Report and Recommendation of the President to the Board of Directors

Project Number: 52122-001
October 2018

Proposed Grant
Republic of Tajikistan: Reconnection to the Central Asian Power System Project

Asian Development Bank

CURRENCY EQUIVALENTS
(as of 9 October 2018)

Currency unit	–	somoni (TJS)
TJS1.00	=	$.0106
$1.00	=	TJS9.42

ABBREVIATIONS

ADB	-	Asian Development Bank
CAPS	-	Central Asian Power System
CO_2	-	carbon dioxide
EMP	-	environmental management plan
kV	-	kilovolt
LARP	-	land acquisition and resettlement plan
PAM	-	project administration manual
PMU	-	project management unit
SOPI	-	Sector Operations Performance Improvement
TWh	-	terawatt-hour

NOTES

(i) The fiscal year (FY) of the Government of Tajikistan and its agencies ends on 31 December.

(ii) In this report, “$” refers to United States dollars.

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PROJECT AT A GLANCE

1. Basic Data — **Project Number:** 52122-001

Project Name	Reconnection to the Central Asian Power System Project	**Department /Division**	CWRD/CWEN
Country	Tajikistan	**Executing Agency**	Open Stock Holding Company "Barqi Tojik"
Borrower	Republic of Tajikistan		

2. Sector	**Subsector(s)**	**ADB Financing ($ million)**
✓ **Energy**	Electricity transmission and distribution	35.00
	Total	**35.00**

3. Strategic Agenda	**Subcomponents**	**Climate Change Information**	
Inclusive economic growth (IEG)	Pillar 1: Economic opportunities, including jobs, created and expanded	CO_2 reduction (tons per annum)	1,834,000
Environmentally sustainable growth (ESG)	Global and regional transboundary environmental concerns	Climate Change impact on the Project	Low
	Natural resources conservation	**ADB Financing**	
Regional integration (RCI)	Pillar 2: Trade and investment	Mitigation ($ million)	35.00

4. Drivers of Change	**Components**	**Gender Equity and Mainstreaming**	
Governance and capacity development (GCD)	Client relations, network, and partnership development to partnership driver of change	No gender elements (NGE)	✓

5. Poverty and SDG Targeting		**Location Impact**	
Geographic Targeting	No	Nation-wide	High
Household Targeting	No		
SDG Targeting	Yes		
SDG Goals	SDG7, SDG9		

6. Risk Categorization: Low

7. Safeguard Categorization **Environment:** B **Involuntary Resettlement:** B **Indigenous Peoples:** C

8. Financing

Modality and Sources	Amount ($ million)
ADB	**35.00**
Sovereign Project grant: Asian Development Fund	35.00
Cofinancing	**0.00**
None	0.00
Counterpart	**5.00**
Government	5.00
Total	**40.00**

Currency of ADB Financing: USD

Source: Asian Development Bank

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed grant to the Republic of Tajikistan for the Reconnection to the Central Asian Power System Project.

2. The proposed project will provide critical investment in relay protection equipment needed for Tajikistan's electricity system to be in full parallel operation with Uzbekistan's electricity system and the Central Asian Power System (CAPS).[1] This will enable Tajikistan to export summer surplus electricity to Uzbekistan and allow for more efficient use of regional energy resources.

II. THE PROJECT

A. Rationale

3. **Technical constraints for interconnection.** The Central Asian republics are endowed with significant energy resources, but the distribution is highly skewed. The Kyrgyz Republic and Tajikistan have abundant hydro resources, while Kazakhstan, Turkmenistan and Uzbekistan are rich in fossil fuels. During the Soviet Union time, power systems in Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan were developed and optimized to operate as a synchronized regional grid commonly known as CAPS.[2] The Coordinating Dispatch Center-Energy in Tashkent, Uzbekistan's capital, maintains the balanced and synchronized operation of CAPS. Power exchange among the countries was 25.4 terawatt hours (TWh) in 1990,[3] but after the breakup of the Soviet Union, it sharply declined and reduced to less than 1.3 TWh in 2017.[4]

4. The electricity systems in the Kyrgyz Republic and Tajikistan, which are largely run on hydropower generation facilities, played a vital role in CAPS by providing frequency regulation. Two 500-kilovolt (kV) and eight 220 kV interconnection lines with Uzbekistan enabled Tajikistan to export summer surplus electricity and balance the winter deficit through imports from CAPS countries.[5] Historically, Tajikistan was a net importer of electricity.

