



**The World Bank**

Uzbekistan Solar and Renewable Energy Storage (USRES) Project (P181434)

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# Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: November 27, 2023 | Report No: 185423-UZ



**BASIC INFORMATION**

Proposed Development

**A. Basic Project Data**

Country Uzbekistan	Project ID P181434	Project Name Uzbekistan Solar and Renewable Energy Storage (USRES) Project	Parent Project ID (if any)
Region Europe and Central Asia	Estimated Appraisal Date November 27, 2023	Estimated Board Date January 3, 2024	Practice Area (Lead) Energy & Extractives
Lending Instrument Investment Project Financing/Guarantees	Borrower(s) Republic of Uzbekistan	Implementing Agency Ministry of Economy and Finance	

Objective(s)

Project Development Objective is to increase private sector led renewable energy supply in Uzbekistan.

Components

IBRD PAYMENT GUARANTEE

**Financing (in USD Million)**

Financing Source	Amount
Total Project Cost	316.00
Equity financing	119.00
USD-denominated Long-Term Debt	197.00
IDA Guarantee	12.00

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## B. Introduction and Context

### Country Context

- The Government of Uzbekistan (GoU) has recently announced the “Uzbekistan – 2030” Strategy**, which aims to reduce the poverty rate by half by 2026 and enable the country to reach upper middle-income status by 2030. With more than 36 million people, Uzbekistan is the most populous of the Central Asia region. Combined with the proximity to some of the largest and most rapidly growing economies in the world, this presents an opportunity for the country to evolve from its reliance on natural resource use and minerals extraction and become a hub for economic growth, trade and energy.
- Structural reforms and effective economic management thus far have helped maintain macroeconomic stability and an environment to further accelerate market transition through the next phase of structural reforms.** Over the past decade, Uzbekistan has maintained high and stable economic growth at 5.8 percent on average. Reforms to liberalize trade, exchange rate, domestic prices and the tax system have supported Uzbekistan’s continued economic growth and the reduction of resource misallocations in the economy. As a result, notwithstanding the COVID-19 pandemic, Uzbekistan has maintained an economic growth of 2.0 percent in 2020 and a further growth rebound of 7.4 percent in 2021. Economic growth in 2022 moderated to 5.7 percent led by strong remittances, consumption, and exports. Growth is expected to be 5.5 percent in 2023 and accelerate gradually in the medium term. The World Bank projections suggest that the national poverty rate fell from 22.8 percent in 2019 to 14.2 percent in 2022.
- The reform path, in addition to navigating a difficult economic transition, must also successfully manage the growing need to tackle climate change for the country to achieve a sustainable development path.** Uzbekistan has demonstrated increased commitment to climate initiatives by presenting its updated Nationally Determined Contributions (NDCs) with a target to reduce greenhouse gas (GHG) emissions per unit of GDP by 35 percent by 2030 compared with the 2010 levels (against the previous target of 10 percent). To this end, a Presidential Resolution dated October 5, 2019, approved the Strategy for Uzbekistan’s Transition to a Green Economy over the period of 2019–2030. Additionally, in May 2022, Uzbekistan joined the Global Methane Pledge initiative to achieve a collective goal of reducing methane emissions by at least 30 percent by 2030 compared with the 2020 level.

### Sectoral and Institutional Context

- Uzbekistan remains one of the most energy-intensive economies in the world. Energy use is largely based on fossil fuels, although the country has significant RE potential in solar and wind.** Natural gas makes up to 83 percent of total primary energy consumption and more than 80 percent of the electricity mix. These characteristics have contributed to Uzbekistan’s energy-intensive economy, where GDP energy intensity is about 50 percent higher than that of neighboring Kazakhstan and around three times higher than that of Türkiye. While the country accounts for around 0.3 percent of global emissions, its energy sector accounts for three-quarters of the country’s total GHG emissions. The energy system is also characterized by high losses and low reliability of supply, with transmission and distribution losses estimated at around 20 percent in net power generation and around 30 percent in domestic gas production. This level is more than twice as high as electricity losses in high-income and some middle-income countries and in its current condition the energy system cannot sustain the planned high penetration of renewable energy.
- The demand for electricity is expected to continue growing steadily in conjunction with economic growth, development trends, and changes in the structure of the national economy.** The



demand for electricity is expected to almost double to above 130 TWh in 2030, according to the World Bank-supported Least-Cost Generation Expansion Plan (least-cost power [LCP]; base case scenario). In terms of electricity consumption, the industrial sector currently represents the largest customer segment (41 percent), followed by residential (24 percent), agriculture (21 percent), commercial (11 percent), and others. Power generation growth rates from 2012-2019 were recorded at 2.6 percent per year on average. However, the demand for electrical power was not satisfied in full, with unmet demand averaging at about 8 percent of demand. As a result, the country experienced severe energy supply shortages during the winter 2022/2023; the World Bank has been providing technical assistance (TA) support to better develop emergency response and sound investment planning.

