NON-TECHNICAL SUMMARY of Environmental Social Impact Assessment Report

"Blue 2" Photovoltaic Park Project, Albania

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Tirana, Albania

REPORT SUMMARY

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Abbreviations

Acronym	Full Form
AC	Alternating Current
BAP	Biodiversity Action Plan
BMP	Biodiversity Management Plan
BRMP	Biodiversity and Restoration Management Plan
CHMP	Cultural Heritage Management Plan
CHOC	Cultural Heritage Officer
CHSSP	Community Health, Safety, and Security Plan
CLO	Community Liaison Officer
CEMP	Construction Environmental Management Plan
CESMP	Construction Environmental and Social Management Plan
CFP	Chance Finds Procedure
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
EPRP	Emergency Preparedness and Response Plan
EPC	Engineering, Procurement, and Construction Contractor
GBVH	Gender-Based Violence and Harassment
HSES	Health, Safety, Environment, and Social
IBA	Important Bird and Biodiversity Area
KBA	Key Biodiversity Area
LALRP	Land Acquisition and Livelihood Restoration Plan
LMP	Labour Management Plan
NEA	National Environment Agency
OEMP	Operation Environmental Management Plan
OHL	Overhead Line
OHS	Occupational Health and Safety
OHSMP	Occupational Health and Safety Management Plan
PDA	Project Development Area
PR	Performance Requirement (EBRD)
PV	Photovoltaic
SEP	Stakeholder Engagement Plan
SF6	Sulfur Hexafluoride
TTMP	Traffic and Transport Management Plan
WMP	Waste Management Plan
WB	World Bank
IUCN	International Union for Conservation of Nature

1. Introduction

The Blue 2 Photovoltaic Park is a renewable energy project designed to contribute significantly to Albania's transition toward sustainable energy generation. The project involves the development of a 100 MW AC (110 MWp) solar power facility located within the Topojë Administrative Unit, Municipality of Fier, Albania. The site covers approximately 153.8 hectares of largely flat, reclaimed marshland situated about 12 km south of Fier city and 120 km southwest of Tirana. Characterized by sandy and saline soils of low agricultural value, the site is well suited for a large-scale photovoltaic (PV) installation, minimizing land-use conflicts and the need for major earthworks. It is bordered by existing drainage and irrigation channels forming part of the Seman River lowland system.

The region experiences high solar irradiation levels exceeding 1,700 kWh/m²/year, providing optimal conditions for efficient solar energy production. The project area is accessible via existing paved and gravel roads, enabling safe transport of materials, equipment, and personnel while minimizing disruption to nearby communities and agricultural activities.

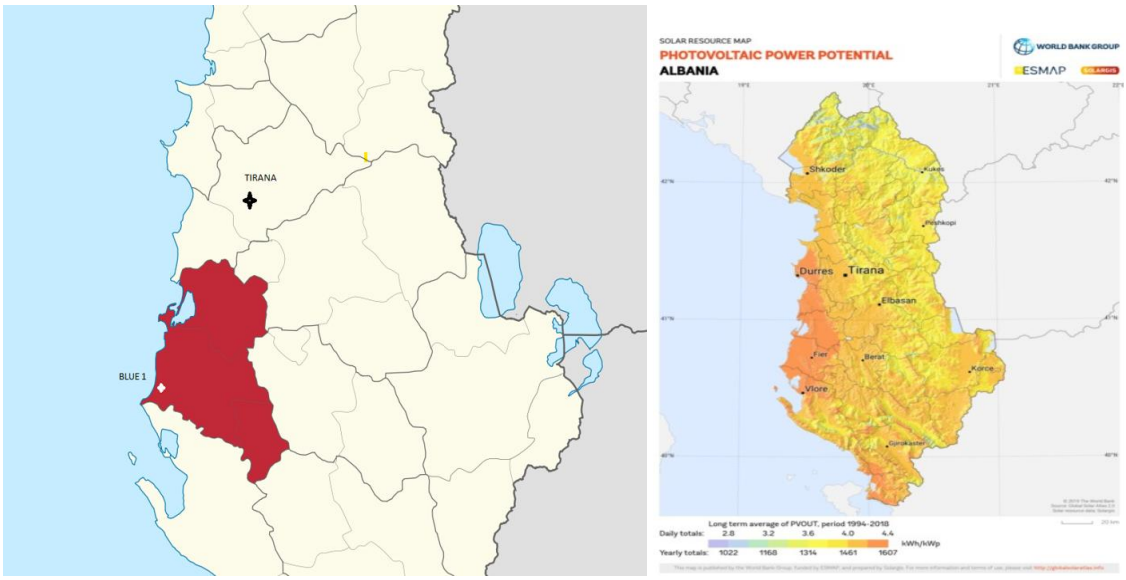

Figure 1. Project region – as a higher radiation area in Albania

The project is being developed by Blue 2 sh.p.k., a special-purpose vehicle (SPV) established as a joint venture between Blessed Investment sh.p.k. and Matrix Konstruksion sh.p.k.. The initiative supports the objectives of Albania's National Energy Strategy, which emphasizes diversification of renewable energy sources, reduction of dependence on hydropower and imports, and enhancement of national energy security.

Once operational, the Blue 2 Photovoltaic Park will generate approximately 180–190 GWh of renewable electricity per year, equivalent to the annual consumption of about 60,000 Albanian households, while avoiding approximately 85,000 tonnes of CO_2 emissions annually. The generated power will be evacuated through a 220 kV overhead transmission line (OHL) connecting the site to the Hoxhare Substation, ensuring efficient integration into the national grid. The Project has been further enhanced through the integration of a Battery Energy Storage System (BESS), which will improve the flexibility and reliability of energy supply. The total installed BESS capacity has been updated to 60 MW and will be implemented in two phases: Phase I (30 MW), expected to be operational in mid-2026, and Phase II (30 MW), expected to be completed in early 2027. Both phases will be developed within the existing project boundaries and will not require additional land.

The European Bank for Reconstruction and Development (EBRD) has classified the project as Category "B" under its Environmental and Social Policy (2019), acknowledging that although certain environmental and social impacts may occur, these are site-specific, reversible, and readily mitigable. Accordingly, a comprehensive Environmental and Social Impact Assessment (ESIA) has been prepared to identify,

evaluate, and manage potential risks and impacts across all project phases—construction, operation, and decommissioning.

The ESIA ensures full alignment with Albanian legislation, relevant EU directives, and international sustainability standards, incorporating Good International Industry Practice (GIIP) and detailed mitigation and monitoring measures. The project has also been subject to a Preliminary Environmental Impact Assessment (EIA) under Law No. 10440/2011, "On Environmental Impact Assessment," as amended. This classification was confirmed by the Ministry of Tourism and Environment (MoTE) through correspondence Ref. AN160720210002, and the EIA Report received approval from both MoTE and the National Environmental Agency (NEA) in 2021.

Building on the approved EIA, this ESIA has been developed in accordance with the EBRD Performance Requirements (PRs) to ensure that the Blue 2 Photovoltaic Park is implemented in an environmentally sound, socially responsible, and sustainable manner, delivering long-term benefits to both local communities and Albania's energy transition goals.

Overall, the Blue 2 Photovoltaic Park represents a key step toward Albania's transition to renewable, low-carbon energy, contributing to national and EU climate commitments, improving energy resilience, and generating local socioeconomic benefits.

2. Background

2.1 Project characteristic

The Blue 2 Photovoltaic Park is a utility-scale solar power project with an installed capacity of 100 MW AC (110 MWp), located in the Topojë Administrative Unit, Fier Municipality, Albania. The project occupies 153.8 hectares of primarily flat, reclaimed marshland, characterized by sandy and saline soils of low agricultural value. The site's flat terrain and existing drainage infrastructure facilitate construction and operational activities while minimizing environmental disturbance.

The project employs solar photovoltaic (PV) technology that converts sunlight directly into electricity using PV modules. The direct current (DC) generated by the modules is converted into alternating current (AC) through string inverters, allowing integration into the national electricity grid. The system includes single-axis tracking units, which optimize the orientation of the panels relative to the sun, enhancing energy generation throughout the year. In addition to the solar PV installation, the Project includes a Battery Energy Storage System (BESS) with a total capacity of 60 MW. The BESS will be implemented in two phases and will be located within the existing substation footprint. The system will store excess solar energy and release it when needed, contributing to improved grid stability and efficient energy management.

The Project incorporates biodiversity management measures, including pre-construction ecological checks and monitoring programs, to ensure alignment with international standards.

2.1.1 Key Technical Components

Component	Specification
PV Panels	Trina Vertex, P-type bifacial mono PERC, 650 Wp, 20.9% efficiency, 30-year lifespan
Inverters	Sungrow SG350HX, 350 kW AC, string inverter, 640–920 V AC, total 360 units
Trackers	Vanguard 1P single-axis tracker (east-west orientation)
Number of Panels	~210,000 panels in strings of 33 panels per string
Annual Generation	180–190 GWh/year (enough for ~60,000 households)
CO_2 Reduction	~85,000 tonnes per year
Grid Connection	220 kV overhead transmission line (OHL) to Hoxhare Substation, ~3.8 km from the site
Substation Equipment	Blue 2 transformer (220 kV / 110 MVA) connected to 110 kV busbar at Hoxhare S/S via 220 kV transformer bay

2.1.2 Operational Overview

- Construction Phase: ~48 months, peak workforce ~100 personnel.
- Operation Phase: ~30 years, ~10 permanent staff.
- Maintenance: Low operational maintenance requirements due to high reliability of modules, inverters, and tracking systems.
- Environmental Advantage: Solar PV technology is zero-emission, requires minimal water, and produces electricity without significant moving parts or hazardous materials.
- The Battery Energy Storage System (BESS) will be implemented in two phases (2026–2027), fully integrated within the existing infrastructure and requiring no additional land.

The project's grid connection is secured through a signed Connection Agreement with the Transmission System Operator. The electricity generated by Blue 2 will be evacuated via a 220 kV overhead transmission line to the new Hoxhare Substation, where the project's 220/110 kV transformer will integrate power into the national grid.

Overall, the Blue 2 PV Park is designed to maximize energy efficiency, ensure reliable electricity generation, and minimize environmental and social impacts, contributing to Albania's renewable energy targets and climate commitments.

2.2 Why is the project needed?

Albania is undergoing a strategic transformation of its energy sector to improve sustainability, resilience, and energy independence. Historically, electricity generation in the country has relied heavily on hydropower, making the energy supply vulnerable to seasonal and climatic fluctuations. During dry periods, Albania often experiences electricity shortages and must rely on imports to meet domestic demand, which can increase costs and affect energy security.

To address these challenges, the Albanian Government is actively promoting the development of alternative renewable energy sources, particularly solar photovoltaic (PV) power. The country benefits from exceptionally high solar irradiation, with certain regions receiving up to 360 days of sunshine annually, making it a strategic location for large-scale solar energy generation.

The Blue 2 Photovoltaic Park, located in the Topojë Administrative Unit, Fier Municipality, will contribute directly to Albania's energy transition by:

- Diversifying the energy mix and reducing dependency on hydropower and imported electricity.
- Increasing energy security through stable, domestic electricity generation.
- Supporting climate goals by producing clean, renewable energy and reducing greenhouse gas emissions by approximately 85,000 tonnes CO_2 per year.
- Creating employment opportunities, with up to 100 jobs during construction and 10 permanent positions during operation.
- Stimulating the local economy by sourcing materials and services locally where feasible.
- Optimizing land use, as the project is sited on low-productivity, saline soils with limited agricultural value, thereby minimizing land-use conflicts.

The project is fully aligned with Albania's National Energy Strategy and international sustainability standards, including the EBRD Environmental and Social Policy (2019). By providing a reliable, low-carbon energy source, Blue 2 represents a key step toward a greener, more resilient, and secure energy future for Albania.

2.3 What is the legislative framework of the project?

The ESIA has been undertaken in accordance with the main Albanian legislation requirements presented below, as well as the EBRD Environmental and Social Policy (2019 updated 2024) and associated Performance Requirements (PRs). The following table summarizes the key national legislation, regulations and international standards relevant to the Project, outlining their objectives and the measures implemented

to ensure protection of the physical environment, worker safety and community well-being throughout the Project lifecycle.