5. In November 2009, in response to a grid failure in Tajikistan that led to a regional blackout in CAPS countries, Tajikistan was disconnected from CAPS. This failure was attributed to an outdated transmission relay protection system, which failed to promptly isolate the incident within Tajikistan, triggering cascade blackouts and affecting CAPS operations, particularly in Uzbekistan. The failure highlighted the obsoleteness of relay protection infrastructure in Tajikistan. The protection system had not been properly maintained or replaced, compromising the integrity and reliability of the grid. Well-coordinated protection relays and their integrity are essential for the operation of electricity systems, particularly the parallel operation of regional power systems.[6]

6. Tajikistan's isolation had a substantial impact on the operations of CAPS and its own power system. Because of the lack of frequency regulation from Tajikistan, CAPS dispatchers, particularly in Uzbekistan, needed to maintain higher spinning reserves at thermal power plants, consuming expensive fossil fuels, instead of cheaper hydro power plants. In Tajikistan, the power

[1] In parallel operation, all generators of interconnected power systems have the same phase sequence.
[2] Turkmenistan's power system had been part of CAPS during the Soviet time. It has been operating independently and in parallel with Iran's power system since May 2003.
[3] Asian Development Bank (ADB). 2012. *Central Asia Regional Economic Cooperation: Power Sector Regional Master Plan*, Manila (TA 7335-REG).
[4] Power exports to Afghanistan are excluded.
[5] Tajikistan's installed capacity was 5,713 megawatt (MW) in 2017, of which 87% was based on hydropower
[6] Since November 2009, CAPS consists of the parallel operation of the Kazakh, Kyrgyz and Uzbek power systems.

grid was not designed to operate independently, and urgent investments in the transmission system were needed to supply electricity to regions that previously received electricity from CAPS. Moreover, Tajikistan's hydropower plants spilled surplus water every summer—which could have generated between 3–5 TWh of electricity each year—because of limited export opportunities. On the other hand, the lack of electricity import sources required severe rationing of power supply during winter.[7] The Asian Development Bank (ADB) estimated that efficient regional power trade would have translated into annual cost savings on fuel as well as operation and maintenance of about $670 million.[8]

7. Following the change of the government in Uzbekistan in 2017, the state power utilities of Tajikistan—Open Joint Stock Holding Company Barqi Tojik—and Uzbekistan—Joint Stock Holding Company Uzbekenergo—signed a power trade agreement on 9 March 2018 for Tajikistan to export up to 1.5 TWh of summer surplus electricity to Uzbekistan. Barqi Tojik started exporting electricity to Uzbekenergo on 2 April 2018. To facilitate the immediate power export from Tajikistan, a part of Uzbekistan was isolated from its national grid and connected to the Tajikistan power system, using existing regional infrastructure. However, this arrangement restricts the volume of electricity export from Tajikistan and the year-round availability of supply.[9] Full parallel operation of the two power systems is required to remove this constraint, raise the power export volume to 5 TWh per year and effect a more efficient and optimized power exchange.

8. Tajikistan's obsolete protection and interconnection system, however, is preventing the achievement of full parallel operation. The project will resolve this by (i) installing and upgrading the relay protection system for synchronizing the Tajikistan and Uzbekistan systems, (ii) increasing interconnection points between the two systems, and (iii) strengthening Tajikistan's capacity for stable parallel operation.

9. **Sector's financial issues.** The project investment will remove the technical constraints for interconnection, but the fundamental issue of Tajikistan's electricity subsector is insufficient cash inflow largely as a result of system inefficiency, inadequate corporate structure and low tariffs. Barqi Tojik's excessive debt service obligations and foreign exchange losses on grants and loans from ADB and other bilateral and multilateral financing institutions exacerbates the problem.[10] These have eroded the company's equity to the point of insolvency, and external auditors have noted material uncertainty about Barqi Tojik's ability to continue operating as a going-concern since 2016. Consequently, Barqi Tojik has not been compliant with some of the financial covenants of previous ADB grants despite its successful track-record of project implementation.[11] Barqi Tojik's financial recovery is an urgent issue for the sector's sustainability.

10. While recovery efforts have been covenanted in previous ADB projects, the lack of measures to generate significant additional revenues stymied more radical improvements. The

[7] Load shedding was discontinued in the winter of 2017-2018 after full commissioning of a new 400-megawatt combined heat and power plant in Dushanbe.

[8] The World Bank estimated a higher cost saving potential of $1 billion a year (World Bank. 2016. *Enhancing Regional Trade in Central Asia*. Washington D.C.).