6. **Renewable energy scale-up is therefore the centerpiece of energy security and power sector carbon-neutrality by 2050, especially following the recent energy crisis in the country.** Installed capacity of power generation in the country is 18,108 MW as of September 2023, combining thermal power (15,461 MW, representing 85 percent of the power mix), hydro power (2,225 MW, 12 percent) and solar power (200 MW, one percent) plants as well as block stations (222 MW, one percent), however available capacity of power generation is limited to 12,815 MW. State owned generation company “Thermal Power Plants” JSC is primarily responsible for generating electricity and heat to meet the needs of the economy and the population of the country. The company has eight thermal power plants and three combined heat plants (CHPs) with a total capacity of 14,042 MW all using fossil fuels. In this context, the Project will provide a replicable and commercially viable solar project coupled with Battery Energy Storage System (BESS) as part of the country’s 2050 carbon neutrality targets.

7. **The Project builds on the World Bank energy program in Uzbekistan** by scaling up the private investment and commercial financing, diversification of power mix from domestic resources (solar), clean energy transition and decarbonization. The GoU requested the WB to lead key themes for energy sector reform, including the institutional and structural reforms and renewable energy development, which are crucial for the security of supply, supporting the economic growth and well-being of Uzbekistan citizens, and are also an essential part of ensuring business continuity in the economy. In this context, the Project contributes to the GoU’s initiatives on clean energy transition, demonstration of benefits of competitive and transparent processes, leveraging private and commercial financing to meet the sector’s significant investment needs, and building institutional capacity on designing and implementation of PPP projects, including during the post-pandemic economic recovery period. The GoU has also been supported by the ongoing Bank Strategy Programmatic Technical Assistance program and investment project interventions such as WB Scaling Solar Initiative (Navoi IPP – Scaling Solar 1, operational; and Scaling Solar 2 IPPs under construction), Modernization and Upgrade of Transmission Substations (MUTS) and Electricity Sector Transformation and Resilient Transmission (ESTART), and Innovative Climate and Carbon Finance for Energy Reform (ICCFER) to further accelerate the energy reforms, facilitate clean energy transition, diversify power mix with solar photovoltaics (PVs), improve the transmission grid reliability, facilitate integration of large-scale renewable/solar capacities and digitalize operations, loss reduction as well as strengthen regional connectivity and trade.

8. **The proposed project is consistent with the new Country Partnership Framework (CPF) for Uzbekistan (FY2022–FY2026) considered on May 24, 2022.** Specifically, the Project contributes to the Objectives 1.1 (Expand competitive access to market), 1.2 (Enable private sector growth and investment), and 1.4 (Improve the infrastructure for competitiveness and connectivity) under HLO1, and Objective 3.1 (Decarbonization and the greener development of industry and the economy) and Objective 3.2 (More efficient use of natural resources) under HLO3. Moreover, the project will contribute to the achievement of several CPF objectives indicators, including: (i) estimated US\$132 million of private sector investment in RE projects enabled; (ii) 250 MW of additional generation capacity and 63 MW of BESS to be installed by



private sector with WB support; and (iii) increasing the share of RE supported by WB in power generation mix to 4.3 percent. The Project is not only attracting the private sector capital, but also a crucial driver of integrated green, resilient, and inclusive development in Uzbekistan. The project's alignment with the WB's GRID approach signifies a commitment to sustainable and inclusive growth while transitioning to cleaner energy sources. The proposed project will also contribute to the WB Climate Change Action Plan commitment to increase climate financing to 35 percent of total financing and the GoU's updated NDC target. Deployment of RE will be among the key drivers facilitating the climate targets. Furthermore, the Project will leverage private and commercial financing to meet huge financing needs for the clean energy transition.

### C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

9. **The proposed Project Development Objective (PDO)** is to increase private sector led renewable energy supply in Uzbekistan.

#### Key Results

10. **The proposed PDO indicators** for the USRES Project are:

- (a) Electricity supplied by Solar PV plant into the grid (renewable/solar, TWh);
- (b) BESS capacity available to provide grid services and electricity backup into the grid (MW)
- (c) Private capital mobilized (equity/debt, US\$); and
- (d) Greenhouse gas emissions avoided (tCO<sub>2</sub>/year).

11. **The project's intermediate indicators** are:

- (a) Physical implementation progress in solar PV plant (percentage);
- (b) Physical implementation progress in BESS (percentage);
- (c) Solar PV plant commissioning completed (Y/N); and
- (d) BESS commissioning completed (Y/N).