Table 1 Key Legislation, Standards, and International Requirements Relevant to the Project

Legislation / Standard / International Requirement	Overview	Relevance to the Project: Protection of the Physical Environment and Compliance
Law No. 10431 (09.06.2011) – On Environmental Protection (amended)	Establishes the environmental protection framework, institutional responsibilities, environmental permitting, and monitoring requirements. Based on EU principles and best practices.	Requires the project to conduct an Environmental Impact Assessment (EIA) and obtain an environmental permit before construction. Defines monitoring and mitigation obligations during construction, operation, and closure.
Law No. 10440 (07.07.2011) – On Environmental Impact Assessment (amended)	Sets EIA principles, project categorization, institutional responsibilities, and public participation requirements. Defines roles of National Environmental Agency (NEA) and Ministry of Tourism and Environment (MTE).	Guided the preparation of the project's EIA report and ensured institutional review and approval in compliance with national procedures.
DCM No. 686 (29.07.2015) – On EIA Procedures (amended)	Provides detailed rules for EIA preparation, report structure, appendices, timelines, application, approval, and monitoring during project execution.	Ensures that the project's EIA report is structured according to legal requirements and includes proper monitoring, reporting, and approval processes.
DCM No. 247 (30.04.2014) – Public Information and Consultation	Defines rules, procedures, and timelines for stakeholder engagement, particularly local communities, during environmental decision-making.	Ensured structured public consultation during the EIA preparation, enabling transparency, stakeholder participation, and consideration of local community inputs.
Law No. 29/2024, (04.04.2024)– On Water Resources	Sets requirements for protection, sustainable use, and management of surface and groundwater, including buffer zones.	Guides protection of water bodies and management of wastewater from temporary construction camps.
Law No. 162/2014 (amended 2024) & relevant DCMs – Air Quality and Emissions	Establishes ambient air quality standards and emission limits for vehicles and machinery.	Ensures compliance with national air quality standards during construction and operation.
Instruction No. 6527	Provides technical standards for vehicle and machinery emissions.	Guarantees machinery and vehicles meet Albanian emission standards.
Law No. 9774/2007 (amended 2023) & DCMs – Noise Control	Regulates permissible noise levels and mitigation measures.	Guides mitigation of construction and operational noise, protecting nearby communities.
Law No. 57/2025(16.10.2025) & subsequent DCMs – Waste Management	Sets rules for segregation, transfer, treatment, and disposal of waste at licensed facilities.	Ensures proper management, tracking, and disposal of construction and operational waste.
DCMs 147 & 781; Law No. 155/2020; National Strategy on Climate Change(amended 2025) (DCM 466/2019) – Fuel Quality & Climate	Defines fuel quality standards, GHG emission limits, and climate mitigation measures.	Supports GHG reduction and use of compliant fuels in project activities.

Law No. 10237/2010 & related legislation – Occupational Health & Safety	Establishes workplace safety obligations, risk management, and accident prevention.	Guides worker safety, hazard identification, PPE use, and emergency preparedness.
Law No.9587, dated 20.07.2006 "On biodiversity protection", (amended 2024)	Provides the legal framework for the conservation of biological diversity in Albania, including the protection of habitats, species and ecosystems, as well as the sustainable use of natural resources.	Requires the identification and protection of habitats and species within the Project area and informs the development of biodiversity mitigation measures. It is particularly relevant given the presence of habitats of ecological importance and proximity to Karavasta IBA/KBA, guiding the implementation of the Biodiversity Management Plan and measures to avoid or minimize impacts on flora and fauna.
Law No.81/2017, dated 04.05.2017 "On protected areas" (amended 2024)	Establishes the legal framework for the designation, management and protection of protected areas in Albania, including zoning, permitted activities and conservation objectives for national parks, nature reserves and other protected categories.	Relevant due to the Project's proximity to Divjakë-Karavasta National Park. It guides the assessment of potential indirect impacts on protected areas, ensures that Project activities do not encroach on designated zones and supports the implementation of mitigation measures to protect ecological integrity and biodiversity.
ISO 45001:2018, ILO Conventions, EBRD PR2	International standards for occupational health, safety, and labor rights.	Ensures adoption of international best practices in HSE management.
Law No. 107/2014 & associated DCMs – Land Use & Territorial Planning	Regulates land allocation, urban planning, and zoning.	Ensures project site complies with land use regulations.
Law No. 9244/2004 – Agricultural Land Protection	Protects agricultural lands and sets compensation mechanisms.	Guides restoration and compensation for temporary impacts on agricultural areas.
Aarhus Convention	Guarantees public access to environmental information, participation, and justice.	Supports stakeholder engagement, transparency, and grievance management.
Convention on Biological Diversity (CBD)	Promotes biodiversity conservation and sustainable resource use.	Guides protection of flora and fauna at the project site.
Bonn Convention (CMS)	Protects migratory species and habitats.	Ensures mitigation of impacts on migratory species.
CITES	Regulates trade of endangered species.	Avoids disturbance or use of protected species during construction or operations.
Paris Agreement	Global framework for climate mitigation and adaptation.	Ensures project GHG emissions align with national climate commitments.
EBRD Environmental & Social Policy (2019 updated 2024) & PRs 1–10	Provides E&S management framework, risk assessment, and mitigation requirements.	Ensures project design, construction, and operation meet international best practice for environmental sustainability, safety, and social responsibility.
World Bank Environmental & Social Standards (ESS)	Sets requirements for environmental and social risk management and stakeholder engagement.	Integrates ESMS, resource efficiency, pollution prevention, and stakeholder engagement into project operations.
EU Birds Directive (2009/147/EC) and	Establish EU-wide legal frameworks for the protection	Although transposed into Albanian legislation, these Directives provide

Habitats Directive (92/43/EEC)	of wild birds, natural habitats, and species of European importance, forming the basis for biodiversity conservation and ecological networks such as Natura 2000.	an important benchmark for biodiversity protection. They are particularly relevant given the Project's proximity to Karavasta IBA/KBA and potential interactions with migratory bird species, guiding the assessment of impacts and implementation of mitigation measures such as habitat protection and bird collision risk reduction along the transmission line.
Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats)	Promotes conservation of wild flora and fauna and their natural habitats.	Supports protection of Emerald Network sites and biodiversity of European importance. Relevant to the Project due to its proximity to Emerald Network sites such as Divjakë-Karavasta and surrounding coastal ecosystems. It guides the assessment and mitigation of potential impacts on protected species and habitats, including migratory birds and supports the implementation of biodiversity management measures to maintain ecological connectivity and avoid disturbance.

2.4 Public consultations and disclosure and dealing with objections

The Blue 2 Photovoltaic Park Project is committed to transparent, inclusive, and proactive stakeholder engagement throughout its lifecycle. Public consultations and disclosure activities ensure that local communities, authorities, land users, and other stakeholders are informed, can raise concerns, and see that feedback is addressed. Engagement follows Albanian legislation and EBRD Performance Requirement 10 (PR10).

Stakeholder Identification

Key stakeholders include local communities, municipal authorities, environmental and energy agencies, landowners, NGOs, utility companies, contractors, and suppliers.

Phases of Engagement

Pre-construction Phase

- Consultations were held with all directly and indirectly affected communities.
- Meetings informed stakeholders about the project and gathered feedback on design, impacts, and local priorities.

Continuous Engagement

- Ongoing consultations are maintained with local communities, national, regional, and municipal authorities, and other relevant stakeholders.
- Engagement continues throughout construction and operational phases to ensure adaptive management and responsiveness.

Consultation Activities

- Municipal and community meetings
- Individual discussions with landowners and farmers

- Engagement with environmental authorities on ecological, biodiversity, and water management issues
- Public disclosure of the ESIA and Stakeholder Engagement Plan (SEP) via municipal offices and the project website

Community Liaison Officer (CLO)

- A dedicated CLO facilitates consultations, manages communications, and ensures timely resolution of concerns.

Documentation and Monitoring

- Minutes of Meetings (MoMs) are prepared for each consultation session.
- Records include the number of meetings, topics discussed, participants involved, and grievances raised and addressed.

Stakeholder Concerns Addressed

- Transparent and fair land compensation
- Environmental protection (biodiversity, water management, noise, visual impacts)
- Local employment and economic benefits
- Road access and traffic management
- Community development initiatives (social infrastructure, education programs)

Grievance Mechanism

- Stakeholders can submit complaints via email, phone, mail, in-person at the CLO office, or on-site complaint boxes.
- Complaints are acknowledged within five working days; corrective actions are proposed within 30 working days.
- Confidentiality is maintained; unresolved grievances can be escalated to the EBRD Independent Project Accountability Mechanism (IPAM).

Future Engagement

- Regular updates, meetings, and monitoring will continue during construction, commissioning, and operation.
- Stakeholder feedback informs adaptive management and operational practices.

Regulatory Consultation

During the ESIA process, the following authorities provided their opinions:

- National Environmental Agency
- National Agency of Protected Areas
- Ministry of Tourism and Environment

Through early involvement, open communication, and effective grievance handling, the Blue 2 Photovoltaic Park Project promotes community trust, addresses land, environmental, infrastructure, and social concerns, ensures transparency and regulatory compliance, and supports sustainable long-term stakeholder relationships.

2.5 Project Description and Location

Project Components

The Blue 2 Photovoltaic (PV) Park is a utility-scale solar power project located within [insert precise municipality/coordinates], Albania. The project will cover approximately [insert area] hectares and has an installed capacity of 67 MWp (110 MW AC), delivering zero-emission electricity to the Albanian grid. The site has been selected for its favorable solar irradiation, flat terrain, and accessibility, ensuring optimal energy generation and minimal environmental constraints.

Proposed Works and Key Components

The construction and operation of the Blue 2 PV Park involve the following activities and infrastructure:

- Access Roads: Improvements to facilitate the transportation of materials, equipment, and personnel.
- Land Preparation: Site clearing, vegetation removal, leveling, and grading.
- Security: Fencing and gates surrounding the project area.
- Foundations and Piling: Installation of piling for panel frameworks.
- Photovoltaic Panels: Installation of approximately 210,000 P-type bifacial Mono PERC modules manufactured by Trina, forming individual strings of 33 panels to reach the required capacity.
- Inverters: 360 string inverters (Sungrow SG350HX) to convert DC electricity to AC for grid delivery.
- Tracking Units: Vanguard 1P single-axis trackers to maximize solar exposure and energy yield.
- Electrical Infrastructure: Excavations for conduit and underground utilities, construction of control buildings, and transformer substation.
- Overhead Transmission Line (OHL): A 220 kV evacuation line connecting the Blue 2 PV Park to the new Hoxhara Substation (approximately 3.8 km from the site).
- Internal Roads: Completion of internal access roads within the site.

Battery Energy Storage System (BESS): A 60 MW energy storage system implemented in two phases, located within the existing substation area. The BESS will store excess electricity and release it when required, improving grid stability and operational flexibility without increasing the project footprint.

Technology Overview

The project employs modern solar PV technology with single-axis tracking to optimize energy capture. The bifacial panels increase energy generation by utilizing sunlight on both sides, reduce potential-induced degradation, and allow for a smaller array footprint. The system is designed for low maintenance, high reliability, and minimal water requirements compared to other solar technologies. The generated electricity is converted from direct current (DC) to alternating current (AC) via string inverters for delivery to the national grid.

Project Location and Grid Connection

Blue 2 will be connected to the transmission network through a new 220/110/35/20 kV Hoxhara Substation via a 220 kV overhead line. The Point of Connection (PoC) is defined as an extension of the 110 kV busbar at the Hoxhara Substation, including installation of the Blue 2 Power Transformer (220 kV, 110 MVA) and associated primary and secondary elements.

The project has been designed to adhere to Good International Industry Practices and Albanian legislation, ensuring environmental protection, worker safety, and minimal disruption to local communities during construction and operation. Once operational, Blue 2 will provide clean, renewable energy to Albania, contributing to energy security and national climate change objectives.

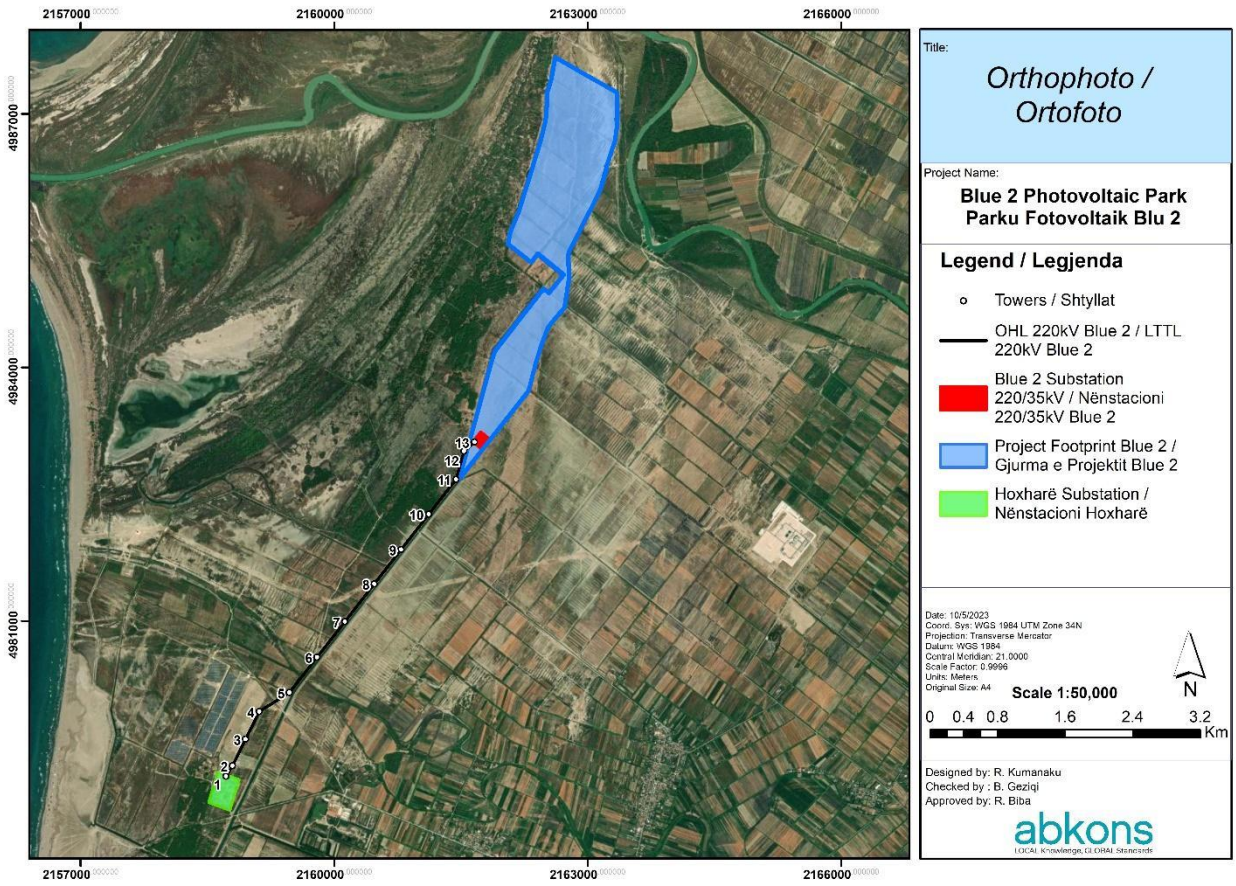

Figure 2: Project location

3. Rationale for the Project

Albania is advancing toward a more sustainable and resilient energy system. Traditionally reliant on hydropower, the country faces challenges from seasonal variability and climate change, which impact water availability and electricity generation. To strengthen energy security and reduce vulnerability, the Albanian Government is actively promoting the diversification of energy sources. Solar energy has been identified as a strategic opportunity, particularly in the Fier–Vlora coastal region, which benefits from 240–260 sunny days per year and high solar irradiation, making it ideal for photovoltaic (PV) development.

