul	Navahi	3000	1200 m			

Table 7-8. Settlements by region in close proximity to sub-project 2 Settlements – by region – close to sub-project 3 – construction of 330 kV OHL:

7.12.4. Socio-economic summary by region

Neftchala

Neftchala district is one of the 18 districts included in the Aran economic district. Neftchala is known for oil, gas and fishing. According to the indicators of 2021, there are 12 industrial enterprises in the region. Mining, processing of raw cotton, supply and distribution of gas, and production of non-products occupy the main place in the industry. Oil extraction industry, fish farms and other enterprises operate here. "Azer-Yod" LLC, which produces technical iodine, "MKT Production Kommersiya" LLC, which operates in the processing of raw cotton, "Karagashli-broiler" OJSC, which produces poultry and eggs, and "Khilli Balıq" LLC, which produces commercial fish, operate in the region. In addition to oil, there are minerals such as gas, iodized waters important for iodine treatment, and table salt in the territory of the region.

The 330 kV Banka-Navai transmission line passes through the village of Shirvanly in Neftchala. The area of Banka village is smaller, only 270 ha (1,000 ha in Shirvanly), while the population is larger than in Shirvanly (7,067 vs. 540). Shirvanly village has a complete secondary school and a functioning library, and a health centre with a nurse serving the villagers. A complete secondary school, a kindergarten, a club and a library are functioning in Banka village; medical services are provided by a health centre staffed by two doctors and seven nurses. The main economic activities in both villages are agriculture, livestock and fishing.

		Production	Area, in		
No	Name of enternrise	or in thous	ha		
/ • -	Nume of enterprise	year			
		2011	2018	2030	
1	"Azer Yod" LLC	280 t	300 t	330 t	550
	(Hasanabad settlement)				
2	"Ziya" bakery company	220 t	240 t	270 t	0,75
3	"Neftchala operating company"	14,53 mln	15 mln	18 mln	0,27
	(Hasanabad settlement)	man	man	man	
4	Kuragzi sturgeon breeding plant.	6 mln	6,5 mln	8 mln	60
5	Banka Fish Factory				
6	Banka barrel factory				
7	Neftchala gas station.				
8	"Legno-Neftchala" LLC, cotton factory.	4062 t	5000 t		4,0
	Ancient village				
9	"Khazar" LLC, brick factory				
10	"Karagashli-broiler" JSC				
11	"Neftchala-Autotransportation" JSC				

Table 7-9. Main technical and economic indicators for industrial enterprises

Bilasuvar

The economy of the region is mainly agriculture. In recent years, as a result of the rapid development of the country's economy, industrial enterprises producing agricultural products have been established in Bilasuvar region ("Bilasvar-Agro" milk processing plant, "Natural Greenland LLC" canning plant). In addition, a furniture factory and a concrete plant operate in the region. In 2021, 12 of the existing industrial enterprises were active. Bilasuvar, located in the Aran economic district, consists of 1 city and 25 villages. Large settlements are the city of Bilasuvar, the villages of Khirmandali, Beydili and Ismetli.

Salyan

The most populated village of Salyan Region traversed by the GoA funded Project is Chukhanly (3,373 people) with the area of 1,660 ha. The population of the village is mainly engaged in agriculture and animal husbandry. There are 2 incomplete and 1 complete schools in the village, medical services are provided by 1 medical station and 1 doctor. Salmanly is the largest village (2,140 ha), although its population is only 950 people. The village has 1 incomplete secondary school and 1 medical station with 1 nurse. The local economy is divided between agriculture, livestock and greenhouse activities. The villages of Yenikand and Shekerli have almost similar data of population, economic activities and socio-economic services with a slight predominance of the area of Yenikend (3,210 ha) to Shakarly (2,430 ha). The population of the villages is 830 and 870 respectively. The main occupations of the inhabitants of both villages are agriculture, animal husbandry and viticulture. Each village has 2 schools (1 incomplete and 1 complete) and 1 medical station with a doctor. Khalaj and Abadkend have almost the same population (1,320 vs. 1,302) and area (3,349 vs. 3,259). The economic activities are the same - agriculture, animal husbandry and viticulture. 1 health centre with 1 doctor each provides medical services to the population of both villages. There are 2 schools in Khalaj and 1 in Abadkend. Ashaghy Nokhudlu and Yukhary Nokhudly are two neighboring villages with area of 840 ha and 630 ha respectively. The population of Ashaghy Nokhudlu is almost twice that of Yukhary Nokhudly (2,103 vs. 1,004). The main economic activities in both villages are agriculture and animal husbandry. There is 1 complete secondary school in Ashaghy Nokhudlu and 1 incomplete one in Yukhary Nokhudly. In each village there is 1 medical station with a doctor in AN and a nurse in YN. Xurshud has a population of 985 people and an area of 1,515 ha. The main economic activities are agriculture and animal husbandry. 1 incomplete secondary school and 1 medical station serve the village population.

The basis of agriculture of the region is cotton, grain and vegetable growing and animal husbandry. Dry subtropical fruit growing and horticulture are also important agricultural fields. Plastic mass processing, cotton ginning and brick production plants operate in Salyan region. There used to be large fishing farms in the region. At present, a large part of the fish products sold in the republic belongs to Salyan.

Date of establishment of Salyan region	08.08.1930
Area, thousand sq. km	1,6
Population, thousand people (by the beginning of 2023)	138,6

Table 7-10: General information about Salyan district

Population density per 1 sq.m., person	87
Distance between Salyan district and Baku city, km	126
City	1
Number of settlements	2
City Administrative Territorial District	1
Settlement Administrative Territorial District	1
Rural Administrative Territorial Districts	18
Number of rural settlements	48
Number of municipalities	20

Table 7-11: Key socio-economic indicators for Salyan region

	2018	2019	2020	2021	2022
Population, thousand people (at the end of the year)	138,6	135,8	136,7	137,4	138,6
Mortality per 1,000 births (up to 1 year)	17,0	17,1	8,1	8,4	8,7
The number of registered crimes, the total number of incidents:	262	255	296	402	437
For every 10,000 people of the population	19	18,3	21,1	28,5	31,7
Number of doctors, person	249	243	233	232	219
Number of secondary medical workers, people	753	791	787	754	738
Number of hospitals	6	6	6	2	2
Number of hospital beds	503	503	503	440	440
The number of treatment facilities providing ambulatory polyclinic service to the population	29	29	29	27	27
Power of ambulatory polyclinic institutions	1797	1797	1797	1797	1797
For every 10,000 people of the population					
Doctors	18	17,4	16,5	16,4	15,8
Medical staff	54,3	56,5	55,9	53,2	53,3

Hospital beds	36,3	35,9	35,7	31,1	31,8
Power of ambulatory polyclinic					
institutions	129,6	128,4	127,6	126,9	129,7
Number of permanent pre-school educational institutions	17	17	17	17	17
the number of children they have, people	799	797	797	765	684
Number of children per 100 places in pre-school institutions	91	91	89	85	76
Number of full-time general education schools	54	54	54	54	54
the number of students studying in them, people	20725	21584	22049	22341	22362
The specific weight of those educated in the İİ term, in percentage	9,1	8,2	13,6	7,8	8,3
Number of public libraries	44	44	44	45	44
Number of books and magazines, thousand copies	499,8	500,3	501,0	502,4	503,4
Books and magazines, copies per 1000 inhabitants on average	3606	3575	3559	3548	3633
Number of professional theaters	1	1	1	1	1
Number of clubs	29	28	28	28	28

Hajigabul

The main part of Hajigabul region's economy is agriculture. Grain growing, cotton growing, vegetable growing, horticulture and animal husbandry play a leading role in the economy of the region. In addition, corn, potatoes, fruits and grapes are also produced in the farms of the region. Planting of sugar beet and oats plants has also started in Hajigabul region. Thus, in the current year, 3115.8 hectares of summer crops were planted in the region, including 885.8 hectares of perennial grasses, 305 hectares of corn for grain, 82 hectares of sorghum, 50 hectares of oats, 518 hectares of vegetables, 471 hectares of Watermelon plants, 40 hectares of potatoes, 504 hectares of sugar beet, and 260 hectares of cotton. In 2020, compared to last year, there is an increase in the cultivated areas of some spring plants. Compared to last year, the current year's oats area increased by 85.1 percent, sorghum area by 9.3 percent, perennial grasses by 10.7 percent, and sugar beet by 2.9 times. Of the planted area of 28,618 hectares, 23,898 hectares or 83.5 percent of autumn and spring cereals and grain legumes, 518 hectares or 1.8 percent of vegetables, 471 hectares or 1.7 percent of watermelons plants, 40 hectares or 3.0 percent of technical plants, 2845 (360 hectares or 0.1 percent of potatoes, 846 hectares or 3.0 percent previous years' crops.

Only two villages in Hajigabul are crossed by the OHLs to be constructed within project. Navahi village has a smaller population than Gizilburun (1,800 vs. 1,902), but a larger area (2,208 ha vs. 1,600 ha).

The population of both villages is mainly engaged in agriculture and animal husbandry. There is 1 full secondary school in each village, and 1 nursery school in Navai. Each village has 1 medical station with a doctor providing medical services to the population.

Further details on economic activities and other information by gender segregation could not be obtained due to the very limited information available at village level.

Gobustan

Agriculture is one of the traditional fields in the region. The region supplies its population with grain at the maximum level. Thus, more than 1 ton of grain is regularly produced per person every year. Cereal cultivation is mainly cultivated in the conditions of non-irrigated land. About 40,000 tons of grain are produced in the region per year, which creates a solid basis for the development of animal husbandry and poultry farming. The available summer and winter pastures of Gobustan region are very important for the development of animal husbandry, mainly sheep farming. The vegetation of the winter pastures is very rich. As a result of this, it is possible to feed cattle from September to June without incurring additional costs and achieve high productivity. Currently, there are 179,805 small-horned animals in the region. Sheep breeders of the region mainly prefer the Gala breed, which has high productivity and good weight gain ability, which feeds the young under local conditions.

Livestock farming is also one of the leading fields in the region. Currently, the number of cattle in the region is 28,362. Cattle are mainly local breeds, 20-30% are Shivis. There are favorable conditions for developing poultry farming in the region. Currently, there are more than 67,000 thousand birds.

Garadagh

The territory of Garadagh region is 1080 km2 and the population is 109371 people. This region, which has taken the path of rapid development in recent years, is properly realizing its potential. Thus, Garadagh, which consists of 11 settlements, is located on the main transport network of the republic. In total, today there are 90 industrial enterprises in the region, 22 of which are large production facilities of republican importance, of which there are currently two large cement plants in Garadagh region, Sangachal terminal, New Baku International Sea Trade Port, New Shipbuilding Plant, Deep Sea Oil Plant named after Heydar Aliyev, Gas Processing Plant, Metal Structures Plant can be mentioned.

Absheron

The basis of the economy of Absheron region is the production of products through extensive agriculture due to dry and infertile soils. Agriculture has developed in two directions: farming and animal husbandry. The main priorities of agriculture here are horticulture and mainly olive growing. 1489 hectares of the region are olive groves, and 2132 hectares are orchards. The average annual amount of olive processing is only 1800-2000 tons. Olive plantations are mainly located near Hovsan, Gala, Bilgah, Mashtaga and Zigh settlements. Almost all cattle in the region are kept in private farms. In sheep breeding, semi-bovine and large-bovine breeds of sheep, especially gala sheep, prevail. Camels are bred at the Gobu camel breeding state agricultural production enterprise. Pork, beef, milk and wool are produced in the region.

Three settlements in the Absheron region crossed by the GoA project are Gobu, Atyali and 28 May. The largest settlement, Gobu, has an area of 3,835 ha and a population of 18,900. The settlement has three complete secondary schools, two kindergartens and a cultural centre. Medical services are provided by a polyclinic with three doctors and four nurses. There are 30 different shops operating in the settlement. The main economic activities of the local population are agriculture, animal husbandry and weaving. For various socio-economic and health activities, residents of 28 May and Atyali villages go to the nearby settlements of Hokmeli, Mushviqabad or Gobu.

4) Sub-Project 4: Expansion works in existing substations

The planned expansion works at the "Absheron" substation will be carried out within the boundaries of the existing substation belonging to "Azerenergy" JSC.

7.12.5. SOCIO-ECONOMIC SITUATION OF THE VILLAGES LOCATED NEAR THE OHL ROUTES

Sub-project 3 (330 kV Banka SPP – Navahi SS OHL and 330 kV Bilasuvar SPP – Navahi SS OHL) passes along its route near 4 villages of Salyan district, 2 villages of Hajigabul and 1 village of Neftchala district.

Neftchala

The area of Banka settlement is 279 ha. The population is 7067 people. The female to male ratio is 51/49. The climate of Banka settlement is dry desert and semi-desert climate. There are large agricultural fields and pastures in the Kura River and nearby areas. The soils of the areas near the Caspian Sea are saline. Generally, the settlement is 26 or 28 meters below sea level. Rainfall here is 250-400 mm per year. Winter is mild and not often cold. The main occupation of the population is agriculture, animal husbandry and fishing. A lot of people work in public organizations. There is 1 kindergarten, 1 club, 2 libraries, 1 secondary school, 1 stadium, 1 doctor's office, 25 markets in the settlement. 7 nurses and 2 doctors serve the population in the settlement.

Salyan

The population of Khalaj and Abadkend villages is almost the same (3349 and 3259 thousand people, respectively) and their area is 1320 and 1302 ha, respectively). The occupation of the population is also similar - agriculture, animal husbandry and viticulture. 1 medical center with 1 doctor in each provides medical services to the population of both villages. There are 2 secondary schools in Khalaj and 1 in Abadkend.

Hasanli village is the least populated village where the sub-project 3 route passes and has a total population of 1500 people. Its area is 650 hectares. The main economic activity of the villagers is agriculture and animal husbandry. There is 1 incomplete secondary school and 1 medical center with 1 nurse working in the village.

The population of Shekarli village is 2430 people, the area is 870 hectares. The main economic activity is agriculture and animal husbandry. There is 1 incomplete high school and 1 full high school, 1 medical center with 1 doctor in the village.

Salyan

Ν	Village	Area	Population	Main occupation		Sensitive	Health
	, mage	(ha)		Women	Men	receptors (school and kindergarten)	facilities
1	Abadkend	1,302	3,259	agricultur animal husbandr viticulture	re, ry and e	1 secondary school	1 medical center, doctor provides services
2	Khalaj	1,320	3,373	agricultur animal husbandr viticulture	re, ry and e	2 schools (1 secondary and 1 incomplete)	1 medical center, doctor provides services
3	Shakarly	870	2,430	agricultur animal husbandr viticulture	re, ry and e	2 schools (1 secondary and 1 incomplete)	1 medical center, doctor provides services
4	Hasanly	650	1,500	agricultur animal husbandr	re, Y	1 incomplete school	1 medical center, nurse provides services

51	- I	Collins a district of	at a second second second second
Figure 7-12: Information	about the villages of	Salyan district	close to the project

Hacıgabul

Sub-project 3 (330 kV Banka SPP – Navahi SS OHL and 330 kV Bilasuvar SPP – Navahi SS OHL) crosses only two villages of Hajigabul district. The population of Navai village is more than twice that of Gizilburun (3561 vs. 1500), and the area of the villages is almost the same (2208 ha vs. 2100 ha). The population of both villages is mainly engaged in agriculture and animal husbandry. There is 1 complete secondary school in each village, 1 kindergarten in Navai. Each village has 1 medical center where a doctor provides medical services to the population.

In both villages, the population consists of a relatively middle-aged and elderly generation. The population is engaged in animal husbandry. 51% of the population are men and 49% are women.

Ν	Village	Area	Populatio	Main occupation		Sensitive	Health
		(ha)	n	Women	Men	receptors	facilities
						(school and	
						kindergarten)	
1		2,100	1,500	agricultur	Oil	1 secondary	1 medical
	Gızılburu			e and	sector,	school	center, doctor
	n			animal	farming,		provides
				husbandr	animal		services
				y			

					husbandr Y		
2	Navahi village	2,208	3,561	agriculture animal hus	and bandry	1 secondary; 1 kindergarten	1 medical center, doctor provides services

There are no villages belonging to Gobustan and Bilasuvar districts along the sub-project 2 and subproject 3 routes.

7.12.6 Community Health and Safety

Public health in project areas is affected mainly by drinking water supplies. The public health facilities, including sanitation, are generally in good shape. The water borne diseases are not prevalent in any of the 6 regions related to the project area.

National water supply and sanitation program funded by several donors, including WB assisted the government to improve water supply and sanitation network in rural areas and will continue to be implemented for major cities and large residential areas of the project areas. State Water Strategy of Azerbaijan Republic developed on the basis of principles of IWRM according to EU Water Framework Directive for period till 2035 was adopted in early 2019. In these areas, people have access to basic school education. However, recreational facilities, e.g., clubs, theaters, cinema houses, gymnasium, etc are very limited in number.

In all regions of the project area there are regional branch of the Ministry of Health of Azerbaijan. The Sanitary Epidemiology Centers control life security in the regions. There are hospitals in all regions and large settlements used for treatment of people. Sanitary epidemiology centers test quality of drinking water, control cases that may lead to deceases and prepare relevant recommendation for taking of needed actions. In cases of spread of infection deceases they together with other health institutions in the region take adequate measures to combat them.

Solid waste management poses another challenge, with water quality compromised by the dumping of untreated municipal, industrial, medical and agricultural waste. Agricultural pollution is exacerbated by unregulated use of fertilisers and discharges of animal slurry from cattle and pig farms, especially when snow melts in the spring (UN-Water, 2007). Apart from new systems operating in Baku, most of the waste in the Project covered regions is collected in open dumps, where pollutants from waste buried in these areas mix with groundwater. Some landfills are located directly along rivers and floodplains, and require special attention.

7.12.7 Construction traffic

Currently, the major pollution is from motor vehicles; oil and gas industries; chemical, steel, and power plants; and small and medium-sized enterprises. The main air polluting sectors, traffic and industry, are concentrated in the largest cities. Garadagh, Absheron regions, and Sumgayit and Mingechevir

towns belong to the group of cities that are the source of 96% of the air emissions. However, the overall area of the transmission lines is located outside these areas in mainly low to non-polluted rural areas.

Within the last decades, the country especially rural areas witnessed a dramatic increase in numbers of poorly maintained old vehicles using low-quality fuel. More than 90% of all vehicles are more than 5- years old, and the average age of vehicles is around 15 years.

Azerbaijan is experiencing significant infrastructure development, particularly in transportation, energy, and urban construction projects. Huge infrastructure building works being implemented in liberated territories which use the roads of Project covered regions for transport of construction materials and goods. This surge in construction activities has led to an increase in construction traffic, which has implications for road safety, congestion for local communities. This section provides an overview of the current state of construction traffic in Azerbaijan and the measures being implemented to manage its impact.

Key Construction Projects

Railway Modernization: Projects such as the Baku-Aghali railway and upgrades to the domestic railway system are contributing to construction traffic.

Port Development: Expansion of the Port of Baku and other coastal infrastructure projects (Alat FEZ) increase heavy vehicle traffic in Garadagh region (Alat town).

Energy Sector:

Renewable Energy Projects: Wind and solar power projects, along with associated transport of long turbine blades, contribute to the overall construction traffic.

Azerenerji conducts the construction of new blocks for Azerbaijan TPP (1280 MW) in Mingachevir town which also contributes increase of construction traffic in Mingachevir town.

Regional Development: Initiatives to develop smaller cities and rural areas are also contributing to localized construction traffic.

Impact of Construction Traffic

Road Congestion: Increased construction traffic has led to congestion on major highways, urban roads, and access routes to construction sites, particularly during peak hours.

Road Safety: The presence of heavy vehicles and construction equipment on public roads has heightened safety concerns, necessitating stricter traffic management and safety protocols.

Community Disruption: Local communities, especially those near major construction sites, are experiencing disruptions due to noise, dust, and increased traffic volumes.

Construction works, heavy machinery and large transport vehicles and increased intensity and volume of the traffic will affect the normal road traffic regime in the Project area. It is expected that the principle means of transport proposed to service project construction will be by road due to the fairly developed road network in the Project area, and the flexibility required in delivering machinery and materials to locations across the OHL corridors.

It is clear that construction traffic will increase traffic flows on some roads, particularly the local road network and on unclassified roads, where traffic levels are typically low. In order to minimise impacts on residential areas from traffic during the construction works, a set of mitigation measures needs to be proposed and detailed Traffic Management Plan to be developed as a part of the Project's CESMP, which will (i) define the characteristics of the construction fleet of vehicles and site machinery, (ii) describe the expected Project's traffic (frequency of trips, working hours, convoys) and (iii) detail all site-specific measures that would be implemented during the construction period to minimise the nuisances to neighbourhoods generated by its fleet and to reduce the risk of accidents.

7.12.8 Public Exposure to Electro-Magnetic (EM) Radiation

No energy facility in Azerbaijan is operating with radioactive and ionizing radiation. The Project is designed to avoid the residential and other properties in the region thus minimising any concern about increasing exposure to EMF.

The perception of Electromagnetic (EM) radiation in Azerbaijan varies among the population, influenced by factors such as public awareness, access to scientific information, and cultural beliefs. With the expansion of high voltage transmission lines and telecommunications infrastructure, there has been growing public concern regarding potential health risks associated with EM radiation. This section explores the existing perceptions and the factors shaping them.

Public Awareness and Knowledge

Limited Understanding: For many in Azerbaijan, there is limited understanding of what EM radiation is and how it affects health. The general public often conflates different types of radiation, leading to misconceptions and undue fears.

Health Concerns: There is a prevalent concern about the potential health risks of EM radiation, particularly regarding its effects on cancer rates, neurological conditions, and other chronic illnesses. These concerns are often fueled by media reports and anecdotal evidence rather than scientific studies.

Educational Gaps: There is a significant gap in education and public outreach efforts to explain EM radiation in simple, accessible terms. This gap contributes to a lack of trust in official statements and scientific explanations.

Media Influence

- **Sensationalism**: Media coverage in Azerbaijan can sometimes be sensationalist, highlighting potential risks of EM radiation without providing balanced, scientifically-grounded information. This can amplify public fears and lead to misinformation.
- **Misinformation**: Social media and online platforms often disseminate unverified information and conspiracy theories about EM radiation, further complicating public perception and understanding.

Cultural and Social Factors

Cultural Beliefs: Traditional beliefs and cultural attitudes towards new technologies can influence how EM radiation is perceived. In some communities, there is a general suspicion towards technological advancements and their potential hidden dangers.

Trust in Authorities: The level of trust in government and scientific authorities plays a significant role in shaping public perception. In regions where there is skepticism towards official statements, public fear and resistance towards EM-related projects can be more pronounced.

Government and Institutional Responses

Regulatory Standards: The Azerbaijani government adheres to international standards and guidelines on EM radiation exposure, set by organizations such as the World Health Organization (WHO) and the International Commission on Non-Ionizing Radiation Protection (ICNIRP). However, public awareness of these regulations is low.

Public Engagement: Efforts to engage with the public and address their concerns have been inconsistent. More proactive and transparent communication from government and health authorities is needed to build trust and provide clarity on EM radiation issues.

Scientific Research: Ongoing local research and collaboration with international experts can help to better understand the specific impacts of EM radiation in Azerbaijan and provide evidence-based recommendations.

Mitigation Strategies

Educational Campaigns: Implementing comprehensive educational campaigns to inform the public about EM radiation, its sources, and the scientific consensus on health impacts can help alleviate undue fears. These campaigns should use multiple channels, including schools, community centers, and media.

Transparency and Communication: Increased transparency in the government's actions and decisions related to EM radiation, including making research findings and monitoring data publicly accessible, can help build public trust.

Community Involvement: Engaging local communities in the planning and implementation of EMrelated projects, such as new transmission lines or telecommunications infrastructure, can address concerns and incorporate public input into decision-making processes.

Collaborating with Health Professionals: Partnering with healthcare providers to educate patients and the public about EM radiation can leverage the trust people have in their doctors and healthcare systems.

By addressing these factors, Azerenerji can improve public perception and understanding of EM radiation, ensuring that the expansion of essential infrastructure is met with informed consent and reduced public anxiety.

7.12.3 Labor and working conditions
The labor and working conditions in Project covered regions are shaped by various socio-economic, cultural, and regulatory factors. While there have been improvements in recent years, several challenges remain, including informal employment, inadequate labor rights protection, and limited access to resources and infrastructure. This section provides an overview of the current state of labor and working conditions in Project covered regions.

Employment Patterns

Agricultural Dominance: A significant portion of the rural workforce is engaged in agriculture, which remains the primary source of employment. This includes crop production, livestock farming, and horticulture.

Seasonal Employment: Many agricultural jobs are seasonal, leading to periods of unemployment or underemployment outside of peak farming seasons. This impacts income stability and financial security for rural workers.

Informal Sector: A large percentage of rural employment is in the informal sector, where workers often lack formal contracts, social security, and legal protections. This sector includes small-scale farming, local markets, and family-run businesses.

Working Conditions

Wages and Benefits: Wages in rural areas are generally lower than in urban centers, and many workers do not receive benefits such as healthcare, pensions, or paid leave. The cost of living in rural areas is also lower, which partially offsets lower wages, but it remains a challenge for financial well-being.

Work Hours: Agricultural work often requires long and irregular hours, especially during planting and harvest seasons. Workers may work from early morning until late evening, with limited rest periods.

Health and Safety: Occupational health and safety standards are often not strictly enforced in rural areas. Workers are exposed to various risks, including heavy machinery, pesticides, and physically demanding tasks. Access to healthcare facilities is limited, further exacerbating health risks.

Child Labor: Child labor remains an issue in some rural areas, where children are involved in agricultural activities to support family income. This affects their education and long-term prospects.

Legal and Regulatory Framework

Labor Laws: Azerbaijan has labor laws in place that regulate working conditions, wages, and workers' rights. However, enforcement in rural areas is often weak due to limited government presence and resources.

Worker Rights: Awareness of labor rights is generally low among rural workers. Trade unions and worker associations are not as prevalent or effective in rural regions compared to urban areas.

Government Initiatives: The Azerbaijani government has launched various programs to improve rural livelihoods, including agricultural subsidies, training programs, and rural development projects. These initiatives aim to enhance productivity and working conditions but have varying levels of success and reach.

Social and Economic Challenges

Poverty: Poverty rates are higher in rural areas compared to urban centers. Many rural households rely on subsistence farming and have limited access to markets, credit, and financial services.

Migration: There is a significant trend of rural-to-urban migration, particularly among young people seeking better employment opportunities. This migration can lead to labor shortages in rural areas and disrupt traditional agricultural practices.

Education and Skills: Access to quality education and vocational training is limited in rural areas, affecting the skill levels of the workforce. This limits opportunities for higher-paying jobs and economic advancement.

7.13 Cultural Heritage

The culturally important site located in vicinity of proposed OHLs is the Gobustan Rock Art Cultural Landscape that was included in the World Heritage List in 2007 and received UNESCO's status of enhanced protection during the eighth session of the Committee for the Protection of Cultural Property, held in Paris in December 2019. The Responsible Government Institution is the Cultural heritage Division of the Ministry of Culture and Tourism of the Republic of Azerbaijan. The reserve attracts hundreds of tourists from dozens of countries around the world each year.

As shown in Figure 7-16, part of the Qobustan National Park officially "Qobustan Rock Art Cultural Landscape "World Heritage (WH) Site, an open-air museum with a huge collection of priceless historical artifacts, which is located around 10 km in north-east direction from the OHLs. This is a hill and mountain site occupying the south-east end of the Greater Caucasus mountain ridge. The site has outstanding universal value for its rock art engravings, for the substantial evidence the collection of rock art images presents for hunting, fauna, flora and lifestyles in pre-historic times and for the cultural continuity between prehistoric and mediaeval times that the site reflects. As a result of archaeological research in the Qobustan Reserve, more than six thousand carvings on 1000 rocks, ancient dwellings-caves, about 40 mounds, more than 1000 objects of material culture were discovered. The most ancient carvings date back to the Mesolithic.



Figure 7-21: Location of OHLs and distance to Gobustan Rock Art Culture Landscape

One of the main tourist attractions in the area are world-famous mud volcanoes. The majority of these volcanoes are protected by the Ministry of Ecology Natural Resources. They have been declared natural resources under the order of the President of the country. It has unique value and is an attractive area for tourists. Out of the four volcanos detected in the vicinity of the OHLs, Goturdagh and Dashgil are considered as natural resources of touristic interest; these volcanoes are located 3 km South and around 2 km north-west to the OHLs (See Figure 7-17).



Figure 7-22: OHLs alignment and location of important mud volcanos (Goturdagh and Dashgil)

8. POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

The ESIA report systematically identified and evaluated potential environmental and social impacts associated with the proposed project. This process involved a thorough analysis of both direct and indirect impacts during all phases of the project, including construction and operation. Key potential environmental impacts included changes to air and water quality, soil erosion, habitat disruption, and biodiversity loss. Social impacts were assessed in terms of effects on community health and safety, displacement, economic opportunities, and cultural heritage. Special attention was given to cumulative impacts that may result from interactions between the project and existing or planned developments in the area. The identification of potential impacts was informed by baseline data, stakeholder consultations, and expert assessments. This comprehensive approach ensured that all significant impacts are identified early, allowing for the development of effective mitigation and management strategies to minimize negative outcomes and enhance positive effects for both the environment and local communities.

8.1 Environmental and Social Resources and Receptors

The ESIA process carefully identified and evaluated the environmental and social resources and receptors that may be affected by the proposed project. This includes the natural environment, such as air quality, water resources, soil, biodiversity, and ecosystems, as well as the social environment, encompassing local communities, cultural heritage sites, and socioeconomic conditions. Key environmental resources were assessed for potential impacts on flora and fauna, particularly protected species and sensitive habitats. Water quality and availability, both surface and groundwater, were evaluated to ensure sustainable use and protection from contamination.

During the ESIA phase of the Project, mapping social receptors is a critical step to identify and understand the communities and stakeholders potentially impacted by the Project. Social receptors include local residents, businesses, schools, healthcare facilities, with particular attention to vulnerable groups such as children, the elderly, and women that may experience direct or indirect effects from the project activities. This process involves detailed demographic surveys, stakeholder consultations, and spatial analysis to delineate areas of social interaction and influence. By identifying the social receptors early in the project, we can ensure that their concerns and needs are integrated into the project planning and design. This approach fosters community engagement, promotes transparency, and helps in developing targeted mitigation strategies to minimize adverse social impacts, thereby enhancing the overall social acceptability and sustainability of the Project.

Cultural heritage sites have been mapped, where known, and measures developed to protect them from project-related activities. Mapping cultural heritage sites was essential to identify and protect significant cultural, historical, and archaeological assets potentially affected by the Project. Cultural heritage mapping involved a comprehensive survey and documentation of tangible and intangible cultural resources within the project area, consultation with relevant stakeholders. These resources include historical buildings, monuments, archaeological sites, sacred landscapes, and areas of cultural significance to local communities.

