



Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 07-Feb-2019 | Report No: PIDC26521



BASIC INFORMATION

A. Basic Project Data

Country Tajikistan	Project ID P170132	Parent Project ID (if any)	Project Name Rural Electrification Project (P170132)
Region EUROPE AND CENTRAL ASIA	Estimated Appraisal Date Mar 18, 2019	Estimated Board Date Jun 26, 2019	Practice Area (Lead) Energy & Extractives
Financing Instrument Investment Project Financing	Borrower(s) Ministry of Energy and Water Resources, Ministry of Finance	Implementing Agency Pamir Energy Company, Barqi Tojik	

Proposed Development Objective(s)

The project development objectives are to provide electricity access to target settlements in Khatlon and Gorno-Badakhshan Autonomous Oblast (GBAO) regions of Tajikistan, and improve reliability of electricity supply in GBAO.

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	70.70
Total Financing	70.70
of which IBRD/IDA	20.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	20.00
IDA Grant	20.00

Non-World Bank Group Financing

Other Sources	50.70
US: Agency for International Development (USAID)	2.80
EC: EU - European Agency for Reconstruction (EAR)	22.60



EC: European Rolling Stock Financing Cooperative	10.00
SWITZERLAND, Gov. of: Fed. Off. for For. Eeo. Affrs. (FOFEA)	4.00
GERMANY: KREDITANSTALT FUR WIEDERAUFBAU (KFW)	11.30

Environmental and Social Risk Classification

High

Concept Review Decision

Track II-The review did authorize the preparation to continue

Other Decision (as needed)

B. Introduction and Context

Country Context

Tajikistan is a landlocked country located in southeast Central Asia. It has a population of 8.5 million and a Gross National Income per capita of US\$1,240 (2016). After the period of reduction in economic growth in 2014-2015 due to spill-over effects from Russia’s economic deceleration, the growth has resumed. Specifically, real Gross Domestic Product (GDP) growth recovered to 6.9 in 2016 and 7.1 percent in 2017. Growth of GDP accelerated to 7.2 percent in the first half of 2018, up from 6 percent in the year-earlier period. Growth was largely supported by heightened public investment in infrastructure projects.

The balance of payment situation has marginally improved. The current account deficit narrowed to 0.7 percent of GDP in the first quarter of 2018 (from 1.1 percent a year earlier) as rising aluminum and cotton prices—together with a further increase in remittance inflows—partially offset a rising import bill (mainly the result of higher imports of machinery). The current account deficit was financed by foreign direct investment (FDI) inflows which remained low, at only around 1 percent of GDP, reflecting Tajikistan's challenging business environment.

Fiscal deficit remains high. Although narrowing from the year-earlier period, the fiscal deficit remained relatively large at 4 percent of GDP in the first half of 2018. Capital spending on US\$3.9 billion Rogun Hydropower plant (HPP), largely financed by the remaining balance of the Eurobond issued in 2017, continued to drive the government's expansionary fiscal policy. Annual consumer price inflation stood at a record low 1.6 percent in June 2018 (down from 9 percent a year earlier), pulled down by strong domestic agricultural production and imports from Uzbekistan.

Pressure on local currency exchange rate subsided. The foreign exchange market remains highly regulated by the central bank, which constrains access to hard currency, indirectly limits imports, and stimulates the informal market. In mid-July the central bank made a one-off adjustment by devaluing the somoni by 2.6 percent against the U.S. dollar thus reducing the pressure on the exchange rate.

Poverty has been reducing, but continues to remain a challenge. Poverty measured at the internationally comparable line (\$3.2 per person per day at PPP) stood at 20.3 percent of the population in 2015, and is expected to have fallen to 15 percent in 2018. Based on national definition, poverty rate fell to 29.5 percent in 2017 with urban poverty declining at a faster pace.



Growth prospects are modestly positive. Tajikistan's outlook remains positive, building on Russian economic growth, up-trending global prices for major export commodities and further dynamism in the region. Growth is projected to average 6 percent in the medium term, supported by firm private consumption, a gradual rehabilitation of the banking sector, and continued investment in public infrastructure projects. Barring external shocks, the central bank's inflation targeting framework is expected to keep inflation in the single digits. Based on the international measurement, poverty rate expected to fall to 12.5 percent by 2020.