The Blue 2 Solar PV Project, located in the Topojë Administrative Unit of Fier Municipality, directly supports Albania's national energy strategy by:

- Utilizing degraded and abandoned agricultural land: The project site comprises low-fertility, saline soils unsuitable for productive agriculture, minimizing land-use conflicts and repurposing underutilized land.
- Contributing to climate goals: By generating clean, renewable electricity, Blue 2 reduces greenhouse gas emissions and supports Albania's commitments under international climate agreements.
- Enhancing energy security: With 100 MW of domestic solar capacity, the project diversifies the energy mix, reducing reliance on imported electricity and hydropower.
- Stimulating local economic development: Project construction and operation will create direct and indirect employment, with priority given to local contractors and suppliers, thereby supporting the regional economy.

- Improving infrastructure: Upgrades to access roads and drainage systems will benefit both the project and surrounding communities.

The Blue 2 Project aligns with Albania's National Energy Strategy and the European Bank for Reconstruction and Development (EBRD) environmental and social sustainability framework, representing a strategic investment in the country's low-carbon future and a model for responsible renewable energy development.

3.1 Description of Proposed Works

The proposed works for the Blue 2 Photovoltaic (PV) Solar Power Plant encompass a series of carefully planned construction and installation activities, designed to ensure efficiency, safety, and minimal disruption to the surrounding community. The key components and activities include:

- Existing access routes will be upgraded and expanded where necessary to allow safe and efficient transportation of construction materials, equipment, and personnel. These improvements ensure uninterrupted access throughout the construction and operational phases of the project.
- The project area will undergo land clearing and grading to prepare the site for panel installation. Vegetation removal will be conducted with minimal environmental disturbance, focusing on degraded and low-fertility land unsuitable for agriculture.
- The perimeter of the project site will be secured with fencing and controlled access gates to ensure safety for both workers and the local community. Piling works will be carried out to provide stable foundations for the PV panels.
- PV modules and their supporting structures will be installed according to design specifications. This includes arranging panels in strings and arrays to optimize solar energy capture.
- Earthworks will be performed to install conduits, cabling, and other underground utilities necessary for the distribution of generated electricity from the panels to inverters and substations.
- Inverter units will be installed to convert the direct current (DC) generated by the PV panels into alternating current (AC) suitable for grid integration.
- The project will include the construction of a control building and a transformer substation to facilitate electricity distribution, monitoring, and operational control.
- Additional internal roads will be completed to provide operational access across the site, supporting both maintenance and emergency access requirements.
- Overhead Line (OHL) Installation: The evacuation of generated electricity to the transmission grid will be achieved through a 220 kV overhead transmission line connecting the Blue 2 plant to the new Hoxhara Substation.

All construction and installation activities will be executed in strict compliance with Good International Industry Practices (GIIP) and Albanian legislation, ensuring environmental protection, worker safety, and minimal impacts on local communities.

3.2 Technical Overview

The Blue 2 Photovoltaic Park is a utility-scale solar power project designed to generate renewable electricity for the Albanian grid. The plant employs P-type bifacial monocrystalline PV panels (Trina Vertex, 650 Wp each, 30-year lifespan) mounted on Vanguard 1P single-axis trackers, which maximize sunlight capture throughout the day and across seasons. The DC electricity generated by the panels is converted into AC via 360 Sungrow SG350HX string inverters for grid delivery.

The project has a total capacity of 67 MWp (110 MW AC) and will connect to the national grid through a 3.8 km, 220 kV overhead transmission line to the new Hoxhara Substation, including transformer bay and switchyard infrastructure for safe and reliable electricity evacuation.

Site infrastructure includes upgraded internal and connecting access roads, designed according to AASHTO, EN standards, and Albanian regulations, with reinforced layers and culverts to support construction and operational traffic while accommodating local hydrological conditions.

The Blue 2 PV plant is engineered for high reliability, minimal maintenance, and zero-emission operation, aligning with Good International Industry Practices (GIIP), Albanian legislation, and EBRD environmental and social standards.

Key Technical Features:

- Technology: Utility-scale solar PV system with single-axis tracking.
- PV Modules: ~210,000 bifacial monocrystalline panels (Trina Vertex, 650 Wp each, 30-year lifespan).
- Inverters: 360 string inverters (Sungrow SG350HX) converting DC to AC.
- Installed Capacity: 67 MWp (110 MW AC) connected to the Albanian grid.
- Trackers: Vanguard 1P single-axis trackers for optimal solar capture.
- Grid Connection: 220 kV overhead transmission line to Hoxhara Substation (~3.8 km).
- Access Roads: Internal and connecting roads (3.5 m width, reinforced layers, culverts) for safe transport of personnel, materials, and equipment.
- Operational Reliability: Minimal maintenance, high efficiency, and long-term durability.
- Environmental Performance: Zero-emission generation, low water usage, full compliance with GIIP, Albanian legislation, and EBRD standards.

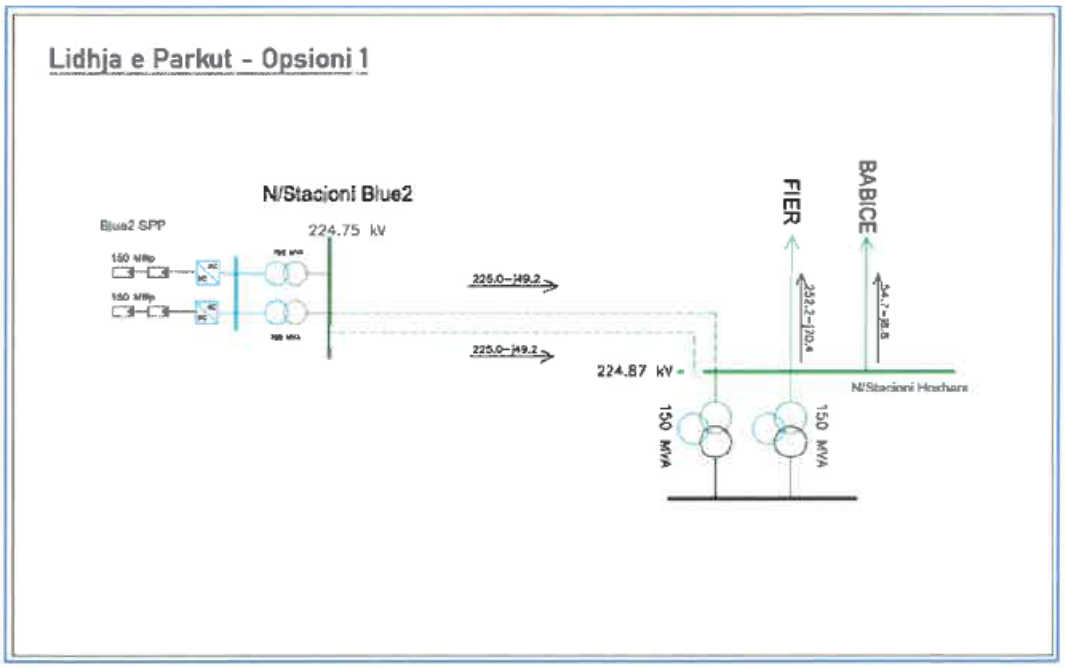

Figure 3 Schematic connection of the PV Blue 2

3.3 Description of the main Project Components

The Blue 2 Photovoltaic Park is a utility-scale solar energy project with an installed capacity of 100 MW (AC), located in the Topojë Administrative Unit, Fier Municipality, southwestern Albania. The project is designed to harness the region's high solar irradiance and support Albania's renewable energy transition.

Key Components:

- **Photovoltaic (PV) Array**
  - Approximately 210,000 bifacial monocrystalline solar panels (Trina Vertex, 650 Wp each).

  - Mounted on single-axis tracking structures to maximize solar energy capture throughout the day.
  - Panels are connected in strings to combiner boxes and inverters.
- **Inverter Units**
  - 360 Sungrow SG350HX string inverters (350 kW AC each).
  - Convert DC electricity from the PV modules into AC electricity for grid transmission.
- **Control Building and Substation**
  - Centralized control building housing inverters and transformers.
  - Connection to the national grid via the new Hoxhara Substation using a 220 kV overhead transmission line.
- **Overhead Transmission Line (OHL)**
  - 3.8 km, 220 kV line linking the PV plant to the Hoxhara Substation.
  - Includes transformer bay, switchyard, and associated infrastructure for grid integration.
- **Access and Internal Roads**
  - Upgraded and newly constructed roads (3.5 m width) with gravel and stabilizer layers for durability.
  - Designed to accommodate construction, maintenance, and operational traffic.
- **Drainage and Culverts**
  - Rehabilitation of existing drainage channels.
  - Installation of culverts and embankments to manage stormwater and prevent flooding.
- **Temporary and Permanent Facilities**
  - Construction-phase laydown areas, storage zones, and worker facilities.
  - Permanent infrastructure includes guard rooms, water tanks, septic systems, and maintenance areas.
- **Security and Fencing**
  - Perimeter fencing with gated access, CCTV, and lighting systems to ensure safety and protection.
- **Environmental and Social Infrastructure**
  - Waste management systems, emergency response plans, and stakeholder engagement mechanisms.
  - Measures for biodiversity protection, land restoration, and sustainable site management.
- **Battery Energy Storage System (BESS)**
  - A total installed capacity of 60 MW, implemented in two phases.
  - Located within the existing substation footprint.
  - Designed to store and dispatch electricity, enhancing grid stability and energy efficiency.
  - Does not require additional land or changes to the approved project boundary.

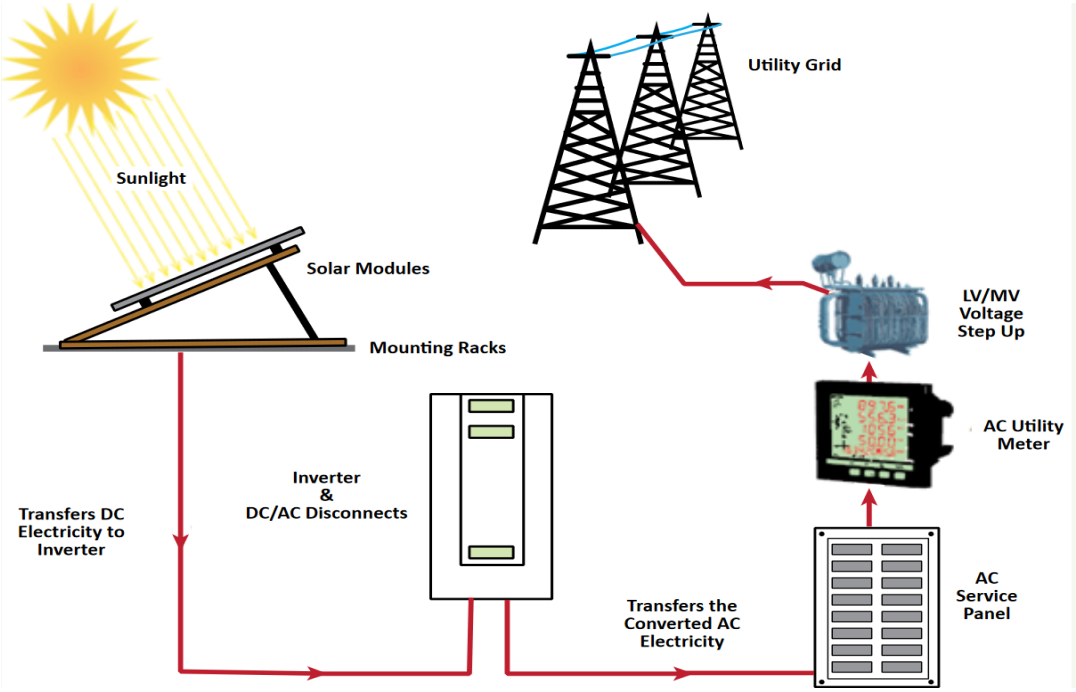

Figure 4. Overview of Utility Scale Solar PV Plant (IFC, 2015)

