

## **Non-Technical Summary: Environmental and Social Impact Assessment (ESIA) for the Kungrad 1.5GW Wind Farm**

### **Introduction**

The Kungrad 1.5GW Wind Farm project, which includes a Battery Energy Storage System (BESS), aims to significantly increase Uzbekistan's renewable energy capacity, aligning with the country's strategy to enhance energy security, reduce greenhouse gas emissions, and contribute to sustainable development. The project is located in the Kungrad District within the Karakalpakstan region, a semi-desert area characterized by low population density and limited biodiversity. The Environmental and Social Impact Assessment (ESIA) evaluates the potential impacts associated with the project and outlines mitigation measures in line with international standards.

### **Project Overview**

The project involves constructing a 1.5GW wind farm and integrating it with the national power grid through an approximately 800-kilometer overhead transmission line (OHTL). This line will traverse several administrative regions, including the Sovereign Republic of Karakalpakstan, Khorazm, and Bukhara, covering diverse landscapes, from desert areas to agricultural lands. The wind farm itself will be located in a remote area, with the nearest significant settlements being towns like Kirkkiz, Elobod, and Jasliq, as well as Kungrad City Center. The project design aims to minimize land use conflicts by routing much of the transmission line through uninhabited desert terrain.

Key components of the wind farm include up to 400 wind turbine generators, electrical substations, and the BESS. The project will also involve constructing associated infrastructure such as access roads and temporary worker camps. The ESIA has been prepared in stages, reflecting iterative reviews and inputs from stakeholders, including government bodies and local communities, with the final draft completed in December 2023.

### **Environmental Impacts and Mitigation**

The project site and surrounding areas have limited biodiversity, with most habitats classified as modified or degraded due to past human activities. However, the ESIA identified potential risks to wildlife, particularly bird species, as the region is part of migratory routes. Potential bird collisions with turbines, especially during migration seasons, are a significant concern. Mitigation measures include scheduling construction to avoid peak migration periods, implementing bird monitoring programs, and employing turbine designs that minimize risks to birds. Additionally, the project will adhere to international guidelines, such as the Birds Directive (2009/147/EC) and the Habitats Directive (92/43/ECC), to ensure compliance with biodiversity conservation requirements.

Land use impacts are primarily associated with the construction of the wind farm and the OHTL. The project's design minimizes agricultural disruptions, with permanent impacts limited to approximately 0.29 square kilometers of land for the turbine bases and other infrastructure. Temporary impacts on 5.46 square kilometers of land are anticipated during construction, affecting access to some agricultural and grazing areas. Compensation measures, detailed in the Livelihood Restoration Plan (LRP), will include financial compensation for affected land users, support for alternative livelihoods, and measures to restore land productivity post-construction.

Water resource management is a critical aspect of the project's environmental considerations. Uzbekistan relies heavily on shared water sources, with only 20% of its water originating within its borders. The project's water use during construction will be limited to dust suppression, concrete mixing, and worker needs. The Kungrad District, which has access to various water bodies like the Amu Darya River and several artificial reservoirs, will supply these water needs. Wastewater generated during construction will be treated and managed according to national and international standards to avoid contamination of local water resources.

### **Social Impacts and Mitigation**

The project's social impacts include potential physical and economic displacement, although efforts have been made to minimize these. Approximately five households near the OHTL route may need to be temporarily relocated during construction. The ESIA also highlights the possibility of restricted access to land used for agriculture and grazing, which could impact up to 203 formal and 20 informal farmers. These disruptions will be managed through the LRP, which will provide compensation based on asset inventories and valuation studies conducted in accordance with national legislation and international guidelines, such as those of the ADB and IFC. Compensation will include full replacement value for affected assets, loss of income compensation, and support for livelihood restoration programs.

The project has also identified risks related to worker influx, which could impact community health and safety. Mitigation strategies include implementing a Worker Management Plan that covers worker conduct, accommodation standards, and health and safety protocols. A grievance mechanism will be established for both workers and community members to report any issues during the project's construction and operational phases.

Regarding cultural heritage, several archaeological and cultural sites were identified near the project area, including burial mounds and historical structures. The route of the transmission line was adjusted to avoid direct impacts on these sites. During construction, the project will follow a chance-find procedure to ensure that any unforeseen discoveries are appropriately managed and protected. This approach complies with Uzbekistan's cultural heritage laws and international best practices.

### **Environmental and Social Management Plan (ESMP)**

The Environmental and Social Management Plan (ESMP) outlines the framework for managing environmental and social risks throughout the project's lifecycle. The ESMP includes specific actions, such as conducting regular environmental monitoring, implementing biodiversity conservation measures, and managing community health and safety risks. The ESMP is designed to meet the requirements of Uzbekistan's environmental regulations and align with international standards set by MDB's. Key elements of the ESMP include establishing an Environmental, Social, Health, and Safety Management System (ESHS-MS) to oversee project implementation and compliance, and the development of a comprehensive monitoring program to track the effectiveness of mitigation measures.

Additionally, the ESMP covers emergency response planning, waste management, and water resource protection measures. For example, hazardous waste generated during construction will be disposed of through licensed facilities, and water use will be monitored to ensure it does not

adversely affect local supplies. Continuous stakeholder engagement will be a critical component of the ESMP, with plans to hold regular consultations, disclose project updates, and maintain a grievance mechanism to address community concerns.

### **Conclusion**

The Kungrad 1.5GW Wind Farm project is a major renewable energy initiative that supports Uzbekistan's goal of increasing its share of renewable energy and reducing its dependence on fossil fuels. While the project presents certain environmental and social challenges, these are manageable through the mitigation measures detailed in the ESIA and the ESMP. The project's commitment to international environmental and social standards, coupled with ongoing stakeholder engagement, ensures that the development will contribute positively to Uzbekistan's sustainable development objectives while minimizing potential negative impacts. The Kungrad Wind Farm is thus positioned to play a key role in driving the country's transition to a cleaner, more resilient energy future.