[9] This arrangement of isolated operation and interconnection of part of the Uzbekistan grid to Tajikistan can only work during summer but not in winter (October–March) because Tajikistan does not have adequate surplus electricity during winter to service this isolated region of Uzbekistan.

[10] Concessional loans and grants from ADB were on-lent to Barqi Tojik for 25 years with 5% interest rate and foreign exchange risk fully covered by Barqi Tojik. Loans and grants from other institutions are also on-lent on similar terms.

[11] The financial covenants include a debt service coverage ratio of 1.2, self-financing ratio of 20% and operating ratio of 90%.

current biggest issue is Barqi Tojik's commercial liabilities, which continue to grow for the lack of its capacity to fully service them. The project will enable summer export and increase Barqi Tojik's income by about 30% compared to the 2016 level. To address the debt issue, Barqi Tojik is required by the project's legal agreement to use these funds to repay the commercial liabilities first until they are at a manageable level. Additionally, the government has agreed to continue to raise electricity tariffs by at least 15% per year until 2021.[12] Moreover, the government will provide this grant as equity to Barqi Tojik and intends to convert all previous ADB grants into equity of Barqi Tojik.[13] The on-lending arrangement of grants was acceptable in previous projects because Barqi Tojik is a revenue generating entity, but the current financial challenges call for these forms of government support. The successful implementation of all these actions can potentially bring back net profits to Barqi Tojik from 2021.

11. These financial recovery measures will also pave the way for successful sector reforms, which ADB is preparing to support as a sector development program for ADB Board consideration in 2019. ADB has supported Tajikistan's electricity subsector reforms extensively since 2011 through the Sector Operations Performance Improvement (SOPI) program.[14] The SOPI program provides comprehensive reform initiatives, including separation of the generation, transmission and distribution businesses, debt restructuring, introduction of a new cost recovery tariff methodology, studies for investments in metering and billing infrastructure, design of a fund-flow mechanism with a settlement system, and development of multi-year management contracts in transmission and distribution companies. As a key milestone, the government issued a decree to legally separate Barqi Tojik into three companies in April 2018. A special government committee is finalizing the legal documents for this process. After unbundling, the new tariff methodology and fund flow mechanism will help manage the financial flow between sector entities. Given the anticipated major restructuring of Barqi Tojik, all financial recovery indicators will be included in the design and monitoring framework of the sector development program.

12. For sector reform initiatives, experience from previous projects show that coordinated approach among development partners is key to successful implementation. ADB is closely coordinating with partners such as the European Bank for Reconstruction and Development, the International Monetary Fund and the World Bank in developing the financial recovery measures of this project and the reform initiatives of the sector development program.

13. Finally, the parallel operation to be achieved by the project will also allow Tajikistan to export electricity to other CAPS countries in the future and to import electricity if needed. The commercial arrangements between Barqi Tojik and Uzbekenergo is only for exporting electricity from Tajikistan as of 2018, but the project will provide the basis for expanding trade between CAPS countries and improving regional resource efficiency further.

14. With these impacts, the project aligns with the focus areas of ADB intervention—sector's lost export revenues—in its Country Partnership Strategy 2016–2020 for Tajikistan.[15] It also aligns

[12] Electricity tariffs were increased by about 15% in both 2017 and 2018.
[13] The total amount of outstanding principal of on-lent ADB grants to Barqi Tojik is about $240 million, which is about 18% of all outstanding on-lent loans and grants from bilateral or multilateral financing institutions.
[14] SOPI program consultants have been providing comprehensive support to Barqi Tojik's restructuring process since 2011. (ADB. 2010. *Report and Recommendation of the President to the Board of Directors: Proposed Grant to the Republic of Tajikistan for the Regional Power Transmission Project.* Manila.)
[15] ADB. 2016. *Tajikistan: Country Partnership Strategy 2016-2020*, Manila.

with the focus areas of tackling climate change (para 22), strengthening governance and institutional capacity, and fostering regional cooperation and integration in ADB's Strategy 2030.[16]

B. Impact and Outcome

15. The project is aligned with the impact of expanded regional energy trade supporting development of the national economy achieved by 2030.[17] The outcome of the project will be improved regional energy efficiency among CAPS countries.[18]

C. Outputs

16. **Output 1: Tajikistan and Uzbekistan electricity grids synchronized.** The project will install modern relays, circuit breakers, instrumental transformers and ancillary equipment and systems for reliable synchronous operation at 220 kV and 500 kV interconnection points with CAPS. Replacing and upgrading the equipment will provide capacity to respond to technical incidents that may cause system failure and to improve the reliability of the system.