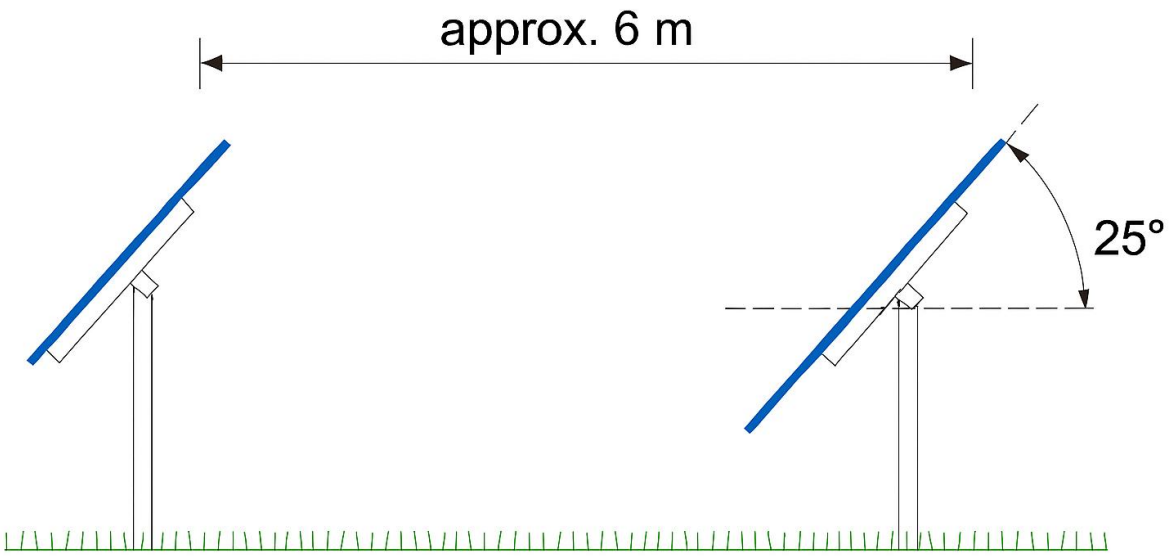

Figure 5. Lateral view of the tracker

The Project will also require a building to accommodate the SCADA (Supervisory Control and Data Acquisition) equipment for the command, control and protection of the Project. This will be manned by the technicians employed for the control, operation and maintenance of the Project.

In addition to the above key components a large-scale solar PV project also requires the following infrastructure:

- Onsite (buried) cabling;
- Fencing and security measures;
- Access tracks;
- Material storage facilities.

During the construction phase, one or more temporary construction compound(s), including site offices, material and equipment storage etc. will be required as well as temporary roadways to facilitate access to all parts of the Development site.

3.4 Road infrastructure and access

The Blue 2 Photovoltaic Park site is well connected to the national road network, with recent improvements to main roads linking Topojë and surrounding villages. Local infrastructure supports basic services such as schools, healthcare, water supply, and sewerage, although some secondary roads lack lighting. Minor unpaved roads serve local residences and experience negligible traffic.

Internal and Access Roads

The project's internal and access roads are designed to meet operational needs and follow **Good International Industry Practices (GIIP)**. Key specifications include:

- Road width: 3.5 m, with a 2% axis slope.

- Layer composition: 15 cm gravel base, 10 cm stabilizer/bituminous sand layer, and excavation/backfilling as required.
- Temporary access roads will follow existing field tracks used for maintenance and drainage operations.
- Main access road from Hoxharë to the site (~4.1 km) will be upgraded with asphalt and appropriate signage in coordination with local authorities if necessary.

Road Design and Durability

Road layers are designed using AASHTO methods and cross-checked against European and Albanian standards (EN 13108, EN 13285, EN 13242, EN 1997) and ARRSH guidelines to ensure stability and durability for at least 10 years. The design accommodates occasional heavy vehicles (up to 60 tons) and average daily traffic of ~200 cars and vans, with flexibility assessed using Equivalent Standard Axes (ESA) calculations and a Pavement Service Index (PSI) to ensure operational safety and functionality.

Culverts and Drainage

Existing drainage channels at the site entrance will be rehabilitated with gravel stabilizers (stone diameter 5–8 cm) and reinforced concrete slopes to prevent erosion and maintain water flow. Modifications are limited to avoid damage to existing channels.

The overall road infrastructure plan ensures safe, durable, and reliable access for construction, operation, and maintenance of the Blue 2 PV project while complying with national and international engineering and environmental standards.

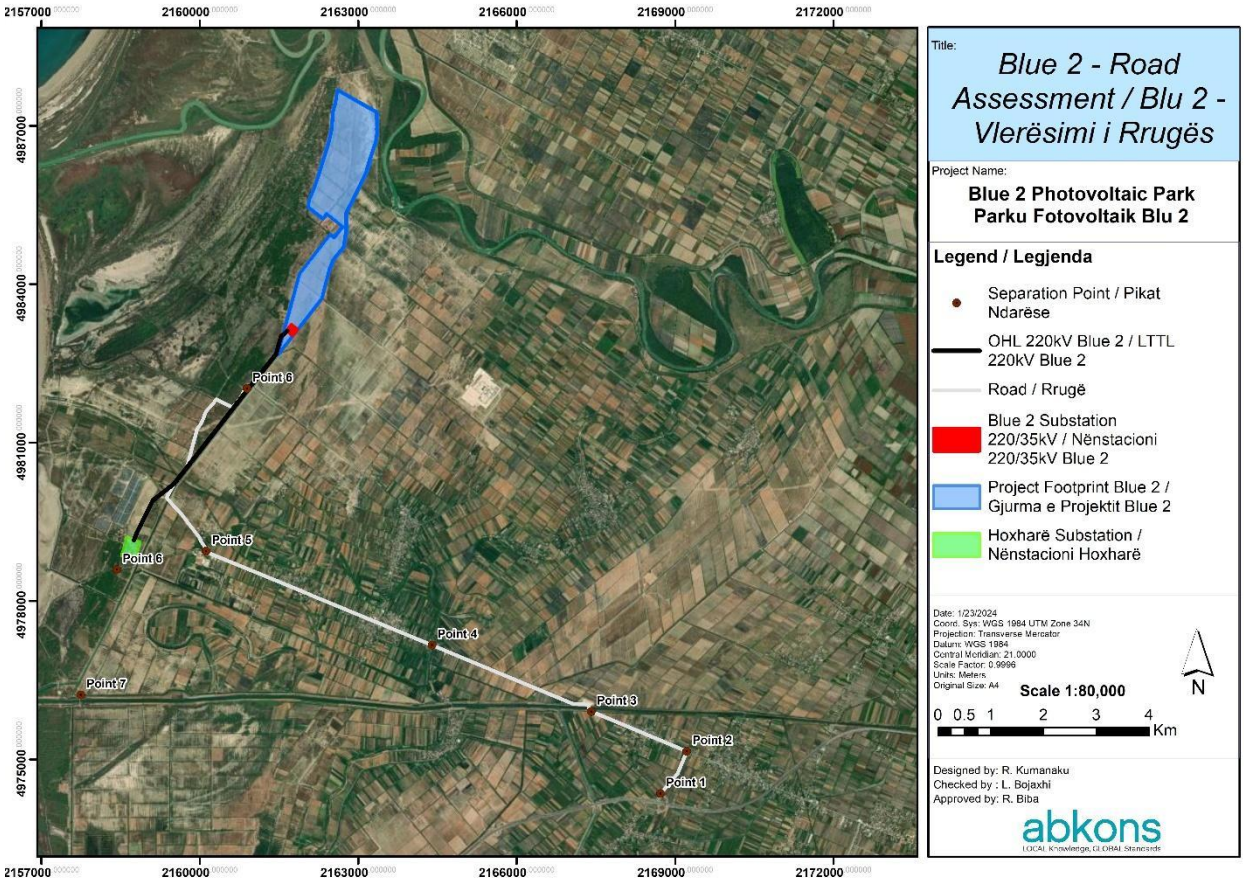

Figure 6: Access roads

3.5 Project schedule

The Blue 2 Photovoltaic Park will be implemented through a phased approach to ensure safety, efficiency, and compliance with Albanian legislation and EBRD Performance Requirements (PRs). The project schedule includes the following main phases shown in the table below:

Table 2 Blue 2 Photovoltaic Park – Project Schedule and Key Activities

Project Phase	Duration	Key Activities	Notes / Staffing
Pre-Construction	~2 months	- Finalize detailed design - Mobilize workforce and equipment - Site preparation (clearing, surveying, levelling) - Logistics planning for transport	Preparation for smooth construction execution
Construction	~48 months	- - Install PV panels and single-axis trackers - Construct internal roads and drainage infrastructure - Install inverters, transformers, and control substation - Erect 220 kV OHL - Develop temporary and permanent facilities	Working hours: Mon–Fri 08:00–18:00, 1 shift per day; flexible for weather; occasional weekend work
Operation	~30 years	- Operate and maintain PV systems and infrastructure	Up to 10 full-time employees for O&M
Decommissioning	6–12 months	- Dismantle equipment - Restore site and recycle materials	Conducted at end of operational life or license expiry
Environmental Compliance	Throughout all phases	- Implementation in line with EBRD PRs and Albanian legislation - Incorporation of mitigation measures	EIA permit being obtained from National Environment Agency

The installation of the Battery Energy Storage System will be carried out in two phases: Phase I (30 MW), scheduled for mid-2026, and Phase II (30 MW), scheduled for early 2027. Both phases will be implemented within the existing project footprint and integrated into the overall project schedule.

4. Overview of Project Phases and Activities

The Blue 2 Photovoltaic Park will be developed through a series of structured phases to ensure safe, efficient, and environmentally responsible execution. The main stages of the project are:

- **Mobilization / Pre-Construction Phase:**

Site preparation, surveying, clearing, and mobilization of equipment, materials, and workforce.

- **Construction and Installation Phase:**

Civil works, internal roads and drainage infrastructure, installation of PV panels, trackers, inverters, transformers, control building, substation, and the 220 kV overhead transmission line. The construction phase also includes the phased installation of the Battery Energy Storage System, which will be implemented in two stages (2026–2027) within the existing project area.

- **Operation Phase:**

Routine operation and maintenance of the PV plant, ensuring reliable electricity generation and delivery to the Albanian grid.

- **Decommissioning Phase:**

Dismantling of equipment, recycling of materials, and site rehabilitation at the end of the plant's operational life or upon license expiry.
The total installed capacity of 100 MW (AC) will be developed in a single phase. Electricity generated will be evacuated via a 220/110/35/20 kV line to the New Hoxhara Substation for integration into the national grid.

Environmental and social impacts may occur during construction, operation, and decommissioning, and mitigation measures will be implemented in accordance with Albanian legislation, Good International Industry Practices (GIIP), and EBRD Performance Requirements.

Potential environmental and social impacts can result as a consequence to activities undertaken during construction, operation and decommissioning phases; key activities during these phases are summarised in the sections below.

4.1 Mobilization / Pre-Construction Phase

Before construction begins, the project site will be prepared and all necessary resources mobilized in a way that ensures safety, efficiency, and compliance with Albanian legislation and EBRD Performance Requirements (PRs).

The mobilization and pre-construction phase occurs prior to main construction works and focuses on preparing the project site and organizing resources. Key activities include:

- **Detailed Design & Planning:** Finalization of design, procurement of materials and equipment, and contracting of subcontractors and workforce.
- **Site Preparation:** Cleaning, surveying, leveling, and creating areas for construction, while implementing measures to minimize dust, noise, and emissions.
- **Logistics & Transport:** Delivery of PV panels, inverters, structural components, and heavy machinery (e.g., bulldozers, excavators, cranes) via existing access roads.
- **Workforce Mobilization:** Primarily sourced locally for civil works, security, and logistics, with non-local staff accommodated nearby.
- **Environmental & Safety Measures:** Activities designed to avoid impacts on natural habitats, biodiversity, and cultural heritage; traffic management ensures community safety.

This phase ensures the project site is fully prepared for safe, efficient, and environmentally responsible construction.

No worker accommodation buildings are planned. All equipment, PV panels, and materials will be transported in containers via existing roads. This phase ensures the site is fully ready for safe and efficient construction while minimizing environmental and social impacts.

4.2 Construction and Installation Phase

The construction of the Blue 2 Photovoltaic Park will be carried out by a qualified contractor under the supervision of the Company and the construction management team. Works will commence once material deliveries are confirmed, with early site clearance and access road rehabilitation potentially starting beforehand under separate safety procedures.

Section	Description
Overview	Construction will be carried out by a qualified contractor under Company supervision. Early site clearance and access road rehabilitation may begin before full construction, following safety procedures.
Site Access & Security	Controlled access for personnel and vehicles.