By thoroughly understanding the environmental and social context, the ESIA report sets the foundation for developing effective mitigation strategies and ensures that the project's development is sustainable, equitable, and respectful of both natural and human environments.

8.2 Environmental, Social, Health and Cultural Heritage Impacts

The proposed Project is anticipated to bring several environmental, social, health, and cultural heritage impacts that require thorough assessment and management. Environmentally, the construction and operation of transmission lines can lead to habitat fragmentation, soil erosion, and disruption of local wildlife corridors. These impacts necessitate the implementation of robust mitigation measures, such as reforestation, erosion control techniques, and the creation of wildlife passageways.

Socially, the project could affect local communities through land acquisition, displacement, and changes in land use. Engagement with affected communities is essential to address their concerns, ensure fair compensation, and provide livelihood restoration programs. Additionally, the influx of workers and increased traffic can strain local infrastructure and services, requiring careful planning and support for community facilities.

Health impacts include potential exposure to electromagnetic fields (EMF), noise, and dust during construction and operation phases. While EMF exposure from transmission lines is generally within international safety guidelines, continuous monitoring and public communication are crucial to alleviate community concerns. Measures to control dust and noise, along with health and safety protocols for workers, will minimize adverse health effects.

Cultural heritage impacts are also significant, as transmission line routes may traverse areas of archaeological, historical, or cultural importance. Mapping and protecting these sites through careful route selection, buffer zones, and collaboration with cultural heritage experts and local communities will help preserve these valuable resources. Ensuring that cultural heritage impacts are managed respectfully and in accordance with local customs and legal requirements is essential for maintaining the cultural integrity of affected areas.

Significance of Impacts – Generic Approach

The significance of an environmental and social effect is typically a function of the "value" or "sensitivity" of the receptor and the "magnitude" or "scale" of the impact.

Receptor Sensitivity

The sensitivity of a receptor refers to its importance i.e. its environmental value / attributes. The sensitivity is generally site specific and is a function of receptor's capacity to accommodate change. It reflects its ability to recover if it is affected, and is defined by the following factors:

- > Adaptability the degree to which a receptor can avoid, adapt to or recover from an effect.
- > Tolerance the ability of a receptor to accommodate temporary or permanent change.
- Recoverability the temporal scale over and extent to which a receptor will recover following an effect.

Generic criteria guidelines for assigning receptor sensitivity for the purpose of the assessment for the Project are given in Table below. In principle, the assessment of receptor's sensitivity is a matter of judgment applied by professional experts based on case by case approach within the relevant area affected by the proposed development.

Table 8-1: Generic criteria and typical descriptors for assigning receptor sensitivity / value

Receptor sensitivity / value	Description - typical descriptors
Very high	Receptor has very limited or no capacity to accommodate changes (impacts) - very high importance and rarity, international scale and very limited notential for substitution/replacement
High	Receptor has a limited capacity to accommodate changes (impacts) - high importance and rarity, national scale and limited potential for substitution/replacement
Medium	Receptor has a limited capacity to accommodate changes (impacts) - high or medium importance and rarity, regional scale, limited potential for substitution/ replacement.
Low	Receptor has a moderate capacity to accommodate changes (impacts) - low or medium importance and rarity, local scale and potentially can be substituted / replaced.
Very low	Receptor is generally tolerant of and can accommodate changes or influences - very low importance and rarity, local scale and are not designated, and are easily substituted / replaced.

Impact Magnitude or Scale

The magnitude of an effect is typically defined by number of factors including, but not limited to:

- Spatial extent the area over which an effect occurs.
- > Duration the time for which the effect occurs.
- Likelihood probability of occurrence.
- Reversibility the ability to return to the original state.
- Intensity the degree of change relative to existing environmental conditions.

A typical impact appraisal matrix for different elements of the environment is prepared to guide the impact assessment exercise for the Project and presented in Table below.

Impact magnitude factor	Description - typical des	criptors
Spatial Extent (Area of influence)	Limited (on SS location or along OHLs corridor)	Area on, and around the construction and operational location of the Project
	Local	In the range of municipality / neighbouring municipalities
	Regional Global	Azerbaijan and neighbouring countries Continent and wider
	Very short	Few minutes to few hours

Table 8-1: Typical impact appraisal matrix

Impact magnitude factor	Description - typical descriptors			
Duration	Short	Few hours to few weeks		
	Average duration	Few weeks to few months		
	Long	Few months to few years		
	Very long	Decades / centuries		
Probability of	No probability	Should not occur during normal operation and conditions		
occurrence	Low probability	Possible, but unlikely		
(Likelihood)	Average probability	May happen sometimes		
	High probability Reliable probability	Likely to occur during the life cycle of the project Will certainly appear		
Reversibility	Reversible (impact)	Reversible impact on the resource / receptor, i.e. impact upon		
	(which the environment will be able to return to the original state		
	Irreversible (impact)	Irreversible impact on the resource / receptor, i.e. impact upon		
	(which the environment will not be able to return to its original state		
Intensity	A (very low / negligible)	No change or negligible weak impact without damaging the resource / receptor		
	B (low to medium)	Measurable impact, but with proper planning does not cause damage to the resource / receptor		
	C (medium to high)	Significant impact, but can be controlled by implementing the appropriate measures		
	D (very high)	Impact that would be harmful to the resource / receptor		
	E (compensation)	Impact that requires compensatory measures		

Typical criteria descriptors for defining impact magnitude for the purpose of the assessment are given in Table below. While this Table provides guidelines of a generic nature, it should be noted that specific guidelines in relation to impact magnitude may be required for the particular topics, where considered necessary.

Table 8-2: Generic criteria and typical descriptors for determining impact magnitude / scale

Impact magnitude	Description - typical descriptors
High	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (Adverse)
	Large scale or major improvement of resource; extensive restoration or enhancement, major improvement of attribute quality (Beneficial)
Medium	Loss of resource, but not affecting integrity, partial loss of/damage to key characteristics, features or elements (Adverse)
	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality (Beneficial)

Impact magnitude	Description - typical descriptors
Low	Some measurable change in attributes, quality or vulnerability, minor loss of or alteration to one (possibly more) key characteristics, features or elements (Adverse)
	Minor benefit to, or addition of, one (possibly more) key characteristics, features or
	elements, some beneficial impact on attribute or a reduced risk of a negative impact occurring (Beneficial)
Very low	Very minor loss or detrimental alteration to one or more characteristics, features or elements (Adverse)
	Very minor benefit to or positive addition of one or more characteristics, features or elements (Beneficial)
None / no change	No loss or alteration of characteristics, features or elements, no observable impact in either direction

The assessment of effects on the environment arising from the Project will consider their significance during both construction and operational phases. Impacts are likely to be significant if they:

- Are extensive over space or time and are intensive in relation to assimilative capacity of the environment.
- Exceed environmental or sanitary standards or thresholds.
- Do not comply with environmental and social policies / land use plans.
- Adversely affect ecological sensitive / important areas or natural heritage resources.
- Adversely affect community lifestyle, traditional land uses and values.

The significance (or the level) of a potential effect is a function of its predicted magnitude and the sensitivity / value of the resource / receptor being affected. The greater the receptor sensitivity and the greater the impact magnitude, the impact is more significant. The impact significance has to be set in a context and could be relative and to a certain degree - subjective.

In general, an impact could be categorized into following significance categories (Table below):

- Negligible (or neutral): no detectable change to the environment;
- Minor: a detectable but non-material change to the environment;
- Moderate: a material but non-fundamental change to the environment;
- Major: a fundamental change to the environment.

Receptor	Impact magnitude					
sensitivity	High	Medium	Low	Very low	None	
Very high	Major	Major	Moderate	Moderate	Negligible	
High	Major	Moderate	Moderate	Minor	Negligible	
Medium	Moderate	Moderate	Minor	Minor	Negligible	
Low	Minor	Minor	Minor	Negligible	Negligible	
Very low	Minor	Negligible	Negligible	Negligible	Negligible	

Table 8-3: Typical impact significance matrix

The Table above demonstrates how combining the sensitivity / value of the resource or receptor with the magnitude of change produces a significance of effect category.

For some topics, such as air or water quality, noise, elector-magnetic radiation - quantifiable (measurable) thresholds or legally defined criteria could be used to determine the significance of an impact. However, for other topics, such as biodiversity or landscape, it is necessary to use combination of quantitative and qualitative criteria – professional judgment on case by case basis.

Assigning impact significance relies on reasoned argument, professional judgment and consideration of the views and guidance of competent organisations. Assigning each impact to one of four significance categories enables different topic issues to be placed within the same scale to allow a direct comparison. The four significance categories are described in Table below. In arriving at the significance of effect, the assessor will also consider whether they are direct or indirect; short, medium or long-term; permanent or temporary, positive or negative, cumulative.

Impact significance category	Typical criteria	Description - typical descriptors
Major	A fundamental change to the environment	Only adverse impacts are normally assigned this level of significance, and represents key factors in decision-making process. These impacts are generally but not exclusively associated with sites or features of International, National or Regional importance that are likely to suffer a most damaging impact and loss of integrity. However, a major change in a site or feature of local importance may also enter this category.
Moderate	A material but non- fundamental change to the environment	These beneficial or adverse impacts may be important, but are not likely to be key decision-making factors. The cumulative effects of such factors may influence decision- making if they lead to an increase in the overall adverse impact on a particular resource or receptor.

Table 8-4: Typical impact significance categories and their decision-making aspects

Minor	A detectable but non- material change to the Environment	These beneficial or adverse impacts may be raised as local factors. They are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the project.
Negligible (or neutral)	No detectable change to the environment	No impacts or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

8.2.1 Air Quality

The impacts of the Project on air quality are such that their management by mitigation measures that will be set out in the ESMP, would prevent the occurrence of significant impacts. Therefore, the assessment of air quality is scoped out of the ESIA Report. This is elaborated further below. The key pollutants of concern that may give rise to significant air quality effects during the construction phase are:

- Fugitive dust from construction related activities (effecting human and ecological receptors), including: earthwork activities such as soil stripping, ground levelling, and excavation; construction activities, which includes any activity involved in the provision of a new structure or modification to an existing structure; and construction traffic transporting dust and dirt from any Project compound or site entrance onto the public road network, where it may be deposited and re-suspended by other vehicles using local roads;
- Vehicle exhaust emissions of oxides of nitrogen (NOx) (impacting human and ecological receptors) and fine particulate matter (PM) (impacting human receptors (impacts on lung functions)) from construction traffic, particularly heavy duty vehicles (HDV); and
- Vehicle exhaust emissions from non-road mobile machinery (impacting human and ecological receptors).

The identified risk of dust impacts for each construction activity would be used by the Contractor(s) to define the required dust control levels for each activity to ensure that no significant impact would occur as a result of construction activities which generate dust. Mitigation would be employed for all risks – low to high to ensure no significant impacts occur.

While the anticipated traffic numbers associated with the construction of the Project are not as yet fully known, the majority of the construction works would be undertaken in remote areas where existing road traffic levels are low and air quality is generally currently good. In addition, the construction of the overhead lines would be transitory with work in any one place being of short duration. In the absence of Azerbaijani or Lenders' guidance, UK guidance on the number of vehicles that trigger the need for an air quality assessment (UK Institute of Air Quality Management (IAQM) Guidance IAQM guidance document 'Land-Use Planning & Development Control: Planning for Air Quality) in a sensitive area, is greater than 100 annual average daily traffic movements. This threshold will not be exceeded. It is therefore considered that with the use of mitigation that impacts on both short and long term levels of fine particulate matter and oxides of nitrogen due to Project traffic are

unlikely to result in exceedances of air quality limits and the assessment of traffic emissions on local air quality are therefore scoped out of further assessment.

During the operation phase it is not anticipated that there would be any significant emissions to air from the Project:

- Once constructed, operational traffic would consist of not more than monthly inspections in light vehicles. Therefore, it is proposed that operational impacts are scoped out and would not be considered as part of the EIA;
- The proposed substations may include Gas Insulated Switchgear (GIS), which use sulphur hexafluoride (SF6) gas as an electrical insulator. This is a greenhouse gas rather than a local air quality pollutant. Manufacturers now produce GIS switchgear that is guaranteed to have no or minimal leakage and there would be no resulting local air quality impacts. Therefore, it is proposed to scope this out of the air quality assessment; and
- Ozone, a colourless gas with a pungent odour, may also be produced by corona discharge (an
 electrical discharge brought on by the ionization of the air surrounding the conductor) in
 overhead lines, however the quantities produced are not at a level that could be harmful to
 human health. The construction activities comprising the Project are not of a nature nor would
 they employ methods or processes that could give rise to odour (odour is caused by a mixture
 of chemicals that interact and cause an odour).

Therefore, no significant sources of odour are expected during the construction, operation and decommissioning phase of the Project that could give rise to such impact. Therefore, it is proposed to scope out the assessment of odour from the ESIA.

8.2.2 Climate

Azerbaijan has a very variable climate due to its altitude, geomorphological differences and its location on the northern border of the subtropics. The Caspian Sea has a greater influence on the climate. The maximum temperature reaches 44°C, and the minimum temperature can drop to minus 42°C. The amount of precipitation can vary between 200-1800 mm. Despite these limitations, the Greater Caucasus mountain range is a natural barrier to cold air flows from the north, while the Lesser Caucasus mountains block warm tropical air flows from the south. As a result of the complex influence of the terrain, a dry and hot subtropical climate prevails in most parts of the country.

Neftchala

Neftchala district is located in the southeastern part of the Republic of Azerbaijan, in the area where the Kura River flows into the Caspian Sea, in the east of the Kura-Araz plain, on the ancient caravan route. It is surrounded by the Caspian Sea from the east. The district is located between 390531, 390331 north latitudes and 480361, 490271 east longitudes.

It has a mild hot semi-desert and dry steppe climate with dry summers. The average temperature is about 3 °C in January and 25-36 °C in July. The amount of annual precipitation is 300 mm. The windy nature of the area causes a sharp change in climate. Semi-desert steppe and saline soils are widespread.

Bilasuvar

Bilasuvar occupies the southwestern and southern part of the Mugan Plain. Its territory is bordered by Imishli district to the north, Saatli and Sabirabad districts to the northwest, Salyan and Neftchala districts to the east, Jalilabad district to the south, and the Islamic Republic of Iran to the west. The territory of Bilasuvar district occupies the southwestern and southern part of the Mugan plain.

The climate of the region is hot and dry. The average temperature in July is +35 °C. The winter is mild. The average temperature in January is +7 °C. The amount of precipitation is 220-275 mm per year.

Hacıgabul

Hajigabul district is located in the southeast of Kur-Araz plain, in the area known as Shirvan plain. A large part of the territory of the district is below sea level. A large number of mud volcanoes can be found in mountainous areas. A dry, hot semi-desert and dry desert subtropical climate prevails here.

The average annual temperature in the area is 14-15 degrees. Atmospheric precipitation falls mainly in the form of rain and its amount does not exceed 200 millimeters per year.



Figure 9-1: Climate zone of Azerbaijan

Several types of climate prevail in the region: temperate-hot, arid semi-desert and dry desert climate with dry summer, temperate-hot with dry winter and cold climate with wet winter. The average annual temperature varies from 14°C in the south and lowlands to 2°C in the north and highlands. The absolute minimum temperature is -18°C and -26°C respectively, and the absolute maximum temperature is 40°C

and 30°C respectively. Annual precipitation increases rapidly from south (300 mm) to north (900 mm) (see Figure 8-2 below). Western winds with an average annual speed of up to 15 meters/second prevail here.



Figure 9-2: Average annual precipitation and temperature in Azerbaijan

Air quality in Azerbaijan is generally good, but air quality in Baku and the Absheron Peninsula is considered a serious problem. Industry is the main cause of air pollution, with transport accounting for more than 60% of emissions from mobile sources (UNECE, 2020).

In general, air quality is very good in most of the project areas due to the high level of agriculture and low level of industrial development.

8.2.3 Noise and Vibration

The principal construction noise and vibration sources predicted as a result of the construction of the Project include the following:

- Deliveries of staff, materials, construction plant and machinery;
- Site preparation and construction of compounds and access tracks;
- Foundations for towers (either by excavation or piling);
- Preparing substation foundations;
- Removal of existing overhead lines;
- Installation of substation equipment and towers;
- Welding and grinding; and
- Restoration works.

The majority of these activities would take place at locations remote from sensitive receptors. Nighttime working is not generally proposed, except under special circumstances.

The impacts of construction noise from the Project would be controlled by the Contractor(s) to meet IFC EHS guidelines¹⁴ (in the absence of Azerbaijani standards relevant to construction noise). The Contractor(s) will use GIP and mitigation measures to ensure compliance with the relevant guidelines and thereby prevent the occurrence of significant impacts. The assessment of construction noise is scoped out of the ESIA Report. A high level desk based appraisal of noise due to the operational phase will be undertaken for the substations and the high voltage overhead lines (330/500kV) which can both emit buzzing or humming noise. Noise levels will be considered with respect to IFC EHS guidelines¹⁵ and Azerbaijan standards (Decree No. 796, 8 July 2008). As noise from the Project would be continuous it is the more stringent night time noise limits that would be relevant for residential receptors:

IFC EHS guideline level 45dB(A)
Azerbaijani permissible level (for living rooms and bedrooms) 30dB(A)

The IFC EHS guideline level is a level to be met externally to buildings. The Azerbaijani permissible level relates to an internal limit and when the noise attenuation of an open window (i.e. a 15dB reduction¹⁶) is considered, this also equates to an external night-time limit of 45dB(A).

In addition to a 45dB(A) night time noise limit, the IFC EHS guidelines also refer to a limit of a maximum increase in background levels of 3 dB at the nearest receptor location off-site. The noise levels resulting from the Project will therefore be considered with reference to these limits.

Lower voltage overhead lines (i.e. the 110kV lines of the Project) are considered to be 'practically quiet' in operation due to the relatively low electrical stresses on these lines. Under certain conditions there may be some low level noise from a 330kV line which may be noticeable only when standing close to the line. The level, occurrence and duration of this noise is such that it is not considered to be significant. Therefore, the assessment of operational noise from these lines is scoped out of the assessment.

8.2.4 Geology, Soil and Groundwater

Impacts on water quality (both surface water and groundwater) and also flood risk will principally be associated with the construction phase, and will be associated with ground disturbance, dewatering activities, creation of impermeable surfaces, and accidental release of pollutants or works near or within watercourses. These impacts are typically associated with infrastructure construction projects and thus measures to prevent environmental impacts arising from these are well developed and used. It is proposed that avoidance measures, good international practice and project-specific mitigation measures will be incorporated into the ESMP. These are considered suitably effective to provide mitigation for sensitive receptors so that there would be no significant impacts as a result of the

¹⁴ https://www.ifc.org/content/dam/ifc/doc/2000/2007-general-ehs-guidelines-en.pdf

¹⁵ https://www.ifc.org/content/dam/ifc/doc/2000/2007-general-ehs-guidelines-en.pdf

¹⁶ World Health Organization (WHO), B Berglund, T Lindvall, D H Schwela, Guidelines for Community Noise, 1999 http://www.who.int/docstore/peh/noise/Comnoise-4.pdf

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Project. A detailed assessment of Project impacts on water quality and flood risk is therefore scoped out. Nevertheless, key hydrological features (such as river crossings) will be mapped and described in the ESIA Report so that likely constraints can be established to inform the necessary mitigation approaches.

Impacts on geology and soils due to the Project also relate principally to the construction phase and would potentially arise from ground instability and ground disturbance. The majority of the works would be undertaken on previously undeveloped land where mobilization of soil contamination is not an issue. The potential impacts are such that their management by avoidance measures, good international practice and project-specific mitigation measures which will be incorporated into the ESMP is considered likely to provide sufficient mitigation for sensitive receptors to ensure that there are no significant impacts as a result of the Project. The detailed assessment of impacts on geology and soils is, therefore, scoped out of the assessment.

Nevertheless, an evaluation of geological risks (slope stability, erosion) will be undertaken and will include the mapping of key features to enable the provision of sufficient baseline information to establish constraints and inform the necessary mitigation approaches.

8.2.5 Surface Water

Hydrographically, the Republic of Azerbaijan belongs to the Caspian Sea basin. The hydrographic network (rivers, lakes) of the republic was formed in a long geological period and underwent considerable changes during this period. The remains of a number of ancient river valleys found today are an example of this. Even now, the hydrographic network is changing as a result of natural factors and human economic activity. Artificial watercourses (canals) and reservoirs are also included in the hydrographic network of Azerbaijan.

Rivers form the basis of the hydrographic network of the Republic of Azerbaijan. 8359 rivers of different lengths flow through the territory of the republic. Of these, 8,188 rivers each have a length of less than 25 km. There are 24 rivers with a length of more than 100 km. Kura, Araz, Ganikh (Alazan), Gabirri (Iori), Samur, Tartar, Turyan, Agstafa, Hekari, Vilash, etc. are the largest rivers flowing through the territory of the republic. In general, the rivers of the Azerbaijan are divided into 3 groups:

- Rivers of the Kura basin (Kanikh, Gabirri, Turyan, Agstafa, Shamkir, Tartar, Khachin, etc.);
- Rivers of the Araz basin (Arpachay, Nakhchivan, Hakari, Kondelanchay, etc.);
- Rivers flowing directly into the Caspian Sea (Samur, Gudyal, Valvala, Vilash, Lankaran, etc.).

Kura (1515 km), Araz (792 km) and Samur (200 km) rivers are the three longest transboundary rivers of Azerbaijan, the Kura River is the largest waterway in Transcaucasia. Mingachevir Reservoir, the largest reservoir of Azerbaijan with 605 km2, was created as a result of the flow of the Kura River in the territory of Western Azerbaijan. There are 7 dams in Kur, 4 dams in Araz, and 1 dam in Samur river. Almost 1000 megawatts of water power are produced in the water reservoirs of the Kura River.

There are more than 250 lakes in Azerbaijan. Most of them are small, but Hajigabul, Sarısu, Candargol, Goygol and many others are relatively larger lakes. Azerbaijan has more than 60 reservoirs to control

the river flow. Shamkir and Mingachevir reservoirs are the largest and most important reservoirs located in the areas where the project will be implemented.

The area of the Kur river basin (86,000 km2) is less than the area of the Araz basin (101,937 km2) until it meets the Araz. However, since the water content of Kur is twice that of Araz river, even after they meet, the river is called Kur.

Bolgarchay, which passes through the territory of **Bilasuvar district**, takes its source from the Islamic Republic of Iran and ends in Mahmudchala. The 101 km long Azizbeyov canal, which takes its source from the Araz river, is the only source for irrigation of crops, in addition to meeting the drinking water needs of the region's population.

Salyan rayonun ərazisindən Kür çayından ayrılan qol olan Akuşa və ya Bala Kür çayı axır və uzunluğu 63 km-dir. Keçmişdə Bala Kür çayı Qızılağac körfəzinin bir hissəsi olmuş Xurşudçalaya tökülürdü. Sonralar Kürün səviyyəsi aşağı düşdüyündən bu çaya su axmamışdır. Hazırda Bala kür çayının yatağına nasosla su vurub, ondan suvarma kanalı kimi istifadə edilir.

The Akusha or Bala Kura River, a tributary of the Kura River, flows through the territory of **Salyan region** and is 63 km long. In the past, the Bala Kur River flowed into Khurshudchala, which was a part of the Gizilagac Bay. Later, water did not flow into this river as the level of Kura decreased. At present, water has been pumped into the bed of the Bala Kura river, and it is used as an irrigation channel.

Kura River forms a delta in **Neftchala region** and flows into the Caspian Sea. Bala Kura canal, Mugan-Salyan collector passes through the territory of the district.

The Jeyranbatan Reservoir, located on the **Absheron Peninsula**, was established in 1955 due to the sharp increase in the demand for drinking and technical water in the cities of Baku and Sumgait. The water capacity of the reservoir is 186 million m³, the useful volume is 150 million. is m³. The length of the reservoir is 8.74 km, the maximum width is 2.15 km, the length of the coastline is 23.3 km, the maximum depth is 28.5 meters, and the dead volume level is 14.5 meters, the area of the water mirror is 1389 hectares. The source is the Samur-Absheron canal, which takes water from the Samurchay, Valvalechay and Gudyalchay rivers. Since the Jeyranbatan reservoir is a source of drinking water, in 1960 a sanitary protection zone consisting of three lanes was created around it. In 2001, the 1st sanitary protection zone of the Jeyranbatan reservoir was expanded and fenced. At the same time, appropriate measures (afforestation, drainage canals, etc.) were implemented to improve the ecological condition of the Jeyranbatan reservoir.

The territory of **Garadagh and Gobustan regions** is included in the least flow zone. The annual flow here is less than 1 l/sec km². In the north of Gobustan, the density of the river network reaches 0.20 km/km², while in its southeast and Absheron, this figure drops to zero. Sumgaitchay and Pirsaatchay passes through Gobustan territory. The Jeyrankechmez river, which dries up periodically, is formed in the territory of Gobustan. First, both rivers dry up in the hot half of the year (especially in July and August).

As the Jeyrankechmez River is fed by rain and snow water, there is water here only in the cold half of the year. During torrential rains, a late water-mud-flow flood flows from the Jeyrankechmez river.

These floods cause damage to farms and sometimes result in human casualties. Gobustan rivers (Sumgayitchay, Pirsaat, etc.) are rivers that flow directly into the Caspian Sea.

Due to its chemical composition, the waters are sodium sulfate. The water of some dry streams (especially in the summer months) is very bitter and completely unfit for use. Since the water is bitter, they named one of the creeks Bitter Creek. Fresh ground water is found in Gobustan only in its northern and northwestern part. The water level in the area is very high.

There are more than 250 lakes in Azerbaijan. Most of them are small, but Hajigabul, Sarısu, Candargol, Goygol and many others are relatively large lakes. Azerbaijan has more than 60 reservoirs to regulate the flow of rivers.

Hajigabul lake is the only lake in the project area. It is a lake located in Hajigabul district and Shirvan city. It is located in the northern part of the Shirvan Plain, on the left side of the Kura River. Water is released to the lake from Karasu and Kura rivers. In the southern part, it connects with the Kur river through the Shorshore channel. The lake is surrounded by swamps and reeds. The lake is named after the nearby settlement of Hajigabul.

Surface water bodies (rivers and canal network, lakes) in the project area are presented in Figure 8-3.



Figure 9-3: Map of surface water bodies in the project area

Groundwater: The main part of drinking and poorly mineralized groundwater in Azerbaijan is in the plains of the Kura-Araz lowland and in the Samur-Gusarchay valley basin and is shown in Figure 15.



Figure 9-4: Map showing groundwater resources in the project area

Fresh and poorly mineralized places are replaced by highly saline or partially saline waters, mainly in the peripheral zones of the bringing cones of the Karabakh, Mill and Shirvan plains, depending on the above characteristics. One unconfined and two confined aquifers in the Karabakh and Mil plains contain mineralized water and they overlap with the fresh water aquifer.

Groundwater in Azerbaijan is extracted through wells and kahriz wells. The formation of groundwater in Karabakh, Mil and Ganja-Kazakh plains is more than in all other hydrogeological regions of Azerbaijan. 8-10 percent of groundwater is used for domestic water supply; 3-4% is used for industrial purposes, and 86-88% is used for irrigation. At the same time, due to the uneven distribution of water sources and the lack of water collection facilities, a large part of the population is forced to use river and canal water for domestic needs.

Since the project areas are widely spread in different regions of the country, several large and small rivers flow through the regions where the project will be implemented. However, in most cases, rivers and other water bodies are far away from the locations of the project components, and the project will not be able to adversely affect the water bodies.

The route of the proposed overhead lines crosses several rivers at several points. The nearest settlements along the crossing points are located at a relative distance of about 700-800 meters from the transmission line. The following table shows the crossing points of the Project's overhead lines with rivers and canals and the nearest settlements:

Table					
N⁰	Air transmission line	Crossing river	Site	Coordinates	
1	330 kv double-circuit	Kura		39°40'50.47"N	

Table 8-5: Intersections of OHLs with rivers

	Bilasuvar-Navahi OHL (90 km)		Salmanly village of	48°57'31.21"E
			Salyan district	
2	330 kv double-circuit	Mugan-Salyan	Biləsuvar	39°33'30.18"N
	Bilasuvar-Navahi OHL (90 km)	channel	rayonu	48°45'44.83"

All rivers in the region are associated with the flood regime. Floods often occur in spring during intense snowmelt and torrential rains. Heavy rains in autumn can cause floods. After a hot and dry summer season, the soil surface loses its moisture and is easily washed away by water and spread along with other erosive materials accumulated along the slopes and riverbeds. This often results in strong flood flows that affect residential areas, the economy and agriculture.

8.2.6 Resources (electricity, water, fuel etc.)

Azerbaijan has the capacity to generate approximately 7,025 MW of electricity, of which 6,299 MW is provided by thermal power plants and the rest by hydropower plants. In the north, a combined plant with a capacity of 400 MW is under construction. Thus, the total possible system capacity will soon be close to 7,500 MW. In addition to the above, various state-owned and privately owned enterprises contribute an additional 170 MW to the country's electricity generation capacity.

Currently, 80% of Azerbaijan's energy production capacity is located in its western part. However, 70% of energy consumption is concentrated in the east, northeast and southeast. In this regard, the fuel is transported hundreds of kilometers west of the Absheron peninsula to large thermal plants. The generated energy is then transmitted back to the Absheron Peninsula and distributed to the northern and southern regions. The west and east of Azerbaijan are connected by two 500kV transmission lines (sometimes 330 kV) and relatively large energy losses occur.

The country's distribution networks include 7 regional distribution networks (ie Baku, North, South, North-West, Central Aran, Aran and West) and the Nakhchivan network. Existing distribution networks in small towns and rural areas are old and fragile, unable to provide consistent and high-quality service to consumers, which affects the living conditions of families and discourages new economic activities.

Water resources are distributed unequally. Water resources of Gobustan and Garadagh regions are very limited and makes up only 50 m3 per person annually.

About 1.2 billion m3 water is drawn from underground sources in Azerbaijan. The average per capita consumption of drinking water is about 130 liters per day, relatively low by international standards. Ground waters of the region mainly are formed by the precipitations, rate of which is high in the mountains. The total potential of ground waters to be used annually make 400 - 500 Mio m3 in the mountain Shirvan area. Now use of ground waters is very low.

8.2.7 Wastewater

Water Supply and Sanitation: Access to safe water supply and sanitation affects the health and hygiene of communities. WHO statistics for 2014 show that 80% of the population in Azerbaijan has access to a sustainable and improved water source (home connection, public water taps, bore wells, protected

bore wells, protected springs and rainwater harvesting). As for hygiene and access to sanitation, the situation is slightly better with 82% of the population having access to improved sanitation. These figures do not reflect the significant difference between urban and rural areas (urban areas have significantly higher rates than rural areas). The State Program on Social and Economic Development of Regions of Azerbaijan for 2014-2018 states that in the last 10 years, 3,400 km of new water supply lines and 1.2 km of new sewage lines have been built.

