Uzbekistan: Distribution Network Digital Transformation and Resiliency Project

Project Name: Distribution Network Digital Transformation and Resiliency Project

Project Number: 56231-001

Country / Economy: Uzbekistan

Project Status: Approved

Project Type / Modality of Assistance: Loan

Technical Assistance

Source of Funding / Amount

| Loan 4347-UZB: Distribution Network Digital Transformation and Resiliency Project | US$ 200.00 million |
| Loan 8455-UZB: Distribution Network Digital Transformation and Resiliency Project | US$ 75.00 million |
| TA 10149-UZB: Preparing and Implementing Gender-Inclusive Projects in Central and West Asia Subproject 11: Enhancing Women's Energy-Based Livelihoods | |
| Technical Assistance Special Fund | US$ 250,000.00 |

Operational Priorities

OP2: Accelerating progress in gender equality
OP3: Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability
OP6: Strengthening governance and institutional capacity

Sector / Subsector: Energy / Electricity transmission and distribution

Gender: Effective gender mainstreaming

Description: Distribution Network Digital Transformation and Resiliency project aims to rehabilitate medium voltage distribution substations and associated overhead lines across the country and modernize the distribution system operations. The project is aligned with the following impact: social and economic development through provision of green infrastructure services achieved. The project outcome: distribution grid operation reliability and efficiency improved—will be achieved through the following outputs:

Output 1: Distribution substations modernized and digitalized;
Output 2: Women's energy-based livelihoods improved; and
Output 3: Institutional capacity for sustainability and climate resilience enhanced.

Project Rationale and Linkage to Country/Regional Strategy: The electricity demand is expected to double by 2030 from its annual power consumption of 67 terawatt-hours in 2019. To meet the rapidly growing power demand, the government targets to install additional 17 gigawatts (GW) capacity to the existing available capacity of 12.9 GW. This significant addition to the generation capacity should be paced with the enhancement of the transmission and distribution network to ensure the generated electricity, especially from renewable energy resources, is delivered to the end users without interruption. It would take about $10 billion in investments to expand, enhance, and modernize the distribution network by 2030. However, the adequate investment in modernizing the distribution network has been slow because of limited access to the capital market and long-term financing. Uzbekistan's distribution system comprises more than 260,000 kilometers of 0.4-kilovolt (kV) to 110 kV networks, 1,655 substations, and more than 86,000 transformer points, providing electricity to 7.6 million residential and industrial consumers. More than 50% of distribution lines have been in operation for over 30 years, and 30% of substation transformers require urgent replacement. The aging distribution system has developed serious problems, such as overloads, voltage drops related to increased load demand, and increasingly frequent blackouts. Besides, technical losses in the distribution system remain high, estimated at 13% of the total power generation, resulting in inefficiency and offsetting the government's continued efforts to reduce energy intensity and greenhouse gas emissions. Uzbekistan's household electrification rate is nearly 100%, but an aging and overloaded electricity system has caused a sustained supply reliability issue, especially in rural areas. Uzbekistan's aging and dilapidated infrastructure in the power supply chain increasingly results in system inefficiencies, unreliable electricity supply, and uneven access to electricity across provinces, constraining economic development, dampening business confidence, and contributing to widening disparities. Power outages continue to occur, even in urban areas, and are particularly severe in rural areas during the winter seasons. With rising summer temperatures, Uzbekistan has begun to experience electricity supply disruption in the hottest months, in addition to the traditional blackout season of winter. Building up resiliency in the transmission and distribution is crucial to adapt to climate change in parallel with improving supply reliability.

The project is aligned with ADB's country partnership strategy for Uzbekistan, 2019-2023, notably in supporting the move toward a vibrant and inclusive market economy, modernizing energy infrastructure, and increasing energy efficiency. It is consistent with the operational priorities (OPs) of Strategy 2030, primarily (i) OP2 on accelerating progress in gender equality; (ii) OP3 on tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability; and (iii) OP6 on strengthening governance and institutional capacity. The project is also aligned with ADB's Energy Policy (2021) and the Paris Agreement by integrating climate resilience into the energy infrastructure project, and contributing to GHG reduction and transitioning toward a low-carbon economy.

Impact: Social and economic development through provision of green infrastructure services achieved

Project Outcome

Description of Outcome: Distribution grid operation reliability and efficiency improved

Progress Toward Outcome: Distribution substations modernized and digitalized

Implementation Progress

Description of Project Outputs: Women's energy-based livelihoods improved

Institutional capacity for sustainability and climate resilience enhanced

Status of Implementation Progress (Outputs, Activities, and Issues): Nation-wide

Geographical Location: Nation-wide

Safeguard Categories
**Summary of Environmental and Social Aspects**

**Environmental Aspects**

**Involuntary Resettlement**

**Indigenous Peoples**

**Stakeholder Communication, Participation, and Consultation**

**During Project Design**

**During Project Implementation**

**Responsible ADB Officer**
 Kim, Seung Duck

**Responsible ADB Department**
 Sectors Group

**Responsible ADB Division**
 Energy Sector Office (SG-ENE)

**Executing Agencies**
 Joint-Stock Company Regional Electrical Power Networks

**Timetable**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
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<tbody>
<tr>
<td>Concept Clearance</td>
<td>06 Feb 2023</td>
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<tr>
<td>Fact Finding</td>
<td>13 Mar 2023 to 19 Mar 2023</td>
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<tr>
<td>MRM</td>
<td>13 Jul 2023</td>
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<tr>
<td>Approval</td>
<td>19 Sep 2023</td>
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<tr>
<td>Last Review Mission</td>
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<td>Last PDS Update</td>
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