The fiscal stance will gradually improve as the authorities seek to balance the country's need for financing large infrastructure projects with its commitments to meet soaring debt service obligations within prudent macro-fiscal parameters. With this intention, the level of public debt is forecast to remain within the recently-adopted fiscal rule on the debt ceiling; a new Eurobond issuance is not ruled out under the baseline scenario.

Sectoral and Institutional Context

The power sector is comprised of the vertically integrated energy company, Barqi Tojik (BT), two independent power producers (IPPs), Rogun Joint Stock Company, and a concession combining power generation and distribution. BT is an SOE fully owned by the Government. It owns and operates most of the electricity generating plants and is also responsible for electricity transmission, dispatch, and distribution services to around 8 million people. The two IPPs – Sangtuda-1 and Sangtuda-2 HPP – were constructed with foreign direct investments from Russia and Iran, and supply electricity to BT under 20-year power purchase agreements.

The power sector is dominated by hydropower plants. The total installed capacity of HPPs owned and operated by BT is 5,400 MW and hydropower plants account for 95 percent of that capacity. The Nurek HPP, with a seasonal reservoir, is the largest generating plant. With an installed capacity of 3,000 MW, it generates 70 percent of the total annual energy requirements and is also the balancing plant in the system. The winter electricity and heat demand is partially met by 400 MW coal-fired Dushanbe-2 combined heat and power plant (CHP), which supplies electricity and heat during winter months (November-April) when the hydrology conditions do not allow to fully meet the electricity demand using only output from HPPs.

The Pamir Energy Company (PEC) generates and supplies electricity to around 30,000 customers in the Gorno Badakhshan Autonomous Oblast (GBAO), which is in the south-eastern part of the country. PEC is a special purpose company, which is 70 percent owned by Aga Khan Fund for Economic Development (AKFED) and 30 percent by IFC. It is operating the GBAO power generation and distribution under 25-year concession agreement, which was signed on May 24, 2002 (and expires in 2026), by GoT and PEC and provides the policy, regulatory, technical, environmental, financial and operational framework for construction and operation of the sector assets. PEC generates and supplies energy to about 30,000 customers (around 200,000 people) in GBAO. The company constructed and currently operates ten medium and small HPPs, which account for 90 percent of the supply to consumers. Some electricity is supplied to GBAO grid from BT network.

Electricity demand and supply in PEC service area. The total electricity demand in GBAO is estimated at 220 million kWh per year. PEC is able to meet only 200 million kWh of that demand for the existing consumers connected to network. The supply reliability has significantly improved since construction and rehabilitation of new power plants, primarily Pamir I. There are no major electricity outages in the region except for cases of failures of power generation and distribution assets caused by natural disasters such as landslides. The projected average annual 5 percent growth rate of electricity demand for connected consumers would require construction of new capacity. Moreover, the Government and PEC are working on identification of technically feasible and economically least-cost solutions to connect the remaining 11,000 residents without access to electricity.

Power Sector Challenges

The power system is currently facing the key challenges below, which need to be addressed to ensure adequate and



reliable electricity supply.

Challenge #1: Supply adequacy and reliability. The country has been suffering from electricity supply shortages since its disconnection from the Central Asian Power System in 2011 and discontinuation of gas supply from Uzbekistan. The winter deficits were caused by: (a) reliance on hydro generation and electricity-based heating due to lack of other viable alternatives; and (b) dilapidation of the largest generation plants.

Challenge #2: Financial distress of BT. BT is in financial distress due to tariffs lagging the cost-recovery level and operational inefficiencies in form of excess losses (at about 25 percent of total annual generation), non-stable and variable collection rates (at around 85 percent of sales), and other company-level financial management inefficiencies (e.g. excess inventory; high cost of inputs due to non-competitive procurement). The weighted average tariff is estimated to be 55 percent below the cost-recovery level (computed following the cash needs approach). The average tariff is 2 c/kWh and does not allow to fully service the costs on around US\$1 billion of outstanding debt, payables to IPPs (Sangtuda-1 and Sangtuda-2), and timely payment of taxes.