In the last 5 years, the government implemented projects financed by international financial institutions to improve the water and sewage infrastructure of Hajigabul, Salyan, Bilasuvar, Garadagh and Gobustan towns. Due to these projects, the conditions in terms of water supply, especially sewage, are relatively good in the listed regions, especially in the cities that are regional centers.

8.2.8 Waste management

Waste is defined "any substance or object which the holder discards or intends or is required to discard."¹⁷ The Project will aim to prioritise waste prevention, followed by preparing for re-use, recycling and recovery and lastly disposal to landfill as per the internationally recognised waste hierarchy (see Figure below).



Figure 9-5: Waste hierarchy

Waste management is generally weak in Azerbaijan. The government is implementing a number of projects mainly in the capital city, but generally there is no modern sanitary landfill facility for the entire country. In this regard, it is expected that the majority of household waste in the project regions will be thrown into small local landfills, partially burned and buried. Garbage collection is provided by the relevant municipality and appears to be done with good frequency.

The types of wastes that may be generated by various activities during the project lifecycle are summarised in the Table below.

Table 8-6: Key types of waste generation

¹⁷ Directive of the EU on Waste - Waste Framework Directive (2008/98/EC)

Project activity	Waste generation
Site preparation / earthworks /site remediation	 Surplus excavated materials. Stripped topsoil and subsoil.
Dismantling / Construction	 Demolition waste from dismantling works on lines subject to reconstruction. Packaging from materials delivered to site. Excess and broken/damaged construction materials. Waste additives and conditioning agents used for construction purposes. Construction workforce wastes.
Operation and maintenance	Waste arising during operation and maintenance (expected to be minimal).

The potential impacts for the above activities would be mitigated by undertaking of construction works in accordance with a Project's CESMP which will include a Waste Management Plan, based on the following principles:

- Waste would be minimized wherever practicable by reusing and recycling any materials.
- All wastes would be identified, classified, quantified and, where practicable, appropriately segregated.
- All waste materials removed from construction sites would be in accordance with relevant national waste and environmental regulations.
- Waste would be transferred using registered waste transporters to a licensed waste disposal site or waste processing installation.

The project is likely to generate more than 1,000 tons of inert waste, which will be mainly from the excavation of foundations for towers. For these cases, Azerenergy and/or the construction contractor will develop a waste management plan and submit it to the relevant government authority for review and approval. This plan must be made public. The implementation of the waste management plan will be monitored by both the PIU and the company's environmental specialist, who will be responsible for technical control. If the project will generate more than one ton of hazardous waste (which is unlikely), Azerenergy will develop and implement a hazardous waste separation and collection system, and employees will be informed and trained accordingly.

Since waste generation is expected to be very small during operation of the project, these aspects are scoped out of the ESIA.

8.2.9 Traffic and Transport

Transportation in the project areas is mainly carried out by roads. The M1, M2, M3 and M4 highways form the main artery through these areas. The project areas and most of the residential houses close to the project areas are on the side of secondary roads or in many cases rural dirt roads. Local roads in small towns and villages usually have badly weathered asphalt or are unpaved and simply dirt roads. These roads are dusty in summer and muddy in winter, causing inconvenience to residents.



Figure 9-6: Transport and Communication lines of Azerbaijan

8.2.10 Biodiversity, Protected Areas, Wetlands

Azerbaijan is relatively rich in ecological resources due to its complex geological history, diverse climate and its position on the border of Asia and Europe. A large proportion of endemism is observed and the country hosts a large number of relict species. But in general, these resources have been partially depleted as a result of pollution and poor management under Soviet and post-Soviet rule. Improvements are being made and biodiversity is receiving increasing attention both nationally and internationally, but progress is slow. Azerbaijan has signed a number of relevant international agreements, especially the Convention on Biological Diversity.

ESIA includes a detailed assessment of potential impacts on biodiversity, protected areas, and wetlands resulting from the proposed project. This assessment has identified sensitive and critical habitats, including areas of high biodiversity value, endangered species habitats, and ecosystems providing essential services. The mapping of biologically and ecologically important areas (such as protected areas, water basin crossings, wetlands) is provided in this ESIA report (please see Figure 8-7).



Figure 9-7: Map of protected areas of Azerbaijan

Wetlands, which play a crucial role in water purification, flood control, and as habitats for a diverse range of species, will be carefully examined for potential disturbances. Key concerns include habitat fragmentation, pollution, changes in water flow and quality, and increased human access to these sensitive areas. The identification process will utilize field surveys, remote sensing data, and consultations with biodiversity experts and local stakeholders. By thoroughly understanding these potential impacts, targeted mitigation measures and conservation strategies to protect and preserve biodiversity, maintain the integrity of protected areas, and ensure the sustainability of wetlands will be developed under respective ESIA/ESMPs.

Near the project area 1 natural reserve and 1 national park is located. The Shirvan National Park is in the north of the transmission line and the lowland area¹⁸. The transmission line corridors and substation will not affect national parks, reserves, or other areas that are protected or recognized for reasons of cultural or biodiversity value. Thus, the new transmission lines are located far enough away without passing through the territory of this nature reserve and without affecting them in any way.

The Shirvan National Park was set by the decree of the President of Azerbaijan on the area of 543.74 km² in Neftchala, Garadagh and Salyan administrative regions on the 5th of July 2003. It has a semidesert landscape and water body of approximately 40 km². The national park has an extremely rich

¹⁸ Azerbaijan Ornothological Society; www.aos.az

ornithological fauna. Rare and valuable species of birds (turaj, little bustard, bustard, swans, flamingo, white and black storks, etc) winter and nest in the marshy areas and around irrigation areas. Djeyran gazelles are the most widely spread mammals in the region. The territory of the region is subdivided into mountain and plain parts. Dry, hot summer and temperate moist winter characterize this region. The average annual air temperature is 9° C to 12° C. The total land area of the Shirvan region is about 1,340,000 ha, of which agricultural lands occupy 652,000 ha. Sowing area is 246,500 ha. Additional areas of about 174,600 ha are used for cotton growing, cereals, viticulture and animal husbandry.

Shirvan State Nature Reserve

Shirvan State Nature Reserve is located in the Shirvan Plain, southeast of Kur-Araz plain. Back in 1961, when the number of gazelles was 77 according to the results of the counting carried out by scientists in that part of the Kura-Araz lowland, the Bandovan State Reserve was established by a special decision of the Government of Azerbaijan. After 8 years, when the number of gazelles reached 400 here, the Shirvan State Nature Reserve was established on an area of 17,700 thousand hectares by the relevant decision of the Republic government dated April 30, 1969. In 1982, the area of the state nature reserve was expanded. It reached 25761 hectares. In 2003, Shirvan National Park was established at the base of Shirvan State Nature Reserve and its surrounding areas. Currently, the area of Shirvan State Nature Reserve.

The main goal of creating the reserve is to ensure the protection and restoration of gazelles, which are a symbol of beauty, and other species of fauna typical for this area, which have been included in the "Red Book" of the Republic of Azerbaijan.

The variety of relief, vegetation and soil cover in the territory of Shirvan State Nature Reserve allows to distinguish a number of natural landscape areas here. The main part of the territory consists of wormwood semi-desert small hills, salt marsh semi-desert small hills and salt marsh semi-desert plain. Each natural landscape area has a special importance for gazelles.

During the geological period, the territory of the reserve was under the waters of the Caspian several times. Due to the decrease of the level of the Caspian Sea, the area became dry land due to sea, partial flood and alluvial sediments. The area is below sea level. Microrelief is clearly visible here. Wind-blown dune mounds are up to 0.5-1.2 m high and are very beneficial for gazelle protection and shelter.

Gray, gray-meadow and meadow-swamp soils and sand dunes are mainly distributed in the territory of the reserve.

The area is dominated by a mild-hot semi-desert and dry steppe climate with dry summers. This type of climate is characterized by little or weak humidity, mild winters, and dry and hot summers. Since the reserve area is located in the semi-desert zone, there are no rivers or springs here. Several collectors pass through the territory of the reserve. Chala lake in the reserve is supplied with water through them. The water of the Caspian Sea and canals does not freeze in winter, which is very important for gazelles and birds.

Lake Chala, located in the territories of Bandovan State Reserve and Shirvan State Nature Reserve, has an area of more than 100 hectares, and its depth reaches 0.3-1.0 m. Reeds and other aquatic plants are well developed in the lake. That lake is very important for migratory wetland birds.

In the territory of the reserve, mainly wormwood semi-desert, saline semi-desert, wormwood-saline semi-desert, partly desert, grass-shrub and sandy vegetation are spread.

Although Shirvan State Nature Reserve is located in the semi-desert zone, the animal world is very rich. There are many mammals, reptiles and amphibians here.

Djeyran Gazelles, beavers, wild boars, rabbits, Caspian seals, wolves, jackals, foxes, badgers, and other animals are settled in the reserve. There are more sedentary and migratory birds in the territory of the reserve. Among the species of birds, there are turaj, little bustard, bustard, swans, flamingo, gray goose, golden goose, Guba goose, golden-headed duck, gray duck, angut, griffon duck, great white wag, small white wag, gray wag, yellow wag, white-tailed duck, broad-billed duck and etc. settled. Migratory birds such as the pink pelican, black stork, black stork, black stork, black grouse, golden goose, red-breasted goose, hissing swan, little swan are protected in the reserve.

In the area where the 330 kV double-circuit Banka SPP-Navahi OHL route crosses, taking into account the conditions of dense population, 1.5 kilometers of the route traverses through the Shirvan Nature Reserve, where 4 (four) pillars will be placed with seat dimensions of 5,5 m x 3,5 m. The OHLs will be built parallel to the 110 kV OHL belonging to Azerenerji JSC in the reserve area (at a distance of 20 m), and the service road currently available in the area will be used for this route.

A biodiversity conservation plan will be prepared as a separate document for that line, along with special mitigation measures to protect animals and plants in the protected area during the laying of these supports and lines. Azerenerji JSC has appealed to the MENR and asked for permission for those 7 towers falling on the territory of the National Park.



Figure 8-8: Banka SPP- Navahi SS OHL parts falling within the territory of Shirvan National ParkEnvironmental and Social Impact AssessmentPage 242 of 356

Birds

More than 360 bird species inhabit the Azerbaijan territory. During migration and wintering periods, the importance of the shoreline and the wetland of the region is heightened due to the presence of a high number of migratory birds, in addition to the bird species present all year round. The Project covered areas are located away the main migration route through the lowland, as shown by the broad red line within Figure 8-7. The autumn migration in Alat area and Absheron Peninsula starts in the second half of August and continues until mid-December, or until mid-January in case of severe winter conditions, with the peak migration period in November. The spring migration, headed to the north, north-west or north-east, starts in the second half of February and finishes in April, with a peak period during March. Generally, the bird breeding period spans from March to August, with the spring and fall migrations occurring March to April, and August to October, respectively. Over-wintering birds inhabit the coastline in great numbers from October to March.



Figure 8-9: Important bird migration routes in autumn¹⁹

Navahi SS and "Navahi SS - Absheron SS" OHL located in the village of Navahi are located close to the migration routes of birds.

¹⁹ Coastal Bird Migration at the Caspian Shore of the Azerbaijan Republic in October 2007, Michael Heiss & Kai Gauger – 2011.



Figure 8-10: OHLs traversing near bird migration routes

Construction period of Navahi SS - Absheron SS overhead line: For the construction of this line, it will be prohibited to carry out construction works during the likely migration periods of birds (**October-November and March-April**). The contractor will be required to plan construction for that line and special control will be applied to the construction works in that section.

Generally, Crested Lark (*Galerida cristata*, LC) and Isabelline Wheatear (*Oenanthe isabellina*, LC) are the most numerous during summer nesting, while Eurasian Skylark (*Alauda arvensis*, LC), Common Starling (*Sturnus vulgaris*, LC) and Rook (*Corvus frugilegus*, LC) in winter. Common sparrow (*Passer domesticus*, LC) and Eurasian Blackbird (*Turdus merula*, LC) are permanent inhabitants of the area all year round. The bird fauna includes also the Common Kestrel (*Falco tinnunculus*, LC), Rock Dove (*Columba livia*, LC), European Turtle-dove (Streptopelia turtur, VU), Little Owl (*Athene noctua*, LC) and Crested Lark (*Galerida cristata*, LC). Isabelline Wheatear (*Oenanthe isabellina*, LC), Lesser Kestrel (*Falco naumanni*, LC), Olive Bee-eater (*Merops superciliosus*, LC), Eurasian Penduline-tit (*Remiz pendulinus*, LC), Red-backed Shrike (*Lanius collurio*, LC) and Lesser Grey Shrike (*Lanius minor*, LC) are common breeding species in summer.

Also, Lake Mahmudchala, an important bird wintering area close to Bilasuvar SPP – Navahi SS OHLs draw point from Bilasuvar SPP, is located approximately 1 km from OHL. This lake is the natural habitat of little bustards. Although the option of constructing the OHL to the east from the SPP was investigated, since that area is important agricultural land, it was decided to remain on the previous route of the OHL and to take special protective measures for birds in the overhead line. For the construction of this line, it will be prohibited to carry out construction works during the likely migration periods of birds (**October-November and March-April**). The contractor will be required to plan construction for that line and special control will be applied to the construction works in that section.

Why birds get electrocuted by overhead power lines and supporting poles? Environmental and Social Impact Assessment All over the world, as well as Azerbaijan, bird deaths caused by overhead power lines are divided into two groups:

- Resulting from collisions with power line wires;
- Resulting from electrical discharge occurring during a short circuit (electrocution)

The risk of collision with electricity transmission lines varies among different species of birds. Usually it depends on the bird size, weight, character of flying, field of vision, time of the day and the special features of habitats near the power lines.

Key tools to reduce risks/impacts

- Install high quality Bird Flight Diverters (BFD) on all lines (precedent in nearby countries like Uzbekistan) or at least in higher risk areas
- Post Construction Mortality Monitoring (PCFM) for at least 1-3 years in higher risk areas
- A clear commitment to compensation for the significant number of deaths identified as a result of monitoring. Compensation is expected to be necessary only for little bustards given the limited effectiveness of BFDs for this species, the best compensation would be to install cables underground in high-risk areas.

8.2.11 Socio-economic aspects of the project

This section identifies and assesses the potential impacts the project will have on socioeconomic conditions – that is, on people and the economy. As is also true for environment impacts, socioeconomic impacts can occur during construction and/or operation and can be both - positive and negative. These impacts will vary by location, size, duration, distance to communities, land ownership and other factors.

Most of the population in Azerbaijan are within the age range of 30-34 (Figure 8-8). When looking at the entire population, the gender ratio of the country is quite even (50.1% females and 49.9% males). However, based on percentages from the population census, there is a larger proportion of males among the younger population (ages 0–25), and a larger proportion of females among the population aged 35 and over. Life expectancy at birth of the Republic of Azerbaijan has consistently increased over the last two decades and, it was equal to 78,8 years for females and to 74,0 years for males in 2019 (Figure 8-8). These figures also applicable to Project covered regions.



Figure 8-11: Composition of the population of the Republic of Azerbaijan by sex and age groups at the beginning of 2020 (thousands of persons)

The programme of resettlement – called the Great Return in Azerbaijan - is a key plank of the government's approach to overcoming the legacy of the 1990s conflict, when hundreds of thousands of Azerbaijanis were displaced. The programme began in July 2022 with almost 100 families moving to the newly-constructed Aghali settlement in the Zangilan region. Since then, families have also returned to Fuzuli, Talish (a village near the town of Terter), and Lachin, as well as to the neighbouring village of Zabukh. As of April 2024, over 6,500 people had returned, about half to Fuzuli and over 2,500 to Lachin/Zabukh. Azerbaijan government plans the return of 20,000 people to five cities and 15 villages by end 2024, and - even more ambitiously - 140,000 by late 2026.

These vulnerable groups will not be adversely affected as a result of the project. On the contrary, improved electricity service and green energy transmitted as a result of the project will be a significant benefit to these communities living in Karabakh and remaining parts of Azerbaijan.

Potential Impacts and Principle Mitigation

Positive Impacts

Employment Opportunities during Construction

During the construction, the Project will generate temporary employment opportunities, whether skilled, semi-skilled or as unskilled jobs. One of the key social positive impacts would be the provision of an income source for workers and their families contributing to their wellbeing and enhancing their quality of life. Measures to enhance these opportunities would include various instruments (e.g. preferable recruitment of local workforce in accordance with a specific Local Recruitment Plan, training that would be beneficial for future job prospects).

Local Economy and Supply Chain Opportunities

The Project construction would provide opportunities for companies at the national, and possibly regional level to supply goods and services. Local purchases of goods and services directly by the Project and workers during construction would foster the local economy. It would particularly concern communities directly affected by the Project, but also other nearby communities located in the vicinity of the Project site (e.g. local accommodation in settlements wherever possible).

Improvement of the National/Regional Power System

The Project is part of a strategic programme that will be implemented over a number of years period by Azerenerji to strengthen the regional power transmission grid in the Southeast and Central Region of Azerbaijan, in order to meet the increased power demands and to connect existing and planned power projects, principally the growth of renewable energy sources.

More specifically, the Project will provide:

- Increased security of supply, and
- Secure and reliable integration of planned RES in the southeast region of the country, which consequently contribute towards reduction in CO2 emissions.

In general, the transmission lines and substation will upgrade and improve the reliability of the overall power transmission system in Azerbaijan, which will benefit all population of the country.

Land Acquisition

The project activities will permanently occupy a certain amount of land currently used for various activities. Some of the land will only be temporarily occupied during construction, to enable access to areas where the OHL towers will be built. Therefore, the Project will require temporary and permanent acquisition of land, which may involve particular economic effect on people (loss of assets) as a result of project-related land acquisition²⁰) and/or restrictions on land use. No physical displacement of people (relocation or loss of shelter) is expected.

All land acquisition, either permanent or temporary will be done in compliance with the relevant Azerbaijan legislation²¹ and international requirements (WB ESS 5). If land acquisition causes economic displacement of people, appropriate measures to assist with restoration of livelihoods and standards of living will be included in the respective land acquisition and resettlement documents, which are to be prepared once the detailed Project design is verified and detailed data on affected land property and its value is available.

According to the relevant Azerbaijani regulation²², the minimum vertical clearance for 330 kV transmission line above the ground in areas accessible for people, including arable agricultural land, is

²² Decision of the Cabinet of the Republic of Azerbaijan No 103, dated 10 June 2005 on the approval of "Rules for the protection of electrical networks with a voltage of up to 1000 volts" and "Rules for the protection of electrical networks with a voltage of more than 1000 volt"

 ²⁰ Land acquisition includes both outright purchases of property and acquisition of access rights, such as easements or rights of way.
 (Source: International Finance Corporation (IFC), Performance Standard 5 - Land Acquisition and Involuntary Resettlement, January 1, 2012)

²¹ Law of the Republic of Azerbaijan on acquisition of land for state needs No № 987-IIIQ, 20 April 2010

20 meters. This minimum vertical clearance is generally at the middle of a span between two towers. Therefore, all agricultural activities within the RoW which include cultivated plants (e.g. crops, vineyards, orchards, other valuable trees, etc.) which do not reach height of approx. 10 meters would not be necessary removed and can be further utilized as before construction of a transmission line. In addition, various forms of farming and livestock grazing within the RoW are not restricted, nor are regulated with applicable national legislation. However, land use will be restricted and rights are diminished through easement mechanism that will be reflected in individual agreements with households subject to payment of compensation to PAPs.

In order to acquire land for OHLs, a Resettlement Policy Framework document has been prepared within the framework of the Project based on international standards. Also, a cadastral list of the lands crossed by the OHL route on each line was drawn up, and based on this list, a separate Resettlement Action Plan was prepared for each OHL. The size of the land area to be purchased for each support, the amount of compensation to be paid is clearly indicated in the plan.

8.2.12 Gender and Vulnerable Groups

Gender

Along the project area, women population is comprised of 51% of the total population, the sex ratio of the total population in project area is 0.980 (980 males per 1,000 females), both female and male literacy rate in the study area is 99%. Analysis of the workforce participation of the surveyed population indicates that majority of the women are not participating in the workforce and the consultations also revealed that majority of the women are engaged in unpaid domestic work and marginal work. Therefore, women are almost entirely unrepresented in the workforce.

Table 8-7: The number of population by gender in the economic regions and administrative territorial units of the Republic of Azerbaijan, thousand people (as of 1 July 2023)²³

Pagions	Total		Cities		rural	
Regions	female	male	female	male	female	male
Azerbaijan Republic	5087,5	5039,6	2807,9	2719,3	2279,6	2320,3
Absheron region	213,2	218,3	157,6	160,5	55,6	57,8
Qobustan region	23,0	23,4	5,0	5,1	18,0	18,3
Bilasuvar region	52,5	53,0	11,7	11,9	40,8	41,1
Hacıqabul region	38,2	37,1	19,1	18,0	19,1	19,1
Neftchala region	44,7	42,1	20,8	19,1	23,9	23,0
Salyan region	69,6	69,0	23,1	21,4	46,5	47,6

Within the framework of various projects, the Women's Resource Centers established by the State Committee on Women and Family Affairs in 6 regions (including Bilasuvar, Neftchala, Salyan, Hajigabul, Gobustan, Garadagh project regions) which have expanded their activities in the field of supporting the active participation of women living in villages and towns in the economic and social

²³ https://www.stat.gov.az/source/gender/

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life, increasing their business and social opportunities, as well as the creation of a network among economically active, entrepreneurial women.

Vulnerable groups

The Project has the potential to impact vulnerable people. Vulnerable people may require special resettlement assistance measures because they are less able to cope with economic displacement compared with others:

A list of vulnerable people that could, potentially, be directly affected by the Project through land access restrictions and land use change, has been compiled and is listed below:

- Persons who are elderly.
- Families who have lost both parents (orphans or whose father or mother died).
- Families where a disabled child is present, or a disabled parent is present.
- A family who is on a low income and lives below the national poverty line. This is classified by the State Statistical Committee for 2020 (the most recent published data available) to comprise a monthly household income of 195 AZN (USD 115) or less, or a household in substantial debt.
- A widower raising two or more children under the age of 14, living separately from other relatives.
- Mothers or fathers who are bringing up the children in a single-parent family.
- Families in which both parents are unemployed.
- Single retired persons living on their own.
- Internally Displaced Persons (IDP) household.
- People with poor health status, or illiteracy in a farmer or herder household; and
- People who are discriminated against in society due to their ethnicity, belief system, health status (including HIV), sexual or gender orientation/self-identity.

8.2.13 Land Use including displacement

The Project will affect the current land cover forms and their use pattern during the construction and operational phases, with significant difference between the elements that will be reconstructed / upgraded and newly constructed elements. This section provides an overview of the current baseline and potential impacts of the Project on the land cover and describes the principle mitigation approach.

An area of 1,000 meters wide OHL corridor (500 meters on both sides from the longitudinal axis of the transmission line), including the SS location (Sub-project 1), is used for this ESIA scoping phase to present the baseline in wider context, which is considered as representative and sufficient to identify the current land use and structure in the broader area and to assess indirect impacts for the Project.

For the purposes of the ESIA Report, the study area within the infrastructure corridor (defined for the purpose of this appraisal as 100 metres wide corridor) will be used for consideration of the direct effects and changes on the current key land use forms (e.g. agricultural land, woodland, urban land, etc.). This zone is based on the land anticipated to be directly affected by the Project, i.e. potentially required temporarily and/or permanently for the construction, operation and maintenance of the

transmission lines and where specific land use rules would be established to ensure technical safety of the OHL and protection of people and environment during its operation.

Baseline Conditions

Comparative land cover assessment within the study area of the Project's components is made based on land cover viewer website and is presented below²⁴.

Sub-project 1 - New 500/330 kV Navahi SS

Baseline land cover conditions for this sub-project are provided below.

- Due to the relatively small affected area, there is only one land cover class which is herbaceous vegetation. The soil of the area is composed of grey-brown, grey-meadow, saline soils.

Sub-project 2: New 500kV Transmission Lines

The land cover within the study area of this Project component (Figure below) is dominated by agricultural land cover types (80%). In the areas crossed by the line, the lands are mainly used for planting and grazing and belong to the agricultural land fund.



Figure 8-12: Land cover of proposed route for Sub-Project 2

Sub-project 3: New 330kV Transmission Lines (Banka-SPP-Navahi and Bilesuvar SPP-Navahi SS)

The land cover within the study area of this Project components (Figure below) is dominated by herbaceous vegetation (80%). They are also characterized with large percentage of cropland (80%) and small percentage of pasture land (20%).



Figure 8-13: Land cover of proposed route for Sub-Project 3

Sub-project 4: Expansion works in existing substations

This Sub-Project is free from any land use pattern change as the Project components will be implemented within the boundaries of existing substations owned by Azerenerji.

Potential Impacts and Principle Mitigation

In general, the construction and operation of the Project will have certain, but limited, land use effects which will be relevant in the case of new 500/330 kV substation and new proposed transmission lines. However, the land transformation in these cases is considered as of very low magnitude and significance of these effects is likely to be negligible. In principle, both public and privately owned land will likely be affected by the implementation of the Project activities. The land use changes from the Project development would imply environmental as well as social element and in principle would typically include the following topics:

- Habitat loss. The Project will require removal of vegetation for construction activities (including access roads) and for creation of the OHL clearance corridor thus leading to temporary and permanent habitat losses, including woodland habitats. The construction of new access roads (where necessary) and rehabilitation of the existing ones may contribute to increased illegal logging, hunting and collection of non-timber forest products. However due to the current wide accessibility of the Project locations, this risk is considered as of low magnitude.
- Land conversion due to land take, including agricultural land as dominant land use form in the study area, in the case the new 500/330 kV transmission network (Sub-project 2 and 3). Construction of the Project will require conversion of land due the temporary use of agricultural

land and land use forms for construction activities (including access roads where they do not exist). Relocation as well as clearance of existing structures to make way for transmission lines narrowband approach to TPP will be required when needed, but with current design it appears as if this has been avoided. Dust may affect arable land and construction noise and traffic may disturb livestock. In addition, permanent acquisition of agricultural land (land take) will be required within the footprint of the Project components, mainly land needed for the construction of the new OHL towers, that would permanently disrupt agricultural activities, resulting in long-term operational impacts. In addition, this may result in severance of land parcels.

There are no universally applicable measures available to mitigate the direct permanent change / loss of land resulting from land take required for the Project. Measures to mitigate the land take will need to be incorporated into the further designing process of the Project (i.e. fine-tuning of the new OHL corridor(s) as a key design principle to sought to achieve avoidance of take of agricultural or forest land as well as to minimise the involuntary economical resettlement of people, as far as practicable.

According to the relevant Azerbaijani regulation²⁵, the minimum vertical clearance for 330 kV transmission line above the ground in areas accessible for people, including arable agricultural land, is 20 meters. This minimum vertical clearance is generally at the middle of a span between two towers. Therefore, all agricultural activities within the RoW which include cultivated plants (e.g. crops, vineyards, orchards, other valuable trees, etc.) which do not reach height of approx. 10 meters would not be necessary removed and can be further utilized as before construction of a transmission line. Other typical mitigation for land use change will relate to the reinstatement of land used temporarily during the construction period.

8.2.14 Labor and Working Conditions

Labor and working conditions are a cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment.

Construction activities, if not properly managed, pose a potential threat to the welfare of construction workers. In any construction area of the Project, there are negative risks on labor protection and technical safety (OSH) due to human injury and damage owing to exposure to physical harm caused by the use of heavy machinery, equipment and cranes, exposure to electric current when using tools and equipment, tripping while working at height, exposure to noise during construction work, objects falling from a height and others.

The main OHS hazards specific to the construction of power transmission facilities include, first of all, the following:

²⁵ Decision of the Cabinet of the Republic of Azerbaijan No 261, dated 16 May 2024 on the approval of "Rules for the protection of electrical networks with a voltage of up to 1000 volts" and "Rules for the protection of electrical networks with a voltage of more than 1000 volt"
Work at heights: Workers may experience occupational injuries while working at heights during scaffolding and power line laying operations.

Electrocution: Workers may be exposed to live power lines during line electrification and testing and commissioning.

OHS risks during operation will be similar to risks during the construction phase and will be limited to transmission line operation and maintenance activities that will be performed periodically and/or involve a small number of workers. The most significant risk is believed to be possible electrocution from electrified overhead power lines.

Working conditions and worker's accommodation facilities will be set in compliance with relevant Azerbaijani labour legislation. Principle mitigation measures during the construction of the Project would include creation of a number of thematic plans as part of the Project's CESMP for overall social management, such are the following (at a minimum):

- Occupational Health and Safety Management Plan
- Labor Resources Management Plan
- Workers' Accommodation Management Plan
- Emergency Preparedness and Response Plan

These documents would set out the mitigation requirements and would contain measures to ensure compliance of the Project construction with the relevant standards and legislation in the labor and working conditions domain.

The occupational health and safety performance during operation of the Project will comply with the requirements of Azerbaijan legislation and the relevant Policies of Azerbaijan JSC, which, inter alia, includes a certified management system for occupational health and safety²⁶.

8.2.15 Influx Management

Poor behavior by workers from outside the region can lead to disruption of local community cohesion, especially smaller communities. This can occur through unaccustomed or violent behavior, including gender-based violence, and/or an increase in communicable diseases. This will be controlled by requiring workers to abide by a Worker Code of Conduct that will prescribe certain behaviors and require others; the contractor will be required to enforce the Code, with penalties leading up to dismissal. In addition, Azerenerji, the Owner's Engineer, and the contractor will consult with local authorities and community leaders, which will ensure they (that is, project managers) are aware of incidents and can take appropriate action if the issue arises. Finally, Azerenerji (through the Owner's Engineer) and the contractor will establish communications with local law enforcement authorities, so they are aware of the influx of workers, including where they will be working and where they will reside, and can take appropriate precautions.

Labor influx and related gender-based violence (GBV) and child labor are considered minimal due to existing laws. Tender documents for construction works contain provisions prohibiting the use of

 ²⁶ Azerenerji has Policies incorporating quality, environment and health & safety, certified under respective internationalstandards - ISO
 9001 (quality management), ISO 14001 (environmental management) and ISO 45001 (health and safety management)
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forced labor by contractors. Forced labor, Gender-Based Violence will be checked and reported by the PIU officials supervising the contractors. A project-level GRM will be established to address community grievances due to labor influx or any other project-related issues.

There is potential for an increased risk of the spread of communicable diseases and increased rates of illicit behaviour and crime resulting from the worker influx, especially to the construction of Navahi substation; however, the volume and skilled nature of the incoming workforce reduces this likelihood. All workers will be required to sign a worker's code of conduct and will be made aware of the disciplinary actions that will be taken if behaviour that is not in keeping with the code of conduct is observed. All residual impacts are considered to be minor.

The influx of workers an indirect negative impact, which will be local and short to medium. The impact (negative) significance is assessed to be negligible both during construction and operation.