17. **Output 2: Interconnection between Tajikistan and Uzbekistan expanded.** Two new 500kV interconnection points at the Sugd substation in Northern Tajikistan will be established. This entails the construction of about 1.5 kilometers of a 500 kV transmission line that will connect to the existing 500 kV transmission line between Syrdarya and Lochin substations in Uzbekistan.[19] This will increase the stability of the parallel operation of the two systems.

18. **Output 3: Capacity in Tajikistan for stable parallel operation improved**. The engineering, procurement and construction contractor for the project will conduct capacity building of Barqi Tojik staff for using the new protection equipment and for overall grid operations. This will give Barqi Tojik the knowledge tools to ensure stable grid operation.

19. **Value added by ADB assistance.** ADB has been one of the leading partners of the Government of Tajikistan in energy sector development and providing comprehensive support for sector reform and infrastructure investment in electricity generation and transmission. This has allowed ADB to respond quickly to the government's urgent request for funding to conduct an initial assessment of the relay protection system. The result of the assessment combined with ADB's close engagement enabled the government and ADB to prepare this project within a year.

D. Summary Cost Estimates and Financing Plan

20. The project is estimated to cost $40 million. Detailed cost estimates by expenditure category and by financier are included in the project administration manual. [20]

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[16] ADB. 2018. *Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific.* Manila.

[17] Government of Tajikistan. 2016. *National Development Strategy of the Republic of Tajikistan for the Period up to 2030*. Dushanbe.

[18] The design and monitoring framework is in Appendix 1.

[19] This line crosses Tajikistan but is not connected to any substations of the Tajikistan system.

[20] Project Administration Manual (accessible from the list of linked documents in Appendix 2).

Table 1: Summary Cost Estimates ($ million)

Item		Amount [a]
A.	**Base Costs [b]**	
	1. Tajikistan and Uzbekistan electricity grids synchronized	19.5
	2. Interconnection between Tajikistan and Uzbekistan expanded	14.6
	3. Capacity in Tajikistan for stable parallel operation improved	2.4
	Subtotal (A)	**36.5**
B.	**Contingencies [c]**	**3.5**
C.	**Financing Charges During Implementation [d]**	**0.0**
	Total (A+B+C)	**40.0**

[a] Includes taxes and duties of $5 million to be exempted by the government or covered by Barqi Tojik. Such amount does not represent an excessive share of the project cost.
[b] In mid-2018 prices as of September 2018.
[c] Physical contingencies computed at 5% of the base costs. Price contingencies computed at 1.5% per year on foreign exchange costs and 7.0% per year on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity.
[d] No financing charges will be incurred because the Asian Development Bank grant will be provided to Barqi Tojik as equity.
Source: Asian Development Bank.

21. The government has requested a grant not exceeding $35 million from ADB's Special Funds resources (Asian Development Fund) to help finance the project. The grant will be provided to Barqi Tojik as an equity injection. For the government and Barqi Tojik's contribution of $5 million, either (i) the government will exempt the project from value-added taxes and customs duties on project expenditures or (ii) Barqi Tojik will allocate additional funds to cover such taxes and duties. Barqi Tojik will provide project management resources through project management unit (PMU). The summary financing plan is in Table 2.

Table 2: Summary Financing Plan

Source	Amount ($ million)	Share of Total (%)
Asian Development Bank		
Special Funds Resources (ADF grant)	35.0	87.5
Government and Barqi Tojik	5.0	12.5
	40.0	**100.0**

ADF = Asian Development Fund.
Sources: Asian Development Bank and Ministry of Energy and Water Resources.

22. All $35 million of ADB financing contributes to climate change mitigation. Because the Uzbekistan electricity system has a much higher CO_2 emission factor than Tajikistan's, the project is expected to reduce CO_2 emissions in Uzbekistan by about 1.8 million CO_2 tons for the volume of exported electricity from Tajikistan.[21]

E. Implementation Arrangements

23. The implementation arrangements are summarized in Table 3 and described in detail in the PAM (footnote 20).

Table 3: Implementation Arrangements

Aspects	Arrangements
Implementation period	January 2019–August 2021
Estimated completion date	31 August 2021
Estimated grant closing date	28 February 2022
Management	

[21] Refer to Climate Change Assessment (accessible from the list of linked documents in Appendix 2).