	Security fence around site and laydown area. Temporary lighting and utilities (power, water) installed; lighting designed to minimize disturbance. Personnel communication via mobile phones.
Construction Scope & Methodology	Phased construction including: Internal and access road construction/improvement Site clearing, grading, and levelling Fencing of project area- Installation of PV units (galvanized steel structures and inverters) Electrical substation and control building construction Trenching and DC/AC cable installation Water, septic, and ancillary facility installation Equipment testing and commissioning Site cleaning and restoration
Materials & Equipment	PV panels, steel, concrete, cables, and inverters delivered by truck and managed via Transport Management Plan Piling for PV array foundations; small cranes for assembly Temporary storage and laydown areas with sanitary facilities.
Workforce & Schedule	Peak workforce ~100 (engineers, experts, local labor). Non-local workers accommodated nearby; no on-site housing. Typical work hours: 8:00 a.m.–6:00 p.m., Monday–Friday; adjustments for weather or critical tasks. Health, safety, and environmental training; PPE and first aid provided. Grievance mechanism in place.
Transportation & Traffic Management	Existing access roads (<3 km) improved. Traffic Management Plan to minimize disruption, noise, and dust. Water trucks for dust suppression.
Site Preparation & Solar Array Construction	Surveying and staking to define boundaries and layout. Grading with minimal vegetation removal using “grade and roll” or cut-and-fill techniques. PV arrays installed on vertical galvanized steel beams; foundations reinforced if required. Electrical and framing works in assembly line.
Power Plant Elements & Utilities	Control room (~400 m²), transformers, junction boxes, grounding/lightning protection, fire protection, communications, and connection to Hoxhare substation. Temporary power via local lines or generators; minimal fuel use.
Materials for Civil Works	Gravel and aggregate for roads, parking, and common areas. Concrete for inverter pads, transformer foundations, and control building (pre-cast or poured on-site).
Construction Duration	Total construction approx.: 48 months.- Initial site preparation: 12 months.

4.3 Operations and Maintenance

Upon completion and commissioning, the Blue 2 Photovoltaic Park will be handed over to the Company’s designated Operations and Maintenance (O&M) contractor. All O&M activities will be carried out in accordance with established procedures, ensuring compliance with health, safety, security, and environmental (HSSE) standards and workforce competency requirements. Any activities classified as construction works will be covered under a separate health and safety plan.

Staffing and Organization

- O&M personnel will begin onboarding approximately six months prior to the start of commercial operations.
- Management staff will provide guidance on overall plant management, technical operations, and maintenance practices.
- Human resources, accounting, and administration will be managed centrally from the Company’s Tirana office.

- During operations, the facility is expected to employ up to 10 personnel, including skilled and semi-skilled technicians as well as unskilled labor for module cleaning and security.

Plant Lifespan and Environmental Performance

- The expected operational life of the Blue 2 PV Park is approximately 30 years.
- As a passive solar PV facility, the plant produces no emissions, generates minimal noise, and does not store hazardous materials on-site.
- Operations will be electronically monitored and controlled by fully trained technicians to ensure safe and efficient performance.

O&M Activities

- Preventive maintenance includes monthly PV module cleaning, inverter servicing, structural inspections, and vegetation management.
- Panel cleaning may require water (~0.4 liters per m² per cleaning), with measures in place to optimize water use and minimize environmental impacts.
- Corrective maintenance will address equipment faults or replacements as needed.
- Buildings, such as guard posts and O&M facilities, will be heated using electricity.

Maintenance Program

- The program is guided by vendor manuals, good engineering practices, and the plant's maintenance manual.
- Major components have a nominal design life of 30 years.
- Preventive maintenance will primarily be conducted by plant staff, with contractors engaged when specialized expertise is required.
- Corrective maintenance is undertaken on-site or via contractors as necessary.
- All equipment will be covered by supplier warranties, which are tracked and managed by the Company.

Operational Management and Compliance

- O&M procedures ensure compliance with environmental permits and applicable laws.
- Waste management, emission control, and environmental protection are maintained through continuous staff training and annual internal audits.
- A Computerized Maintenance Management System (CMMS) will plan, schedule, and monitor preventive maintenance.
- Maintenance schedules are coordinated with the utility under the PPA to minimize planned outages; unscheduled maintenance is addressed on a case-by-case basis.

Additional Maintenance Services

- Predictive maintenance testing and analysis.
- Fire protection system certification and calibration.
- Calibration of electrical, safety, and environmental monitoring equipment.
- Environmental and consulting engineering services.
- Plant security, janitorial services, and waste disposal.

The O&M program is designed to ensure optimal plant performance, longevity, and regulatory compliance, while minimizing environmental impacts and promoting safe operation throughout the 30-year operational life of the Blue 2 PV Park.

4.4 Decommissioning and Closure

The Blue 2 Photovoltaic Park is expected to operate for approximately 30 years, after which the infrastructure may be deactivated, updated, or extended if a new license is granted. The typical operational period is estimated at around 50 months with an expected power generation efficiency of 20.9%.

Plant updates may involve replacing PV modules, increasing peak power ("power recharging"), or adding new components such as trackers, modules, or transformers. If the plant is decommissioned, the site will be restored to its original state. PV panels and ancillary structures are composed of recyclable materials, including glass, semiconductor materials, steel, concrete, aluminium, copper, wood, and plastic, all of which will be dismantled and recycled or safely disposed of according to applicable laws.

Decommissioning is expected to take 6–12 months and will use conventional equipment to minimize environmental impacts. Effects from decommissioning are anticipated to be similar to or less than those experienced during construction. A detailed Project Deactivation Plan, including timelines and transport methods, will be submitted to the relevant authorities in advance.

5. Summary of E&S baseline conditions

5.1 Physical Environment

This section provides an overview of the physical environmental baseline of the Project area, based on field investigations conducted in December 2024 and supplemented with secondary data from national institutions and historical records. The assessment focuses on the climatic, geological, hydrological, and soil characteristics of the area, as well as air quality, noise levels, topography, and drainage conditions.

This section presents the physical baseline of the project area under the following headings:

- *Climate and meteorology;*
- *Air quality;*
- *Noise in the Project Area;*
- *Geology;*
- *Soils;*
- *Hydrology;*
- *Topography and Landscape;*

Baseline environmental and social data were collected to inform the design and impact assessment of the Blue 2 PV project. Key surveys included:

- **Environmental Baseline (Dec 2024):** Air quality, noise levels, soil characteristics, and surface and groundwater quality, using a combination of desktop research and targeted field measurements.
- **Socioeconomic and Ecosystem Services (Apr 2023):** Assessment of ecosystem services, roads, villages, land use, livelihoods, infrastructure, education, health, and transport through field visits and walk-through surveys.
- **Avifauna and Biodiversity (Spring & Autumn 2021):** Surveys to confirm the presence of breeding and nesting birds and assess broader biodiversity features..

5.1.1. Climate and Meteorology

The Project area is located within Albania's coastal plain and exhibits a typical Mediterranean climate, with hot, dry summers and mild, wet winters. Annual precipitation averages around 893 mm, with 70–75% occurring between October and March. Average annual temperature is approximately 18.8°C, with seasonal highs in August and lows in January. Evapotranspiration peaks during July and August, contributing to seasonal humidity deficits and influencing the hydrology and salinity of nearby coastal lagoons, including Karavasta. Historical data from Vlora meteorological station indicate an annual evaporation of around 1,200 mm. Climatic observations also include data on wind patterns and extreme weather events relevant to project planning and risk management..

5.1.2. Air Quality

The project area is predominantly rural, with generally good ambient air quality. Primary sources of pollution include transport vehicles and agricultural machinery, generating particulate matter (PM10 and PM2.5). Dust is particularly noticeable during dry summer months due to unpaved roads. Temporary increases in air pollution are expected during overlapping construction activities from nearby PV plants. Monitoring conducted at three locations confirmed compliance with national and international air quality standards (EU and WHO).

5.1.3. Noise in the Project area

The baseline noise environment is low due to the predominance of undeveloped land, with nearby villages representing sensitive receptors. Noise sources include agricultural activities, local traffic, and seasonal increases due to agricultural labor and temporary construction works. Monitoring indicated average daily noise levels below 55 dB(A), in accordance with Albanian standards. Coordinated noise management is recommended to mitigate cumulative impacts from construction activities.

5.1.4. Geology

The geological formations in the area include Serravalian, Upper Miocene (Messinian), and Quaternary deposits. Serravalian deposits consist mainly of clays and sandstones, while Upper Miocene deposits contain clay-sand and gypsum-bearing lithofacies associated with oil-bearing formations. Quaternary alluvial deposits, covering approximately two-thirds of the surface, consist of fine sands, clays, and proluvial sediments. These geological formations influence soil composition, groundwater availability, and potential construction considerations.

5.1.5. Soils

Soils in the Project area are primarily Fluvisols derived from alluvial deposits, with two main sub-types:

- **Salty Clay Soils (Solonchaks):** Heavy, clay-rich soils with high salinity, low permeability, and limited agricultural productivity (Bonity Classes VII–VIII).
- **Sandy Brackish Soils:** Light, permeable soils with moderate to low fertility (Bonity Classes VI–VII), prone to waterlogging during rainy periods.

Soil sampling at three locations across the site confirmed heterogeneity in texture, salinity, and nutrient content. Soil management and mitigation measures are recommended for construction and PV plant operations to avoid compaction, erosion, and salinity impacts.

5.1.6. Hydrology

The Project area lies within the Seman River Basin, with proximity to the Shkumbin River and several smaller canals and lagoons. Surface water bodies include the Karavasta Lagoon, the Seman and Shkumbin rivers, and irrigation-drainage channels. The area has been heavily modified by human interventions, including embankments, canalization, and drainage schemes, which have altered natural flow patterns and caused local flooding, erosion, and salinity intrusion.

Flood Risks:

- Flooding is historically significant, with major events recorded in 1962–1963 and 1970–1971.
- Low-lying areas near the Seman River and drainage canals are particularly vulnerable.
- Climate change and sea-level rise may exacerbate flood risks.

Groundwater:

- Alluvial aquifers along the Seman River provide potable water in limited quantities.

- Groundwater quality is generally good but may be affected locally by agricultural runoff and historical oil exploration.

5.1.7. Drainage and Irrigation

The project area is intersected by first-, second-, and third-order drainage canals, many of which are poorly maintained. These canals are essential for flood management, agricultural irrigation, and supporting PV plant operations. Maintenance of drainage infrastructure and hydropower plant operation (e.g., Hoxhara pumping station) is critical to prevent surface water accumulation and flooding of low-lying project areas.

5.1.8. Flooding

Flooding and Hydrological Risk

The Blue 2 Project area is located in lowland and coastal Albania, which is naturally prone to flooding, a risk expected to increase in frequency and intensity due to climate change. Flood hazard is influenced by river networks, topography, soil type, drainage systems, and the location of settlements. Historically, major floods occurred in 1962–1963, affecting approximately 26,700 ha, and in 1970–1971, with the Seman River lowlands and its tributaries most impacted. Human activities, including river modifications, embankment damage, and loss of riparian vegetation, have further increased flood risk and contributed to soil salinity. The region's drainage and irrigation canals exist but are partially blocked or poorly maintained, making low-lying areas, particularly near Hoxhare, vulnerable to waterlogging and flooding. The project site, situated 0–5 m above sea level with slopes of 0–6%, has experienced localized flooding, as reported in 2018, and hydropower operations can influence water levels. Additionally, gradual sea-level rise in the Adriatic (1–3.8 mm/year) increases the risk of coastal and delta flooding. Recommended mitigation measures include regular maintenance of canals, operation of pumping stations and hydropower facilities during heavy rainfall, elevation of sensitive infrastructure by at least 0.6 m, and updated flood risk mapping to account for extreme events.

5.1.9. Topography and Landscape

The Project area is characterized by a predominantly flat terrain with elevations ranging from 0 to 100 m above sea level, interspersed with low hills in the eastern and northern parts. The coastal sub-unit contains sand dunes, marshes, and reclaimed agricultural land, while pre-mountain lowlands include urbanized areas and hilly terrain up to 700 m in elevation. The area is intersected by irrigation and drainage canals, and landforms are influenced by river deltas, coastal processes, and human interventions. The landscape is suitable for agriculture and infrastructure development, though erosion and slope instability are observed in some hilly sections.

The project area is part of the Divjakë–Karavasta region, characterized by:

  - A lowland plain with minimal elevation variation.
  - Small hills near Divjakë, located approximately 8.5 km northeast of the site.
  - Karavasta coastal lagoon to the northwest.
  - Seman and Shkumbin river deltas to the southwest and northwest.
  - Sand dunes and sandy beaches along the western coastal margin.
- Elevation: The terrain ranges from 0.2 to 1.2 meters above sea level, making it highly sensitive to flooding and sea level rise.
- Coastal Morphology:
  - The coastline is deltaic and microtidal, with tidal amplitudes around 0.50 meters.
  - Seman beach dunes extend for approximately 1 km, with a width of 15 meters and a height of up to 6 meters.

- These dunes are shaped by wind, wave action, and sediment deposition.

Landscape Character

- The area is primarily rural and agricultural, with degraded vegetation and low ecological density.
- The Landscape Visual Quality Index (VQI) was used to assess visual sensitivity, scored on a scale from 0 to 10:
  - The project area scored low to moderate, indicating limited scenic or recreational value.