8.2.16 Occupational Health and Safety

It is estimated that the major labor risks will be related to health and safety risks associated with the construction of power transmission lines, such as exposure to physical, chemical and biological hazards during construction activities: use of heavy equipment, slip and fall hazards, exposure to noise and dust, falling objects, exposure to hazardous materials and exposure to electrical hazards when using tools and machinery. As construction activities involve hazardous work, persons under the age of 18 will not be employed on the project. Azerenerji has internal audit and quality control division who will undertake ad-hoc surprise visits to project sites to conduct due diligence. Many workers will be exposed to occupational health and safety (OHS) hazards, including but not limited to:

- Traction works
- Working at heights
- Electric current and arc fault burns
- Electrical works
- Exposure to chemicals (paints, solvents, cooling oil for transformers and switches, lubricants, fuel, etc.)
- Saws and falling wood during logging
- Working in steep and dangerous areas.
- Traffic accidents.
- Excavation hazards
- Lifting of heavy formations
- Accidents
- Exposure to airborne pollutants (dust, silica and asbestos) during construction
- Ergonomic hazards during construction
- Environmental hazards (snakes, bees, scorpions, etc.)
- Welding hazards (smoke, burns and strong light radiation)
- Dangers of installation of supports (metal work).
- Steel erection hazards

In addition, based on the experience with construction projects in Azerbaijan, it is assumed that lack of workers' awareness and enforcement of OHS requirements such as wearing PPEs and safe workplace practices may be a potential labor risk. These risks at work shall be mitigated in line with Policies and Procedures included in the LMP.

The Project will be implemented to be fully compliant to Occupational Health and Safety (OHS) standards for work of this nature, including all potential risks associated with Project aspects e.g earth moving, drilling, steel erection and working at height activities. The OHS policies and procedures should encompass industry best practice arrangements, based on the approach specified in ESS2, to include a standard risk assessment hierarchy of management and associated practices, encompassing the awareness and task-specific training to all workers as appropriate.

According to preliminary assessments and Azerenerji's Supplier Social Responsibility Program applied to its vendors and contractors, other labor risks are not considered significant. Given that the Labor Code will be followed, which also prohibits child and forced labor, the risks related to labor flows and related gender-based violence (GBV) and labor resources, including child labor are low. Mitigation measures to address GBV risks are included in the Company's Social Responsibility Policy and Discrimination, Harassment and Retaliation Policy. The LMP drafted for the Project includes a generic Corporate Code of Ethic to be adopted by all contractors and other employers in the project.

8.2.17 Community Health and Safety

In general, the potential for impacts of construction and operation on communities and community members is related to the distance that people live from the new transmission line. Table 8-4 shows the villages/settlements located at a certain distance from the transmission line. As can be seen from the table, there will be no direct or indirect impact on to the households of the indicated villages/settlements.

Settlements by regions and their vicinity to sub-projects						
Regions	Settlement	Population in 2022	Relativer distance to settlement			
Construction of 330 kV double-circuit Bilesuvar SPP - Navahi SS OHL - 90 km						
Bilesuvar	Bilesuvar city	23600	20 km			
Salyan	Ashagi Noxudlu	700	1 km			
	Salmanly	1000	1 km			
	Gardili	500	1 km			
	Khalaj	1300	500 m			
	Kursengi	400	1 km			
Hacıgabul	Navahi	3000	1200 m			
Construction of 330	kV single-circuit Banka S	SPP – Navahi SS OH	L - 100 km			
Neftchala	Banka	3700	700 m			
Salyan	Khidirli	10000	500 m			

Table 8-8: Settlements by regions a	nd their vicinity to sub-projects
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Settlements by regions and their vicinity to sub-projects							
Regions	Settlement	Settlement Population in Relativer					
		2022	distance to				
			settlement				
Hacıgabul	Navahi	3000	1200 m				
Construction of 500 l	kV single-circuit Navahi	SS - Absheron SS O	HL - 65 km				
Hacıgabul	Navahi	3000	1200 m				
Gobustan	No settlement						
Absheron	Gobu	18900	1500 m				
	Atyalı	3700	1500 m				
	28 may	2400	1500 m				

Construction Traffic

Construction works, heavy machinery and large transport vehicles and increased intensity and volume of the traffic will affect the normal road traffic regime in the Project area. It is expected that the principle means of transport proposed to service project construction will be by road due to the fairly developed road network in the Project area, and the flexibility required in delivering machinery and materials to locations across the corridor.

It is clear that construction traffic will increase traffic flows on some roads, particularly the local road network and on unclassified roads, where traffic levels are typically low. In order to minimise impacts on residential areas from traffic during the construction works, a set of mitigation measures needs to be proposed and detailed Traffic Management Plan to be developed as a part of the Project's CESMP, which will (i) define the characteristics of the construction fleet of vehicles and site machinery, (ii) describe the expected Project's traffic (frequency of trips, working hours, convoys) and (iii) detail all site-specific measures that would be implemented during the construction period to minimise the nuisances to neighbourhoods generated by its fleet and to reduce the risk of accidents.

Electric and Magnetic Fields (EMF)

An electromagnetic field (EMF) is emitted by any electrical device, including power lines. The electric field (EF) is produced by the difference of potential between two points (that is, the voltage) and is measured in kV per meter. The magnetic field (MF) is produced by electric current and is measured in microteslas (μ T) or nanoteslas (nT)—one tesla (T) is equal to 10,000 Gauss. Unlike electric fields, magnetic fields pass through most materials and are difficult to shield. Both electric and magnetic fields decrease inversely to the square of the distance, therefore reduction in voltage takes place quickly over very short distances, as is illustrated in Figure 8-11. Directly under a high-voltage line, EMF can reach levels of 100 μ T or more, but after 25 meters can be as low as 1 μ T, although typically 10-20 μ T.

Over the last 30 years, extensive research has been conducted in the European Union, the United States, and around the world to examine whether exposure to EMF has adverse health or environmental effects. In general, exposure to EMF is affected by the types of electrical sources, the distance from these sources, and the amount of time spent near these sources. Scientific research has *Environmental and Social Impact Assessment* Page **256** of **356**

focused on magnetic fields, since objects such as trees and walls act as physical barriers that easily block and shield electric fields.



Figure 8-13: Decrease in Electromagnetic Field Strength with Distance from 500kV Circuit (Horizontal Axis is in Feet (0.331), Vertical Axis is mG (See Scale))

Since the intensity of magnetic fields diminishes quickly with distance from the source, and considering that the OHLs and the substation are sufficiently away (see Table 8-4 above) from transmission lines the Project is not expected to have an impact on the magnetic field level within the households. Rather, the major sources of residential magnetic field levels are electrical appliances within the home. To provide some context, in many homes the background alternating current magnetic field levels average about 0.1 to 10 µT and are the result of electricity passing through wiring within the home and appliances, and through power lines outside the home. The average daily exposure is the composite of instantaneous, higher exposures (such as driving under a power line) and long-term, low exposures (such as wiring within a home).

Azerenerji commits on all its projects to comply with the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic and Electromagnetic Fields as recommended by both the IFC and European Union²⁷. Azerenerji will also commit to meeting requirements set out in Sanitary Standards and Rules of Protecting the Population from the impact of the electric field, created by AC overhead power transmission lines of industrial frequency which is a former Soviet Union document that is still used by the Azerbaijan Ministry of Health.

When, the EMFs resulting from electrical equipment comply with these exposure guidelines there can be no likely significant effects from EMFs. The assessment of EMFs for each Project Component will be

²⁷ EU COUNCIL (1999) Recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz) (1999/519/EC). Environmental and Social Impact Assessment

provided in the ESIA Report. Azerenerji recognises public concern regarding EMFs and proposes to provide all the relevant information on EMFs for the public disclosure of the Projects.

8.2.18 Cultural Heritage

Study area

For the purposes of the preliminary assessment, the study area includes protected cultural heritage assets in an area of 200 metres around the Project components. This distance is considered as an area in which there may be an impact due to physical and historical connectivity and relationships as well as due to changes to noise levels, air quality and traffic during the construction. The Figure 8-12 shows the OHLs and cultural objects in Azerbaijan.

Information on the existing historical and cultural heritage monuments of local and international importance in the areas covered by the project with the relevant list and coordinates along with the corresponding letter from the State Service for the Protection, Development and Restoration of Cultural Heritage under the Ministry of Culture that was provided by the relevant request from Azerenerji JSC, is given in Appendix D.



Figure 8-15 OHLs and cultural monuments in Azerbaijan.

Baseline conditions

1) Sub-Project 1: 500/330kV Substation

No cultural heritage monuments in the proposed substation area and its close vicinity.

2) Sub-Project 2: 500kV Navahi SS-Absheron SS Transmission Lines

The proposed route of 500 kV OHLs (Navahi SS - Absheron SS) do not cross any known cultural heritage site or location of cultural importance. Out of the four volcanos detected in the vicinity of the OHLs, Goturdagh and Dashgil are considered as natural resources of touristic interest; these volcanoes are located 3 km South and around 2 km north-west to the OHLs (See Figure 7-17 below).

3) Sub-Project 3: 330 kV (Banka SPP-Navahi SS and Bilesuvar SPP – Navahi SS) Transmission Lines

The proposed route of 330 kV OHLs (90 km length Bilesuvar WPP – Navahi SS and 100 km length Banka WPP - Navahi SS) do not cross any known cultural heritage site or location of cultural importance. Shirvan National Park is located at a safe distance (100 m) from the intended route of the 330 Kv Navahi SS - Banka SPP OHL.

4) Sub-Project 4: Expansion works in existing substations

The planned expansion works for the "Absheron" substation will be carried out within the boundaries of the existing substations belonging to "Azerenergy" JSC, in the area where there are no cultural heritage objects or culturally important artifacts.

Monuments of historical and cultural heritage close to the project components

Based on the request sent by Azerenergy JSC to the State Service for Protection, Development and Restoration of Cultural Heritage under the Ministry of Culture of the Republic of Azerbaijan, the Agency provided the list and coordinates of local and international historical and cultural heritage monuments located in the areas close to the project components, and those coordinates were processed to kmz-schemes (see figure 9-16).

According to the given list and coordinates, it can be said that the nearest historical-cultural heritage monument to OHL is Khurshud necropolis and Yukhari Khalaj settlement located 1 km away. Since these monuments are located at a sufficient distance from OHL and their supports, they will not be affected in any way.



Figure 8-16: Project components and nearby historical and cultural heritage monuments

8.2.19 Potential Impacts and Principle Mitigation

The key potential impact during the construction of the Project is related to the risk of partial or total removal or destruction of unknown heritage assets (undiscovered archaeological sites) due to ground removal, which implies the need for setting mitigation approach.

During the construction works, as part of the Project's CESMP, a protocol ("chance-find" procedure) is to be developed and implemented. This protocol would be in compliance with the national legislation on the protection of cultural heritage²⁸. Workers need to be trained in the use of this procedure.

Since the impact to the cultural heritage sites is likely to be very small during operation of the project, these aspects are scoped out of the assessment.

8.2.10 Cumulative Impacts

Cumulative impacts refer to the accumulation of human-induced changes on valued environmental and social components over time and across space in an additive or interactive manner. Therefore, cumulative impacts are combined changes to the environment caused by two or more projects that are close to the same location or area, and which types of construction or operational impacts have similar nature and potential for interaction. Cumulative impacts, cumulative effects or cumulative environmental changes are generally interchangeable terms. Typically, the main cumulative impacts occur as inter-project effects – the effects of a series of other developments of similar type and scale in the vicinity of the Project which are proposed, under construction or have been consented, which when combined with the effects of the proposed project may have an incremental significant effect.

In principle, for this transmission development, cumulative effects may most likely occur during its construction in a form of typical impacts associated with construction works (air pollution, nuisance due to construction noise, traffic disturbance, etc.) or during its operation as a result of interaction with projects of similar type (e.g. other transmission projects, wind power developments, etc.) and size in its surrounding.

For the purposes of the Project's E&S appraisal, the assessment of cumulative effects arising from the Project in combination with other proposed developments will primarily constitute a desk-top study of planning documents considered relevant to the assessment. The focus of the desk-top study will be the collection of information relating to the background of relevant projects, their expected timelines and likely impacts. In addition, these developments would be reviewed with an aim to assess their potential temporal and spatial interactions with the Project.

 ²⁸ Decision No. 266 dated 14 July 2025 of the Cabinet of Ministers of the Republic of Azerbaijan on approval of the "Regulation on the protection, restoration and use of cultural heritage samples in the Republic of Azerbaijan" Environmental and Social Impact Assessment
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8.3 Summary of potential effects

Tables 8-9 summarize the potential impacts of project components on all environmental and socioeconomic resources. Many or most of the potential impacts of transmission line and substation construction and operation are generally considered insignificant and usually do not require special measures to prevent them or are mitigated through the application of generally accepted progressive international field practices.

However, there are several moderate to large negative impacts associated with this project that require specific measures to prevent or mitigate impacts. These are primarily potential impacts on biodiversity (flora, fauna and habitat) and impacts resulting from physical and economic displacement. Moderate and severe potential impacts and the mitigation measures that would be required to prevent or reduce these impacts are summarized in Table 8-9 and include:

- A part of the 330 kV Banka SPP Navahi SS OHL (1750 m, 7 supports) passes through the territory of the Shirvan National Park, parallel to the existing OHL, and in this part, serious protective measures should be taken in order not to affect the biodiversity of the National Park during construction. Such measures include, but are not limited to:
 - Plan construction to avoid critical periods for wildlife, such as breeding or migration seasons.
 - $\circ\,$ Limit access roads and use existing roads where possible to minimize habitat fragmentation.
 - $\circ\,$ Keep construction workers and equipment in designated areas to reduce habitat disturbance.
 - Apply selective clearing methods to minimize vegetation loss. Avoid clearing large areas of land and keep as much natural vegetation as possible.
 - Restore areas after construction to compensate for loss of vegetation.
 - Implement strict pollution control measures to prevent contamination of land and water bodies. This includes waste management, oil spill prevention, and dust and noise pollution control.
 - Wildlife Conservation: Install bird divertors or markers at OHL to prevent bird collisions and electrocution.
- A part of the 500 kV Navahi SS Absheron SS OHL traverses through the area where the Gobustan mud volcanoes are located, and strict protective measures should be taken in order not to affect the biodiversity of this area. Such measures include, but are not limited to:
 - Access to the site: Use existing roads and trails to minimize disturbance to the ground surface. Create temporary access roads only when necessary and ensure they are stable.
 - \circ $\;$ Avoid operating heavy machinery near active mud volcano areas to avoid eruptions.
 - Erosion and Sediment Control: Implement erosion control measures such as silt fences, sediment traps, and erosion control covers to prevent soil erosion and sedimentation in nearby watersheds.
 - Stabilize exposed soil immediately after disturbance using vegetation or other suitable materials.

- Pollution Prevention: Implement strict protocols to manage waste, prevent oil spills, and control dust and noise pollution.
- $\circ~$ Ensure proper storage and handling of hazardous materials to prevent soil and water contamination.
- Health and safety: Inform workers of the unique hazards associated with mud volcano areas, including potential eruptions and ground instability.
- Develop and implement safety protocols for working in and around mud volcano areas.

Cədvəl 8-9: Potensial təsirlərin xülasəsi

Reseptor	Reseptorun həssaslığı	Potensial təsir	Təsirin şiddəti və müddəti	Əhəmiyyəti
Landşaft və görünüş				
Sakinlər Orta		Tikinti, ərazidə Dayaqların və naqillərin olması səbəbindən mövcud mənzərə görünüşlərinin pozulması	Az və daimi	Az neqativ
Yarımstansiya yaxınlığında sakinlər	Аşаğı	Tikinti, qüllələr, naqillər və yarımstansiyaya Az və daimi görə kənd təsərrüfatı torpaqlarının cari görünüşlərinin pozulması		Cüzi neqativ
Torpaqdan istifadə				
Yaşayış sahələri	Yüksək	Evlərin və binaların köçürülməsi və sökülməsi	Dəyişiklik yoxdur	yoxdur
Biomüxtəliflik dəyərinə görə qorunan ərazilər	Yüksək	Şirvan Dövlət Təbiət Qoruğu istisna olmaqla, birbaşa təsir görünmür	Çox və aşağı (fərdlər üçün müvəqqəti)	Cüzi neqativ
Mədəni və ya təbii irs baxımdan qorunan ərazilər	Yüksək	Birbaşa təsir yoxdur, lakin bəzi nöqtələrdən uzaqda xətt görünəcək	Çox aşağı (fərdlər üçün müvəqqəti)	Mülayim neqativ
İllik əkin üçün istifadə olunan kənd təsərrüfatı torpaqları	Orta	Dayaqların özülləri üçün xüsusi mülkiyyətdə olan torpaqlar itiriləcək (Azerenerji tərəfindən alınır), məhdudiyyətlər qoyulur, lakin 60 m dəhlizdə digər torpaqların istifadəsində dəyişiklik olmayacaq.	Az və daimi	Az neqativ
Əkin olunmayan kənd təsərrüfatı torpaqları	Aşağı	Dayaqların özülləri üçün xüsusi mülkiyyətdə olan torpaqlar itiriləcək (Azerenerji tərəfindən alınır), məhdudiyyətlər qoyulur, lakin 60 m dəhlizdə digər torpaqların istifadəsində dəyişiklik olmayacaq.	Aşağı və daimi	Az neqativ
Çoxillik bitkilər	Yüksək	Meyvə bağları <8m-ə qədər kəsiləcək	Aşağı və daimi	Az negativ

Reseptor	Reseptorun həssaslığı	Potensial təsir	Təsirin şiddəti və müddəti	Əhəmiyyəti
Otlaq/ kolluq/ boş torpaq	Aşağı	Dayaqların özülləri üçün xüsusi mülkiyyətdə olan torpaqlar itiriləcək (Azerenerji tərəfindən alınır), məhdudiyyətlər qoyulur, lakin 60 m dəhlizdə digər torpaqların istifadəsində dəyişiklik olmayacaq.	Aşağı və daimi	Az neqativ
Digər torpaqlar	Aşağı	Təhlükəsizlik zonasında torpaqdanÇox aşağı və daimiistifadəyə məhdudiyyətlər		Cüzi neqativ
Süxurlar və geoloji şər	ait			
Dik və mülayim yamaclar üzrə qüllələrdə və yollarda yer səthi (daş-qaya və torpaq) (torpağın düzlənməsindən təsirlənmiş)	Yüksək	Torpağın əhəmiyyətli dərəcədə eroziyası, bitki örtüyünün dəstəklənməsi qabiliyyətinin pozulması, torpaq sürüşməsi	Yüksək və daimi	Çox neqativ
Az maili yamaclarda və düz torpaqda yer səthi	Orta	Torpağın üst qatının cüzi və ya orta dərəcədə aşınması, bitki örtüyünün dəstəklənməsi qabiliyyətinin pozulması	Orta və müvəqqəti	Mülayim neqativ
Hava keyfiyyəti				
Sakinlər və qonaqlar	Yüksək	Tikinti və texniki xidmət zamanı uçan toz əmələ gəlməsi	Aşağı və müvəqqəti	Az neqativ
		Tikinti və texniki xidmət zamanı avtomobil emissiyaları	Çox aşağı və müvəqqəti	Cüzi neqativ
		Yarımstansiyanın istismarı zamanı SF6 emissiyaları	Çox aşağı və daimi	Cüzi neqativ
		EVX-nin istismarı zamanı ozon və NOx emissiyaları	Çox aşağı və daimi	Cüzi neqativ

Reseptor	Reseptorun həssaslığı	Potensial təsir	Təsirin şiddəti və müddəti	Əhəmiyyəti	
		Uçan toz bitki üzərinə çökür və böyüməyə mane olur	Aşağı və daimi	Az neqativ	
Səs-küy					
Kənd ərazilərində sakinlər və qonaqlar	Yüksək	EVX, yol və yarımstansiya tikinti səs-küyü	Aşağı və müvəqqəti	Az neqativ	
		İstismar zamanı korona səs-küyü	Aşağı və daimi (dəhlizdə) Cüzi (dəhlizdən aralıda)	Dəhlizdə az, Kənarda cüzi	
Yarımstansiya yaxınlığında sakinlər	Ortadan aşağıya qədər	Tikinti səs-küyü	Aşağı və müvəqqəti	Cüzi neqativ	
və qonaqlar		İstismar zamanı korona səs-küyü	Çox aşağı (>50m) ilə aşağı (<50m) və daimi	Az və ya cüzi neqativ	
100-200 m məsafədə fauna	Ortadan yüksəyə qədər	Tikinti səs-küyü	Orta və müvəqqəti	Mülayim neqativ	
		İstismar zamanı korona səs-küyü	Aşağı və daimi	Az negativ	
Su təchizatı və keyfiyy	əti				
İri axınlar və çaylar	Аşаğı	Kipləşdirmə və torpağın strukturunun pozulması nəticəsində eroziyadan axınların çöküntü ilə dolması	Aşağı və müvəqqəti	Cüzi neqativ	
		Daşqın axınlarının pozulması	Cüzi və daimi	Cüzi neqativ	
		Daşmalara görə çirklənmə	Aşağı və müvəqqəti	Cüzi neqativ	
		Herbisidlərdən istifadə nəticəsində çirklənmə	Aşağı və müvəqqəti	Yoxdur	
Kiçik axınlar və drenaj yolları	Yüksək	Kipləşdirmə və torpağın strukturunun pozulması nəticəsində eroziyadan axınların çöküntü ilə dolması	Orta və müvəqqəti	Az neqativ	
		Daşqın axınlarının pozulması	Aşağı və daimi	Cüzi neqativ	

Reseptor Reseptorun həssaslığı		Potensial təsir	Təsirin şiddəti və müddəti	Əhəmiyyəti	
		Daşmalara görə çirklənmə	Orta və müvəqqəti	Az neqativ	
		Herbisidlərdən istifadə nəticəsində çirklənmə	Yüksək və müvəqqəti	Yoxdur	
Yeraltı sular	Yüksək	Torpağın kipləşdirilməsi səbəbindən dolmanın azalması	Aşağı və müvəqqəti	Az neqativ	
		Daşmalar nəticəsində çirklənmə	Aşağı və daimi	Az neqativ	
		Su çəkmə səbəbindən suyun mövcudluğunun azalması	Aşağı və daimi	Cüzi neqativ	
İqlim		·	·		
İqlim	Yüksək	Artan istixana qazı emissiyaları (CO2, SF6), bitki örtüyünün çıxarılması yolu ilə karbon "uducusunun" yoxa çıxması	Cüzi və daimi	Cüzi neqativ	
Ötürücü xətt	Orta	Fırtına və sürüşmə nəticəsində qüllənin çökməsi və ya külək nəticəsində xətlərin qırılması səbəbindən artan elektrik kəsilməsi	Orta və müvəqqəti	Az neqativ	
Flora		-			
Ümumi ağac növləri	Aşağı	 Qüllələrdə, tikinti zonalarında, giriş yollarında, yarımstansiyada kəsiləcək bütün ağaclar Koridorda 1-8 m-dən çox ağac kəsilir 	Orta və daimi	Mülayim neqativ	
Ümumi kol növləri	Aşağı	 - Qüllələrdə, tikinti zonalarında, giriş yollarında, yarımstansiyada kəsiləcək bütün ağaclar - Koridorda 1-8 m-dən çox ağac kəsilir 		Mülayim neqativ	
Konservasiya qayğısı olan ağac növləri	Yüksək	 Qüllələrdə, tikinti zonalarında, giriş yollarında, yarımstansiyada kəsiləcək bütün ağaclar Koridorda 1-8 m-dən çox ağac kəsilir 	Orta və daimi	Çox neqativ	

Reseptor	Reseptorun həssaslığı	Potensial təsir	Təsirin şiddəti və müddəti	Əhəmiyyəti
Konservasiya qayğısı olan kol növləri	Yüksək	 Qüllələrdə, tikinti zonalarında, giriş yollarında, yarımstansiyada kəsiləcək bütün ağaclar Koridorda 1-8 m-dən çox ağac kəsilir 	Yüksək və daimi	Çox neqativ
Meyvə və qoz ağacları (meyvə bağları)	Yüksək	 Qüllələrdə, tikinti zonalarında, giriş yollarında, yarımstansiyada kəsiləcək bütün ağaclar Koridorda 1-8 m-dən çox ağac kəsilir 	Az neqativ	
Yaşayış arealları				
Təbii areal	Orta	Təbii yaşayış mühitinin itirilməsi İlkin ekoloji funksiyaların və növ tərkibinin modifikasiyası	Orta və daimi Orta və daimi	Mülayim neqativ Mülayim neqativ
	• · ·			Az negativ
Dəyişən areal Quru faunasının ümumi növləri	Aşağı Orta-aşağı	Biomüxtəliflik dəyərinin azalması Əzilmə və ya birbaşa təsir nəticəsində heyvan ölümü	Aşağı və daimi Aşağı və daimi	Az neqativ Az neqativ
		Tikintinin yaratdığı pozuntu səbəbindən təbii areal ərazilərinin tərk edilməsi	Aşağı və müvəqqəti	Az neqativ
		Tikintinin yaratdığı pozuntu səbəbindən heyvanların öz yuvasını tərk etməsi/yuvanın dağıdılması	Aşağı və müvəqqəti	Mülayim neqativ
		Hündür ağaclardan alçaq bitki örtüyünə dəyişməyə görə növ tərkibində dəyişiklik	Aşağı və daimi	Mülayim neqativ
		İşçinin heyvanlara və ya yuvalara müdaxiləsi	Aşağı və müvəqqəti	Mülayim neqativ
Konservasiya qayğısı olan quru fauna	Yüksək	Əzilmə və ya birbaşa təsir nəticəsində heyvan ölümü	Aşağı və daimi	Az neqativ
növləri		Tikintinin yaratdığı pozuntu səbəbindən təbii areal ərazilərinin tərk edilməsi	Aşağı və müvəqqəti	Az neqativ

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Reseptor	Reseptorun həssaslığı	Potensial təsir	Təsirin şiddəti və müddəti	Əhəmiyyəti
		Tikintinin yaratdığı pozuntu səbəbindən heyvanların öz yuvasını tərk etməsi/yuvanın dağıdılması	Aşağı və müvəqqəti	Mülayim qarışıq +/-
		Hündür ağaclardan alçaq bitki örtüyünə dəyişməyə görə növ tərkibində dəyişiklik	Aşağı və daimi	Mülayim neqativ
		İşçinin heyvanlara və ya yuvalara müdaxiləsi	Aşağı və müvəqqəti	Mülayim neqativ
Köçəri quşlar (yırtıcılar, su quşları, suda üzən quşlar)	Aşağı-orta	Xətlə toqquşa nəticəsində xəsarət və ya tələf olma	Aşağı və daimi	Az neqativ
Böyük quşlar (yırtıcılar, durnalar və s.)	Orta	Elektrik cərəyan vurması nəticəsində ölüm Aşağı və daimi		Az neqativ
İcmaların sağlamlığı v	ə təhlükəsizliyi			
İcma	Orta	İşçilərin axını: icma həyatının pozulması, cinayət və s.	Aşağı və müvəqqəti	Az neqativ
		Birbaşa təsirlər: xidmətlərdə sıxlıq, təxirə salınmaz yardımda təzyiqlər	Çox aşağı və müvəqqəti	Cüzi neqativ
İcma üzvləri (fərdlər)	Yüksək	Xəstəliklər	Çox aşağı və müvəqqəti	Az neqativ
		Zorakı davranış (GƏZ daxil)	Aşağı və müvəqqəti	Mülayim neqativ
		Narahatlıq və təhlükəsizlik: səs-küy, toz	Aşağı və müvəqqəti	Mülayim neqativ
Fiziki və iqtisadi yerdə	yişmə			
60 m dəhlizdə evlər	Yüksək	Fiziki yerdəyişmə / köçmə	Dəyişiklik yoxdur	Yoxdur
Torpaq sahibləri	Orta-yüksək	Qüllə özüllərində, bəzi yollarda, yarımstansiya sahəsində daimi torpaq itkisi	Orta və daimi	Mülayim neqativ
		60 m dəhlizdə müvəqqəti torpaq itkisi (tikinti)	Aşağı və müvəqqəti	Az neqativ

Reseptor	Reseptorun həssaslığı	Potensial təsir	Təsirin şiddəti və müddəti	Əhəmiyyəti
		250 m dəhlizdə torpaqdan istifadəyə məhdudiyyət	Aşağı və müvəqqəti	Az neqativ
Torpaq istifadəçiləri (torpağın sahibi	Orta	Azerenerji tərəfindən alınacağı üçün torpaqdan istifadə imkanının itirilməsi	Aşağı və daimi	Az neqativ
olmayanlar)		Digər torpaqdan istifadə imkanının itirilməsi	Çox aşağı və müvəqqəti	Cüzi neqativ
İşçilərin sağlamlığı, ən	nək təhlükəsizliyi v	ıə rifahı		
İşçilər (podratçılar və	Yüksək	İşçi qüvvənin zəif idarəetmə təcrübələri	Orta və müvəqqəti	Mülayim və çox neqativ
Texniki Nəzarət		Təhlükəli iş şəraiti	Yüksək və daimi	Çox neqativ
Məsləhətçisi)			yaxud müvəqqəti	
		Narahatlıqları ifadə edə bilməmək	Orta və müvəqqəti	Mülayim neqativ
		Qeyri-standart yaşayış yerləri	Orta və müvəqqəti	Mülayim neqativ
		Antisanitar şərait Orta və müvəqqəti		Mülayim neqativ
İqtisadi şərtlər				
Gəlir Aşağı Orta		Məşğulluğun artması hesabına milli və Çox aşağı və regional gəlir müvəqqəti		Cüzi pozitiv
		Artan məşğulluq hesabına yerli gəlir Aşağı və m		Cüzi pozitiv
	Orta	Yerli təchizatçıların artan gəlirləri	Aşağı və müvəqqəti	Cüzi pozitiv
Əsas iqtisadi	Aşağı-yüksək	Daha etibarlı enerji təchizatı	Yüksək və daimi	Çox pozitiv
sektorlar		Kənd təsərrüfatı məhsullarının azalması	Aşağı və müvəqqəti	Az neqativ
		Azalan turizm	Aşağı və müvəqqəti	Cüzi neqativ
İnfrastruktur	Aşağı-orta	Zədələnmiş ictimai yollar	Aşağı və müvəqqəti	Az neqativ
		Zədələnmiş kənd yolları/cığırları	Orta və müvəqqəti	Mülayim neqativ
		Zədələnmiş dəmir yolu xətti və qatar	Aşağı və müvəqqəti	Az neqativ
		hərəkətinin pozulması		
Mədəni irs		•		
	Yüksək	Tikinti zamanı səs-küy	Aşağı və müvəqqəti	Mülayim neqativ

Reseptor	Reseptorun Potensial təsir həssaslığı		Təsirin şiddəti və müddəti	Əhəmiyyəti
Mədəni və təbii abidələr	dəni və təbii İşçilərin narahatlıq yaratma lələr		Çox aşağı və müvəqqəti	Az neqativ
		Birbaşa təsirlər	Çox aşağı və daimi	Az neqativ
Təsadüfi tapıntılar	Yüksək	Arxeoloji sahənin və ya ayrı-ayrı artefaktların zədələnməsi və ya məhv edilməsi	Aşağı və daimi	Mülayim neqativ

8.4. ENVIRONMENTAL MONITORING

Environmental monitoring was prepared according to the "Regulation on the rules of state monitoring of the environment and natural resources" approved by the decision of the Cabinet of Ministers of the Republic of Azerbaijan dated July 1, 2004 No. 90. The mentioned statute regulates the rules of state monitoring of the environment and natural resources.