Challenge #3: Limited regional connectivity. After several years of complete isolation from the Central Asian Power System (CAPS) and only one 220 kV interconnection with Afghanistan, the country has not been struggling to ensure sufficient electricity supply in winter and export all surplus energy from HPPs. This has resulted in significant foregone export revenues given that there is an estimated average summer surplus of 3.5 billion kWh per year exclusive of additional supply from Rogun HPP.

Challenge #4: 200,000 people without access to electricity. About 2.5 percent of population does not have access to electricity across the country. The numbers of people without access to electricity are currently being confirmed by the Bank in cooperation with the Government counterparts and technical experts. Most of the settlements without access (around 190,000 people) are relatively new given rapid growth of population and are located in the service area of BT. The remaining are located in remote mountainous areas in Khatlon and GBAO where access has historically been a challenge. Before Tajikistan's independence, those areas were primarily supplied with diesel-based portable generator sets. This approach became prohibitively expensive given the unit costs of diesel-based electricity generation.

The proposed project would help the Government to ensure reliable electricity supply to 11,000 people or 50 settlements in Khatlon region, which are bordering with Afghanistan, and 58 settlements in GBAO. The supply would be provided also to various social and public facilities. Those areas are a priority given their highest risks of socio-economic fragility. The remaining settlements would be gradually connected by BT as financial resources become available.

The proposed project would also have synergies with the other project being prepared by the World Bank under the IDA18 Risk Mitigation Regime (RMR) umbrella – Strengthening Socio-Economic Resilience in Tajikistan (US\$37 million IDA grant), which aims to strengthen community-level resilience in three ways.

Relationship to CPF

Indicator 1 (CRI): People provided with new or improved electricity service by household connections. This indicator would aggregate the following data.

- People provided with access to electricity services under the project by household connections (grid or off-grid).
- Additional generation capacity under the project.

Indicator 2 (Custom). Average annual daily duration of electricity supply in GBAO region. This indicator will measure improvements in reliability of supply to consumers by tracking end-user supply outages due to failures of power sector assets, including generation plants.

Indicator 3 (Custom). Incremental export revenues of PEC. This indicator will measure additional revenues of PEC from exports of electricity generated by Sebzor HPP.



C. Proposed Development Objective

The project development objectives are to provide electricity access to target settlements in Khatlon and Gorno-Badakhshan Autonomous Oblast (GBO) regions of Tajikistan, and improve reliability of electricity supply in GBO.

Key Results

Indicator 1 (CRI): People provided with new or improved electricity service by household connections. This indicator would aggregate the following data.

- People provided with access to electricity services under the project by household connections (grid or off-grid).
- Additional generation capacity under the project.

Indicator 2 (Custom). Average annual daily duration of electricity supply in GBO region. This indicator will measure improvements in reliability of supply to consumers by tracking end-user supply outages due to failures of power sector assets, including generation plants.

Indicator 3 (Custom). Incremental export revenues of PEC. This indicator will measure additional revenues of PEC from exports of electricity generated by Sebzor HPP.

D. Concept Description

The project would have three components – construction of Sebzor HPP, provision of electricity service to target settlements in GBO and Khatlon regions, and technical assistance to implement the project.

Component 1. Construction of Sebzor HPP and its connection to the domestic power transmission and Afghan networks (estimated cost of US\$45.7 million). This component would have the following two sub-components:

Sub-component 1.1. Construction of 10 MW Sebzor HPP (estimated cost of US\$40 million). This HPP would be located in the south-western part of GBO, close to the Afghan border. The project would ensure sufficient generation capacity to meet the projected electricity demand in GBO and also allow electricity exports to the neighboring Afghanistan of surplus generation during the summer months. Specifically, the project is expected to generate 92 million kWh of energy per year, with 60 percent consumed domestically in GBO primarily by the consumers already connected to the network and the rest exported to Afghanistan at a tariff of around US\$3.5/kWh (to be finalized during PPA negotiations), thus, generating additional export revenue of US\$1.3 million.

