ADB

Report and Recommendation of the President to the Board of Directors

Project Number: 40043
November 2006

Proposed Loans, Technical Assistance Grants, and Administration of Loan by the OPEC Fund for International Development
Islamic Republic of Afghanistan and Republic of Tajikistan: Regional Power Transmission Interconnection Project

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 6 November 2006)

Afghanistan

Currency Unit	–	afghani (AF)
AF1.00	=	$0.02022
$1.00	=	AF49.4357

Tajikistan

Currency Unit	–	somoni (TJS)
TJS1.00	=	$0.29817
$1.00	=	TJS3.3537

ABBREVIATIONS

ADB	–	Asian Development Bank
AP	–	affected person
ARTF	–	Afghanistan Reconstruction Trust Fund
BT	–	Barki Tajik
DABM	–	Da Afghanistan Breshna Moassessa (Afghanistan Electricity Authority)
EA	–	executing agency
EMP	–	environmental management plan
EIRR	–	economic internal rate of return
FIRR	–	financial internal rate of return
HPP	–	hydropower plant
IA	–	implementing agency
ICB	–	international competitive bidding
IDA	–	International Development Agency
IEE	–	initial environmental examination
IFC	–	International Finance Corporation
IsDB	–	Islamic Development Bank
KFAED	–	Kuwait Fund for Arabic and Economic Development
KfW	–	Kreditanstalt für Wiederaufbau
LIB		limited international bidding
LIBOR	–	London interbank offered rate
MEW	–	Ministry of Energy and Water (Afghanistan)
MOE	–	Ministry of Energy (Tajikistan)
MOF	–	Ministry of Finance
MOU	–	memorandum of understanding
NCB	–	national competitive bidding
O&M	–	operation and maintenance
OFID	–	OPEC Fund for International Development
OPEC	–	Organization of the Petroleum Exporting Countries
PIU	–	project implementation unit
PPA	–	power purchase agreement
RP	–	resettlement plan
SECO	–	Swiss State Secretariat for Economic Affairs
TA	–	technical assistance
TADAZ	–	Tursunzade Aluminum Smelter
USAID	–	United States Agency for International Development
WACC	–	weighted average cost of capital

WEIGHTS AND MEASURES

GWh	(gigawatt-hour)	–	1,000 megawatt-hours
kV	(kilovolt)	–	1,000 volts
kW	(kilowatt)	–	1,000 watts
kWh	(kilowatt-hour)	–	1,000 watt-hours
MW	(megawatt)	–	1,000 kW

NOTES

(i) The fiscal year (FY) of the Government of Afghanistan and its agencies ends on 20 March. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2006 ends on 20 March 2006.

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

(iii) In this report, "$" refers to US dollars.

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SUPPLEMENTARY APPENDIXES (available on request)

LOANS AND PROJECT SUMMARY

Borrowers	Islamic Republic of Afghanistan (Afghanistan) Republic of Tajikistan (Tajikistan)
Classification	Targeting classification: General intervention Sector: Energy Subsector: Transmission Themes: Sustainable economic growth and regional cooperation Subthemes: Fostering physical infrastructure development, regional cooperation
Environment Assessment	Category B. Initial environmental examinations (IEEs) have been undertaken and summary IEEs are in Supplementary Appendix A.
Project Description	The proposed Project will interconnect the power grids in Afghanistan and Tajikistan. The Project's scope will cover the construction of a 220 kilovolt (kV) double-circuit transmission line that will link the hydropower stations located on the Vakhsh River in Tajikistan to the border town of Sherkan Bandar; then to Kunduz, Baglan, and Pul-e-Khumri in Afghanistan. This line will be ultimately linked to Afghanistan's major electricity demand centre, Kabul, through the Afghan 220 kV corridor currently under construction, linking Pul-e-Khumri to Kabul. The Project will also include upgrading and new investments in Tajikistan that will help reduce the winter power deficit by (i) increasing the available level of generation, and (ii) decreasing the level of technical losses in south Tajikistan. Both measures will aim to export 300 megawatt (MW) to Afghanistan and generate additional 320 gigawatt-hour (GWh) annually in Tajikistan. The Project is in line with the governments' strategies and policies. In Afghanistan, the policy is to provide reliable power supply to all Afghans. In Tajikistan, the policy is to maximize the use of its hydropower assets. The project scope has been coordinated with other external funding agencies.
Rationale	Afghanistan's power generation, transmission, and distribution systems have been severely damaged by years of conflict. There is almost no transmission grid and generation is very limited. Lack of generation capacity has led to widespread use of load shedding throughout the country, including the capital Kabul where supply is available only a few hours a day. To cope with this situation, where the grid is unable to provide reliable supply, most of the energy users and industry have shifted to decentralized small-scale diesel power generation. Consequently, Kabul has become

a highly polluted city and the average generation cost has gone up to more than $0.33 per kilowatt-hour (kWh), taking into account high international market prices for crude oil.