Environmental monitoring is the quantitative and qualitative control of harmful gas, liquid and solid wastes released into the environment as a result of natural and anthropogenic effects on a scientific basis, and for the purpose of assessing and predicting the conditions of air, water and soil environments, their chemical composition, degree of pollution, radioactive, consists of a system of regular observations and studies that determine its hydrobiological properties and physical properties.

The state monitoring system of the environment and natural resources is created by the Ministry of Ecology and Natural Resources of the Republic of Azerbaijan and carries out this activity together with other relevant executive authorities of the Republic of Azerbaijan.

Nature users submit necessary information on the basis of the forms established by the Ministry of Ecology and Natural Resources for monitoring the environment and natural resources at the request of the bodies carrying out state control in the field of environmental protection.

State monitoring of the environment and natural resources is based on the laws of the Republic of Azerbaijan, decrees and orders of the President of the Republic of Azerbaijan, decisions and orders of the Cabinet of Ministers of the Republic of Azerbaijan, international agreements (conventions, agreements, etc.) to which the Republic of Azerbaijan is a party in the field of environmental protection, and this Regulation. is carried out.

The state monitoring system of the environment and natural resources includes the following:

- atmospheric air monitoring;
- monitoring of water bodies;
- soil monitoring;
- monitoring of mineral resources;
- monitoring of biological resources;
- monitoring of atmospheric precipitation (rain, snow);
- radioactivity monitoring;
- monitoring of harmful physical effects on the environment;
- waste monitoring;
- sanitary-epidemiological monitoring;
- monitoring the impact of exogenous geological and seismogeodynamic processes on the environment;
- monitoring of specially protected natural areas.

Table 8-10: Environmental Monitoring Plan

Activity	What (Is the parameter to bemonitored?)	Where (Is the parameterto be monitored?)	How (Is the parameter to bemonitored?)	When (Define the frequency /or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	Technical progress and implementation of mitigation measures, compliance with Azerbaijan E&S law, World		 Observations during normal activities Inspections Monthly reports and incident reports 	Continuous or as necessary	Verify implementation of mitigation measures	Supervision Consultant
BankESF, and C-ESMP	All areas	E&S monitoring audit	Annually during construction	Verify implementation of C-ESMP	Supervision Consultant	
		All active workareas	Observations	During daily rounds (continuous)	Verify implementation of	Contractor safety
			Inspections		OHS Plan	manager Azerenerji
	Working conditions Biodiversity management anderosion control	Active and recent tree cutting areas, active sites on steep slopes, active construction sites	Observations Inspections	During daily rounds At least weekly	Verify relevant aspects of C-ESMP are being implemented	Contractor E&S manager and/or specialist(s)
		New construction sites	Inspections	Before construction begins	Verify supervisors are aware of requirements, protected species aremarked, etc.	
All construction works	Working conditions (equipment, tools, etc.) and workers (PPF)	All active workareas	Observations	During daily rounds (continuous)	 Verify safety of working conditions and workers 	Safety Officers
			Inspections	At least weekly	 Provide guidance to supervisors and workers 	Contractor safety manager
	Worker and supervisor safetytraining	All active workareas	Records checks & interviews	Daily or as needed before beginning new work	Ensure workers are trained to work safely	Supervisor

Activity	What (Is the parameter to bemonitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to bemonitored?)	When (Define the frequency /or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
				Spot checks (at least once every site monthly)		Contractor safety manager
Progress reports/meet ing	 Technical progress and status ofC-ESMP implementation: Safety Biodiversity survey and restoration activities Erosion control & site stabilization Site restoration Grievance management 	Active sites	 Interviews with contractor E&S & technical staff Review monthly contractor and Supervision Consultant E&S reports Review worker & stakeholder grievance registers Site visits 	Monthly	Verify technical progress and E&Sprotection	 Mandatory attendees: Contractor E&S personnel Supervision Consultant Azerenerji
	Driver qualifications	Office	 Verify valid driver's license and operator's permit as required Check with traffic police if needed Skills test as needed 	 Before allowed to vehicles/equipment Annually 	Trained drivers	Contractor PM & safety manager
Drivers	Mobile plant/vehicle safety (horns, backup		Inspect and completechecklist	Daily before first use	Minimize traffic accidents, protect	Driver/operator
safety	belts, fire extinguisher, cleanup kit, first aid kit, etc.)	All mobile plant inuse	Review checklists andvehicles	Spot checks: at least monthly for each vehicle	workers and other drivers/pedestrians	Contractor safety manager
Marking boundaries of work areas	Boundary is clearly marked	All active workareas	Observations and photographs	 The day before work is to begin At least once during each stage of construction works 	 Limit areas of impacts Verify no off-site damage 	Contractor supervisors & E&Spersonnel

Activity	What (Is the parameter to bemonitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to bemonitored?)	When (Define the frequency /or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
Air quality	 Visible dust Dust coating leaves on nearby vegetation 	Unpaved roads & other construction areas	Observations	Continuous during dailyrounds	Determine need for damping roads to suppress dust	All contractor managers, supervisors, E&S perconnel
	Black smoke from vehicles, equipment, other engines	All areas			Determine need to remove engine from service until repaired	personner,
Flora and fauna surveys (design team and preconstruct ionsurveys)	 Boundary of vegetation control zone marked Flora species of concern logged, photographed, marked, and mapped Mature trees with hibernating/nesting bats/birds logged, photographed, & marked 	Selected areas being surveyed, while surveys areongoing	 Visits to ongoing surveys Spot checks of specimen marking after surveys Debriefs by survey team(s) 	 Visits and spot checks: one site daily Debriefs: daily verbal or email/written 	Verify surveys are identifying species of concern, mature trees, natural habitat	Contractor E&S manager & specialists
Land clearing activities (roads, towers, substation, & construction areas)	Compliance with Land Management and Erosion Control Plan, including: - Boundary marking before construction begins - Working within boundaries - Topsoil storage and spoil	All areas being cleared	 Visits/inspections Reports from supervisors to E&S manager 	 Before clearing Daily during clearing After clearing and before construction 	 Limit extent of clearing Verify topsoil salvaged Verify drainage controlled and erosion avoided 	 Contractor E&S personnel Contractor PM (spot checks)
	storage - Drainage control to prevent erosion	All areas under construction	Inspections	At least weekly	Verify implementation of LC&EC Plan	Contractor E&S personnel

Activity	What (Is the parameter to bemonitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	Condition of land/vegetation atboundary		Observations and photography	Before clearing begins	Allow verification of working within boundaries	Contractor E&S personnel
	Site restoration	Construction sites	Inspections	When construction endsat that site	To verify restoration	Contractor E&S personnel
	Areas of excavations marked, edges of excavations marked(tape, rock barriers, etc.)	Foundation locations, cuts on steep slopes	Before ground broken,	Before excavations	Limit area of disturban ce	Contractor E&S personnel
	Works are within boundaries	Tower locations, substation location	Observation, photographs	Daily during works	Limit area of disturbance	Contractor E&S personnel & supervisors
andcuts	Soil salvaged and stored separately from subsoil/spoil	All excavations	Observations and photographs	At least once during works at each site	Topsoil conserved andprotected from erosion	Contractor E&S personnel
	Workers received relevanttraining	Work sites andrecords	Interviews, records review	Prior to work at excavation sites	Verify workers canwork safely	Contractor safety manager
	Parriare (tano rocke atc.)	Perimeter of		When excavation is complete	Protect workers	Supervisor
	placed to prevent falls	excavations >1m deep	Observation	Spot checks	against falls	Contractor E&S personnel
Vegetation cutting	Implementation of Flora and Fauna Survey Plan – Boundary of vegetation control zone marked	Areas where trees and shrubs are to be cut	Observation	Immediately prior to cutting/clearing	Verify species and specimens of concerns are identified	Contractor E&S manager

Activity	What (Is the parameter to bemonitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to bemonitored?)	When (Define the frequency /or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	 Flora species of concern logged, photographed, & marked Mature trees with birds logged, photographed, & marked 					
	2+ trees and shrubs of same species planted per tree/shrub of conservation concern cut/removed	la 20m stria		During spring followingcutting	Verify plantings	Environment specialist appointed by contractor
Tree and	Survival of 2+ plantings cont pertree/shrub cut and 74.5	between 54.5m vegetation control zone and edge of 74.5m corridor	Observation and photography	Prior to demobilization	Verify success to allowfinal payment	Contractor
shrub plantings				Annually for 5 years afterplanting	Verify success or identify need forreplanting	Environment specialist appointed by Azerenerji
				One year after originalplacement	Verify in place	
Land restoration	Implementation of Land Management and ErosionControl Plan - Grading to stable contours as needed - Placement of topsoil on bare ground - Planting native species (seeds or plants)	All areas where land was disturbed	Observation and photography	Within one month of endof activities at that site	ldentify need for repairs or verify restoration	Contractor E&S personnel

Activity	What (Is the parameter to bemonitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	Establishment of self- sustainingvegetation cover	All restored areas except slopes not capable of supporting vegetation cover	Observation & photography	Each month until vegetation cover determined to be self- sustaining and one yearafter that	Verify vegetation is established & determine if further action or repairs needed	Environment specialist appointed by contractor (and Azerenerji as necessary after construction ends)
Identify need for bird diverters on line	Migration of raptors and waterbirds across transmissionline corridor	Main river valleys	Observations (monitoringplan to be developed under 2.12 in Table 8.1.1)	Autumn migration season (as recommended by expert) for two seasons	Identify if bird diverters are needed to avoid collisions	Azerenerji (by appointment of a consultant)
		Workplaces		Monthly at typical worksites	Verify noise is	
Noise generat ion	Noise levels	Off-site locations	Noise meters, per Noise Management Plan	Within 24 hours of request or noise complaint by worker orexternal party	withinstandard or identify need for mitigation	Contractor E&S personnel
EMF generation	EMF levels	At location of complaint within 100m of centerline or of substation	EMF meter	Within 24 hours of request or complaint byworker or external party	Verify EMF is within standard or identify need for mitigation	Azerenerji
Ensuring adequate Hygiene	Sanitation, water, etc.	Kitchens, break areas, toilets, accommodations	Inspections			
	Toilets & potable water	Work locations	Observations	Daily during rounds	Verify sanitation	Safety Officers and/or E&S specialists, supervisors, managers
			Inspections	At least weekly	1	Contractor E&S specialist and/ or safety officer

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
Worker	Worker grievance register		Review of register	Weekly	Verify grievances are being recorded and resolved	Contractor HR manager and PM
grievance resolution	Grievance handling and resolution	Work sites and records office	Interviews of managers responsible for resolutionand with complaining workers	Before monthly progress meeting	Verify grievances are being addressed properly	Contractor HR manager, supervisors
External stakeholder grievance resolution	Stakeholder grievance register	Records office	Review of register	Weekly	Verify grievances are being recorded and resolved	Contractor HR manager and PM
resolution	Grievance handling and resolution	Community	Interviews of selected stakeholders who submitted grievances and with persons responsible for addressing	Before monthly progress meetings	Verify grievances are being addressed properly	Contractor E&S manager, social specialist
Stakeholder engagement	Worker behavior incommunities	Community	Reviews of grievance log Interviews with communityleaders	Quarterly	Determine need for training/dismiss als/etc.	Contractor HR manager, PM, socialspecialists
	Community satisfaction with project	Community	Reviews of grievance log Interviews with community leaders and local residents	Quarterly	ldentify community issues	Social specialist, CLO
Resettlement and compensation	Compliance with RAP	As specified in RAP				
Erosion control, land stability	Effectiveness of erosion control and land restoration	Tower locations	Observations during routine maintenance patrols	Semi-annually duringoperation	Identify need for further land stabilization and erosion control	Maintenance patrols

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8.5. Environmental and Social Management and Monitoring Plan

The potential environmental and social impacts resulting from the construction and operation of the 500 kV and 330 kV EVXs and the 500/330/10 kV Navahi substation are described in Chapter 8 and summarized in Table 8-1. As described in that Chapter, some activities during transmission line and substation construction, operation, and maintenance may have moderate or even major negative impacts on specific environmental and social resources. This necessitates taking precautions to ensure that significant adverse effects are prevented, reduced or otherwise mitigated. This will require joint efforts by Azerenergy, the Technical Oversight Consultant and the contractors selected for construction to ensure that appropriate design and operational procedures are implemented during the procurement, design, construction and operation phases of the project. The mitigation measures proposed in this chapter are incorporated into the design, bidding, construction, operation and maintenance requirements of the lines and substation.

8.6. Conclusions

In summary, the project may have significant impacts on people and the environment if appropriate measures are not taken to manage these impacts. The ESIA report, Resettlement Policy Framework and Stakeholder Engagement Plan identify key actions summarized above to be implemented by Azerenergy and contractors in order to reduce impacts to acceptable levels. The monitoring programs described in the ESIA report and the Resettlement Policy Framework will ensure that required mitigation measures are fully implemented and that any unintended impacts are quickly identified and managed. This will allow the people of Azerbaijan to provide the benefits that the project is intended to bring to their people.

Table 8-11. Environmental and Social Management Plan

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
1.0 Pr	ocurement phase				
1.1	Preparation of bidding/ procurement documents for transmission lines	Failure of bidders to recognize E&S requirements, to plan for E&S management, and to consider E&S requirements in cost proposal	Include relevant documentation (ESIA, RPF, SEP, ESCP) in procurement documents Require proposals to include the following plans as part of Management Strategies and Implementation Plan: - Labor Management Procedure - EHS Code of Conduct and workers' Grievance Redress Mechanism - Occupational Health and Safety Plan Include requirement for contractor to prepareprior to commencement of works: - Waste Management Plan - Landscape Reinstatement Plan - Community Health and Safety Plan Define key personnel of contractor to include for the project (that is, not corporate-level): - E&S manager - Safety manager - Biodiversity specialist - Community liaison/social specialist - HR manager	 Bidders understand E&S requirements and prepare responsive proposals Higher E&S capacity by bidders 	Azerenerji
1.2	Preparation of bidding/ procurement documents for substation	Failure of bidders to recognize E&S requirements, to plan for E&S management, and to consider E&S requirements in cost proposal	Include relevant documentation (ESIA, RPF, SEP, ESCP) in procurement documents Require proposals to include the following plans as part of Management Strategies and Implementation Plan: - Labor Management Procedure	 Bidders understand E&S requirements and prepare responsive proposals Higher E&S capacity by bidders 	Azerenerji

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
			 EHS Code of Conduct and workers' Grievance Redress Mechanism Occupational Health and Safety Plan 		
			Include requirement for contractor to prepare prior to commencement of works: - Waste Management Plan - Landscape Reinstatement Plan - Community Health and Safety Plan Define key personnel to include for the project (that is, not corporate-level): - E&S manager - Safety manager - Community liaison/social specialist - HR manager		
1.3	Review and evaluation of proposals	Failure to consider bidders' E&S qualifications and experience in scoring proposals	 Inclusion of E&S specialist(s) in proposal review team, with sufficient time provided Awareness by entire evaluation team of key E&S requirements Scoring includes corporate E&S experience and qualifications, E&S staff experience and qualifications and evaluation of management plans in MSIP Recognition of unqualified bidders 	 Bidders' E&S qualifications and experience receive full consideration in evaluations Bidders disqualified for inadequate E&S qualifications and experience or inadequate MSIP (that is, inadequate understanding of requirements) 	Azerenerji
1.4	Selection of contractors	Award of contract to contractor unqualified or unprepared to develop and/or implement full C- ESMP	 MSIP plans sufficient to avoid or control impacts Key staff qualified and available Award only to contractors with E&S qualifications and experience that meet specific criteria 	 Award to contractor able to implement this ESMP Contractor ultimately implements ESMP satisfactorily Fewer delays in project preparation and construction 	Azerenerji
2.0 Pr	oject preparation phase ("pre-constru	ction")			
2.1	Implementation of Stakeholder Engagement Plan	 Uninformed local people and other stakeholders 	- Outreach to identified stakeholders	 Well-informed supportive community 	Azerenerji manages

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
		 Unrealistic expectations by local people and others Long-term distrust of contractors and Azerenerji Protests or other disruptions Vandalism 	 Realistic information on employment opportunities Meetings with community leaders and citizens as appropriate Implementation of Grievance Redress Mechanism Train contractor workers and supervisors in relevant requirements of SEP, including receiving and reporting grievances 	 Realistic expectations Trust of contractor and Azerenerji to resolve issues Timely resolution of grievances 	overall program and deals with high-level grievances Contractor implements on day-to- day basis during construction
2.2	Management of E&S issues	 Failure to hire qualified specialists with sufficient time to manage issues Excessive E&S impacts due to mismanagement or failure to manage E&S issues 	 Assign key E&S personnel defined in items 1.2 (transmission line) and 1.3 (substation) and provide sufficient time to perform duties Employ and train sufficient safety officers: at least one per work crew and overall ratio of at least 1 per 50 workers Train managers and supervisors/foremen in key requirements for E&S mitigation (i.e, this ESMP and monitoring plan) Develop checklists for use by E&S staff to record findings Develop templates for investigating and addressing root cause of serious incidents /injuries/accidents Develop registers for recording grievances from external stakeholders and from workers 	Qualified staff in sufficient numbers to implement/oversee C-ESMP	Contractor

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
2.3	 Update Contractor's ESMP (C-ESMP) by including all relevant technical details into; Waste Management Plan; Landscape Reinstatement Plan; Community Engagement, Health and Safety Plan; and Labor Management Procedure. Develop detailed method statements on: Tower and corridor location; Traffic management; Emergency response; Pre-construction flora, fauna, and habitat survey required for finalization of design; Working in or near surface water bodies; Noise management; Worker accommodation and work camp management Any other if required by Environmental Conclusion issued by MENR 	 Contractor begins works without program to avoid or minimize impacts on human and environmental resources: Unsafe vehicles, accidents Damage to protected flora Subcontractor E&S performance not managed Noise disturbances to communities Community disruption, violence, crime, disease due to worker influx Unsafe and/or unsanitary accommodations 	 Plans prepared by qualified E&S specialists and project managers Supervision Consultant to review and approve C-ESMP, including C-MSIP plans that had been submitted in contractor's proposal All plans reviewed and ultimately approved by qualified experts Awareness-raising sessions on GBV conducted for all workers Code of Conduct adopted, acknowledged and signed by all workers on site (Contractor, Sub-Contractors, Supervisor, as applicable) 	 No activities undertaken without underlying procedure or plan to protect E&S Comprehensive contractor program for avoiding and minimizing impacts Subcontractor compliance with plans All activities in accordance with C-ESMP No unacceptable or unpredictable impacts 	Contractor (prepare) Supervision Consultant (approve) Azerenerji Review
2.4	Refer detailed study of geomorphology/geology to identify high-risk locations (see preliminary study and geotechnical study in ESIA)	 Foundations placed on unstable ground Tower collapse Landslides and/or severe erosion 	Follow geological studies that were part of detailed design so high-risk locations can be avoided or overcome	Stable towers on stable ground	Contractor

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
2.5	Final design/locations of equipment, towers, roads, construction sites/camps, 100 m corridor, and substation	 Tower and corridor locations selected without adequate consideration of impacts on biodiversity and people Excessive land required for roads 	 Final design team to include flora & fauna specialists and implementation of preconstruction flora/fauna survey, which is to include: Survey of entire corridor using non-intrusive means, except possibly some drilling for geologic investigations Tower selection process considers biodiversity impacts Mapping of sensitive locations/species Team to select tower locations that, where possible: Are within 200m "study" corridor Maximize tower locations with long spans that suspend conductors high above trees so no cutting is needed Maximize use of existing roads/tracks, minimize need for new access roads and permanent roads Minimize impacts on natural habitat and species of conservation concern Avoid direct impacts on people and valuable property Design towers so conductors are spaced at least 2.5-3m apart to prevent electrocution of large birds Where possible, select electrical switching equipment, cables, and transformers without SF6 as a gas insulator. If it must be used, use equipment with a low leakage rate (less than 99%) 	Locations of towers, corridor, roads, and substation minimize impact on people and on biodiversity to extent possible	Contractors (design) Supervision Consultant (approve)
2.6	Develop and implement Resettlement Action Plan (RAP) based on Resettlement Policy Framework	not identified	- Appoint qualified consultant to develop RAP	- Physical and economic displacement compensated at replacement cost or more, or like-for-like compensation	Azerenerji

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
		 All physical and economic displacement not compensated or replaced Inadequate compensation Violations of Azerbaijan law and/or World Bank ESS5 for land take and compensation Hardships for PAPs prior to compensation Loss of community support 	 Based on final design/locations, identify PAPs and impacts, identify vulnerable people, land ownership, land use, valuations, etc. Consult with PAPs Consult with authorities on valuation and compensation Acquire land for towers, substation, and permanent roads: compensation or like-for- like replacement for physical and/or economic displacement prior to displacement occurring Placement of restrictions on use of land in 60m safety zone 	 RAP implementation meets requirements of ESS5 Affected people are fully compensated for losses at replacement value or land-for- land Compensation paid to all PAPs prior to issuing authorization to proceed to contractor Participation by authorities and PAPs in process Community support 	
2.7	Reach agreement with subsoil fund on exploitation of rock/soil with MENR and with other ministries/ authorities to receive permits/ authorizations/ permissions necessary to implement construction works	Delays in implementation and/or violations of law due to lack of permits/authorizations/agreements	Consultations and agreements with relevant authorities prior to undertaking activities that require approvals and/or are on agricultural land fund or other government land	 All activities in compliance with legal requirements No delays in implementation No violations of law 	Contractor, with Azerenerji assistance as needed
2.8	Recruit and employ workers and subcontractors	 Unqualified contractors and workers Poor labor practices (substandard pay, uninformed workers, etc.) Excessive staff turnover 	 Implement Contractor's Labor Management Procedure (LMP) Preference for local hiring, with PAPs given preference Written contracts with workers per LMP and Azerbaijan law Other provisions per Labor Code of Azerbaijan Subcontracts include and require compliance with contractor's LMP 	 Maximum hiring of PAPs and other locals.; At least 20% of workforce to be of local population; Workers employed in compliance with law (nondiscrimination, equal opportunity, income, etc.) Low staff turnover 	Contractor

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
			 Subcontracts include and require compliance with C-ESMP Workers receive full induction training 		
2.9	Establishment of construction camps/laydown areas, storage areas, nonpermanent access roads, quarries/borrow areas, etc. and other land contractor will need for temporary use/possession	 Contractor trespasses on land Placement of construction zones in natural habitat or areas that require cutting protected flora Impacts outside boundary of designated area Unrecorded damage to biodiversity Excess damage to topsoil/subsoil, vegetation cover, erosion, spills and soil/water contamination, impacts on communities 	 Implement C-ESMP requirements for noise, fuel and hazardous materials, noise, worker safety, and community safety, etc., including worker training Reach written agreements with private landowners prior to undertaking activities on their lands Consult with National Forestry Agency prior to undertaking activities on Forest Fund lands and with municipalities prior to undertaking activities on land they control Implement flora/fauna surveys to inventory and map protected flora and nesting/roosting trees on lands required for construction purposes: minimize need for natural habitat and protected species as much as possible Train/warn workers to remain within boundaries and penalize for violations Maximize use of existing roads Consult with roads authority concerning traffic management and damages to public roads Minimize movement of vehicles and equipment on unpaved roads in wet conditions Repair rutting and other damages to unpaved roads as soon as possible to minimize disruption to traffic Implement Biodiversity Management Plan, including at a minimum: 	 Compliance with approved C-ESMP No unexpected or unacceptable impacts All work within marked boundaries Minimal disruption to breeding fauna Minimal disruption to fauna and flora of conservation concern Minimal disruption to traffic Wood and flammable debris material removed before it becomes a fire hazard 	Contractor

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
			 Avoid placement of facilities in natural habitat without express authorization by SC If surveys identify breeding or nesting fauna of conservation concern in or within 50m of areas to be disturbed, postpone clearing and other construction within 50m until young have left the nests Maintain photographic and written log of plants of conservation concern that are cut Implement land management and erosion control procedures, including at a minimum: To extent possible, avoid landslide-prone areas and areas with severe erosion potential Establish and mark boundaries of construction zone Keep all activities inside boundaries, protect from erosion Store excavated subsoil separately, protect from erosion Install drainage control as needed to control erosion that would affect off-site Agree with MENR and/or landowners how debris/wood will be managed, with preference for donation to PAPs and loggers. 		
2.10	Establishment of accommodations, kitchens, sanitary facilities	 Worker illness or death Worker dissatisfaction and lower productivity Contamination of land and water 	 If accommodations are to be provided, comply with World Bank Group's guidance Workers' Accommodation: Processes and Standards (2009) Develop and use operating and maintenance checklists for operation of canteens/kitchens Appoint persons to be responsible for cleanliness of accommodations, kitchens, canteens, break areas, etc. Provide toilets at or near all work locations, establish and enforce rules prohibiting workers from using the bush 	 Sanitary and compliant facilities and amenities Healthy workers Toilets in place where needed 	Contractor
No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
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2.11	Access road planning and detailed survey of the transmission line corridor	 Unnecessary impact on biodiversity and protected species Excessive erosion and off-site impacts 	 Maximize use of existing roads Minimize roads through Natural Habitat Avoid trees and shrubs of concern to extent possible Undertake pre-construction Flora and Fauna Survey prior to clearing/construction: Inventory and mark all specimens of tree and shrub species of conservation concern Identify and mark mature trees if there are signs of current or recent hibernating bats or nesting owls, bats, or raptors Identify trees and locations with nests and other signs of breeding fauna species of conservation concern and raptors To extent possible, route corridor to minimize disruption of fauna species of conservation concern, and trees of conservation concern Maintain photographic and written log of plants of conservation concern that will need to be cut 	 Roads and corridor placed to minimize impacts on natural habitat and species of conservation concern Species of concern identified and properly managed 	Contractor
2.12	Identify risks to migratory birds	No knowledge of potential risks to migrating birds from collisions Potential bird mortality due to collisions	 Appoint expert to develop program to monitor passage of raptors and waterbirds Appoint consultant(s) to implement monitoring program during autumn migration periods of 2024 & 2026 Based on results, expert to prepare summary report that includes recommendations on (a) if bird diverters (spinners, flashers, etc.) should be installed 	 Expert appointed and monitoring program developed Consultants appointed and program implemented Results reviewed and recommendations developed Recommendations implemented (no action, continue monitoring, or installdiverters) 	Azerenerji

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
			at valley crossings to reduce significant risk of collisions and (b) if additional monitoring is needed before final recommendations can be made.		
2.13	Develop biodiversity management plan	Impacts on species and habitats of conservation concern	 Appoint expert(s) to develop BMP, to include: Program to plant trees/plants to replace those that are cut Area to be revegetated/planted Species to be replaced/planted Indicators of successful plantings Monitoring program Identification of parties responsible for implementation and monitoring Program to place bat boxes to replace roosts/nests that are cut/damaged: numbers, locations, design of boxes, etc. Schedule for implementation and monitoring 	 Consultancy/expert(s) appointed BMP developed and approved Requirements implemented No net loss of biodiversity, or net gain 	Azerenerji
3.0 Coi	nstruction phase				
3.1	All activities	 Worker injury or death Damage to vegetation, land, property outside construction zone 	 Implement Occupational health and Safety Plan: Medical clearance for workers to perform their tasks Assessment of risks and identification of mitigation measures for all tasks, with PPE as last resort Tasks are designed for maximum safe operations Workers provided with proper equipment and tools, and PPE, to accomplish tasks safely 	 Tasks completed with no worker injuries or death Tasks completed with no damage to vegetation, land or property outside construction zone 	Contractor

No.	Activities	Potential adverse impact	Mitigation measures/Best management	Target outcome of mitigation	Responsible Body
			 Only trained workers allowed to complete tasks Safety Officers oversee all works Sufficient First Aiders to provide first- level medical care as needed Fully supplied first aid kits in all vehicles and equipment and at all workplaces Communications established with local medical facilities and personnel regarding works to be completed, arrange for support as appropriate Record safety statistics (work hours, near misses, minor & incidents and accidents, fatalities) Worker transport (passenger vehicles only, no riding on heavy equipment, wear safety belts, etc.) Mark boundaries of construction zone before operations Workers for violations Install physical barriers at deep excavations to prevent accidents 		
			 Implement traffic management procedures, to include: Drivers/operators licensed for vehicles and equipment Driver trained as needed and tested Vehicles properly licensed/registered Vehicles/equipment checked for safety daily by drivers/operators (horns, tires, fire extinguisher, headlights and taillights, safety belts, intact glass, etc.) Speed limits are imposed as relevant 		

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
			 Sensitive areas with special precautions (hospitals, schools, etc.) Keys never left in vehicle/equipment when driver/operator not present Consultations with roads authorities concerning use of public roads (timing, locations, etc.) Flaggers trained and placed on public roads to control traffic at locations where heavy project traffic enters and leaves roadways 		
3.2	Implement relevant C-ESMP plans as part of all activities (see 2.1)	 Excessive impacts on people and environmental resources 	 Management of activities as planned to avoid or minimize potential impacts on people and environment 	 Implementation of mitigation measures Adaptive management for unexpected impacts Compliance with law and ESSs 	
3.3	Manage subcontractors	 Subcontractors not aware of E&S requirements Poor labor practices and poorly trained workers Failure to implement C-ESMP Poor E&S performance, including safety, leading to environmental impacts, impacts on local communities, and worker injury or death 	 Include relevant portions of C-ESMP in procurement documents and subcontracts Require compliance with contractor's LMP safety, and other requirements, or equivalent requirements approved by contractor Supervision of C-ESMP implementation by contractor and Supervision Consultant Structure milestone payments to include C- ESMP implementation and withhold payments for failure to comply (see row 3.15 below). 	 Subcontractor implementation of C-ESMP No unacceptable E&S impacts 	Contractor Supervision Consultant (supervision, with contractor)
3.4	Land clearing at tower locations, construction zones, and new access roads (tree & vegetation cutting, land clearing, earth- moving in some places, equipment/building placement, etc.)	 Worker injury or death Excess damage to surrounding areas, including biodiversity and private land and property 	 Train workers and implement Occupational Health and Safety Plan: working with machinery and tools, working on steep slopes, animal/plant hazards, working in hot or cold environments, etc. 	 Minimum biodiversity damage due to land clearing No damage outside boundaries 	Contractor