Aspects	Arrangements		
(i) Oversight body	Ministry of Energy and Water Resources		
(ii) Executing agency	Open Joint Stock Holding Company Barqi Tojik		
(iii) Implementation unit	Project management unit for electro-energy sector under the President of the Republic of Tajikistan		
Procurement: plant design, supply, and install contract for rehabilitation works	OCB with international advertisement	1 contract	$14.5 million
	Direct contracting	1 contract	$14.0 million
Consulting services: project implementation consultants	QCBS (90:10)	130 person-months	$3.0 million
Retroactive financing and/or advance contracting	Advance contracting and retroactive financing will not be used.		
Disbursement	The grant proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time) and detailed arrangements agreed upon between the government and ADB.		

ADB = Asian Development Bank, OCB = open competitive bidding, QCBS = quality- and cost-based selection.
Source: Asian Development Bank.

24. The executing agency will be the 100% state-owned power utility Barqi Tojik.[22] The project will be managed by a PMU that coordinates and implements power projects funded through loans and grants by bilateral donors and international financing institutions. The PMU has satisfactorily implemented six previous ADB projects. Lessons from previous and ongoing projects show that the continuation of the centralized PMU is the most effective structure of project implementation. Once Barqi Tojik is unbundled through the reform process, the new transmission company will be the executing agency of this project.

25. The project requires installation of an emergency control system (ECS), which will be connected to the new and existing relay protection and existing Supervisory Control and Data Acquisition system for automated response to system incidents. This is a key component of the protection functions in cases such as a major failure within CAPS needs to be contained to avoid spreading of the incident. Uzbekistan is equipped with a specific ECS, and full compatibility of ECSs at both ends of the transmission lines interconnecting two power grids is the highest priority for regional grid stability. Since disconnection of Tajikistan from CAPS in October 2009, the ECS in Uzbekistan was gradually upgraded. Therefore, the installation of the same ECS that is estimated to be $14 million is a technical requirement to interconnect Tajikistan with CAPS.

26. After assessment and discussions among Barqi Tojik, Uzbekenergo, Srednazenergosetproject (Uzbek design institute responsible for designing CAPS), and Coordinating Dispatch Center-Energy, it was concluded that there are two suppliers of this specific system worldwide for its proprietary nature, and only one company, DS Group in Kazakhstan, meets ADB's eligibility criteria. Given this background, item (b) on standardization of equipment and (c) on proprietary item in clause 2.17 on direct contracting of ADB's Procurement Regulations is applicable to this component.

III. DUE DILIGENCE

A. Technical

27. In-depth technical due diligence for the project was conducted to develop and analyze various options for technical reinforcement and expansion of automated emergency control and monitoring systems, relay protection and automation, telemetry data and telecommunication

[22] Integrity due diligence conducted on Barqi Tojik found no major issues.

networks in Barqi Tojik's electric power system to ensure the required level of power system reliability and sustainability in the context of the system development until 2030. The technical due diligence also assessed the condition of the transmission equipment in substations that are interconnected with CAPS. Various cost estimation methods were used to obtain up-to-date quotations for equipment. The project implementation schedule was prepared considering the demand profile to minimize the impact from disconnections.

28. ADB is satisfied with the quality of the cost estimates, cost structures, appropriateness of the technology, and the execution plan. Barqi Tojik's operation and maintenance staff is familiar with the proposed design concepts. The proposed protection systems are not different from existing practices, but they are more advanced and use modern technology. The systems will require training to be included in the terms of reference for consultants and contractors. This is routine practice for a utility when first implementing similar systems.

B. Economic and Financial

29. The project requires a relatively modest investment for interconnecting two systems, yet the expected returns for Tajikistan from exports to Uzbekistan can be extremely high. The sales price from Tajikistan to Uzbekistan is $0.02 per kWh. Since this electricity will be generated from unused existing facilities and resources in Tajikistan during summer, the generation cost is marginal. The export volume will increase by 3.5 TWh per year once parallel operation is enabled. This amounts to about $70 million in additional revenues for Tajikistan each year, compared with the estimated total project investment cost of $40 million. Against this background, the financial internal rate of return of the project is 14.8%, well above the estimated weighted average cost of capital of 6.2% for Barqi Tojik for the project.