Regionally, there are large surpluses of generation in Tajikistan, Turkmenistan, and Uzbekistan while Afghanistan is struggling with a large power deficit. All economic and technical studies show that importing power from neighboring countries—even during a limited period of the year—has a sound rate of return. Recent studies recommend that interconnections with neighboring countries should be pursued and encouraged in parallel with the development of domestic generation. Reconstruction of power lines between Uzbekistan and Afghanistan is ongoing under Asian Development Bank (ADB) financing. A few small interconnections between Iran, Tajikistan, and Turkmenistan are in operation but none of them are able to meet the demand in Kabul city.

Tajikistan has an installed generation capacity of 4,405 MW (98% hydropower) and current surplus generation of 1,500 GWh per year. At a nominal value of $0.02/kWh this surplus is potentially worth $30 million per year.The surplus is only available for export for 6–8 months during the spring-summer period and 90% of the installed generation capacity in Tajikistan is located in the southern part of the country. Tajikistan has three separate transmission grids that are not interconnected (north, south, and east grids). The only way for Tajikistan to export its surplus at present is to use the Uzbek grid. However, transmission constraints in Uzbekistan mean that Tajikistan is not able to use the Uzbek grid most of the time. Therefore, water is spilled without generating electricity during the summer and potential electricity supply is wasted.

Based on the above, the Project offers a win-win situation where Afghanistan's lack of power supply can be met by Tajikistan's surplus, which it is currently unable to export.

Impact and Outcome

The impact of the Project will be enhanced cooperation in the power sector through transmission interconnectivity between Tajikistan and Afghanistan. The outcome of the Project will be (i) increased power export and income generation capacity of Tajikistan by increasing the capacity of its south grid hydropower generation, (ii) restored power supply and reduced cost for consumers in Afghanistan, (iii) improved capacity of the utility operation of Afghanistan Electricity Authority (DABM), and (iv) improved commercial operation of Barki Tajik (BT).

Project Investment Plan

The investment cost of the Project is estimated at $109.5 million. The Afghan component is estimated at $55.5 million equivalent, including taxes and duties of $3.3 million equivalent. The Tajik component is estimated at $54.0 million equivalent, exclusive of taxes and duties.

Financing Plan

($ million)

Source	AFG	TAJ	Total Cost
ADB	35.0	21.5	56.5
OFID		8.5	8.5
IsDB		10.0	10.0
ARTF/Other	16.5		16.5
Equity (Government of Afghanistan/BT)	4.0	14.0	18.0
Total	**55.5**	**54.0**	**109.5**

ADB = Asian Development Bank, AFG = Afghanistan, ARTF = Afghanistan Reconstruction Trust Fund, BT = Barki Tajik, IsDB = Islamic Development Bank, OFID = Organization of Petroleum Exporting Countries Fund for International Development, TAJ = Tajikistan.

Afghanistan Component. ADB will provide a loan equivalent to $35.0 million to cover the foreign exchange and local currency cost from its Special Funds resources (63% of the cost of the component). Cofinancing totaling $16.5 million (about 30% of the component cost) will be provided by the Afghanistan Reconstruction Trust Fund (ARTF) and/or other cofinanciers to meet the remaining foreign exchange and local costs. The Government of Afghanistan will finance the security services and taxes and duties for $4.0 million (7% of the cost of the component). The approved waiver of cost sharing limits for loans and technical assistance (TA) operations in Afghanistan is applied to this Project.

Tajikistan Component. ADB will provide a loan equivalent to $21.5 million from its Special Funds resources to cover the foreign exchange cost (40% of the component cost). The Organization of the Petroleum Exporting Countries (OPEC) Fund for International Development (OFID) will provide joint financing of $8.5 million (16% of the component cost). The Islamic Development Bank (IsDB) will provide parallel financing of $10 million (19% of the component cost). BT will contribute $14 million (26% of the component cost), partly in kind through supply of aluminum conductors for the line.

Allocation and Relending Terms

Allocation

Afghanistan Component. A loan in various currencies equivalent to $35.0 million in Special Drawing Rights will be provided from ADB's Special Funds resources at 1% interest per annum during the grace period and 1.5% per annum during the amortization period, with an amortization period of 32 years, including a grace period of 8 years.