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
			 Agree with local MENR office/or landowners how debris/wood will be managed, with preference for donation to PAPs and loggers. Remove excess wood and flammable debris before dry season. To extent possible, micro-locate construction boundaries to minimize cutting/clearing flora of conservation concern Mark and stay within boundaries of construction zone and of new roads Train/warn workers to remain within boundaries, penalize supervisors and workers for violations Strip and store topsoil and subsoil/spoil in separate piles within construction boundaries, protect from erosion Install drainage control as needed to control erosion that would affect off-site areas Implement Biodviersity Management Plan, including at a minimum: If surveys identify breeding or nesting fauna of conservation concern in or within 50m of construction within 100m until young have left the nests Maintain photographic and written log of plants of conservation concern that are cut In an area outside vegetation control zone, plant 2+ trees/shrubs of same species for every tree or shrub of conservation concern that are cut Do not cut trees to the ground but leave as much of the trunk as possible, at least 0.7-1m if agreed by agreed with MENR 	 Limited damage to ground surface and root zone 	BOQY
			high - Restore inadvertent damage to land outside boundaries per Landscape Reinstatement Plan		

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
3.5	Corridor vegetation cutting/clearing	 Excessive impact on biodiversity (flora, fauna, natural habitats) Unnecessary landscape and viewshed impacts Excessive erosion Landslides 	 Consult with MENR (local offices) prior to clearing operations Agree with local forest managers and/or landowners how debris/wood will be managed, with preference for donation to PAPs and loggers Agree with MENR (Local office) the height to which trees will be cut, with preference of at least 0.7-1m Remove excess wood and debris before dry season. Conduct final pre-construction fauna survey to identify and mark locations of hibernating bats and of nests/breeding behavior of fauna species of conservation concern, owls, and bats Train/warn workers to remain within boundaries, penalize supervisors and workers for violations Plan and manage tree fall to prevent logs from rolling downhill Implement land management and erosion control procedures, including at a minimum: Keep all activities inside boundaries Cut as few trees as possible, ensuring that no tree could fall on the line Minimize land and soil disturbance. If soil has to be cleared, strip and store topsoil and subsoil separately within boundaries, protect from erosion Install drainage control as needed to control erosion that would affect off-site Place topsoil and plant plants/seeds of native species on broken ground 	 Minimal impact on biodiversity Minimal impact on landscapes and views No direct impacts off-site Minimal erosion, no landslides Restored land 	Contractor Azerenerji (monitoring after demobili- zation)

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
			 If surveys identify breeding or nesting fauna of conservation concern in or within 50m of areas to be cleared, postpone clearing and other construction within 50m until young have left the nests To extent possible, micro-locate corridor boundaries to minimize cutting of mature trees and trees of conservation concern Maintain photographic and written log of plants of conservation concern that are cut Place 2+ bat boxes for every mature tree with evidence of bat hibernation/ roosting/nesting, within 50m of tree that was cut In an area within corridor but outside vegetation concern that is cut For every tree with evidence of raptor nesting, place 2+ nesting platforms on towers or on similar trees outside the vegetation control zone Do not cut trees to the ground but leave at as much of the trunk as possible, up to 4m Do not cut shrubs if they are less than 4m high 		
3.6	Excavations of tower foundations and substation	 Worker injury or death Excessive soil and spoil removed 	 Train workers and supervisors in Occupational Health and Safety Plan: Working in/near excavations/ confined spaces Working around heavy equipment Workers trained in use of all tools and equipment Use of harnesses on extremely steep slopes Implement relevant provisions of land management and erosion control procedures: strip and store topsoil and spoil, protect against erosion Mark and work within boundaries 	 Works completed safely No damage outside boundaries Safe and efficient operations 	Contractor

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No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
3.7	Excavations and cuts on steep and moderate slopes	 Worker injury or death Loss or damage to equipment Excessive land affected Landslides Erosion 	 Locate towers and roads to minimize activities on steep slopes to extent possible Train workers and supervisors on Occupational Health and Safety Plan: Working in steep terrain Working with hand and mechanical tools Working around heavy equipment 	 Works completed safely No works or damage outside construction zone boundaries No landslides and no severe erosion Land restored and stabilized after works completed 	Contractor
			 Implement land management and erosion control procedures: Mark construction zone boundaries Strip and store topsoil (if any) and spoil on site, allowing none escape downhill Grade surfaces, install gabions, walls, silt fences, etc., as necessary to prevent landslides, slope failure, mass erosion and stabilize slopes Clear site of all debris and waste when works are complete Restore land (grade to stable contour, replace topsoil if possible, plant native species until plants are self- sustaining) 		
3.8	Excavations of tower foundations and substation	 Worker injury or death Excessive soil and spoil removed 	 Implement Occupational Health and Safety Plan: Working in/near excavations/ confined spaces Working around heavy equipment Working with concrete Workers trained in use of all tools and equipment Harnesses used as required on extremely steep slopes Implement land clearing and erosion control procedures, including: Disturb as small an area as possible Remove and store topsoil and spoil separately on construction site, protect from erosion Provide physical barriers when the deep 	 Works completed safely No damage outside boundaries Safe and efficient operations 	Contractor

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
			 Mark and work within boundaries of construction zone, penalize supervisors and workers for violations Plan the construction with aim to minimise the need for subsoil disposal on permanent stockpiles. Restore land per item 3.10 below 		
3.9	Erection of towers	 Worker injury or death Damage outside construction zone 	 Train workers and supervisors in Occupational health and Safety Plan: lifting, working at heights, electrical safety, general works, steep slopes 	 Works completed safely No damage outside boundaries 	Contractor
3.10	Restoration of land at construction sites (towers, construction zones/areas, temporary access roads, other damaged lands)	 Failure of vegetation to be restored Continued erosion Reduced production from cropland and grasslands Landslides 	 Restore all disturbed areas per Landscape Reinstatement Plan: Remove all wastes and debris Grade surface as necessary for stable contours (except roads) Spread spoil and topsoil (except on rocky barren terrain) Remove excess spoil/soil for use elsewhere Plant native species of grasses and shrubs. On private land used by contractor for construction zones and roads: restore land as above unless landowner requests modification (for example, no planting on cropland, leave roads in place, etc.) 	Land returned to productive use	Contractor
3.11	Protection of camps, storage areas, equipment, property, substation, etc. (security)	 Abuse of local population or workers, including injury or death Loss of community support, possibly active opposition Liability for contractor and Azerenerji 	 Implement pre-agreed security procedures: No armed security Subcontractor and guards checked for licenses, past abuses Guards trained in appropriate use of force Consultations with local law enforcement authorities 	No vandalism, theft, or incidents involving security	Contractor Supervision Consultant (to approve security sub- contractor)
3.12	Placing conductors (stringing wires)	 Worker injury or death Excess damage to land, crops, and forest 	 Train workers and supervisors in Occupational Health and Safety Plan Work within corridor boundaries, including working from roads as much as possible 	 Works completed safely Minimal damage within corridor No damage outside corridor 	Contractor

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
			 Place notice boards or otherwise notify landowners of upcoming activities Consult with railway authorities to stop trains while placing conductors over rail line Consult with road/traffic authorities before placing conductors over highways and public roads Train and place flaggers to control traffic on public roads/highways while conductors are being placed overhead and when there is heavy project traffic entering and leaving roadways Repair damage to land surface immediately after operations are complete at that location As recommended by the avian expert, install bird diverters on conductors at specific valley crossings 	- Losses due to damages compensated per RAP	
3.13	Protect workers employed by primary suppliers	Child labor, forced labor, and/or serious safety issues at primary suppliers	If Azerenerji or contractor has significant control or influence over primary suppliers (specifically, towers and conductors), contractor to monitorsupplier and require improvement in labor safety practices or remedies in case of child orforced labor	 No child labor or forced labor or serious safety issues at primary suppliers 	Contractor (supported by Azerenerji if Azerenerji has significant influence or control)
3.14	Payment of invoices for completion of milestones	Failure to implement E-CSMP in completion of construction milestones: poor drainage on roads, works/damage outside construction zone boundaries, poor soil/spoil management, poor safety practices, risks to community, etc.	 Consider relevant E&S management requirements to be an integral part of each construction milestones Penalize initial failures to implement mitigations by withholding partial payment until mitigations are properly implemented Penalize repeated failures to implement mitigations by considering milestones incomplete and reducing payments permanently 	 Proper implementation of C- ESMP Minimal impacts on biodiversity, people, and property 	Supervision Consultant

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
4.0	Demobilization				
4.1	Closure of construction areas, camps, accommodations, etc.	 Contaminated soil, waters remain after contactor departs Liability for Azerenerji 	 Implement Landscape Reinstatement Plan priorto departure: Remove all equipment, storage units/tanks, debris, wastes, etc. Remove any contaminated soil Grade and contour to eliminate standing water, to provide stable contours, and to match surrounding terrain as much as possible Spread spoil and replace topsoil Plant native species or take final action as requested by private landowners. Monitor plantings until established and self- sustaining 	 Areas used for construction operations restored to pre- construction uses or as agreed with landowners No residual liability or damages 	Contractor
4.2	Payment of final invoice	Demobilization incomplete, with residual damage, unrestored land, improper drainage, etc.	 Withhold payment until Supervision Consultant and Azerenerji confirm demobilization is complete from E&S perspective Appoint third party to complete restoration activities if contractor fails, at contractor's expense 	No continuing or residual damages or contamination, land restored to former use as required	Supervision Consultant & Azerenerji
5.0	Operation and maintenance				
5.1	Energizing transmission line and substation	 Electrocution of workers or others Forest fires 	 Consult with MENR for line over forests before energizing Workers trained per Occupational Health and Safety Plan: electrical safety, working at heights, lifting Follow Azerenerji technical protocols/procedures for energizing lines/components Keep bystanders/observers away from corridor and substation during procedure Inspect entire corridor in case of malfunction 	Works completed safely	Contractor and Azerenerji

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
5.2	Updates of LMP and Occupational Health and Safety Plans	 Lack of compliance with new safety law Worker injuries and deaths Poor labor relations 	 Azerenerji Safety Manual updated per new OHS Law LMP updated to reflect World Bank ESS2 requirements 	 Updated management programs Safe working environment Good labor relations 	Azerenerji
5.3	Routine maintenance and security patrols	 Worker injury or death Damage to ground surface and cover vegetation, soil erosion Traffic accident Damage to private property (trees, crops, etc.) 	 Workers trained in requirements of Azerenerji Safety Manual specific to their jobs Workers trained in requirement of traffic management procedures Compensation per RAP 	 Works completed safely Damages compensated promptly per RAP 	Azerenerji
5.4	Tower repairs or replacement	 Worker injury or death Excess damage to ground surface, vegetation, drainage, leading to erosion Longer power outages 	Same as tower construction above (see 3.10)	 Works completed safely Minimal damage in immediate vicinity of tower, no damage outside that area Damages to land repaired and land restored to previous use Compensation paid promptly per RAP 	Azerenerji
5.5	Replacement of conductors	 Worker death or injury Damage to land from equipment and vehicles Longer power outages 	 Implement Safety Manual Restore damages to land immediately upon completion (grading, revegetation per Land Management and Erosion Control Plan) Compensate promptly for losses due to damages to vegetation, crops, property 	 Work completed safely Damages to land repaired and land restored to previous use Compensation paid per RAP 	Azerenerji
5.6	Vegetation control in corridor	 Worker death or injury Trees cut too close to ground 	 Workers trained in risks and mitigations of tasks per Azerenerji Safety Manual 	- Work completed safely	Azerenerji

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
		 Trees cut outside vegetation control zone Fire hazard due to flammable debris left in corridor 	 Workers provided proper and safe equipment and tools Workers knowledgeable of boundaries of vegetation control zone and remain within zone Debris removed quickly to reduce fire hazard No use of herbicides or pesticides 	 Minimal disturbance to ground surface and tree/plant roots All works within vegetation control zone Debris removed before becoming a fire hazard 	
6.0	Preconstruction, construction, and c	lemobilization phases			
6.1	Oversight of E&S performance of project	 Lack of timely knowledge about E&S performance Poor E&S performance by contractor and Supervision Consultant Minor issues become major problems 	 Appoint qualified professional to oversee E&S performance on the project Maintain communications with Supervision Consultant on at least weekly basis Review monthly progress reports, and contractor reports Attend monthly progress meetings Visit site unannounced at least quarterly Provide data for website updates Participate in consultation meetings and informal interviews Periodically consult with municipal and village authorities Review grievance logs periodically Maintain communications with MENR and Ministry of Agriculture 	 Azerenerji knowledgeable and up to date on E&S performance Azerenerji management well- informed of issues before they become problems 	Azerenerji
6.2	Operating passenger and heavy vehicles	 Traffic accidents Injury or death to drivers or passengers Damage to pedestrians, other drivers and passengers, property 	 Trained and licensed drivers Speed limits Daily safety checklist 	 Vehicles and equipment operated by authorized personnel No traffic accidents 	Owner/ Operator of vehicle: Contractor, Supervision

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
		 Liability to contractor and project 	 Passengers only in seats designed for persons (safety belts, etc.), no standing or riding in back of trucks or on equipment No giving rides to public No vehicle/equipment movements off construction zones and roads unless authorized by site supervisor 	 No injuries to drivers or passengers, no damage to property 	Consultant Azerenerji
6.3	All construction works	Damage to vegetation, land surface, property outside construction zone boundaries	 Implement relevant elements of Land Management and Erosion Control Plan: Implement relevant elements of Occupational Health and Safety Plan Control dust from soil/spoil piles by covering or vegetating, from roads by dampening Control noise by maintaining equipment and vehicles, training workers 	 All work within construction zone boundaries Minimal damages, compensation per RAP Work completed safety 	Contractor Supervision Consultant (OHS)
6.4	Stakeholder engagement	 Uninformed stakeholders Distrust of Azerenerji Increased vandalism 	 Implement Stakeholder Engagement Plan: Notify local authorities and National forestry Agency of ongoing maintenance and repair operations Implement Grievance Redress Mechanism: receive and respond to comments and complaints 	 Informed stakeholders Public support 	Azerenerji (manage throughout, implement during operation) Contractor (day-to-day)
6.5	Hazardous and nonhazardous waste and materials management	 Spills and contamination of soil and surface water Extra cost due to wastage 	 Implement materials and wastes management procedures: Minimize use of hazardous materials, using nonhazardous substitutes wherever possible Store hazardous materials (including fuels) in secure area over impermeable surface 	 Minimal spills and contamination, rapid and proper cleanup as needed Proper and safe waste management, including third-party management 	Contractor

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
			 Material Data Safety Sheets to be kept at all locations where hazardous materials are stored or used Allow only authorized and trained personnel to work with hazardous materials Segregate used materials/wastes in categories to maximize ability to restore, reuse, recycle and minimize disposal Dispose wastes in licensed disposal area or hire licensed hauler to take wastes to a licensed area (verified by contractor) For hazardous wastes taken away by hauler, verify hauler's license and verify that final disposal/recycling location is properly permitted 		
6.6	Vehicle and equipment fueling and maintenance	 Spills and contaminated soil or water Fire 	 Vehicle and equipment fueling and maintenance only over impermeable surfaces. Use drip trays needed when not over paved surface. Fire extinguisher with proper chemicals in all vehicles/equipment and at all fueling locations Spill cleanup kits at all locations where fuel and hazardous chemicals are stored Vehicles maintained per manufacturers' recommendations: mufflers, safety equipment, engine and fuel burning (no black smoke), etc. 	 No contamination from incidents involving fueling Vehicles maintained as required 	Contractor
6.7	All activities within 50m of perennial and seasonal streams and other surface water	 Spills of fuel or other materials into water Damage to streams and water bodies Erosion into streams and water bodies 	 Implement procedure for working in or near surface water: No construction zones within 50m of flowing water or ephemeral drainage way No fueling within 50m of surface water or ephemeral drainage way 	 No water contamination Minimal damage to streams and drainage ways 	Contractor

No.	Activities	Potential adverse impact	Mitigation measures/Best management practice	Target outcome of mitigation	Responsible Body
			 Vehicle/equipment crossings of drainage ways or small streams only at designated locations Apply gravel or otherwise prepare surface at places of frequent crossings to minimize damage to streambed Minimize crossings during wet weather Repair rutting and other damage to stream banks and streambeds immediately when works are completed in that area (grade, revegetate) 		
6.8	Responding to emergencies	 Worker injury or death Community member injury or death Excess damage to property or people 	 Implement emergency preparedness and response procedures, which is to include: Appoint emergency response team Train workers in their responsibilities in case of emergencies and in responding Identify possible emergencies and possible consequences (fire, accidents, injuries or deaths, earthquake or weather event, civil unrest, spills) Develop and use checklists to verify readiness for emergencies Place and maintain emergency response equipment (fire extinguishers, first aid kits, radios/communication devices, etc.) Conduct investigations/reviews to identify causes and avoidance measures following emergencies, including accidents 	 Emergencies avoided Emergency equipment in place and ready if needed Quick and effective responses to emergencies 	Contractor and Supervision Consultant
6.9	Protect undiscovered cultural heritage	 Damage or destruction of artifacts or archaeological remains 	Implement chance find procedure: - Stop work upon discovery - Notify Employer - Resume work when authorized by Employer - Train workers and supervisors in procedure	 Qualified personnel make judgments about possible finds Cultural heritage protected 	Contractor

9. PUBLIC CONSULTATIONS AND PARTICIPATION

9.1. Introduction

Public consultation provides a platform for people's participation in the process through dissemination of information, discussion of people's concerns and issues, protection of property owners' rights and participatory decision-making. During the ESIA process, the initial consultations in the districts and villages where the project components are located and passed through were carried out through Focus Group Discussions (PFDs) and Project Affected People (PIAPs), as well as meetings with the general public in the project area, and these included land acquisitions, environmental and social impacts and other related issues were discussed.

Consultations are a means of informing stakeholders about the proposed project and ensuring their participation at all stages of the project cycle. It helps identify the problems associated with sub-projects as well as the needs of the population that may be affected.

Public discussions were held in places where people could gather in large numbers. In order to inform the communities in the areas, contact was made with village executive representatives and mayors.

Community involvement is not only limited to community interaction, but also involves disclosing relevant information about project activities and ensuring their participation at all stages of the project cycle.

9.2. Consultation and participation mechanisms

The ESIA provides detailed information on the consultation process and describes the disclosure of information during the project preparation phase. Various consultation tools such as surveys and interviews, as well as focus group discussions, seminars and meetings are used in the consultation process established during the preparatory phase of the project.

The counseling program includes:

- Affected family heads;
- Family members;
- PAP groups;
- Villagers;
- Village executive representatives/municipality heads
- State institutions and offices.

The main objectives of the consultation program were to inform people about the integration of renewable energy sources into the energy system and to ensure people's participation. During the process, efforts were made to learn people's opinions and priorities. Objectives of public consultation:

- To understand the views of affected people and community leaders on the impacts of the project
- To identify and evaluate all the main economic and sociological characteristics of villages
- To resolve issues related to land use.

9.3. Process

The consultation process was conducted at the village level, and all received suggestions and comments were included in the ESIA.

9.3.1. Issues raised during the consultation

- The participants asked questions about the rules for using the land under the power transmission lines to be built in the proposed project area.
- Most of the PAPs wanted to create job opportunities for the local population during the project period.
- Local population and community leaders have expressed their displeasure due to periodic power outages in villages.
- Compensation amount for land to be acquired and objects to be demolished

9.4. Details of consultation with communities

The working group carrying out the consultations included a Social Worker, an Environmental Expert and a community work specialist.

no	Date	Location	Number of participants	Participants
Navo	ahi substation			
1	04.07.2024	Secondary school No. 2 of Navahi settlement	32	Village population, municipal heads and regional executive representatives
OHL	S			
2	04.07.2024	Salyan town, culture house	24	The population of the villages of Salyan region, affected people, municipal heads and regional executive representatives,

Details of the public consultation are provided in Table 9-1.

no	Date	Location	Number of participants	Participants
				representatives of local NGOs
3	11.07.2024	Bilasuvar town	25	The population of the villages of Bilasuvar region, affected people, municipal heads and regional executive representatives, representatives of local NGOs
4	11.07.2024	Neftçala district, Banka settlement	30	The population of the Banka villages, affected people, municipal heads and regional executive representatives, representatives of local NGOs

9.5. Key findings from the public consultation

- While participants were aware of the proposed RES projects, they did not know the details of the project.
- Most of the affected landowners voluntarily agree to hand over their plots of land to the government free of charge.
- People support the implementation of proposed RES projects.
- People have expressed their desire to work on the project or with contractors and ask for local people to be involved where possible.
- The affected area is mainly cultivated with cereals and alfalfa. Agriculture depends mainly on rain and canals from the Kura River.
- There are necessary infrastructure facilities (kindergarten, school, medical center, post office) in the villages
- The main occupation of the population in the villages is agriculture and animal husbandry, but there are also many people working in the oil industry and fishing.

A list of participants in the public consultation is provided in Appendix C.

9.6. Consultations with institutional organizations

As part of the participatory process, various stakeholders were identified who could be involved in the process of identifying critical issues, identifying impacts, planning, implementing, monitoring and evaluating the resettlement and rehabilitation project. Details of meetings with identified stakeholders within the institutional framework are described below.

s/s	Agencies consulted	Dated
1	State Environmental Expertise Agency	6 June 2024
2	Azerbaijan Railways" JSC	7 June 2024
3	Public Legal Entity "State Cadastre and Registry of Real Estate" under the State Service for Real Estate Affairs under the Ministry of Economy	7 June 2024
4	StateServiceforProtection,Development and Restoration of CulturalHeritage under the Ministry of Culture	21 June 2024
5	SOCAR	21 June 2024

9.7. Photos from public consultations





Public consultations at Navahi village





Public consultations at Salyan region



Public consultations at Navahi town

10. REFERENCES

The ESIA report has utilized a range of authoritative sources to ensure a comprehensive and accurate assessment of the potential impacts associated with the proposed project. Key references include:

- 1. World Bank Environmental and Social Framework (ESF): World Bank Group, 2016. This framework provides guidelines on managing environmental and social risks, ensuring that projects are sustainable and inclusive.
- 2. Environmental and Social Impact Assessment (ESIA) Guidelines: International Finance Corporation (IFC), 2012. These guidelines offer a detailed methodology for conducting environmental and social impact assessments.
- 3. Biodiversity and Ecosystem Services in Impact Assessment: International Association for Impact Assessment (IAIA), 2018. This document outlines best practices for assessing and mitigating impacts on biodiversity and ecosystem services.
- 4. Guidance Note on Managing the Risks of Adverse Impacts on Communities from Temporary Project Induced Labor Influx: World Bank, 2016. This note provides strategies for managing the social impacts of labor influx in project areas.
- 5. Environmental Impact Assessment: Guidelines for Development Projects in Developing Countries: United Nations Environment Programme (UNEP), 2002. This source provides comprehensive guidelines for conducting EIAs in developing contexts.
- 6. Social Impact Assessment: Integrating Social Issues in Development Projects: Vanclay, F. and Esteves, A.M. (Eds.), 2011. This book offers insights into the methodologies and practices for effective social impact assessments.
- 7. Azernerji Strategic Development Program for 2024-2034 the program was developed by McKinsey which establishes development directions for Azerenerji including planned investment projects.
- 8. State Statistical Committee of the Republic of Azerbaijan, Statistical Yearbook "Transport in Azerbaijan", 2020
- 9. USAID, Biodiversity Analysis Update for Azerbaijan, 2010.
- 10. Coastal Bird Migration at the Caspian Shore of the Azerbaijan Republic in October 2007, Michael Heiss & Kai Gauger 2011.

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- <u>https://ibat-alliance.org/visual-data-map</u>
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- <u>https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/qobustan_azerbaijan_585223</u>
- <u>https://www.nature.scot/handbook-environmental-impact-assessment-guidance-competentauthorities-consultees-and-other</u>
- <u>https://www.ohchr.org/Documents/Issues/ClimateChange/Impact/Azerbaijan.pdf</u>
- <u>https://www.protectedplanet.net/country/AZ</u>
- <u>https://www.stat.gov.az/</u>
- <u>https://www.stat.gov.az/source/environment/?lang=en</u>
- <u>www.iucnredlist.org</u>
- <u>https://lcviewer.vito.be/2019/Azerbaijan</u>

Annex A. Stakeholder list

Name	Category
Project-Affected Parties for Component 1	
Property owners along the routes of OHLs	Project Site Stakeholder
People residing in the project areas	Project Site Stakeholder
Municipality and village representatives of the following municipalities/villages:	Project Site Stakeholder
Navahi settlement (Hajigabul) administrative representative	Project Site Stakeholder
Ranjbar village (Hajigabul) administrative	Project Site Stakeholder
Gizilburun village (Hajigabul) administrative	Project Site Stakeholder
Pirsaat village (Hajigabul) administrative representative	Project Site Stakeholder
Banka settlement (Neftchala) administrative representative	Project Site Stakeholder
Shirvanli village (Neftchala) administrative representative	Project Site Stakeholder
Yukhari Nokhudlu (Salyan) village administrative representative	Project Site Stakeholder
Salmanli village (Salyan) administrative representative	Project Site Stakeholder
Khurshud village (Salyan) administrative representative	Project Site Stakeholder
Chukhanli village (Salyan) administrative representative	Project Site Stakeholder
Abadkand village (Salyan) administrative representative	Project Site Stakeholder
Khalaj village (Salyan) administrative representative	Project Site Stakeholder
Shakarli village (Salyan) administrative representative	Project Site Stakeholder
Yenikand village (Salyan) administrative representative	Project Site Stakeholder
Goylar village (Aghsu) administrative representative	Project Site Stakeholder
Langabiz village (Aghsu) administrative representative	Project Site Stakeholder
Bico village (Aghsu) administrative representative	Project Site Stakeholder
Garagoyuniu Village (Agnsu) administrative representative	Project Site Stakenoider
Gubakhalilli village (Ismayilli) administrative representative	Project Site Stakeholder

Name	Category
Garamaryam village (Goychay) administrative representative	Project Site Stakeholder
Garabaggal village (Goychay) administrative representative	Project Site Stakeholder
Mirzahuseynli village (Goychay) administrative representative	Project Site Stakeholder
Arak village (Goychay) administrative representative	Project Site Stakeholder
Hushun village (Goychay) administrative representative	Project Site Stakeholder
Yukhari Aghjayazi village (Agdash) administrative representative	Project Site Stakeholder
Goshagovag village (Aghdash) administrative representative	Project Site Stakeholder
Arabojagi village (Aghdash) administrative representative	Project Site Stakeholder
Arash village (Yevlakh) administrative representative	Project Site Stakeholder
Aksham village (Yevlakh) administrative representative	Project Site Stakeholder
Gulovsha village (Yevlakh) administrative representative	Project Site Stakeholder
Havarli village (Yevlakh) administrative representative	Project Site Stakeholder
Hajiselli village (Yevlakh) administrative representative	Project Site Stakeholder
Salahli village (Yevlakh) administrative representative	Project Site Stakeholder
Huruushagi village (Yevlakh) administrative representative	Project Site Stakeholder
Tanrigulular village (Yevlakh) administrative representative	Project Site Stakeholder
Boshchali village (Yevlakh) administrative representative	Project Site Stakeholder
Businesses located in the project area who may be positively or negatively affected by the project	Project Site Stakeholder
Other Interested Parties for AZURE Project	
Executive power representative of the Hajigabul region	Governmental authorities at local level
Executive power representative of the Bilasuvar region	Governmental authorities at local level
Executive power representative of the Neftchala rayon region	Governmental authorities at local level
Executive power representative of the Salyan rayon region	Governmental authorities at local level
Executive power representative of the Aghsu region	Governmental authorities at local level

Name	Category
Executive power representative of the Yevlakh region	Governmental authorities at local level
Executive power representative of the Mingachevir city	Governmental authorities at local level
Executive power representative of the Aghdash rayon (region)	Governmental authorities at local level
Executive power representative of the Goychay region	Governmental authorities at local level
Executive power representative of the Gobustan region	Governmental authorities at local level
Executive power representative of the Absheron region	Governmental authorities at local level
Executive power representative of the Garadagh region	Governmental authorities at local level
Ministry of Energy	Governmental authorities at local level
Azerbaijan Railways JSC	Governmental authorities at local level
Health providers	Governmental authorities at local level
School representatives	Governmental authorities at local level
SEEA of Ministry of Ecology and Natural Resources	Governmental authorities at national level
Ministry of Digital Development and Transport	Governmental authorities at national level
Ministry of Culture	Governmental authorities at national level
State Tourism Agency of the Republic of Azerbaijan	Governmental authorities at national level
Center of Hygiene and Epidemiology	Governmental authorities at local level
Masdar Azerbaijan	Private sector representatives at local level
AZERENERJI personnel	Project Personnel
NGOs, Trade Unions and etc	NGO
Media representatives	Media
Project-Affected Parties for Component 2 & 3	
AZERENERJI personnel	Project Personnel
Consulting companies	Project Personnel
Other Interested Parties for Component 2 & 3	
Ministry of Energy	Governmental authorities at local level
Ministry of Emergency Cases	Governmental authorities at local level

ANNEX B. CORRESPONDENCE WITH STAKEHOLDERS

Letter of request to the State Environmental Expertise Agency for a meeting to discuss the scope of work of ESIA



Azərbaycan Respublikasının Ekologiya və Təbii Sərvətlər Nazirliyi Dövlət Ekoloji Ekspertiza Agentliyinin Idarə Heyətinin sədri

cənab Mirsalam Qənbərova

Hörmətli Mirsalam müəllim,

Bildiyiniz kimi, Möhtərəm cənab Prezidentin apardığı uğurlu beynəlxalq siyasət əsasında iqlim dəyişikliyi üzrə mötəbər COP29 tədbirinin ölkəmizdə keçirilməsinə qərar verilmiş və cənab Prezident tərəfindən 2024-cü il "Yaşıl Dünya naminə həmrəylik ili" elan edilmişdir. "Azərenerji" ASC tərəfindən bu tədbirlərlə əlaqədar yaşıl enerjiyə sürətli keçid istiqamətində zəruri addımlar atılır.

Energetika naziri cənab Pərviz Şahbazov "Masdar" şirkətinin tikəcəyi cəmi gücü 1000 MVt olan BOEM əsaslı 3 elektrik stansiyasının (445 MVt "Biləsuvar" GES, 315 MVt "Bankə" GES və 240 MVt "Qobustan" KES) enerji sisteminə təhlükəsiz inteqrasiyasını təmin etmək məqsədilə Dünya Bankının rəhbərliyi ilə müzakirələr apararaq, bu layihələr üçün kredit vəsaitinin cəlb olunmasını razılaşdırmışdır.

Dünya Bankının maliyyə dəstəyi ilə həyata keçirilməsi planlaşdırılan "Bərpa olunan enerji mənbələrinin şəbəkəyə inteqrasiyası" layihəsinin (AZURE layihəsi) icrası Azərenerji ASC-yə tapşırılmaqla layihə çərçivəsində tələb olunan işlərin və xidmətlərin satınalınması üçün Dünya Bankının siyasət və qaydalarına uyğun tender keçirilməsi məqsədilə hazırlıq işlərinə başlamaq göstərişi verilmişdir.