30. The economic analysis of the project was conducted from the perspective of Tajikistan's economy and largely mirrors the assumptions of the financial analysis. Benefits accrue from the additional export revenue to Tajikistan, resulting in an estimated economic internal rate of return of 24.1% against the economic cost of capital of 9.0%.[23] These analyses show that the project is financially and economically viable.

31. One of the main risks of the project is the discontinuation of the electricity trade between the two countries. The analysis, therefore, spans only across 3 years of trade after project completion even though the asset life of the project investment is estimated to be 30 years.

32. Despite the potentially high returns from the investment, private sector participation cannot be reasonably structured, given the lack of an enabling regulatory framework in Tajikistan. Further, the electricity trade agreement is a product of the two government's extensive negotiations. Therefore, public sector investment is the only option available for the project.

C. Governance

33. **Anticorruption measures.** ADB's *Anticorruption Policy* (1998, as amended to date) was explained and discussed with the Government and Barqi Tojik. Consistent with its commitment to good governance, accountability, and transparency, ADB reserves the right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive, or coercive practices relating to the project. To support these efforts, relevant provisions of ADB's *Anticorruption Policy* are included in the grant regulations and the bidding documents. In particular, all contracts financed

[23] ADB. 2017. *Guidelines for the Economic Analysis of Projects*. Manila.

by ADB in connection with the project shall include provisions specifying the right of ADB to audit and examine the records and accounts of EAs and all contractors, suppliers, consultants, and other service providers as they relate to the project. The specific policy requirements and supplementary measures are described in the PAM (footnote 20).

34. **Financial management.** Barqi Tojik's overall financial management risk is *substantial.* The results of external independent auditing have improved over the years; auditors issued a disclaimer of opinions until FY2013, but audit results have received qualified opinions since FY2014. However, audits for FY 2015 and FY2016 based on International Standards on Auditing indicate issues on valuation of inventory, revaluation of assets, records on account receivables and payables, and data conciliation of revenues. To address these remaining issues, Barqi Tojik conducted valuation of assets in 2014 and reflected in the subsequent financial statements. Assessment of receivables and payables were also completed in 2014. The financial statements are now reported based on the International Financial Reporting System, as required by state's decrees. Automated accounting system based on 1C has been introduced to Barqi Tojik. The utility's 30 subordinate entities all prepare their own financial reports which are consolidated at the holding company level. Barqi Tojik has established an internal audit unit at the head office, but the unit's independence is limited. These key issues have been discussed between ADB and Barqi Tojik and an action plan was agreed with Barqi Tojik. The project's implementation consultants and the on-going SOPI project will support the implementation of the action plan.

35. **Procurement.** The procurement capacity of Barqi Tojik and the PMU was assessed, and it does not pose a significant risk to project implementation. Barqi Tojik works with the government PMU dedicated to energy sector projects, which has performed well in the implementation of on-going ADB-funded projects (para 24). The indicative procurement method for the design, supply and installation contract for relay protection will be open competitive bidding with international advertisement. The emergency control system package will be directly contracted to a Kazakh company that provides the required system for CAPS (para 26). The implementation consulting firm will be recruited using the quality- and cost-based selection (QCBS) method. Procurement (including consulting services) will follow ADB Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time). For consultant's recruitment, quality cost weighting of 90:10 will be used to ensure quality implementation of complex systems.

D. Poverty, Social, and Gender

36. The project's aim to improve the use of regional energy resource among CAPS countries will indirectly contribute to poverty reduction through improved access to energy, resulting in reduced time poverty, improved health outcomes with the use of safer energy sources, and increased access to income earning opportunities. Rural electricity services help non-agricultural enterprises such as food processing, handicrafts and food production, and stimulate more opportunities for generating cash and contributing to the rural economy. Women are disproportionately affected by limited and unreliable access to electricity because of their household roles and more limited access to resources. Traditional gender roles for women such as cooking, washing/ironing, keeping the home warm, heating water to bathe children, or even helping children with their schoolwork at night, become arduous when energy resources for cooking, lighting, and use of appliances are insufficient or unreliable. The high cost of gas for cooking and coal for heating cause poorer households to resort to traditional fuels. Insufficient energy supply also negatively impacts businesses, especially small- and home-based enterprises that women are typically involved in. The project's poverty reduction impact will also indirectly benefit women by improving these conditions. ADB will actively explore opportunities to scale up

gender benefits in the forthcoming sector development program and future energy-sector projects.

E. Safeguards

37. In compliance with ADB's Safeguard Policy Statement (2009), the project's safeguard categories are as follows.[24]

38. **Environment (category B).** The initial environmental examination (IEE) and environmental management plan (EMP) was prepared by Barqi Tojik in accordance with ADB's Safeguard Policy Statement (2009).