Visual Sensitivity and Receptors

- High-sensitivity receptors (e.g., residential areas, scenic viewpoints) are limited.
- The nearest settlement is Grykë village, approximately 1 km from the PV site.
- Scattered residential structures exist, but the area is largely devoid of sensitive receptors and not crossed by major roads.

5.2 Biological Environment

5.2.1 Habitat and protected areas

The project area lies within the Adriatic coastal plain, a landscape shaped by agriculture, urbanization, and tourism. Historical wetlands and riverine systems have been largely transformed, though small patches of natural habitats remain.

- No national or internationally protected areas (e.g., Natura 2000 sites) are located directly within the project footprint.
- The Seman River corridor and associated riparian forests are ecologically significant, serving as corridors for wildlife and offering flood regulation, water filtration, and biodiversity functions.
- The project does not intersect legally designated critical habitats but includes areas of moderate ecological importance (e.g., reedbeds, salt marshes, riparian forests)..

Key protected areas in the vicinity include:

- **Divjakë-Karavasta National Park (22,230 ha):** This internationally recognized Ramsar site and Important Bird Area (IBA) hosts over 1,500 species. It features a mosaic of coastal lagoons, salt marshes, and pine forests, providing essential breeding, feeding, and resting habitats for waterbirds and other wildlife.
- **Pishë Poro–Nartë Protected Landscape:** A coastal landscape of sand dunes, pine forests, and salt marshes, supporting a range of specialized flora and fauna adapted to saline and sandy environments.
- **Emerald Network Sites:** Areas including Divjakë-Karavasta and Vjosa-Nartë-Pishë Poro are designated under the Bern Convention, reflecting their high biodiversity value at the European level.
- **Natural Monuments:** Features such as the “Kurora e Semanit” riparian forest and Seman Dunes are recognized for their ecological and biodiversity significance.
- These nearby protected areas influence ecological connectivity and highlight the importance of careful planning to avoid indirect impacts on sensitive habitats.

The project site is located approximately 0.5 km south-east of the Karavasta National Park at its closest point. Part of the Blue Solar 2 Project Area (approximately 23 ha) is located within the Karavasta Important Bird Area (IBA) / Key Biodiversity Area (KBA), an internationally recognised area of importance for biodiversity.

5.2.2 Natural and Modified Habitats

The Project Development Area (PDA) and proposed transmission line route feature a mix of natural, semi-natural, and heavily modified habitats:

Natural Habitats:

- Mediterranean Salt Meadows (1410): Open areas dominated by salt-tolerant plants such as *Juncus maritimus*, *Tamarix dalmatica*, and *Halimione portulacoides*, important for invertebrates and foraging birds.
- Reedbeds (72A0): Dense stands of *Phragmites australis*, *Typha angustifolia*, and *Scirpus lacustris* along drainage channels and wetlands, providing shelter and breeding sites for waterbirds and amphibians.
- Coastal Halophilous Forests (2270): Pine forests planted for dune stabilization, dominated by *Pinus halepensis* and *Pinus pinea*, which reduce erosion and provide roosting and nesting habitat for birds.
- Salt Steppes (1510) and Salicornia Mudflats (1310): Specialized saline habitats supporting halophytic vegetation and serving as feeding grounds for waders and other coastal species.

Modified Habitats:

- Arable Land and Ruderal Vegetation: Areas cultivated for agriculture or colonized by invasive plant species, which still provide resources for wildlife and act as ecological corridors.
- Drainage Channels: Artificial watercourses that, despite being man-made, support aquatic and semi-aquatic species, enhancing local biodiversity.

Habitat Type	Condition / Ecological Value	Key Notes
Salt Meadows & Pioneer Marshes	Moderate	Halophyte vegetation; seasonally flooded; partially degraded; habitat for small mammals and amphibians.
Riparian Forests (Poplar/Willow)	High	Sensitive and species-rich; provides ecological corridors and flood protection.
Coastal Coniferous & Eucalyptus Plantations	Poor	Artificial forests; low diversity; serve as windbreaks and shelter for small fauna.
Semi-Natural Grasslands	Low	Former agricultural lands; dominated by invasive and ruderal species.
Drainage Channels / Reedbeds	Moderate to High	Shelter and breeding grounds for amphibians, fish, and aquatic invertebrates.
Mixed Agricultural Mosaic	Low	Highly modified; minor ecological value; includes some ethnobotanical plants.

5.2.3 Vegetation and Flora

The project area is highly diverse botanically, with 358 vascular plant species recorded, representing roughly 8-10% of Albania's flora.

- Species richness: 299 vascular plant species, 65 families (~8% of Albanian flora).
- Dominant species: Salicornia europaea, Juncus maritimus, Phlomis fruticosa, Dittrichia viscosa, Phragmites australis.
- Threatened species in Albania: 3 Endangered, 8 Vulnerable (e.g., Limonium emarginatum - Vulnerable).
- Life forms: Trees/shrubs (Phanerophytes) 12–13%, herbaceous plants (Hemicryptophytes) 36%, reflecting anthropogenic pressure..

5.2.4 Terrestrial Fauna

The area supports a diverse terrestrial fauna, with mammals, reptiles, amphibians, bats, and invertebrates recorded:

- Mammals: European otter (Lutra lutra), golden jackal (Canis aureus), red fox (Vulpes vulpes), European badger (Meles meles).
- Reptiles and amphibians: Marsh frog (Pelophylax ridibundus), European green lizard (Lacerta viridis), common wall lizard (Podarcis muralis).
- Invertebrates: Wetland insects (dragonflies Anisoptera spp.), pollinators (Apis mellifera), and generalist beetles.
- No nationally or internationally protected terrestrial fauna recorded directly in the PDA, but riparian corridors support wildlife movement...

5.2.5 Aquatic Ecology

The aquatic ecosystems within the Project Development Area (PDA) and its surrounding Area of Influence (AoI) comprise a complex network of coastal lagoons, drainage channels, and estuarine systems, forming a mosaic of habitats that are vital for both resident and migratory species. These habitats are highly productive and ecologically significant, supporting diverse flora and fauna and providing important ecosystem services to local communities.

Habitat Types and Hydrological Features

The project area contains several aquatic habitats, mostly associated with small rivers, drainage canals, seasonal ponds, and wetland patches:

Habitat Type	Description	Key Flora and Fauna (Latin names)
Rivers and Streams	Semi-natural channels with slow to moderate flow; some stretches modified by embankments and drainage works.	Fish: *Gambusia holbrooki*, *Carassius gibelio*; Amphibians: *Pelophylax ridibundus*; Aquatic plants: *Elodea canadensis*, *Ceratophyllum demersum*
Seasonal Ponds / Flooded Areas	Temporary water bodies formed during winter-spring; provide breeding habitat for amphibians and aquatic insects.	Amphibians: *Triturus cristatus*, *Bufo bufo*; Insects: Odonata larvae (*Anisoptera* spp.)
Drainage Channels / Irrigation Canals	Man-made channels for agricultural drainage; water flow varies seasonally; often lined with reedbeds.	Plants: *Phragmites australis*, *Typha latifolia*; Birds: *Anas platyrhynchos*, *Himantopus himantopus*; Invertebrates: *Gammarus* spp.
Reedbeds / Marshes	Shallow, vegetated wetlands; water is typically stagnant or slow-moving; high habitat heterogeneity.	Plants: *Phragmites australis*, *Juncus maritimus*; Amphibians: *Pelophylax ridibundus*; Birds: *Acrocephalus arundinaceus*, *Gallinula chloropus*

Hydrological Features:

- The area is part of the Adriatic coastal plain watershed, with gentle topography and slow drainage.
- Seman River and its tributaries influence local water regimes, providing seasonal flooding that maintains wetland habitats.
- Water levels fluctuate seasonally, with peak flooding in winter-spring and lower flows in summer.
- Groundwater interaction supports wetlands, reedbeds, and riparian vegetation, sustaining aquatic biodiversity even during dry periods.
- Hydrological modifications (drainage canals, irrigation) have altered natural flow regimes, but remnant natural habitats still provide critical ecological functions such as breeding, feeding, and refuge for aquatic species.

5.2.6 Avifauna

Resident and Migratory Birds:

The project area hosts a diverse assemblage of birds, including both resident and migratory species. Key groups include:

- Waterfowl: e.g., *Anas platyrhynchos* (Mallard) frequent rivers, canals, and temporary ponds, feeding on aquatic vegetation and invertebrates.
- Waders: e.g., *Himantopus himantopus* (Black-winged Stilt) utilize shallow wetlands and flooded fields for foraging on insects, crustaceans, and small mollusks.
- Passerines: Common species such as *Passer domesticus* (House Sparrow) and *Motacilla alba* (White Wagtail) inhabit hedgerows, grasslands, and agricultural mosaics, feeding on seeds and invertebrates.
- Raptors: e.g., *Buteo buteo* (Common Buzzard) patrol open fields, reedbeds, and forest edges, preying on small mammals, amphibians, and other birds.

Ecological Importance:

- Reedbeds, wetlands, and riparian forests serve as critical habitats for migratory birds along the Adriatic flyway, providing essential stopover sites for resting and refueling, as well as breeding and nesting grounds for resident species.
- Artificial forests and agricultural mosaics contribute marginally to nesting opportunities, mainly for passerines and small raptors, but are less structurally complex than natural habitats.
- The diversity of habitats in the project area supports a variety of trophic levels, contributing to overall ecosystem stability and maintaining ecological connectivity between coastal wetlands and inland areas.

Conservation Considerations:

- Wetlands and riparian zones are sensitive to changes in water quality and hydrology; any alterations could impact migratory bird populations.
- Protection of reedbeds and seasonal ponds is particularly important during the migration and breeding periods to sustain avian diversity.

5.3 Socio-Economic Baseline

The Blue 2 Photovoltaic Park is located in the Western Lowlands of Albania, between the Seman and Shkumbin River estuaries, near the Divjakë-Karavasta National Park. The area is characterized by low to moderate population density, scattered rural settlements; the project area consists mainly of abandoned, low-fertility land with high salinity. Portions of the land are occasionally flooded during the year due to tidal influence from the sea and overflow from nearby river channels. The main soil types include:

- Salty clay soils (Solonchaks): Heavy, poorly drained, high sodium content.
- Sandy brackish soils: Low water retention and nutrient levels.

The combination of salinity and seasonal flooding gives the land characteristics that limit its current use for intensive cultivation but make it suitable for the installation of solar PV infrastructure.

Key socio-economic characteristics include:

Population and Demographics:

- Communities are small to medium-sized, with a mix of age groups and predominantly family-based households.

- Population density varies along the project corridor, with some settlements experiencing gradual growth due to local economic opportunities.

Livelihoods and Economy:

- Agriculture and livestock farming dominate livelihoods, supplemented by small businesses and seasonal work.
- Limited local employment opportunities exist outside farming, leading some residents to commute or seek seasonal work elsewhere.
- Access to markets and financial services is moderate, with basic infrastructure supporting local trade.

Infrastructure and Services:

- Settlements have access to primary schools, health posts, and local roads, though quality and accessibility vary.
- Electricity and water supply are generally available, but some areas face intermittent service.
- Communication networks (mobile and internet) are moderately developed.

Land Use and Community Resources:

- Land is primarily used for agriculture, grazing, and small-scale orchards.
- Public and communal resources, such as water points and village squares, serve as key community gathering points.
- Traditional land ownership patterns prevail, with smallholder farming predominant.

Vulnerable Groups:

- Some households face economic vulnerability due to limited income diversification.
- Access to healthcare, education, and social support is uneven, particularly for women, the elderly, and low-income families.

Key Observations:

- The communities are closely tied to the natural environment, depending on land and water resources for livelihoods.
- Socio-economic conditions suggest moderate resilience, though reliance on agriculture makes households sensitive to environmental or economic shocks.

The socio-economic setting is typical of Albania's Western Lowlands, with communities largely dependent on agriculture and natural resources. The PDA is located in areas of low population density, and the project is designed to co-exist with existing land uses, providing temporary employment during construction and operational benefits, while avoiding direct impacts on settlements, social infrastructure, or critical community resources.

Land for the Project has been secured through voluntary agreements with private landowners and the municipality. The Project remains committed to ensuring that any land-related aspects are managed in line with international standards.

Cultural Heritage and Archaeology

The Project Development Area (PDA) is located within a region that has general historical and archaeological relevance; however, no officially designated cultural heritage sites or monuments are located within the Project footprint or its immediate vicinity.

Baseline information has been established through a combination of desk-based review of available cultural heritage records, consultation of national databases, and field observations. These assessments confirm

that the project site is primarily characterized by reclaimed marshland and agricultural land with no identified cultural heritage features of archaeological, historical, or architectural significance.

The area is therefore considered to have low cultural heritage sensitivity, with no known tangible or intangible cultural heritage assets present within the PDA.

There remains a low residual potential for the presence of undiscovered subsurface archaeological remains. In this context, project activities will be implemented in accordance with a Chance Finds Procedure (CFP), ensuring that any unexpected discoveries during construction are managed in line with national legislation and international good practice.

5.4 Protected area

The Blue 2 Photovoltaic Project is located in Fier Municipality, in proximity to several nationally and internationally recognized protected areas. The project site itself is not located within any designated protected area, and the Environmental and Social Impact Assessment (ESIA) confirms that it avoids direct interaction with ecologically sensitive or high-conservation-value habitats.