Məlumat üçün bildiririk ki, Energetika nazirliyi və Dünya Bankı ilə razılaşdırılmış iş həcmi əsasında 1000 MVt BOEM layihələrinin enerjisistemə inteqrasiyası üçün 500/330 kVluq "Nəvahi" yarımstansiyasının, 500 kV-luq birdövrəli "Nəvahi-Abşeron" (85 km), 500 kVluq "Nəvahi-Az İES" (235 km), 330 kV-luq birdövrəli "Nəvahi-Mingəçevir SES" (220 km), 330 kV-luq birdövrəli "Nəvahi-Ələt AlZ" (20 km), 330 kV-luq ikidövrəli "Bankə GES – Nəvahi YS" (80 km), 330 kV-luq ikidövrəli "Biləsuvar GES – Nəvahi YS" (90 km), 330 kV-luq birdövrəli "Qobustan KES – Nəvahi YS" (60 km), 330 kV birdövrəli "Qobustan KES – Qobu ES" (220 km) EVX-lərin tikintisi, eləcə də 500/330/220 kV-luq "Abşeron" YS-da və "Qobu" ES-də 330 kV-luq tərəfdə gənişlənmə işlərinin həyata keçirilməsi planlaşdırılır.

Bildirmək istərdik ki, Bank daxili prosedurlara əsasən bütövlükdə layihə üçün Ekoloji və Sosial Təsirlərin Qiymətləndirilməsi aparılmalı və müvafiq hesabat hazırlanaraq Banka təqdim edilməlidir. Azərenerji ASC tərəfindən sözügedən ekoloji və sosial qiymətləndirmənin aparılması üçün texniki tapşırıq hazırlanmış və Bankla razılaşdırılmışdır. Bildiyiniz kimi, bu tip irimiqyaslı layihələrin icrasına başlamazdan əvvəl maraqlı tərəflərlə görüşlərin keçirilməsi

və müzakirələr aparılması, onların tövsiyə və təkliflərinin alınması mühüm əhəmiyyət kəsb edir. Bu məqsədlə Azərenerji ASC nəzdində yaradılmış Layihə İcra Qrupunun əməkdaşları rəhbərlik etdiyiniz qurumun aidiyyəti məsul şəxsləri ilə görüşərək layihə çərçivəsində aparılacaq ekoloji və sosial qiymətləndirmə üçün hazırlanmış texniki tapşırığı və hazırlanacaq ƏMSTQ hesabatında əhatə olunması nəzərdə tutulan məsələləri müzakirə etmək niyyətindədir.

Hörmətli Mirsalam müəllim,

Diqqətinizə çatdırmaq istərdim ki, Masdar şirkətinin icra qrafikinə əsasən sözügedən BOEM layihələri 2026-cı ilin I rübündə enerji istehsalına başlayacaqdır və Azərenerji ASC-nin qarşısında həmin tarixədək yuxarıda qeyd olunan ötürücü infrastruktur obyektlərini vaxtında tikib istismara vermək kimi mühüm vəzifə dayanır. Vaxt məhdudiyyətini nəzərə alaraq rəhbərlik etdiyiniz qurumun nümayəndələri və Layihə İcra Qrupunun əməkdaşları ilə bu görüşün ən qısa vaxtda keçirilməsi üçün aidiyyəti üzrə göstəriş verməyinizi xahiş edirik.

Qoşma: ƏMSTQ üçün Texniki Tapşırıq (15 vərəq)

Hörmətlə,

Ziyəddin Quliyev "Azərenerji" ASC-nin vitse-prezidenti

The letter sent to the Hajigabul District Executive Authority and the confirmation reply of the head of the executive authority regarding the coordination of the proposed route of the incoming/outgoing lines to the 500/330 kV Navahi YS by the district officials.



Z 2400 Hacinabul sahari Qavibov küresi 7	tel: /021/ 204-32-33
e-Poçt: mail@haciqabul-ih.gov.az	faks: /021/ 204-12-40
12 5-48/2-1111-10-214/2024	« <u>03</u> » <u>арге</u> — 2024-сй і
	"Azərenerji" ASC-ni vitse-preziden cənab Ziyəddin Quliyev
Hörmətti Ziyəddin müəllim,	
823/17/2024 və 13-9/2-832/17/2024 nömrəli n Nəvai qəsəbəsində tikiləcək 500/330/10 kV-luq	nəktublarına əsasən Hacıqabul rayonunlur "Nəvai" yarımstansiyasının enerjisistem nəsi, eyni zamanda Biləsuvar GES və Barka
integrasiyasi və dayanıqlığının monkemləhdinin GES-in enerjisistemə integrasiyası məqsədilə ç IES- Nəvai YS", 500 kV -luq iki dövrəli "Abşe "Mingəçevir SES- Nəvai YS", 330 kV -luq iki döv iki dövrəli "Bankə GES-Nəvai YS", 330 kV-luq t bir dövrəli "Qobustan KES-Nəvai YS" HX-lərinin düşən hissəsinin trassası (təqdim edilən dör bələdiyyə, icarə və xüsusi mülkiyyətdə olan torp HX-lərinin trassalarının Hacıqabul rayonunu mülkiyyəti istisna olmaqla, digər marağına toxur bələdiyyə, mülkiyyətçilər və torpaq istifadəçiləri etmirik.	ekilecek 500 kV-luq bir dövrəli "Azərbayca ron YS- Nəvai YS", 330 kV -luq bir dövre vreli "Biləsuvar GES-Nəvai YS", 330 kV -lu bir dövreli "Ələt AlZ-Nəvai YS", 330 kV -lu i Hacıqabul rayonunun inzibati erazisin nge nöqtələrinin koordinatları üzrə) dövlə baq sahələrindən keçir. ın inzibati ərazisinə düşən hissəsinin dövlə nulan icra hakimiyyəti orqanları, o cümlədər ilə razılaşdırmaq şərti ilə ayrılmasına etira
integrasiyasi və dayanıqlığının monkemiəndinin GES-in enerjisistemə integrasiyası məşsədilə ç IES- Nəvai YS", 500 kV -luq iki dövrəli "Abşe "Mingəçevir SES- Nəvai YS", 330 kV -luq ti bir dövrəli "Qobustan KES-Nəvai YS", 330 kV-luq ti bir dövrəli "Qobustan KES-Nəvai YS" HX-lərinin düşən hissəsinin trassası (təqdim edilən dör bələdiyyə, icarə və xüsusi mülkiyyətdə olan torp HX-lərinin trassalarının Hacıqabul rayonunu mülkiyyəti istisna olmaqla, digər marağına toxur bələdiyyə, mülkiyyətçilər və torpaq istifadəçiləri etmirik. Hörmətlə,	ekilecek 500 kV-luq bir dövrəli "Azərbayca ron YS- Nəvai YS", 330 kV -luq bir dövrə vrəli "Biləsuvar GES-Nəvai YS", 330 kV -lu bir dövrəli "Ələt AlZ-Nəvai YS", 330 kV -lu ın Hacıqabul rayonunun inzibati ərazisin ngə nöqtələrinin koordinatları üzrə) dövlə baq sahələrindən keçir. ın inzibati ərazisinə düşən hissəsinin dövlə ıulan icra hakimiyyəti orqanları, o cümlədər ilə razılaşdırmaq şərti ilə ayrılmasına etifa
integrasiyasi və dayanığlığının monkemiəndinin GES-in enerjisistemə integrasiyası məqsədilə ç İES- Nəvai YS", 500 kV -luq iki dövrəli "Abşe "Mingəçevir SES- Nəvai YS", 330 kV-luq iki döv iki dövrəli "Bankə GES-Nəvai YS", 330 kV-luq ik bir dövrəli "Qobustan KES-Nəvai YS" HX-lərinin düşən hissəsinin trassası (təqdim edilən dör bələdiyyə, icarə və xüsusi mülkiyyətdə olan torp HX-lərinin trassalarının Hacıqabul rayonunu mülkiyyəti istisna olmaqla, digər mərağına toxur bələdiyyə, mülkiyyətçilər və torpaq istifadəçiləri etmirik.	ekilecek 500 kV-luq bir dövrəli "Azərbaycar ron YS- Nəvai YS", 330 kV-luq bir dövrəli vreli "Biləsuvar GES-Nəvai YS", 330 kV-luq bir dövrəli "Ələt AİZ-Nəvai YS", 330 kV-luq Hacıqabul rayonunun inzibati erazisina nge nöqtələrinin koordinatları üzrə) dövlət naq sahələrindən keçir. In inzibati ərazisinə düşən hissəsinin dövlə tulan icra hakimiyyəti orqanları, o cümlədən ilə razılaşdırmaq şərti ilə ayrılmasına etitaz

The letter sent to the Bilasuvar District Executive Authority and the confirmation response of the head of the executive authority regarding the coordination of the proposed route of the incoming/outgoing lines to the 500/330 kV Navahi YS by the district officials.

AZƏRBAYCAN RESPUBLİKASI	BILƏSUVAR RAYON İCRA HAKİMİYYƏTİ
AZ1300, Biləsuvar şəhəri, M.A.İbrahimov ki 01-83 Elektron po	0çəsi 50, Tel.: (025) 295-01-83 Faks: (025) 295- çt: mail@bilesuvar-ih.gov.az
1 aprel 2024-cü il	5-39/2-214/2024
	Azərbaycan Respublikası "Azərenerji" Açıq Səhmdar Cəmiyyətinin vitse- prezidenti cənab Ziyəddin Quliyevə
(Sizin 04 mart 2024-cü il i	tarixli 13-9/2-678/17/2024 nömrəli məktubunuza cavab)
Hörmətli Ziyeddin müəllim,	
	Integrasivasi medsedile ceklecek 330 kV-lud
Biləsuvar GES-Nəvai YS [®] HX-nin B hissəsinin trassasına mütəxəssislərin iş ərazidə həyvandarlıq fəaliyyəti ilə məşğu Bildiririk ki, 330 kV-luq "Biləsuva İnzibati ərazisinə düşən hissənin trassas	sınıeqrasiyası meqsedile çekilecek 330 kV-luq Bilesuvar rayonunun inzibati ərazisinə düşen stirakı ilə yerində baxış keçirilmiş və sözügedən ul olan fermerlərlə söhbətlər aparılmışdır. ar GES-Nəvai YS' HX-nin Biləsuvar rayonunun sının ayrılmasına etiraz etmirik.
Biləsuvar GES-Nəvai YS" HX-nin B hissəsinin trassasına mütəxəssislərin iş ərazidə heyvandarlıq fəaliyyəti ilə məşğı Bildiririk ki, 330 kV-luq "Biləsuva İnzibati ərazisinə düşən hissənin trassas Hörmətlə,	sinteqrasiyası meqsedile çektlecek 330 kV-luq Biləsuvar rayonunun inzibati ərazisinə düşen ştirakı ilə yerində baxış keçirilmiş və sözügedən ul olan fermərlərlə söhbətlər aparılmışdır. ar GES-Nəvai YS" HX-nin Biləsuvar rayonunun sının ayrılmasına etiraz etmirik.
Biləsuvar GES-Nəvai YS [*] HX-nin B hissəsinin trassasına mütəxəssislərin iş ərazidə heyvandarlıq fəaliyyəti ilə məşğu Bildiririk ki, 330 kV-luq "Biləsuva İnzibati ərazisinə düşən hissənin trassas Hörmətlə, Faiq Qürbətov	sinteqrasiyası meqsedile çektlecek 330 kV-luq Biləsuvar rayonunun inzibati ərazisinə düşen ştirakı ilə yerində baxış keçirilmiş və sözügedən ul olan fermerlərlə söhbətlər aparılmışdır. ar GES-Nəvai YS" HX-nin Biləsuvar rayonunun sının ayrılmasına etiraz etmirik.
Biləsuvar GES-Nəvai YS" HX-nin B hissəsinin trassasına mütəxəssislərin iş ərazidə heyvandarlıq fəaliyyəti ilə məşğu Bildiririk ki, 330 kV-luq "Biləsuva İnzibati ərazisinə düşən hissənin trassas Hörmətlə, Faiq Qürbətov	Integrasiyasi megsedile çektlecek 330 kV-luç Bilesuvar rayonunun inzibati erazisine düşen ştirakı ile yerinde baxış keçirilmiş ve sözügeden ul olan fermerlerle söhbetler aparılmışdır. ar GES-Nevai YS* HX-nin Bilesuvar rayonunun sının ayrılmasına etiraz etmirik. Ne ÜMUMİ söbe Q2 O2 Q3 Q4

A letter sent to the Salyan District Executive Authority and the confirmation reply of the head of the executive authority regarding the coordination of the proposed route of the incoming/outgoing lines to the 500/330 kV Navahi YS by the district officials.

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Hörmetli Ziyaddin müəllim, "Azərənerif" ASC-nin 13-9/2-653/17/2024 və 13-9/2-653/17/2024 nömme A mart 2024-cü il tərixli məktublarına əsasən müvərliq olaraq Nefiçala rayonunda tikləqcak Banke GES eve Bilasuvar GES-Nəvai YS" HX-lərinin Salyan rayonunun inzibat tərazlaşlara düşən hissəsinin trassası (təqdim edilən dönyən nöqtələrinin koordinatarı uz mart bilasuvar GES-Nəvai YS" HX-lərinin Salyan rayonunun inzibat tərazlaşlarının Salyan rayonunun inzibat ərazilaşdarına yən hissəsinin tərassalarının Salyan rayonunun inzibat ərazilaşdarına yən hissəsinin tərassalarının Salyan rayonunun inzibat ərazilaşdarına yən hissəsinin tərassalarının Salyan rayonunun inzibat ərazilaşdarına yən hissəsinin tərassalarının Salyan rayonunun inzibat ərazilaşdarına yən hissəsinin tərassalarının Salyan rayonunun inzibat ərazilaşdarına yən hissəsinin tərassalarının Salyan rayonunun inzibat ərazilaşdarına yən hissəsinin tərassalarının Salyan rayonunun inzibat ərazilaşdarına yən hissəsinin tərassalarının Salyan rayonunun inzibat ərazilaşdarına yən hissəsinin tərassalarının Salyan rayonunun inzibat ərazilaşdarına yən hissəsinin tərassalarının Salyan rayonunun inzibat ərazilaşdarına yən hissəsinin tərassalarının Salyan rayonunun inzibat ərazilaşdarına yən hissəsinin tərassalarının Salyan tərayonunun inzibat ərazilaşdarına yən hissəsinin tərasına etiraz etimiriti. Hörmətiş		"Azerenerji" ASC-nin vitse-prezidenti cenab Ziyeddin Quliyeve			
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	tikilecek Banke GES ve Bi integrasiyası meqsedile çe kV-luq iki dövrel "Bilestu erazisine düşen hissesinin dövlet, balediyye ve xüsusi HX-lerinin trassala dövlet mülkiyyeti istisna ol cümleden, belediyye, müli ayrımasına etiraz etmirik.	hiskoplarına esasən müvafiq olaraq Nefiçala rayonund lasuvar rayonunda tikiləcək Biləsuvar GES-in enerji sistemin kiləcək 330 kV-luq iki dövrəli "Banke GES-Nəval YS" və 33 var GES-Nəval YS" HX-lərinin Salyan rayonunun inziba trassası (teqdim edilən döngə nöqtələrinin koordinatian üzrə mülkiyyətdə olan torpaq sahələrindən keçir. mun Salyan rayonunun inzibati ərazisinə düşən hissəsini maqla, digər marağına toxunulan hüquqi və fiziki şəxslər, k kiyyətçilər və torpaq istifadəçiləri ilə razılaşdırmaq şərti ili			

The letter sent to the Neftchala District Executive Authority and the approval response of the head of the executive authority regarding the coordination of the proposed route of the incoming/outgoing lines to the 500/330 kV Navahi YS by the district officials.



CORRESPONDENCE WITH THE MINISTRY OF ECOLOGY AND NATURAL RESOURCES

Biddates inclusion Price (*equit2) 000000000000000000000000000000000000	AZ 1005 Baki sahari Akademik	Tel: (+99412) 490	.00.72 azerenerii@azerenerii.g
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			Azərbaycan Respublikasının Ekologiya və Təbii Sərvətlər naz
			cənab Muxtar Babayevə
 Hörmetli Muxtar müəllim, Bildiyiniz kimi, Nazirlər Kabineti tərəfindən bərpa olunan enerji mənbələrinin şəbəka nin gücləndirilməsi, Hacıqa rayonunda 500/330 kvl-luq Nəvahi yarımstansiyasının tikilməsi və enerji sistemi aşıdışeləndirilməsi üçün elektrik vərilişi xətterinin tikinitis ve "Masda" şirkəti tərəfindən həy keçiriləcək MEQA layihə üzrə 1 Qvt gücündə günəş və külek elektrik stansiyalarının en sistemə inteqrasiyası (AZURE layihəsi) ilə bağlı 30 iyul 2024-cü il tarixli 420s nömrəli Sərənc yatıma sasən layihə-smeta sənətlərinin hazırlanması və tiki quraşdırma işlərinin yerinə yetirilməsi istiqamətində zəruri tədbirlər görmək "Azərenerji" ASC tərəfindən MEQA layihə üzrə 315 MVt gücündə "Bankə" GES-in tikilər Navahi yarımstansiyasına birləşdirilməsi üçün 330 kV-luq kildövrəli Bankə GES - Navahi yarımstansiyasına birləşdirilməsi üçün 330 kV-luq kildövrəli Bankə GES - Navahi yarımstansiyasına birləşdirilməsi üçün seçilmiş likin tras lqtisadiyyat Nazirliyi yanında PMI "Tədşimaz" Muxta Kadızatı və Reyestir" PHS-nin "Kadastır və Yerquruluşu Layih Tədşimaz" Muxta Kadastı və Reyestir" PHS-nin "Kadastır və Yerquruluşu Layih Tədşimaz" Muxta Yati üçün seqilmiş likin tras lqtisadiyyat Nazirliyi yanında PMI "Tədşimaz Dövlət Təbiət Qoruğunun arzızısina düşdüyü məlum olmuşdur. Bu səbətdən hava xıtı üçün aşaının başına zərə alınmaqla en optima trası mecburiyyet qarşısında tiynələr bu da mühafize zonası tələblərini pozuyl üçün hava xətti üçüna Suru Müllı Parkına vaşıtı kurğular tabina dayid qoruğunun arzısındən quraşıtır. Bu səbətdən hava xıtı üçün başına zərəfinize adırımaşı şatarıları burgunun baryaşayış məskənlərindən keçin aşalırına görün günaşı dayi yanına dayi (exis halda yaşayış məskənlərindən kayihə qurşışında birində 4 dayaq və 7 dayaq (cemi 11 dayaq) olmaqla kin öqtateğirə in mizdirin quraşdırma işləri üçün üxafı yurşaldıcı tətdbirlər nəzərdə tutulmış, elece de ƏMSTQ çerçivəsində qir üçün başınlarış tixiləri quraşdırma işləri erzində yunşaldıcı tətdbirlər aya biomüxtəlifiliyin qorunması planına z	"Bərpa olunan enerji mənbə inteqrasiyasına hazırlıq işlən	lərinin şəbəkəyə inə dair"	
 Bildiyiniz kimi, Nazirlar Kabineti tərəfindən bərpa olunan enerji mənbələrinin şəbəkk inteqrasiyasının təmin edilməsi məqsədilə ötürücü şəbəkənin gücləndirilməsi, Hacıqa rayonunda 500/330 kV-luq Nəvahi yarımstansiyasının tikilməsi və enerji sistemi əlaqələndirilməsi üçün elektrik verilişi xatlerinin tikintisi və "Masdar" şirkəti tərəfindən həy keçiriləcək MEQA layihə üzrə 1 Qvt gücündə günəş və külək elektrik istansiyalarının en sistemə inteqrasiyası (AZURE layihəsi) ilə bağlı 30 iyul 2024-cü il tarixli 420s nömrəli Serənci quraşdırma işlərinin yerinə yetirilməsi istiqamətində zəruri tədbirlər görmək "Azərenerji" ASC tərəfindən MEQA layihə üzrə 315 MVt gücündə "Bankə" GES - Navahi lektrik verilişi xəttinin layihələndirilməsi üçün 300 KV-luq kidövrəli Bankə (GES - Navahi lektrik verilişi xottinin layihələndirilməsi aparılmış və hava xətti üçün yüksək gərginlikli elek xətlərinin mühafizə zonası nəzərə alınmaqla en optimal tras seçilmişdir. Bela ki, sözügedən hava xətti üçün nələm lənızırlandıqdan sonra 57 edəd daya Şirvan Dövlət Təbitət Qoruğunun ərazisina dügdüyü məlum olmuşdur. Bu səbəbdən hava xətti trassasına dəyişiklik edilərək həmin dayaqlar Qoruğun ərazisindən çıxarılmışdır. Vurğuları istərdik ki, başqa alternativ olmadığı (əks halda yaşayış məskənlərindən keçid qaçılmaz olur bu da mühafize zonası tələblərini pozur) üçün hava xəttinin trası məcburiyyet qarşısında 1 birində 4 dayaq və 7 dayaq (cemi 11 dayaq) olmaqla iki nöqtədə Şirvan Milli Parkının ərazisi dügürü müşuməşladıcı tədbirlər nəzərdə tutulmuş, elecə də ƏMSTQ çeçrivəsində ayr birəmixə inəzarət olunacaqdır. Meyd olunanları diqqətinize çatdıraraq, 330 kV-luq Bankə GES - Navahi yarımstansiya tarılarıqa yürü yüxumalaşı görü ayrı birində yürü yürün Aixa yaşı bəzabatda Milli Parkının ərazisindən keçməsinə köməklik göstərməyin Sizdən xahiş edirik. Qoşma: HX-nin yeni trası. 	Hörmətli Muxtar mü	əllim,	
xətlərinin mühafizə zonası nəzərə alınmaqla ən optimal tras seçilmişidir. Belə ki, sözügedən hava xətti üçün seçilmiş ilkin tras İqtisadiyyat Nazirliyi yanında ƏMC nin "Daşınmaz Əmlakın Dövlət Kadastrı və Reyestri" PHŞ-nin "Kadastr və Yerquruluşu Layil Tədqiqat Mərkəzi" MMC tərəfindən yer quruluşu planı hazırlandıqdan sonra 57 ədəd daya Şirvan Dövlət Təbiət Qoruğunun ərazisinə düydüyü məlum olmuşdur. Bu səbəbdən hava xətti trassasına dəyişiklik edilərək həmin dayaqlar Qoruğun ərazisindən çıxarılımışdır. Vurğuları istərdik ki, başqa alternativ olmadığı (əks halda yaşayış məskənlərindən keçid qaçılmaz olur bu da mühafizə zonası tələblərini pozur) üçün hava xəttinin trası məcburiyyət qarşısında I birində 4 dayaq və 7 dayaq (cəmi 11 dayaq) olmaqla iki nöqtədə Şirvan Milli Parkının ərazis düşmüşdür. Diqqətinizə çatdırmaq istərdik ki, layihə üçün beynəlxalq standartlar əsasında ƏMS hesabatı hazırlanmış və həsabatda Milli Park ərazisində aparılacaq tikinti-quraşdırma işləri ür müvafiq yumşaldıcı tədbirlər nəzərdə tutulmuş, elece də ƏMSTQ çərçivəsində ayr biomüxtəlifliyin qorunması planı hazırlanmışdır. Podratçılar tərəfindən aparılacaq tik quraşdırma işləri ərzində yumşaldıcı tədbirlərə və biomüxtəlifliyin qorunması planına ər olunmasına tərəfimizdən xüsusi nəzarət olunacaqdır. Qeyd olunanları diqqətinize çətdıraraq, 330 kV-luq Bankə GES - Navahi yarımstansiya HX-nin 11 dayağının Şirvan Milli Parkının ərazisindən keçməsinə köməklik göstərməyin Sizdən xahiş edirik.	alaqələndirilməsi üçün elef keçiriləcək MEQA layihə sistemə inteqrasiyası (AZU qəbul edilmiş və həmin Sə quraşdırma işlərinin yerinə tapşırımışdır. "Azərenerji" ASC tərəl Navahi yarımstansiyasına elektrik verilişi xəttinin layih	ktrik verilişi xətlərinin tik üzrə 1 Qvt gücündə gi IRE layihəsi) ilə bağlı 30 rencama əsasən layihə yetirilməsi istiqamətində findən MEQA layihə üzrr birləşdirilməsi üçün 330 nələndirilməsi aparılmış	initisi və "Masdar" şirkəti tərəfindən həya ünəş və külək elektrik stansiyalarının ene iyul 2024-cü il tarixli 420s nömrəli Sərəncə -smeta sənədlərinin hazırlanması və tikin zəzuri tədbirlər görmək "Azərenerji" ASC- ə 315 MVt gücündə "Bankə" GES – Navahi Vv Huq ikidövrəli Bankə GES – Navahi və hava xətti üçün yüksək gərginlikli elekt
Qeyd olunanları diqqətinizə çatdıraraq, 330 kV-luq Bankə GES - Navahi yarımstansiya HX-nin 11 dayağının Şirvan Milli Parkının ərazisindən keçməsinə köməklik göstərməyin Sizdən xahiş edirik. Qoşma: HX-nin yeni trası. Hörmətlə,	Belə ki, sözügedən ha nin "Daşınmaz Əmlakın Dö Tədqiqat Mərkəzi" MMC tə Şirvan Dövlət Təbiət Qoruğ trassasına dəyişiklik ediləri istərdik ki, başqa alternativ bu da mühafizə zonası təli birində 4 dayaq və 7 dayaq düşmüşdür. Diqqətinizə çatdırmav hesabatı hazırlanmış və he müvafiq yumşaldıcı tədbi biomüxtəlifliyin qorunması quraşdırma işləri ərzində	ava xətti üçün seçilmiş ili ivlət Kadastrı və Reyesti rəfindən yer quruluşu p unun ərazisinə düşdüyü ək həmin dayaqlar Qorı olmadığı (əks halda yaş əblərini pozur) üçün har q (cəmi 11 dayaq) olmaq q istərdik ki, layihə üçü sabatda Milli Park ərazis rilər nəzərdə tutulmuş ı planı hazırlanmışdır. yumşaldıcı tədbirlərə v	kin tras İqtisadiyyat Nazirliyi yanında ƏMD ri" PHŞ-nin *Kadastr və Yerquruluşu Layih ılanı hazırlandıqdan sonra 57 ədəd dayağ məlum olmuşdur. Bu səbəbdən hava xəttir uğun ərazisindən çıxarılmışdır. Vurğulam şayış məskənlərindən keçid qaçılmaz olur va xəttinin trası məcburiyyət qarşısında h ıla iki nöqtədə Şirvan Milli Parkının ərazisi ın beynəlxalq standartlar əsasında ƏMST sində aparılacaq tikinti-quraşdırma işləri üç , elacə də ƏMSTQ çərçivəsində ayrı Podratçılar tərəfindən aparılacaq tiki yə biomüxtəlifliyin qorunması planına ən
Qoşma: HX-nin yeni trası. Hörmətlə,	Qeyd olunanları diqqə HX-nin 11 dayağının Şirva Sizdən xahiş edirik.	tinizə çatdıraraq, 330 k an Milli Parkının ərazis	V-luq Bankə GES - Navahi yarımstansiya indən keçməsinə köməklik göstərməyini
Hörmətlə,	Qoşma: HX-nin yeni tr	ası.	
	Hörmətlə,	20	

Response of Ministry of Ecology and Natural resources on permission to cross the Shirvan National Park



AZƏRBAYCAN RESPUBLİKASININ EKOLOGİYA VƏ TƏBİİ SƏRVƏTLƏR NAZİRLİYİ

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23.09.2024 - cü il

Azərbaycan Respublikası "Azərenerji Açıq Səhmdar Cəmiyyətinin prezidenti cenab Baba Rzayeve

Hörmetli Baba müellim.

"Neftçala rayonunun inzibati ərazisində tikintisi planlaşdırılmış "Neftçala Günəş Elektrik Stansiyası"nın enerjisistemə inteqrasiyası məqsədilə 330 kv-luq "Neftçala GES-Nəvai YS" HX tikintisi ilə bağlı Şirvan Milli Parkının ərazisindən iki yerdə trassanın ümumilikdə 3.1 kilometrinin keçmesi, hemin erazilerde 11 (on bir) eded elektrik dayağının guraşdırılmasının nezerde tutulması və bununla bağlı müvafiq icazənin verilməsinə köməklik göstərilməsi barədə" Ekologiya və Təbii Sərvətlər Nazirliyinə ünvanladığınız 29 avqust 2024-cü il tarixli 13-9/2-2708/12/24 və 13-9/2-2697/9/24 nömrəli eyni məzmunlu müraciətlərinizə tərəfimizdən baxılmışdır.

Melumat üçün bildiririk ki, 330 kv-luq "Neftçala GES-Nevai YS" HX tikintisi ile bağlı Şirvan Milli Parkının erazisinden iki yerde ümumilikde 3.1 kilometrlik trassanın keçmesi ve erazilerde 11 (on bir) ədəd elektrik dayağın quraşdırılması ilə bağlı həmin əraziyə yerində baxış keçirilmişdir. Baxış zamanı elektrik dayaqlarının yerleşdirileceyi erazinin Milli parkın nüve zonasından kenarda teserrüfat zonasına düşdüyü müeyyen edilmişdir. Bununla elaqedar, Ekologiya ve Tebii Servetler Nazirliyinin və Azərənərji ASC-nin aidiyyəti eməkdaşları arasında ətrafli müzakirələr aparılmış və müzakirələrin nəticəsi olaraq 3,1 km HX-nın trassası (elektrik xətti) ilə bağlı nəzərdə tutulan 11 (on bir) edəd elektrik dayağının yalnız 7 (yeddi) ədədinin Milli parkın ərazisində quraşdırılması razılığına gəlinmişdir. Bununla bağlı təqdim olunmuş layihəyə əsasən aparılacaq işlər nəticəsində Milli parka ümumilikde 13608 (on üç min altı yüz sekkiz) manat mebleğinde ziyan vurulacağı hesablanmisdir.

Bildiririk ki, Şirvan Milli Parkının ərazisi xüsusi mühafizə olunan təbiət ərazilərinə aiddir. Azərbaycan Respublikası Prezidentinin 3 avqust 2004-cü il tarixli 106 nömrəli Fərmanı ilə təsdiq edilmiş "Azərbaycan Respublikasının Şirvan Milli Parkı haqqında Əsasnamə"nin tələblərinə edilmis esasen onun erazisinde fealiyyeti ile elaqeli olmayan bu cür işlerin aparılmasına mehdudiyyetler nazərdə tutulur və bu halda yalnız Milli park üçün elektrik verilişi xəttinin ayrılması öhdəliyi nəzərdə tutulmaqla ərazidə qeyd olunan tikinti işlərinin aparılması mümkündür. Odur ki, məsələnin dövlət əhəmiyyətli olmasını nəzərə alaraq, təbiətə dəyəcək ziyanın ödənilməsi və Milli parkın enerjiyə olan tələbatının "Nəvai YS"-dən təmin edilməsi şərti ilə Şirvan



Imzalayan şexa:

tron imza ve elektron sened haqqında" Azərbaycan Respublikası Qanununun 3-cü maddesine əsasən e ısı ilə bərabər hüquq qövvəyə malikdir. Elektron imza şəxsin kağız daşıyıcısı üzərindəki möhürlə təsdiq zasına bərabər tutulur. k kodu: OFBC90



Milli Parkının ərazisində 1.7 km HX-nın trassası (elektrik xətti) üçün 7 (yeddi) ədəd elektrik dayağının quraşdırılması ile bağlı müvafiq işlerin aparılmasına etiraz etmirik.