Sebzor HPP is planned to consist of a basic, run of the river model with a 2.8 km canal culminating in two 220 m penstocks feeding into a powerhouse with two or three generating units. With an installed capacity of approximately 10 MW, the power plant will generate 92 GWh annually, and will be connected to PEC's grid via a 20 km 110 kV line. The site is situated on an elevation of about 2,500 masl, and the project sites (intake, waterways, powerhouse etc.) are relatively easy to access, mostly via existing roads.

Sub-component 1.1: Construction of power transmission lines to evacuate electricity from Sebzor HPP (estimated cost of US\$5.7 million). Evacuation of electricity from Sebzor HPP would require construction of 110 kV single-circuit 17 km power transmission line from the power plant to Khorog substation. The preliminary line route was identified, and it will need to be finalized by the design and construction contractor during later stages of project implementation. The final design of the transmission line route would take into account multiple factors, including the difficulties of the terrain, the flooding and landslide risks, the private land acquisition, and physical resettlement requirements. A new switchyard at Khorog substation would need to be constructed to connect the power transmission line from Sebzor HPP. The total cost of this line is estimated at US\$2 million and it would be financed by SECO.



Component 2: Provision of electricity service to target settlements in Khatlon and GBAO regions (estimated cost of US\$25 million). This component would have the following two sub-components:

Sub-component 2.1: Grid-connection or off-grid electricity supply/generation sub-projects for target communities (estimated cost of US\$18 million). This would include electricity supply and generation solutions for: (a) 58 settlements in GBAO with total population of about 11,000 people, which do not have electricity service; and (b) 50 settlements in Khatlon region with total population of about 10,000 people, which are bordering with Afghanistan, and do not have electricity service.

Access to energy service would be ensured either through supporting the connection of settlements to centralized network or off-grid solutions in form of mini-grids (solar PV, wind, micro hydro or combination) and household level supply sources (e.g. rooftop solar PV, solar water heaters).

Sub-component 2.2. Last-mile connections for consumers in target settlements (estimated cost of US\$3 million). This sub-component would finance household connections and basic wiring costs to alleviate consumer affordability barriers. Household consumers whose connection and internal wiring costs are prefunded by the project may be required to repay, in installments, the full costs over a period agreed with PEC and BT. The project may also finance last-mile connection costs for social and public facilities (e.g. hospitals, schools, kindergartens), but will not finance those costs for commercial and industrial users.

Component 3: Technical Assistance for Project Implementation (estimated cost of US\$4 million). This component would finance: (a) Project Management Consultant (PMC) to help PEC and BT to conduct technical supervision of Sebzor HPP and other grid connection or off-grid RE projects; (b) capacity building at PEC and BT to conduct integrated electricity access planning, and prepare and implement capital investment projects for off-grid solutions; (c) capacity building at PEC and BT to operate and maintain non-hydro RE projects given that there is no capacity in the country to operate and maintain non-hydro RE projects; (d) project and entity audits; and (e) support to PEC to strengthen its financial performance and start accessing commercial financing.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No



Summary of Screening of Environmental and Social Risks and Impacts

The social and environmental risks are both rated as High. On social front, the project is expected to result in positive impacts due to increasing the number of people with access to power resulting in enhanced employment and livelihood opportunities.. However, a variety of risks are evident, most of which are rather contextual and external to the project. But these do will have a bearing on the project as it manifests in risks related to security and safety. Apart from this, involuntary resettlement issues too compounds the situation. On securing lands, the implementation of the RPF and RAPs will need to be monitored closely to ensure full compliance with the standard in the remote areas being targeted by the project. Reaching out to remote and poorer households will depend upon the provision of appropriate technologies and out reach capacity of the client which currently is quite inadequate. The project environmental risk is rated High because of the greenfield nature of Component 1 for both the Sebzor HPP and transmission lines as well as Component 2's large number of rural electrification activities in remote and potentially fragile areas. The limited capacity of the implementing agencies in the understanding and application of Bank's ESF and relevant Standards was also considered. During preparation and implementation, planned activities in and around protected areas such as the Tajik National Park (UNESCO World Heritage Site) and other critical habitats or cultural landmarks will be carefully reviewed.

Note To view the Environmental and Social Risks and Impacts, please refer to the Concept Stage ESRS Document.

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APPROVAL

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