The nearest protected area is the Divjakë–Karavasta National Park (IUCN Category II), situated approximately 7.8 km north of the project site. The park is designated as a Ramsar Wetland of International Importance and recognized as an Important Bird and Biodiversity Area (IBA) and Key Biodiversity Area (KBA). It includes the Karavasta Lagoon, Divjaka Pine Forest, and surrounding wetlands, hosting over 260 bird species, including migratory and wintering waterfowl. The Blue 2 site lies around 500 meters from the boundary of the Traditional Use Subzone, where traditional economic activities are permitted, but ecological sensitivity remains high.

Other nearby protected sites include the Pishë–Poros Managed Nature Reserve (5.5 km south), important for habitat connectivity; the Divjaka Oasis Dunes Natural Monument (5.1 km south), a valuable coastal dune system; and the Kurrora Natural Monument (11.4 km northeast), noted for its geological and ecological features.

Although the Blue 2 project is outside these designated areas, its proximity to the Divjakë–Karavasta Traditional Use Zone warrants careful environmental management. Accordingly, mitigation and monitoring measures have been incorporated into project planning, including the establishment of buffer zones and no-go areas, restricted vegetation clearance, avoidance of construction during sensitive breeding periods, and periodic monitoring of key habitats and species. These measures are integrated into the project's Biodiversity Management Plan (BMP) and Biodiversity Action Plan (BAP) to ensure the protection of surrounding ecosystems and compliance with national and EBRD environmental standards.

5.5 Stakeholder Engagement

Overview

Stakeholder engagement is a core part of the Blue 2 Photovoltaic Park development. The project recognizes stakeholders as any individuals or groups potentially affected by the project or with an interest in it. Engagement is an ongoing process throughout all project phases—planning, construction, operation, and decommissioning to ensure that concerns are addressed, feedback is considered, and benefits are shared fairly.

Stakeholder Identification and Mapping

Stakeholders have been identified at national, regional, and local levels, and include government authorities, regulatory agencies, local communities, business representatives, and vulnerable groups. Mapping has considered:

- Level of impact and influence: who is affected and how, and who can influence project outcomes.
- Key concerns and expectations: economic, environmental, social, and cultural issues.

- Engagement needs: accessibility, preferred communication methods, and frequency of interaction.

Engagement methods are tailored according to stakeholder type and may include one-on-one meetings, public consultations, questionnaires, focus groups, written correspondence, and public announcements.

Key Stakeholders

National Level:

- Ministries of Tourism and Environment, Infrastructure and Energy, Agriculture, and Culture.
- National Environment Agency (NEA), National Territorial Planning Agency, National Agency for Protected Areas.
- Transmission System Operator and relevant national NGOs.

Regional and Local Level:

- Regional Environment and Protected Area Agencies, Drainage Board, Prefecture, Regional Council.
- Municipality of Fier authorities, Topojë Administrative Unit, technical directories, local communities, and business representatives.

Vulnerable Groups:

Special attention is given to groups disproportionately affected, including children, youth, elderly, women, single-headed households, low-income families, subsistence farmers, and persons with disabilities. Mitigation measures and dedicated engagement approaches have been developed for these groups.

Engagement Process

Preparatory Work:

- Stakeholder mapping, baseline assessments, and planning of consultations.
- Creation of a stakeholder database for communication and tracking.

Construction Phase:

- Information disclosure through public notices, leaflets, and info boards.
- Meetings and consultations to gather feedback and address grievances.
- Contractors are required to implement site-specific engagement plans and grievance mechanisms.
- Regular updates on work schedules, progress, and delays are provided to stakeholders.

Operational Phase:

- Ongoing dialogue with local authorities and community representatives.
- Updates on environmental and social performance of the operational facility.
- Continued monitoring of mitigation measures and grievance handling.

Decommissioning Phase:

- Consultation on project closure plans, potential impacts, and decommissioning scenarios.
- Stakeholders receive updates and have opportunities to provide feedback before closure activities.

Management and Coordination

The Project Manager oversees stakeholder engagement, while the Community Liaison Officer (CLO) is responsible for day-to-day implementation, including:

- Organizing consultations and meetings.
- Ensuring stakeholder feedback is recorded, addressed, and communicated back.
- Managing grievance submissions and reporting.
- Liaising with contractors to ensure compliance with engagement requirements.

Grievance Mechanism

Stakeholders can raise concerns via the project website, notice boards, or directly through the CLO. Grievances are registered, investigated, and resolved in a transparent and timely manner.

The Blue 2 Photovoltaic Park's stakeholder engagement approach ensures that all stakeholders, including vulnerable groups, are informed, consulted, and have opportunities to influence project decisions. This promotes transparency, trust, and socially responsible project implementation.

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6 Main Environmental and Social impacts and associated mitigation measures

The construction phase of the Blue 3 Solar Power Project, The expected impacts are temporary, localized, and manageable through the application of standard mitigation measures and the project's Environmental and Social Management Plan (ESMP). The key impacts for the construction phase and associated mitigation measures are presented in the table below.

6.1 Construction phase

Environmental and Social Component	Impact Overview	Key Mitigation Measures	Impact Significance (Post-Mitigation)
Air Quality and Dust	Dust and emissions from excavation, vehicles, and construction machinery	- Water spraying on exposed surfaces, roads, and stockpiles - Minimize open excavation areas and exposed soil - Cover transported soil, sand, and construction materials- Reduce vehicle speeds on unpaved roads - Designate internal and external routes for all vehicles - Maintain machinery and equipment in good working order - No open burning of materials- Monitor dust deposition near sensitive receptors (<200 m) - Provide PPE (dust masks) for workers in high-dust areas	Minor – PV plant and OHL
Noise and Vibration	Noise from machinery, pile driving, and vehicle movement	- Restrict noisy activities to daytime hours and weekdays - Regular maintenance of vehicles and machinery - Use mufflers, silencers, and vibration isolators where required - Temporary acoustic screens if needed - Micro-siting of towers to reduce noise impact on nearby receptors - Implement Construction Traffic Management Plan to reduce noise from vehicle movement - Ensure worker protection with hearing PPE	Minor – PV plant and OHL
Soil and Hydrology	Disturbance of soil, risk of contamination, changes to drainage	- Minimize topsoil removal and store separately for restoration - Backfill and re-cultivate disturbed areas - Implement erosion and sediment control (silt fences, geotextiles) - Stabilize stockpiles and prevent compaction - Maintain natural drainage patterns and channel functionality - Prevent spills through fuel/chemical storage controls - Cease excavation and stockpiling during heavy rainfall - Construct cut-off/diversion drains and culverts as needed - Geo-reference soil stockpiles and track duration	Minor – PV plant and OHL

Landscape and Visual	Temporary visual intrusion and land disturbance	- Limit vegetation clearance to essential areas only - Salvage topsoil and subsoil for reuse - Protect existing trees and root zones with fencing - Use existing access roads where possible- Keep proper housekeeping and minimize material spread - Restore disturbed areas progressively - Replant vegetation after works completion to blend with surroundings	Minor – PV plant and OHL
Traffic and Community Safety	Increased construction traffic, safety risks	- Prepare and implement Construction Traffic Management Plan - Notify communities in advance about road closures and construction traffic- Install warning signage on public and internal roads - Truck/vehicles drivers on road safety and Code of Conduct - Enforce speed limits, particularly near schools and populated areas- Phase works to maintain local access - Implement traffic awareness campaigns targeting children and vulnerable groups	Minor – PV plant and OHL
Waste Management	Generation of solid, liquid, and hazardous waste	- Segregate and label all waste streams - Reuse and recycle materials where feasible - Store hazardous and liquid waste in designated areas with bunding - Regular collection and disposal by licensed operators- Prevent windblown litter by covering waste containers - Compost organic wastes- Maintain clean and organized sites to prevent vermin attraction - Include waste management procedures in the CEMP	Minor – PV plant and OHL
Biodiversity and Ecosystems	Habitat disturbance, impacts on flora and fauna, invasive species	- Conduct pre-construction ecological surveys - Demarcate work areas to avoid unnecessary vegetation clearance - Progressive and sensitive vegetation clearance to allow fauna relocation- Implement Biodiversity and Restoration Management Plan (BMP) - Monitor key bird species during breeding and migration periods- Establish fauna rescue measures for trapped animals - Alien invasive species protocol: wash-down procedures, pre-clearance checks, and use of uncontaminated soil - Avoid construction during sensitive periods (breeding season)	Minor – PV plant and OHL

Land Acquisition and Livelihoods	Temporary or permanent loss of agricultural land, potential loss of income	- Minimize land occupation and locate OHL pylons near plot edges - Implement Land Acquisition and Livelihood Restoration Plan (LALRP) - Fair compensation in line with market value and EBRD PR5 - Support vulnerable groups in obtaining legal documentation- Restore leased land to original condition after construction - Conduct inclusive consultations with affected landowners and users - Develop livelihood restoration programs where monetary compensation is insufficient	Minor – PV plant and OHL
Employment and Local Economy	Employment opportunities and local economic benefits	- Implement Recruitment and Labour Management Plan prioritizing local workforce, women, and vulnerable groups - Advertise jobs locally and provide skills training - Monitor workforce recruitment and ensure fair selection - Apply OHS measures, including ISO 45001 standards - Collaborate with State Employment Offices and local institutions - Ensure supply chain and contractors comply with Developer's Ethics Guide and Code of Conduct - Provide women-friendly working environment and targeted training	Moderate Positive – PV plant and OHL
Occupational and Community Health and Safety	Safety risks from construction activities, dust, noise, unauthorized access, GBVH	- Implement comprehensive OHS management system per national regulations, ISO 45001, and EBRD PR2 - Provide PPE and emergency response resources (ambulance, site doctor) - Training for workers and CLOs on GBVH and workplace harassment - Implement confidential grievance mechanism for incidents- Control unauthorized access and security - Traffic safety awareness campaigns near schools and health centers - Emergency Response Plan in place	Minor – PV plant and OHL
Cultural Heritage	Accidental discovery of archaeological or cultural items	- Pre-construction survey for sensitive areas - Implement Chance Finds Procedure Plan - Stop works and report any discoveries - Ensure compliance with national legislation and EBRD PR8	Negligible – PV plant and OHL

The Project includes a Battery Energy Storage System (BESS) with a total capacity of 60 MW, implemented in two phases. Potential impacts during construction are limited and relate mainly to equipment installation, safety risks, and handling of materials. These are managed through standard construction practices and safety procedures.

6.2 Operation phase

Solar PV projects are passive in nature and do not generate significant wastes, emissions to air, pollution to water or noise and are generally considered to have a limited impact on the environment and surrounding communities. Below is a summary of the identified impacts and associated mitigation measures to minimise any residual impact.

Component	Impact Overview	Key Mitigation Measures	Impact Significance (Post-Mitigation)
Land Acquisition, Land Use and Livelihood	Permanent loss of land and potential livelihood impacts from the PV plant and OHL infrastructure.	- LALRP fully implemented and compensation completed in line with Albanian law and EBRD PR5. - Avoid siting OHL towers on cultivated or high-value land. - Maintain transparent communication with land users through SEP. - Ensure grievance mechanism remains active and all cases are resolved.	**Negligible – PV Plant and OHL**
Landscape and Visual	Long-term visual alteration of the landscape due to PV arrays and transmission lines.	- Restore and rehabilitate disturbed areas. - Implement vegetation screening using native species. - Use non-reflective materials and consistent colour tones. - Include restoration measures in the Biodiversity and Restoration Management Plan (BRMP).	**Minor – PV Plant and OHL**
Physical Environment (Air, Soil, Hydrology)	Minor emissions, dust, and potential for fuel or oil spills during maintenance.	- Restrict maintenance vehicles to defined access routes - Implement ESMS for operation phase, covering safe handling of materials. - Use dry cleaning of panels to minimize water use. - Apply stormwater and drainage design based on 1-in-100-year flood events. - Adopt SF6 emission reduction and recycling measures.	**Negligible – PV Plant**
Climate Change and Resilience	Potential impact on equipment and staff due to extreme weather events.	- Design infrastructure to withstand extreme climatic events. - Use materials and technology minimizing greenhouse gas emissions. - Apply flood-resilient drainage and foundation systems.	**Negligible – PV Plant**
Biodiversity (Including Avifauna)	Possible disturbance to flora and fauna from maintenance and access activities.	- Restrict access to designated tracks only. - Maintain vegetation cover with native species and prohibit pesticide/herbicide use.	**Negligible – PV Plant and OHL**

		- Develop a Biodiversity Management Plan (BMP) covering operation. - Allow small fauna passage under fencing. - Implement bird deterrent devices and encourage natural vegetation growth. - Install bird markers/diverters along the overhead transmission line to reduce collision risk for birds, particularly during migration and foraging activities.	
Waste Management	Generation of maintenance-related and packaging waste.	- Implement Waste Management Plan (WMP) aligned with Albanian law - Segregate, record, and dispose of waste through licensed contractors. - Return damaged panels/equipment to manufacturers for reuse or recycling - Conduct regular employee training on waste handling.	**Negligible – PV Plant**
Employment and Economic Benefits	Increased employment opportunities during operation phase.	- Ensure fair recruitment and HR policies aligned with EBRD PR2. - Promote local employment and procurement of goods/services. - Provide skills training for local workers. - Ensure equal employment opportunities and non-discrimination. - Maintain worker grievance mechanism.	**Minor to Moderate Positive – PV Plant**
Occupational and Community Health & Safety	Risk of electrocution, EMF exposure, or unauthorized access.	- Implement OHS Management Plan in line with EBRD/WB standards. - Use signage, barriers, and grounding systems for safety. - Install fire detection and automatic shutdown systems. - Regular inspections and monitoring by OST. - Maintain records of incidents and corrective actions.	**Negligible – PV Plant and Minor for OHL**

During operation, the BESS introduces limited additional risks related to fire safety, hazardous materials, and electrical systems. These are managed through design measures including fire detection and suppression systems, thermal monitoring, containment systems, and emergency preparedness procedures.