Eyni zamanda bildiririk ki, müvafiq işlər aparılan zaman texnikanın yalnız mövcud yollardan istifadə etməsi, mümkün qədər səssizliyə riayət olunması, inşaat və məişət tullantılarının ərazidən kənarlaşdırılması, müvafiq işlərin Şirvan Milli Parkının əməkdaşlarının iştirakı və nəzarəti ilə aparılması və ərazidə mütəmadi olaraq monitorinqlərin təşkil edilməsi zəruridir.

Hörmetle.

Nazir müavini

Vügar Kerimov

Annex C. Minutes of Meetings of public consultation meetings
Location: Hajigabul district, Navai settlement, secondary school No. 2

Date and time: 04 July 2024 at 10.30 am

Participants:

Vusal Gubadov, director of the Azerbaijan Regional Electricity Network Department Yusif Gayibov, PIU director Ilaha Ilyasova, PIU social development specialist

32 people (villagers from Navai settlement and Navai village, representatives of interested parties and various interested parties)

- Local territorial representatives of the Executive Power;

- Members of municipalities;
- villagers;
- the unemployed population of the settlement and village;
- Representatives of the Regional Electricity Network Department;

- Representatives of other organizations.

Minutes of Meeting

Yusif Gayibov greeted the participants and thanked them for coming. He briefed the participants on the project, its direct and indirect, local economic benefits and general concept, duration and implementation procedures. He shared the project map and connection diagram with the audience to fully understand the scope of the project.

Ilaha Ilyasova informed the participants about the social and environmental impacts of the project, possible temporary and permanent impacts and their scope, as well as mitigation measures. People were informed about alternatives and measures to prevent and minimize the impacts, and shared with the audience the national procedures to be considered for managing the impacts, preparation of the KTP and its publication in subsequent stages.

Vusal Gubadov spoke about solar energy. The development of solar energy is more relevant today all over the world, especially in Azerbaijan. Another advantage of the project is that it has less negative impact on the environment.

The meeting continued in the form of questions and answers.

Questions	Responses (PIU)
Ismayilova Samaya Gochu (Chairman of Navai	Yusif Gayibov – One of the main recommendations
settlement municipality) - We would like the local	to contractors will be to involve local skilled and
population to be involved in the construction works	ordinary workers in construction works according to
of the project. We witnessed the implementation of	their abilities.
various projects here, and always the Contractors	Vusal Gubadov – Contractors will also be interested
brought workers from Baku or other regions. We	in attracting local residents as much as possible, as
wish that our villagers will benefit from the project	it is profitable for them to save on living expenses.
and get employment, which in turn will improve the	
welfare of the local population.	Ilaha Ilyasova - Construction activity will also have a
	positive effect on the local economy. Demand for
	agricultural products to feed the project workforce

Questions	Responses (PIU)
	will increase, which in turn will increase sales of local
	agricultural products. Renting land and private
	property for accommodation / camping will also
	benefit the budget of the local population.
Samadov Azer (representative of Hajigabul's	Yusif Gayibov - it's a good idea. Thank you for saying
Ranjar village Executive Authority) - We are very	that. Contractors will be notified and given
happy that we finally have professional personnel in	appropriate instructions.
the position of head of the Regional Electricity	
Network Department. Previously, our complaints	
were never dealt with properly, but now we have a	
professional in the position of head of RES who is	
able to adequately respond to the issues we raise.	
Therefore, in the upcoming project, we would also	
like our professionals and educated people working	
in the construction works of the project to be	
employed here according to their knowledge and	
skills and not need to move to other regions.	
Rahimov Rizvan (Gizilburun village) – In our village,	I.Ilyasova - As you mentioned, these types of issues
the voltage is very low, 160kV instead of 220kV. As	are within the competence of "Azerishiq" OJSC.
a result of this weak electrical voltage, most of the	Nevertheless, we will note your concern in the report
electrical appliances do not work, the electricity	and the relevant authorities will certainly react to
supply is intermittent and it causes household	the matter.
appliances to fail. We have applied to "Azerishiq"	
OJSC several times regarding the issue, but no	
response has been given so far. We have been	
enduring this issue for a month.	

Azərbaycan Respublikası "Azerenerji" Açıq Səhmdar Cəmiyyəti Hacıqabul rayonunun Nəvahi qəsəbəsində tikiləcək 500/330/10 kV-luq "Nəvahi" yarımstansiyasının enerjisistemə inteqrasiya və dayanıqlığın möhkəmləndirilməsi məqsədilə çəkilməsi nəzərdə tutulan EVXlərin layihəsi

Layihə və təsirləri, o cümlədən müvafiq tədbirlər haqqında ictimai müzakirələr

Novai 93826351 Hovergabel V. yaşayış məntəqəsi (rayon, kənd)

04.07,2024 / 14.30 tarix və vaxt

İştrakçıların siyahısı

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Environmental and Social Impact Assessment

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Navahi village, Hajıqabul district, 4 July, 2024

Location: Salyan town, central cultural house

Date and time: 04 July 2024, 14.30 p.m.

Participants:

Vusal Gubadov, director of the Azerbaijan Regional Electricity Network Department Yusif Gayibov, PIU director Ilaha Ilyasova, PIU social development specialist

25 people (villagers from Navai settlement and Navai village, representatives of interested parties and various interested parties)

- Local territorial representatives of the Executive Power;

- Members of municipalities;
- villagers;
- the unemployed population of the settlement and village;
- Representatives of the Regional Electricity Network Department;
- Representatives of other organizations.

Minutes of Meeting

Vusal Gubadov greeted the participants and gave the floor to Yusif Gayibov, thanking them for coming.

Yusif Gayibov greeted the participants and thanked them for coming. He briefed the participants on the project, its direct and indirect, local economic benefits and general concept, duration and implementation procedures. A project map and connection diagram were shared with the audience to fully understand the scope of the project. Yusif Gayibov informed the participants that the land owned by the owners will be used for the lines. He emphasized that priority will be given to the local population in the construction works of the project. He said that people will be informed about all the procedures properly and in advance. It was also explained to the participants that all possible ways were considered by the government to minimize negative social and environmental impacts.

Ilaha Ilyasova explained that the national law on the expropriation of land for state needs regulates the process of land acquisition, including determination of rights, calculation of compensations, complaints resolution mechanisms, etc. will regulate matters. All required documents are currently being prepared, including the Relocation Action Plan.

Vusal Gubadov informed the audience about the new solar energy projects currently being implemented in Azerbaijan, the development of the energy sector and the future results of the current Project.

The telephone numbers of the Regional Electricity Network Department of "Azerenerji" JSC and the management of LIQ were informed to the participants regarding possible questions. Later, the meeting was continued in a question-and-answer format.

Questions	Responses (PIU)
<i>Karimov Najaf -</i> chairman of Karimbeyli village municipality. We would like to know the names of	V. Gubadov and Y. Qayibov - lands and affected parcels, as well as information about the owners,
the families whose land has been affected.	were provided by the Ministry of Education and Culture.
	Lands that will be used for permanent use will be taken with compensation. Landowners can continue farming in the remaining areas, with the restriction of not building anything on the land below the line.
	I. Ilyasova added that compensation for the land will be paid to the owners of the leased land, and alternative lands of the same quality and distance will be given.
	The population will be able to harvest from all crops, and compensation will be paid if it is not possible.

Azərbaycan Respublikası "Azerenerji" Açıq Səhmdar Cəmiyyəti Hacıqabul rayonunun Nəvahi qəsəbəsində tikiləcək 500/330/10 kV-luq "Nəvahi" yarımstansiyasının enerjisistemə inteqrasiya və dayanıqlığın möhkəmləndirilməsi məqsədilə çəkilməsi nəzərdə tutulan EVXlərin layihəsi

Layihə və təsirləri, o cümlədən müvafiq tədbirlər haqqında ictimai müzakirələr

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04.04.2024 14.30 tarix və vaxt

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Azərbaycan Respublikası "Azerenerji" Açıq Səhmdar Cəmiyyəti Hacıqabul rayonunun Nəvahi qəsəbəsində tikiləcək 500/330/10 kV-luq "Nəvahi" yarımstansiyasının enerjisistemə inteqrasiya və dayanıqlığın möhkəmləndirilməsi məqsədilə çəkilməsi nəzərdə tutulan E lərin layihəsi Ləvihə və təsirləri, o cümlədən müvafiq tədbirlər haqqında ictimai müzakirələr					
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Location: Bilasuvar town, Building of local executive power office

Date and time: 11 July 2024, time 11.00 a.m.

Participants:

Vusal Gubadov, director of the Azerbaijan Regional Electricity Network Department Yusif Gayibov, LIQ director Ilaha Ilyasova, LIQ social development specialist Representatives of the Masdar company

21 people (villagers from Bilasuvar district and villages, representatives of interested parties and various interested parties)

- Local territorial representatives of the Executive Power;

- Members of municipalities;
- villagers;
- the unemployed population of the settlement and village;
- Representatives of the Regional Electricity Network Department;
- Representatives of other organizations.

Minutes of Meeting

In the first part of the meeting, the Ministry of Energy and the Masdar company, which is implementing the construction of the Bilasuvar and Banka solar power plant, and the officials and social experts of the ministry made a speech to inform the project communities about the Project, its implemented components, positive and negative impacts, construction works and environmental/social protection policies. they did After the decision of the Executive Power of the regions where the project is implemented, the public hearings of "Azerenergy" OJSC with the communities affected by the project and the public consultations of the Masdar company were held at the same time. In this regard, after the presentation by MASDAR, the public of the project was informed by "Azerenergy" OJSC about the general concept of the project, and then about the solar power plants to be built (by the Ministry of Energy and MASDAR). "Azerenerji" OJSC will implement the construction projects of electric overhead lines to transfer the energy produced at solar power plants to the national and regional power grid.

The project map showing the location of the future stations and the route of the air lines was presented to the participants of the meeting. The benefits of the project, possible negative socio-economic effects and ways to eliminate them, as well as the positive effects of activities on the construction of EVXs were reported to the participants.

The population was mainly interested in employment opportunities and land acquisition procedures, if any. Most of the questions were asked after the speech of representatives of Masdar company in the introductory part. Most of them have been answered by the company. It was brought to the attention of the participants that preference will be given to the local population who meet the employer's qualification requirements during the construction works.

Regarding land and property impact issues, any affected property will be compensated in accordance with national legislation, particularly the Law on Expropriation of Land for State Needs and the Land Code, the regulatory framework for land issues in the country.

The meeting continued in the form of questions and answers.

Questions	Responses (PIU)
Audience: Will there be employment opportunities	I.llyasova - If the local population meets the
for the local population during the implementation	employers' qualification requirements during the
of these projects?	construction works, preference will be given to
	ordinary and skilled workers.

Azərbaycan Respublikası "Azerenerji" Açıq Səhmdar Cəmiyyəti
Hacıqabul rayonunun Nəvahi qəsəbəsində tikiləcək 500/330/10 kV-luq "Nəvahi" yarımstansiyasının
enerjisistemə inteqrasiya və dayanıqlığın möhkəmləndirilməsi məqsədilə çəkilməsi nəzərdə tutulan EVX-
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Layihə və təsirləri, o cümlədən müvafiq tədbirlər haqqında ictimai müzakirələr

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11 iyul 2024, 11.00 tarix və vaxt

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Bilasuvar, Local Executive Power Office, 11 July, 2024



Page **337** of **356**

Location: Neftchala district, Banka settlement Date and time: 11 July 2024, 14.30 p.m.

Partcipants:

- Ministry of Energy of the Republic of Azerbaijan
- MASDAR representatives
- Ilaha Ilyasova, LIQ Social Specialist
- Vusal Gubadov, director of the Azerbaijan Regional Electricity Network Department

29 people (population of the settlement, people affected by the villages through which the Project passes, etc.)

- Local representatives of the Executive Power;
- Municipal members;
- Local population;
- Representatives of the Regional Electricity Network Department;
- Other professionals.

Minutes of Meeting

In the first part of the meeting, the Ministry of Energy and the Masdar company, which is implementing the construction of the Bilasuvar and Banka solar power plant, and the officials and social experts of the ministry made a speech to inform the project communities about the Project, its implemented components, positive and negative impacts, construction works and environmental/social protection policies. they did After the decision of the Executive Power of the regions where the project is implemented, the public hearings of "Azerenergy" OJSC with the communities affected by the project and the public consultations of the Masdar company were held at the same time. In this regard, after the presentation by MASDAR, the public of the project was informed by "Azerenergy" OJSC about the general concept of the project, and then about the solar power plants to be built (by the Ministry of Energy and MASDAR). "Azerenerji" OJSC will implement the construction projects of electric overhead lines to transfer the energy produced at solar power plants to the national and regional power grid.

The project map showing the location of the future stations and the route of the air lines was presented to the participants of the meeting. The benefits of the project, possible negative socio-economic effects and ways to eliminate them, as well as the positive effects of activities on the construction of EVXs were reported to the participants.

MASDAR's question-and-answer session with the community was followed by brief questions on i) employment opportunities, ii) possible negative impacts on current road infrastructure (including bridges) from future construction, and iii) the quality of the environmental impact assessment, particularly the impact of power plants on migratory birds. A number of questions were asked to the representatives of "Azerenergy" OJSC regarding the assessment of the negative impact on the population. All questions related to job opportunities were answered accordingly that during the construction phase of the project activities, the contractors will have an initial meeting with the villagers and all the villagers will get job opportunities according to their skilled and unskilled abilities.

Regarding land and property impact issues, any affected property will be compensated in accordance with national legislation, particularly the Law on Expropriation of Land for State Needs and the Land Code, the regulatory framework for land issues in the country.

The meeting was continued in the form of questions and answers.

Questions	Responses (PIU)
Tahmazov Azad Abulfaz: I would like to get a job	I.Ilyasova – Before construction begins, contractors
opportunity; I can work as a security guard.	will meet with project communities to announce the
	start of construction and other project activities. We
	will also give your name to the contractors.

Azərbaycan Respublikası "Azerenerji" Açıq Səhmdar Cəmiyyəti Hacıqabul rayonunun Nəvahi qəsəbəsində tikiləcək 500/330/10 kV-luq "Nəvahi" yarımstansiyasının enerjisistemə inteqrasiya və dayanıqlığın möhkəmləndirilməsi məqsədilə çəkilməsi nəzərdə tutulan EVXlərin layihəsi

Layihə və təsirləri, o cümlədən müvafiq tədbirlər haqqında ictimai müzakirələr

Neffeleolo, r., Bonko-9. yaşayış məntəqəsi (rayon, kənd)

11.07.2024, 14.20 tarix və vaxt

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Azərbaycan Respublikası "Azerenerji" Açıq Səhmdar Cəmiyyəti Hacıqabul rayonunun Nəvahi qəsəbəsində tikiləcək 500/330/10 kV-luq "Nəvahi" yarımstansiyasının enerjisistemə inteqrasiya və dayanıqlığın möhkəmləndirilməsi məqsədilə çəkilməsi nəzərdə tutulan EVXlərin layihəsi Layihə və təsirləri, o cümlədən müvafiq tədbirlər haqqında ictimai müzakirələr

Neftçalar, Banku g yaşayış məntəqəsi (rayon, kənd)

<u>11.07, 2024</u> 14,30 tarix və vaxt

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Neftchala, Banka village, July 11, 2024



Annex D. List of cultural heritage assets



AZƏRBAYCAN RESPUBLİKASININ MƏDƏNİYYƏT NAZİRLİYİ YANINDA MƏDƏNİ İRSİN QORUNMASI, İNKİŞAFI VƏ BƏRPASI ÜZRƏ DÖVLƏT XİDMƏTİ

AZ 1000, Bakı şəhəri,Hökumət evi, Tel.: (+99412) 565 01 47 Ü.Hacıbəyli küçəsi,84 Elektron poçt:info@heritage.gov.az

02 avgust 2024-cü il

3-24-1/2-01-826/2024

"Azərenerji" Açıq Səhmdar Cəmiyyətinin vitse prezidenti cənab Ziyəddin Quliyevə

27 iyun 2024-cü il tarixli 13-9/2-1956/9/2024 nömrəli məktuba dair

Hörmətli Ziyəddin müəllim,

"Bərpa olunan enerji mənbələrinin şəbəkəyə inteqrasiyası" layihəsinin icrası ilə əlaqədar elektrik verilişi xətlərinin trasları boyunca yerləşən daşınmaz tarix və mədəniyyət abidələri barədə məlumatları təqdim edirik (surəti əlavə olunur).

Eyni zamanda bildiririk ki, "Tarix və mədəniyyət abidələrinin qorunması haqqında" Azərbaycan Respublikası Qanununun 14-cü maddəsinə əsasən, magistral mühəndis kommunikasiyalarının (neft, qaz kəmərlərinin və s.) çəkilişi və digər inşaat işləri zamanı, hektardan çox ərazini əhatə edən sahələrdə inşaat işləri aparılarkən texniki-iqtisadi əsaslandırma mərhələsində bu işləri həyata keçirən təşkilat tərəfindən görüləcək işlər barədə müvafiq icra hakimiyyəti orqanının müəyyən etdiyi orqana (quruma) və müvafiq icra hakimiyyəti orqanının müəyyən etdiyi elmi təşkilata müraciət edilməli və abidələrin ilkin axtarış işlərinin aparılması üçün vəsait ayrılmalıdır.

Həmin zonada arxeoloji abidə aşkar olunarsa, müvafiq icra hakimiyyəti orqanının müəyyən etdiyi orqanın (qurumun) icazəsi olmadan və lazımi elmi tədbirlər görülmədən inşaat və təsərrüfat işlərinin aparılmasına yol verilmir.

Qeyd olunan Qanunun 13-cü maddəsinə əsasən, inşaat və digər təsərrüfat işləri görülərkən abidə aşkar edilərsə, dərhal işlər dayandırılmalı, bu barədə müvafiq icra hakimiyyəti orqanının müəyyən etdiyi orqana (quruma) və müvafiq icra hakimiyyəti orqanının müəyyən etdiyi elmi təşkilata məlumat verilməli, həmin orqan (qurum) və elmi təşkilat tərəfindən iki ay müddətində bu Qanunla nəzərdə tutulmuş tədqiqatlar aparılmalı və digər tədbirlər görülməlidir. Bu halda inşaat və digər təsərrüfat işləri müvafiq icra hakimiyyəti orqanının müəyyən etdiyi elmi təşkilatın və mütəxəssislərin rəyi əsasında müvafiq icra hakimiyyəti orqanının müəyyən etdiyi orqanın (qurumun) icazəsi ilə davam etdirilə bilər.



Environmental and Social Impact Assessment

Page 344 of 356

Nəzərə almağını	zı xahiş edirik.			
Qoşma: 4 vərəq				
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(Responce of State Cultural Heritage Service on submission of list of cultural monuments across the Project covered areas)

/erilişi xətlərinin (EVX) trasları b	ventar Ne: Abidənin ünvanı	Abşeron rayonu, Qobu qəsəbəsi	Şamaxı rayonu, Çöl Göylər kəndi	Şamaxı rayonu, Çöl Göylər kəndi yaxınlığında	Şamaxi rayonu, Çol Göylər kəndi	Şamaxi rayonu, Çöl Göylər kəndi 11	Şarmaxı rayonu, Çöl Göylər kəndi ni aşkar
boyunca yerləşən tarix və mədəni	Abidənin koordinatı	40°24'26.16"N 49°43'4.88"E	i 40°26'19.80"N 48°37'40.80"E	40°26'6.20"N 48°37'16.60"E	40°26'6.74"N 48°37'16.75"E	il 40°25'46.40"N 48°36'53.30"E	11 40°246.30"N 48°38'54.90"E
iyyət abidələrinin siyanısı	Qeyd			5			

40°25'49 20"N 48°37'0.80"E	40°24'17.20''N 48°38'46.20''E	40°25'44,80"N 48°36'57.30"E	40°25'39.89"N	10°25'49,20"N	10 38'7.20"N	0°39'3.30"N	0"39'6.40"N	7 44 20.80 E 0°39'52.20"N 7°44'31.60"E	0°36"2.60"N 3° 0'0.60"E
Şamaxı rayonu, Çöl- Göylər kəndi	Şamaxı rayonu, Çöl- Göylər kəndi	Şamaxı rayonu, Çöl- Göylər kəndi	Şamaxı rayonu, Çöl- Gövlar kandi	Şamaxı rayonu, Çöl-	Göyçay rayonu, A	Göyçay rayonu, 1 4 Brabcabirli kandı	Göyçay rayonu, II 4 Ərəhcəbirli kəndi	Göyçay rayonu 4	Göyçay rayonu, Qaraməryəm 44 kəndinin 44 yaxınlığında
1709	6014	6013	6012	1709	Yeni aşkar	1073	1074	641	076
Köhne qebirstanlıq	Sofu Sadiq yaşayış yeri və ovdan	Yaşayış yeri	Təpədibi yaşayış yeri	Şəhərgah qəbirstanlığlı	Türk şəhidlərinə abidə	Küp qəbirləri nekropolu	Qebiristanlıq	Böyük vətən müharibəsində həlak olmuş həmvətənlərimizin xatirə abidəsi	Qəbiristanlıq
N	œ	თ	10	÷	12	13	14	15	16

40°31'28.54"N 48°30'21.29"E	40°31'41.50"N 48°29'6.20"E	40°32'36.18"N 48°22'35.48"E	19°37'9.51"N 18°55'1.98"E	9°38'18.28"N 8°53'23.87"E	9°39'8.22"N 8°56'25.79"E	9°31'7.82"N 9° 1'5.82"E	9°44'13.35"N 9° 3'15.21"E	3°24'23.22"N 3°14'57 87"F	9°24'31.22"N 9°15'4.48"F
Ağsu rayonu, Gegəli kəndi	Ağsu rayonu, Gagali kəndi	Ağsu rayonu, Ülgüc 4 kəndi	Salyan rayonu Xurşud kəndi	Salyan rayonu 3 Xurşud kəndi 4	Salyan rayonu 3 Noxudlu kandi 4	Salyan rayonu Xalac 3 kendinin cenub-4	Salyan rayonu Xalac 3(kendi 45	Neffçala rayonu 30 Banke qəsəbəsi 40	Neftçala rayonu 38 Banka qəsəbəsi 49
Yeni aşkar	Yeni aşkar	808	5983	5984	1679	5980	5981	1630	4936
Nergizava nekropolu	Şıxəlibəyli arxı	Orta Əsr Ağsu şəhəri	Xurşud yaşayış yeri	Xurşud nekropolu	Noxudlu yaşayış yeri	Qırxçıraq yaşayış /eri	ruxarı Xalac aşayış yeri	3ankə yaşayış yeri	nzibati bina
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~	Böyük Vətən müharibəsində həlak olmuş həmvətənlərimizin	5677	Neftçala rayonu Bankə qəsəbəsi	9*24'32.17"N"17.55'99"E	
1 222	Körpü	Yeni aşkar	Hacıqabul rayonu Qızılburun kəndi	0° 00'13.2"N 9°12'44.00"E	
3886	Hacı Həşim Hamamı	Yeni aş car	Hacıqabul rayonu Rəncbər kəndi	2° 5'43.32"N 3° 4'5.53"E	
100	Ərəş şəhər yeri	Yeni aşkar	Yevlax rayonu, Ərəş kəndi	2° 44'55.42"N 13'40.42"E	
	Ərəş qalasının qalıqları	Yeni aşkar	Yevlax rayonu, Ərəş kəndi	0° 44'55.42"N №13'40.42"E	

ANNEX E. CORRESPONDENCE WITH THE MINISTRY OF ECOLOGY AND NATURAL RESOURCES (Regust for permission to cross the Shirvan National Park)

	«AZƏR	AZƏRBAYCAN RESPUBLİ ENERJİ» AÇIQ SƏHMDAR C	ҚАSI сәміүүәті
AZ 1005, Bakı şəhəri, Akade	emik	Tel: (+99412) 490-09-22	azerenerji@azerenerji.
Əbdülkərim Əlizadə kücəsi	10	Faks: (+99412) 598-55-23	Web: www.azerenerji.

"29" 08 2024 il

Nº 13-9/2-2697

gov.a

Azərbaycan Respublikasının Ekologiya və Təbii Sərvətlər naziri cənab Muxtar Babayevə

"Bərpa olunan enerji mənbələrinin şəbəkəyə inteqrasiyasına hazırlıq işlərinə dair"

Hörmətli Muxtar müəllim,

Bildiyiniz kimi, Nazirlər Kabineti tərəfindən bərpa olunan enerji mənbələrinin şəbəkəyə inteqrasiyasının təmin edilməsi məqsədilə ötürücü şəbəkənin gücləndirilməsi, Hacıqabul rayonunda 500/330 kV-luq Nəvahi yarımstansiyasının tikilməsi və enerji sistemi ilə əlaqələndirilməsi üçün elektrik vərilişi xətlərinin tikintisi və "Masdar" şirkəti tərəfindən həyata keçirilecək MEQA layihə üzrə 1 Qvt gücündə günəş və külək elektrik stansiyalarının enerji sistemə inteqrasiyası (AZURE layihəsi) ilə bağlı 30 iyul 2024-cü il tarixli 420s nömrəli Sərəncam qəbul edilmiş və həmin Sərəncama əsasən layihə-smeta sənədlərinin hazırlanması və tikintiquraşdırma işlərinin yerinə yetirilməsi istiqamətində zəruri tədbirlər görmək "Azərenerji" ASC-yə taşşırımışdır.

"Azərenerji" ASC tərəfindən MEQA layihə üzrə 315 MVt gücündə "Bankə" GES-in tikiləcək Navahi yarımstansiyasına birləşdirilməsi üçün 330 kV-luq ikidövrəli Bankə GES – Navahi YS elektrik verilişi xəttinin layihələndirilməsi aparılmış və hava xətti üçün yüksək gərginlikli elektrik xətlərinin mühafizə zonası nəzərə alınmaqla ən optimal tras seçilmişdir.

Belə ki, sözügedən hava xətti üçün seçilmiş ilkin tras İqtisadiyyat Nazirliyi yanında ƏMDXnin "Daşınmaz Əmlakın Dövlət Kadastrı və Reyestri" PHŞ-nin "Kadastr və Yerquruluşu Layihə-Tədqiqat Mərkəzi" MMC tərəfindən yer quruluşu planı hazırlandıqdan sonra 57 ədəd dayağın Şirvan Dövlət Təbiət Qoruğunun ərazisinə düşdüyü məlum olmuşdur. Bu səbəbdən hava xəttinin trassasına dəyişiklik edilərək həmin dayaqlar Qoruğun ərazisindən çıxarılmışdır. Vurğulamaq istərdik ki, başqa alternativ olmadığı (əks halda yaşayış məskənlərindən keçid qaçılmaz olur ki, bu da mühafizə zonası tələblərini pozur) üçün hava xəttinin trası məcburiyyət qarşısında hər birində 4 dayaq və 7 dayaq (cəmi 11 dayaq) olmaqla iki nöqtədə Şirvan Milli Parkının ərazisinə

Diqqətinizə çatdırmaq istərdik ki, layihə üçün beynəlxalq standartlar əsasında ƏMSTQ hesabatı hazırlanmış və hesabatda Milli Park ərazisində aparılacaq tikinti-quraşdırma işləri üçün müvafiq yumşaldıcı tədbirlər nəzərdə tutulmuş, eləcə də ƏMSTQ çərçivəsində ayrıca biomüxtəlifliyin qorunması planı hazırlanmışdır. Podratçılar tərəfindən aparılacaq tikinti quraşdırma işləri ərzində yumşaldıcı tədbirlərə və biomüxtəlifliyin qorunması planına əməl olunmasına tərəfimizdən xüsusi nəzərət olunacaqdır.

Qeyd olunanları diqqətinizə çatdıraraq, 330 kV-luq Bankə GES - Navahi yarımstansiyası HX-nin 11 dayağının Şirvan Milli Parkının ərazisindən keçməsinə köməklik göstərməyinizi Sizdən xahiş edirik.

Qoşma: HX-nin yeni trası.

Hörmətlə,

Baba Rzavev 2 "Azərenerji" ASC-nin prezidenti



330 kV-luq ikidövrəli Bankə GES - Nəvahi YS EVX-nin yeni trası

ANNEX E. Qualification certificates of EIA evaluators

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	Azərbaycan Respublikasının
	Ekologiya ya Tabij Sarvatlar
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	Otraf mühitə təşirin giymətləndirilməsi üzrə giymətləndiricinin
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	İXTİSAS ATTESTATI
	Əmrahov Razim Əmrah oğlu
	(ƏMTQ üzrə qiymətləndiricinin soyadı, adı, atasının adı və ünvanı)
	ƏMTQ üzrə təşkilatın adı
	(təşkilati-hüquqi forması və ƏMTQ fəaliyyətinin həyata keçirildiyi ünvan)
	ƏMTQ və SEQ sənədi verilən fəaliyyət növü
	Ətraf mühitə təsir üzrə qiymətləndirici
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	Qüvvədə olma tarixi: müddətsiz
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1	Hüseynli Ramin Abı oğlu	
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	(təşkilati-hüquqi forması və ƏMTQ fəaliyyətinin həyata keçirildiyi ünvan)	-
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Qüvvədə olma	tarixi: müddətsiz	
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оти ЭМТQ	və SEQ sənədi verilən fəaliyyət novu Otraf mühitə təsir üzrə qiymətləndirici	
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Statement by certified evaluators on environmental impacts assessment

Based on Annex 1 of the Agreement no. LSC-2024/130 dated 19.09.2024 signed between EKOL Engineering Services CJSC and Azerenerji JSC te environmental and social impact assessment report for Project on integration of renewables to grid was reviewed and analysed by the folowing evaluators:

EIA evaluators:

- 1. Ramil Huseynli /signed/
- 2. Razim Amrahom /signed/
- 3. Selcan Huseynli /signed/

Ətraf Mühitə Təsirin Qiymətləndirilməsi üzrə qiymətləndiricilər

"Azərenerji" ASC ilə "Ekol Mühəndislik Xidmətləri" QSC arasında bağlanmış LSC-2024/130 nömrəli, 19.09.2024-cü il tarixli müqavilənin Əlavə №1-ə əsasən Bərpa Olunan Enerji Mənbələrinin enerji sistemə inteqrasiya layihəsi üzrə Ətraf Mühitə və Sosial Sahəyə Təsirlərin Qiymətləndirilməsi hesabatı aşağıda adları qeyd olunan ƏMTQ üzrə qiymətləndiricilər tərəfindən baxılmış və təhlil edilmişdir.

ƏMTQ üzrə qiymətləndiricilər:

- 1. Ramin Hüseynli
- 2. Razim Əmrahov
- 3. Selcan Hüseynli

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