39. Anticipated adverse environmental impacts of the project are mainly related to soil erosion, noise and dust generation, increased traffic, the potential presence of polychlorinated biphenyls in the existing equipment, potential for soil contamination as part of unexpected risks of spills and leakages, occupational health and safety during construction, and electromagnetic fields during operation. Impacts were assessed during the impact assessment study and adequate mitigation measures and monitoring requirements are proposed as part of the IEE and EMP. These will be implemented through the EMP and Site-specific Environmental Management Plans (SEMP), which will be prepared by the contractor and approved by the PMU. The EMP will also require training of PMU personnel in environmental management to strengthen the safeguard capacity.

40. **Involuntary resettlement (category B).** Output 2 of the project involves two new 500 kV interconnection points at the Sugd substation, i.e. constructing a transmission line of about 1.5 km and approximately 8 towers. It is expected that the construction of the transmission lines and towers will require about 7 land plots with 900 square meters which have been used by 7 households. A land acquisition and resettlement plan was prepared to provide compensation for all the losses caused by the project. Public consultations were conducted in August and September 2018. A grievance redress mechanism is in place in accordance with the land acquisition and resettlement plan to assist affected persons to resolve grievances and complaints. Barqi Tojik will submit semiannual safeguards monitoring reports to ADB for review and disclosure. No involuntary resettlement impacts are expected under output 1 and 3. Payments required for these activities will be paid by Barqi Tojik.

41. **Indigenous peoples (category C).** The project will not have any impacts on indigenous people or similar group during construction and operation phase.

F. Summary of Risk Assessment and Risk Management Plan

42. Significant risks and mitigating measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.[25]

Table 4: Summary of Risks and Mitigating Measures

Risks	Mitigation Measures
The political landscape in the region changes, and interconnection is no longer a priority	While no direct mitigation mechanism exists for political developments, ADB will continue to engage closely with the government on sector reforms and investments to stay up to date on policies and on the relationship between Tajikistan and Uzbekistan.

[24] ADB. Safeguard Categories. https://www.adb.org/site/safeguards/safeguard-categories.
[25] Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

Technical issues in the Uzbek grid arise and prevent the interconnection of the Tajikistan system.	During the past 10 years, JSC Uzbekenergo has been investing in transmission equipment to ensure N-1 grid design. Further investigation and grid reinforcement measures will be designed by the ongoing transmission and generation master plan prepared under ADB's technical assistance.[a]
Financial management and funds flow arrangements are weak.	The direct payment method will be the primary disbursement method, and no advance account will be used. Barki Tojik has a satisfactory record of submitting audited project financial statements under previous ADB projects.
Accounting policies, procedures, and systems need further strengthening.	Barqi Tojik has installed a 1C-based accounting system. ADB-funded SOPI consultants and a World Bank-funded team for financial capacity development will work with Barqi Tojik to complete the remaining items of IFRS implementation together with a computerized accounting system.

ADB = Asian Development Bank; IFRS = International Financial Reporting Standards; JSC = joint stock company; SOPI = Sector Operation Performance Improvement; TA = technical assistance.

[a] ADB. 2017. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Administration of Technical Assistance Grant to the Republic of Uzbekistan for the Power Generation Efficiency Improvement Project*. Attached Technical Assistance Report (accessible from the list of linked documents in Appendix 2). Manila.

Source: Asian Development Bank.

IV. ASSURANCES AND CONDITIONS

43. The government and Barqi Tojik have assured ADB that implementation of the project shall conform to all applicable ADB policies, including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the PAM and grant documents.

44. In addition to the standard assurances, the government and Barqi Tojik have given the following assurances for the project which will be incorporated in the legal documents. To improve sustainability of Barqi Tojik, the grant will only be disbursed after there is an enforceable agreement between the government and Barqi Tojik on providing the proceeds of the proposed grant as equity. For ensuring the coordination between the related entities in Uzbekistan and Tajikistan, the bid documents for the turnkey contract will only be issued after the technical parameters of the relay protection system is agreed in writing between counterparties in Tajikistan and Uzbekistan.[26]

V. RECOMMENDATION

45. I am satisfied that the proposed grant would comply with the Articles of Agreement of the Asian Development Bank and recommend that the Board approve the grant not exceeding $35,000,000 to the Republic of Tajikistan from ADB's Special Funds resources (Asian Development Fund) for the Reconnection to the Central Asian Power System Project, on terms and conditions that are substantially in accordance with those set forth in the draft grant and project agreements presented to the Board.