6.3 Biodiversity Protection and Monitoring

The Project integrates a Biodiversity Management Plan (BMP) to ensure that potential impacts on habitats and species are effectively avoided, minimized, and managed in line with international standards.

Key measures include:

- Pre-construction ecological checks to identify and avoid sensitive periods, including nesting birds;
- Implementation of mitigation measures to reduce disturbance to avifauna and other ecological receptors;
- Application of the mitigation hierarchy with the objective of achieving no net loss, and where feasible, biodiversity net gain;
- Consideration of sensitive receptors, including areas of ecological importance and bird species;
- Monitoring during construction and operation to verify effectiveness and allow adaptive management.

These measures are designed to ensure that biodiversity impacts are appropriately managed throughout the Project lifecycle in accordance with Good International Industry Practice and lender requirements.

7 Environmental and Social Management and Monitoring Framework

The Environmental and Social Management Plan (ESMP) establishes the overarching framework for managing, mitigating, and monitoring all environmental and social (E&S) aspects of the Blue 2 Photovoltaic Park Project, ensuring full compliance with Albanian legislation, EBRD Performance Requirements (PR 1–PR 10), and international best practices.

The ESMP serves as a practical and operational tool for the Project Developers – Blessed Investment sh.p.k, and Matrix Constructions sh.p.k, and their EPC Contractor, enabling systematic management of E&S risks and opportunities throughout the construction and operation phases. It translates the mitigation measures identified in the ESIA into actionable commitments, defining responsibilities, resources, and performance indicators, supported by a continuous cycle of monitoring, auditing, and reporting to the relevant authorities and the EBRD.

The ESMP is a living document, subject to periodic updates based on monitoring results, stakeholder engagement outcomes, and lessons learned from implementation.

Key Objectives of the ESMP

- Ensure full compliance with legal, regulatory, and lender requirements;
- Integrate environmental and social considerations into project planning, design, construction, and operation;
- Prevent, minimize, or offset adverse impacts and enhance project benefits;
- Promote transparency, accountability, and stakeholder engagement;
- Facilitate continuous improvement through measurable performance indicators.

The ESMP clearly defines the roles and responsibilities of all project participants, including the Developer, EPC Contractor, subcontractors, and supervision consultants. Dedicated E&S professionals—such as the HSES Manager, Health & Safety Coordinator, Community Liaison Officer, and Biodiversity Specialist—will be responsible for oversight, compliance monitoring, and stakeholder interface.

Targeted training and awareness programs will ensure that all workers and contractors understand their environmental, social, health, and safety obligations, including procedures for emergency preparedness, waste management, biodiversity protection, and community safety.

Specific Management and Monitoring Plans

To operationalize the ESMP, a comprehensive set of sub-management plans and procedures will be prepared and implemented, covering all key environmental, social, health, and safety aspects of the Project. These include, but are not limited to:

1. Core Management Framework

- Construction Environmental and Social Management Plan (CESMP) – overarching plan integrating all E&S measures for construction;
- Operation Environmental Management Plan (OEMP) – defines monitoring and maintenance during operation;
- Monitoring and Reporting Plan – specifies parameters, frequency, and responsibilities for E&S performance monitoring.

2. Environmental Management Plans

- Waste Management Plan (WMP) – segregation, storage, transport, and disposal of hazardous and non-hazardous waste;
- Traffic and Transport Management Plan (TTMP) – management of construction traffic, vehicle movement, and access control;
- Erosion and Sediment Control Plan (ESCP) – prevention of soil loss, dust, and sediment runoff;
- Stormwater and Drainage Management Plan – control of runoff and prevention of flooding or contamination;
- Air Quality and Dust Management Plan – suppression measures and monitoring near sensitive receptors;
- Noise and Vibration Management Plan – mitigation and monitoring of noise impacts during construction;
- Pollution Prevention and Spill Response Plan – procedures for managing spills of fuel, oil, or chemicals;
- Reinstatement and Site Restoration Plan – rehabilitation and revegetation of disturbed areas post-construction.

3. Biodiversity and Natural Resources Plans

- Biodiversity Management Plan (BMP) – protection of flora, fauna, and habitats during all project stages;
- Biodiversity Action Plan (BAP) – if triggered by ESIA findings, targeting species or habitat restoration and offset measures.

4. Social and Community Plans

- Stakeholder Engagement Plan (SEP) – framework for information disclosure, consultation, and grievance handling;
- Grievance Redress Mechanism (GRM) – transparent system for addressing community and worker complaints;
- Community Health, Safety, and Security Plan (CHSSP) – ensures safety and wellbeing of local residents and project-adjacent communities;
- Land Acquisition and Livelihood Restoration Plan (LALRP) – if applicable, addresses economic displacement and compensation measures;
- Labour Management Plan (LMP) – covers recruitment, working conditions, worker rights, and code of conduct.

5. Cultural Heritage and Emergency Preparedness

- Cultural Heritage Management Plan (CHMP) – protection of tangible and intangible cultural heritage;
- Chance Finds Procedure (CFP) – guidance for managing unexpected archaeological discoveries;
- Emergency Preparedness and Response Plan (EPRP) – outlines response actions for fire, accidents, spills, or natural hazards.

6. Occupational Health and Safety

- Occupational Health and Safety Management Plan (OHSMP) – framework for managing workplace safety, PPE use, and risk controls;

The EPC Contractor shall continuously monitor and keep records of all construction activities occurring along the project and prepare regular reports on the performance of HSES components. The ESMS that will be developed for the project will define the monitoring and reporting requirements, but as a minimum, it shall cover:

- Daily walkovers;
- Weekly inspections;
- Monthly internal audits

Monitoring and management measures will be applied consistently across all Project components, including both phases of the BESS installation. Monitoring covers environmental performance, biodiversity, and community health and safety, ensuring compliance and enabling adaptive management.

The Project includes environmental and social monitoring programs covering construction and operational phases. Monitoring focuses on key receptors such as biodiversity, including birds and sensitive habitats, as well as community health and safety and environmental performance.

Monitoring results will be used to verify the effectiveness of mitigation measures and to support adaptive management where necessary.

8 Grievance mechanism

8.1 Introduction to the mechanism

The Project has established a Grievance Mechanism to ensure that any concerns or complaints from stakeholders individuals, groups, or communities affected by the Project—are received, assessed, and addressed promptly and transparently. This mechanism is free, voluntary, and accessible to everyone, and it operates in a culturally appropriate and fair manner.

Purpose:
The Grievance Mechanism allows stakeholders to report issues related to Project activities, including construction, operations, and land use. It helps resolve problems such as noise, dust, access constraints, or impacts on livelihoods, health, safety, and cultural heritage.

Who can use it:

- Individuals or groups affected by Project activities.
- Vulnerable groups who may be disproportionately affected.
- The general public interested in Project impacts.

How it works:

1. Submitting a grievance: Stakeholders can submit grievances in person, by phone, email, post, or through the Project website. Notices with contact information are displayed in villages and settlements near the Project.
2. Acknowledgement: The Project acknowledges receipt of the grievance within 7 days and provides contact details of the responsible officer and an estimated timeline for resolution.
3. Assessment and categorization: The grievance is reviewed by the Community Liaison Officer (CLO) and relevant Project staff to determine its nature and assign responsibility for resolution.
4. Resolution: The Project develops a response and communicates it to the complainant, typically within 30 days. If necessary, the grievance is escalated to senior management.

5. Follow-up and close-out: The CLO ensures the complainant understands the resolution and is satisfied. Grievances are documented in a Grievance Register, which tracks the issue, actions taken, and closure status.

Key Principles:

- Accessibility: Open to all affected parties at no cost.
- Transparency: Operates in a clear and accountable manner.
- Cultural appropriateness: Sensitive to local customs and practices.
- Protection: No retaliation for using the mechanism.

Contact Information:

- **Community Liaison Officer (CLO):** Mr. Bekim Hysaj
- **Phone:** +355 67 216 4811
- **Email:** projectblue@blessedinvestment.com
- **Website:** www.spvblue.com

This mechanism complements national and international grievance procedures, and stakeholders are always free to seek legal remedies if desired.

8.2 Grievance Processing

The flow chart in the levels summarizes briefly how a grievance is processed:

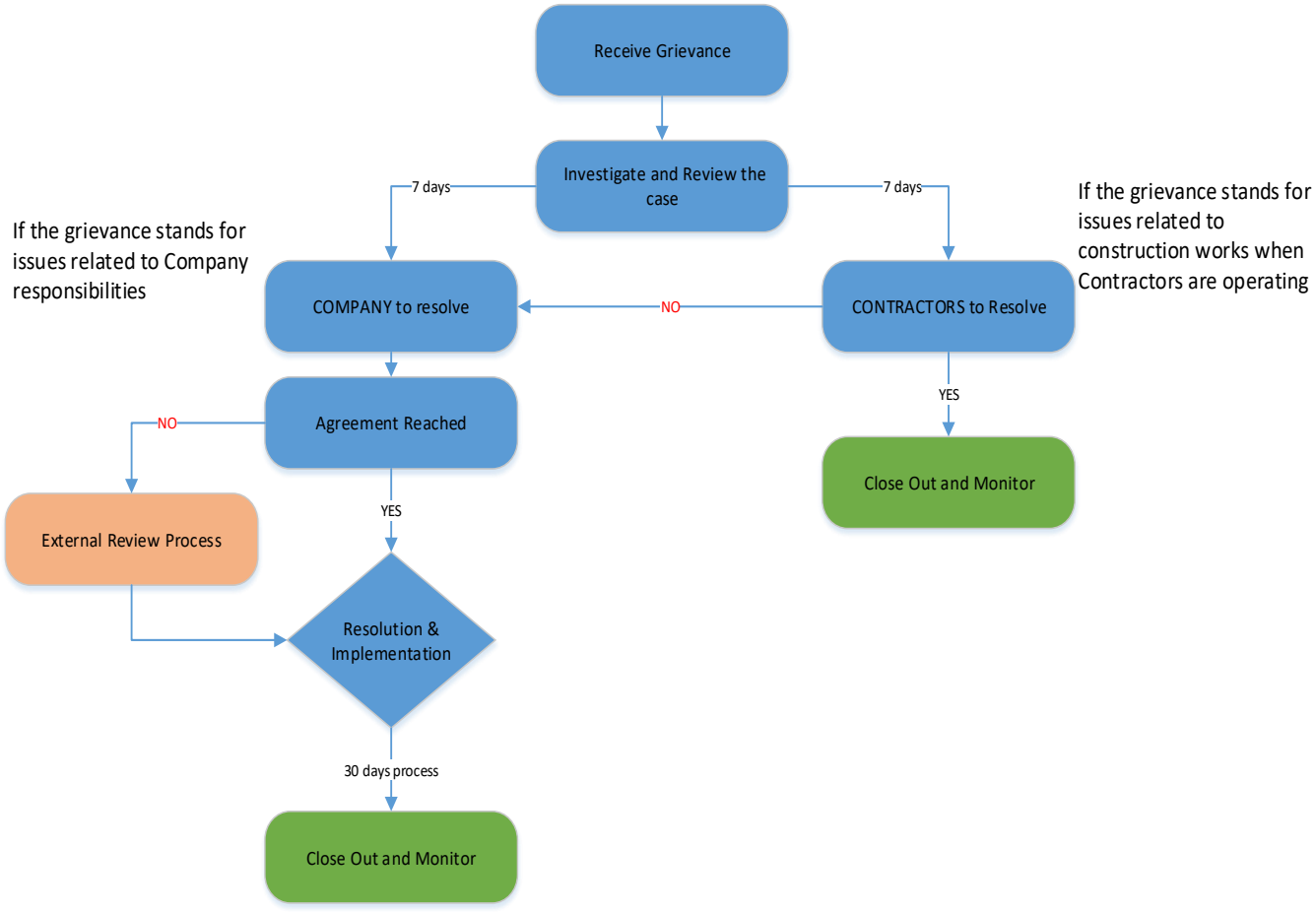

Figure 7 Steps of grievance and respective levels

The Project has a structured grievance mechanism to ensure stakeholder concerns are addressed fairly and promptly. Stakeholders can submit grievances in person, by phone, email, post, or via the Project website. The Community Liaison Officer (CLO) acknowledges receipt within 7 days, assigns the issue to the relevant team, and provides a response, typically within 30 days. All grievances are documented, tracked, and monitored to ensure transparency, accountability, and inclusivity, including for vulnerable groups.