### D. Project Description

12. **The USRES Project will be supported by an IBRD payment guarantee** and comprises one hybrid power plant containing solar PV plant (250 MW) with BESS component of (63MW/126 MWh). A Special Purpose Vehicle namely Bukhara Solar IPP, incorporated by the sponsor in Uzbekistan, will develop the hybrid power plant. The power plant site covers 691-hectares (ha) in Alat District of the Bukhara region. In addition to providing renewable energy generation, the Bukhara Solar IPP will be a first-of-its-kind project to solve the intermittency issues resulting from renewable energy generation integration by coupling the 250 MW solar PV plant with 63 MW/126 MWh of BESS. IFC Transaction Advisory assisted the GoU with the due diligence process, transaction structure and tendering processes.

13. **The project is aligned with the goals of the Paris Agreement guidelines on both mitigation and adaptation.** The underlying technologies - solar photovoltaic generation and batteries to control the time of injection of this generation into the grid - are categorized as universally aligned technologies. As



per the latest Nationally NDC submitted to United Nations Convention on Climate Change (UNFCCC) in 2021, Uzbekistan committed to reducing 35% of its GHG emissions by 2030. Among the key mitigation actions identified in the 2021, NDC is to increase the share of renewable energy sources to 30% of total power generation capacity. The achievement of this long-term goal will be with the support of international organizations, gaining access to advanced energy-saving and environmentally friendly technologies, climate finance resources. The project is also aligned with the Paris Agreement guidelines for adaptation. The main components under this project have gone through a climate and disaster risk assessment and were found to be moderately affected by potential climate change related hazards, including frequent heat waves, flooding, droughts, wildfires that may threaten water supply service. However, the risks were reduced to acceptable levels by taking measures such as choosing project equipment designed to withstand heatwaves. In addition, the selected project site is surrounded by sparse vegetation to prevent the spread of potential wildfires. Thanks to these measures, residual risks of climate change related hazards have become low. Therefore, the project is aligned with adaptation goals of the Paris Agreement. The country does not yet have National Adaptation Plan (NAP), nevertheless, the adaptation priorities identified in Uzbekistan's National Communication to the UNFCCC include support to the understanding of climate change impacts across key sectors such as agriculture, water resource management, population health, disaster risk reduction, and energy. The proposed operation's compliance with adaptation is not expected to pose a significant risk for Paris Alignment.

## E. Implementation

14. **The Bukhara Solar IPP Project Company namely Nur Bukhara Foreign Enterprise (FE) LLC is an SPV (Project Company or USRES IPP) incorporated and registered in Uzbekistan to develop, finance, build, own, operate, and maintain the Bukhara project.** Masdar will bring in long-tenured and experienced staff to the board and management of the SPV. The construction and operation of the solar PV power plant combined with BESS at the Bukhara site will be implemented through engineering, procurement and construction (EPC) and operations and maintenance (O&M) contracts. The EPC contracts are being procured competitively by Masdar (already awarded for PV and being reviewed for BESS) and will be agreed and signed as a prior condition to financial close.

15. **For the proposed project, the roles and responsibilities of the GoU (through its agencies and SOEs) and of the Governor (Khokimiyat) of the Bukhara Region is described below.** These arrangements largely follow tested implementation arrangements from previous IPP transactions.

(a) The Ministry of Economy and Finance (MoEF) is the implementing agency for the USRES. It represents the GoU under the Government Support Agreement (GSA) signed with the Project Company and will also enter into the GSA Direct Agreement with the Project lenders. Established<sup>1</sup> through the merger of the Ministry of Economy and the Ministry of Finance, MoEF is the GoU agency responsible for developing long and medium-term socio-economic priorities for the country; management of key functions including budget, taxation and custom tariffs, accounting and financial reporting and price setting, as well as ensuring that macroeconomic indicators are achieved for GoU; and project coordination with IFIs and the GoU.

(b) The MoEF, on behalf of the GoU, will enter into an Indemnity Agreement with IBRD (by which the GoU commits to reimburse IBRD for any payment under the proposed guarantees in case of a call on the guarantees). The MoEF has been involved in the preparation of the USRES IPPs, particularly in relation to the fiscal impact of the transaction and the GoU financial obligations arising out of the

<sup>1</sup> Pursuant to Presidential Decree No. PF-269 dated December 24, 2022.



project contracts (such as early-termination payments pursuant to the GSA signed by MoEF). The MoE provides policy direction on sector development, and on planning and procurement of power-generation capacities.

(c) NEGU, as the single purchaser of electricity from generation companies, including IPPs, is the off taker for the project's electricity and has entered into PPA with the Project Company. An independent engineer will be jointly arranged by NEGU and the Project Company to check the plant performance and monitor compliance with technical specifications under the PPA.

(d) The Governor (Khokimiyat) of the Bukhara Region is the party to the Land Lease Agreements signed with Masdar in relation to the long-term leases (for a duration equal to the terms of the PPAs and an additional six months) of the project site.

## CONTACT POINT

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### Borrower/Client/Recipient

Republic of Uzbekistan

### Implementing Agencies

Ministry of Economy and Finance (MoEF)

## FOR MORE INFORMATION CONTACT

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**APPROVAL**

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