Takehiko Nakao
President

22 October 2018

[26] ADB-financed consultants have been providing technical support to facilitate the process of reaching agreements on the technical parameters.

DESIGN AND MONITORING FRAMEWORK

Impact the Project is Aligned with:

Regional energy trade expanded
(National Development Strategy of the Republic of Tajikistan for the period up to 2030)[a]

Project Results Chain	Performance Indicators with Targets and Baselines	Data Sources or Reporting Mechanisms	Risks
Outcome Regional energy efficiency among CAPS countries improved.	By 2022 a. Spillage of surplus water in Tajikistan hydro power plants reduced by 5 TWh-equivalent (2018 baseline: 5 TWh equivalent of water spilled) b. Power trade in CAPS increased to 6.3 TWh per year (2017 baseline: 1.3 TWh) c. CO_2 emissions in Uzbekistan reduced by 1.8 million tons for the volume of imported electricity from Tajikistan (2018 baseline based on imports to Uzbekistan: 0.79 million tons)	a-b. Coordinating Dispatch Center's annual report c. Implementation consultant's annual progress report	Political landscape in the region changes, and interconnection is no longer a priority.
Outputs 1. Tajikistan and Uzbekistan electricity grids synchronized 2. Interconnection between Tajikistan and Uzbekistan expanded	By 2021 1. Modern relay protection equipment installed at eight 220 kV and two 500 kV interconnection points (2018 baseline: 0) 2. Two new 500 kV interconnections established (2018 baseline: 0)	1-2. Contractor's completion report and Coordinating Dispatch Center's annual report.	Technical issues in the Uzbekistan grid emerge and prevents interconnection with the Tajikistan system
3. Capacity in Tajikistan for stable parallel operation improved	3. At least 20 Barqi Tojik staff, including 5 women, trained on stability and protection	3. Training completion reports from the turnkey contractor at each training event	

	management operation (2018 baseline: N/A)		

Key Activities with Milestones

Output 1. Tajikistan and Uzbekistan electricity grids synchronized

1.1 Reach an agreement between counterparties in Uzbekistan and Tajikistan on design and specification (Q4 2018)
1.2 Issue invitation of bids for the turnkey contract for relay protection system (Q1 2019)
1.3 Award turnkey contract for relay protection systems (Q3 2019)
1.4 Complete installation of equipment (Q2 2020)

Output 2. Interconnection between Tajikistan and Uzbekistan expanded

2.1 Reach an agreement between counterparties in Uzbekistan and Tajikistan on design and specification (Q4 2018)
2.2 Issue invitation of bids for the turnkey contract for new connection points (Q1 2019)
2.3 Award turnkey contract for new connection points (Q3 2019)
2.4 Complete installation of equipment (Q3 2020)

Output 3. Capacity in Tajikistan for stable parallel operation improved

3.1 Contractors develop a capacity building program (Q3 2019)
3.2 Hold workshop and training of Barqi Tojik staff (Q4 2019–Q1 2021)
3.3 Follow-up on operational capacity (Q3 2020–Q2 2021)

Project Management Activities

1. Issue request for proposal for project implementation consultants (Q1 2019)
2. Complete the recruitment of project implementation consultants (Q3 2019)

Inputs

Asian Development Bank:	$35,000,000 (Asian Development Fund grant)
Government:	$5,000,000

Assumptions for Partner Financing

N/A

CAPS = Central Asian Power System, CO_2 = carbon dioxide, kV = kilovolt, N/A = not applicable, Q = quarter, TWh = terawatt-hour.

[a] Government of Tajikistan. 2016. *National Development Strategy of the Republic of Tajikistan for the Period up to 2030*. Dushanbe.

Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

http://www.adb.org/Documents/RRPs/?id=52122-001-2

1. Grant Agreement
2. Project Agreement
3. Sector Assessment (Summary): Energy
4. Project Administration Manual
5. Contribution to the ADB Results Framework
6. Development Coordination
7. Economic and Financial Analysis
8. Country Economic Indicators
9. Summary Poverty Reduction and Social Strategy
10. Risk Assessment and Risk Management Plan
11. Climate Change Assessment
12. Initial Environmental Examination
13. Resettlement Plan: Land Acquisition and Resettlement Plan

Supplementary Document

14. Financial Management Assessment