Tajikistan Component. A loan in various currencies equivalent to $21.5 million in Special Drawing Rights will be provided from ADB's Special Funds at 1% interest per annum during the grace period and 1.5% per annum during the amortization period, with

	an amortization period of 32 years, including a grace period of 8 years.
	Relending Terms
	Afghanistan Component. The Government of Afghanistan will relend the proceeds of the ADB loan to DABM under substantially the same terms as those of the ADB loan.
	Tajikistan Component. The Government of Tajikistan will relend the proceeds of the ADB loan to BT, denominated in local currency at ADB's ordinary capital resources interest rates applicable to the London interbank offered rate (LIBOR)-based lending facility, with a repayment period of 25 years, including a grace period of 5 years. The foreign exchange risk will be borne by the Government of Tajikistan.
Period of Utilization	Afghanistan: until 30 September 2009 Tajikistan: until 31 December 2010
Estimated Project Completion Date	Afghanistan: 31 March 2009 Tajikistan: 30 June 2010
Executing Agencies	Ministry of Energy and Water in Afghanistan Barki Tajik in Tajikistan
Implementation Arrangements	**Afghanistan Component**. The Ministry of Energy and Water (MEW) will be the Executing Agency (EA) and will be responsible for supervising the Afghan component through a project implementation unit (PIU) established for the Project. DABM will be the Implementing Agency (IA) for the Project. The PIU will be supported by project implementation consultants financed under the loan. To mitigate the lack of skill and experience of the EA, the Project includes provision of a team of project administration consultants.
	Tajikistan Component. The EA for the component in Tajikistan will be BT, the national power utility. Through a PIU, BT will be responsible for supervising and implementing the Tajik component of the Project.
Procurement	**Afghanistan Component**. Loan-financed goods, services, and civil works will be procured in accordance with ADB's *Procurement Guidelines* (April 2006, as amended from time to time) and by MEW and assisted by the project implementation consultant.
	Tajikistan Component. Loan-financed goods, services, and civil works will be procured in accordance with ADB's *Procurement Guidelines* and by BT, and assisted by the project implementation consultant.

ADB is requested to approve advance contracting for turnkey contracts, including preparation and issuance of bid documents and evaluation of the bids received.

Consulting Services

Afghanistan Component. Consulting services (45 person-months international and 30 person-months national) will be required to assist MEW and DABM in project implementation. All project-financed consultants will be selected and engaged in accordance with ADB's *Guidelines on the Use of Consultants* (April 2006, as amended from time to time) using quality and cost-based selection. MEW will take advance action for the recruitment of the consultants.

Tajikistan Component. Consulting services (60 person-months international and 80 person-months national) will be required to assist BT in project implementation. All project-financed consultants will be selected and engaged in accordance with ADB's *Guidelines on the Use of Consultants* (April 2006, as amended from time to time) using quality and cost-based selection. BT will take advance action for the recruitment of the consultants.

Project Benefits and Beneficiaries

In Afghanistan, the primary beneficiaries of the Project will be business enterprises and the population, who will benefit from improved supply of electricity and cost reduction. The economic internal rate of return (EIRR) of this component is 31.0%.

In Tajikistan, the economy and BT will benefit from power exports. Revenues from the Project are expected to be used to reduce the actual winter deficit by developing new generating assets. In the short term, they will help to settle the power bill from Uzbekistan for winter imports. This will benefit Tajikistan power consumers. The EIRR of this component is 31.1%.

The total net economic benefits of regional cooperation of the Project are estimated to be $114.1 million—47% to Afghanistan and 53% to Tajikistan. The Project is a win-win example of regional cooperation.

Risks and Assumptions

The Project has been formulated to minimize potential technical and economic risks.

The main risks and assumptions identified are the following:

(i) The overall political and security situation in Afghanistan may delay the Project, and sabotage may affect the future availability of the transmission line. This has been addressed by allocating $700,000 for security purposes during construction as counterpart financing and $1.0 million for demining. During the operation stage, the risk of blasting the transmission line has been mitigated by

the fact that the line will supply electricity to local villagers from the border to Pul-e-Khumri, who will act as guarantors for the security of the line.

(ii) Default on payment from the Afghan side for the purchase of power import. The intergovernmental agreement signed between the parties anticipates that bank guarantees will be defined and set up under the provisions of the power purchase agreement (PPA) to secure the obligations of each party.

(iii) The demands in Baglan, Kabul, Kunduz, and Pul-e-Khumri regions are not as high as expected. The PPA will include a minimum off-take volume from Afghanistan that will be treated as a "take or pay" condition.

(iv) Weak implementation capacity in Afghanistan could lead to delays in implementation. In addition to the implementation consultants funded under the Project, provision has been made to provide support to MEW for project administration during the whole project period.

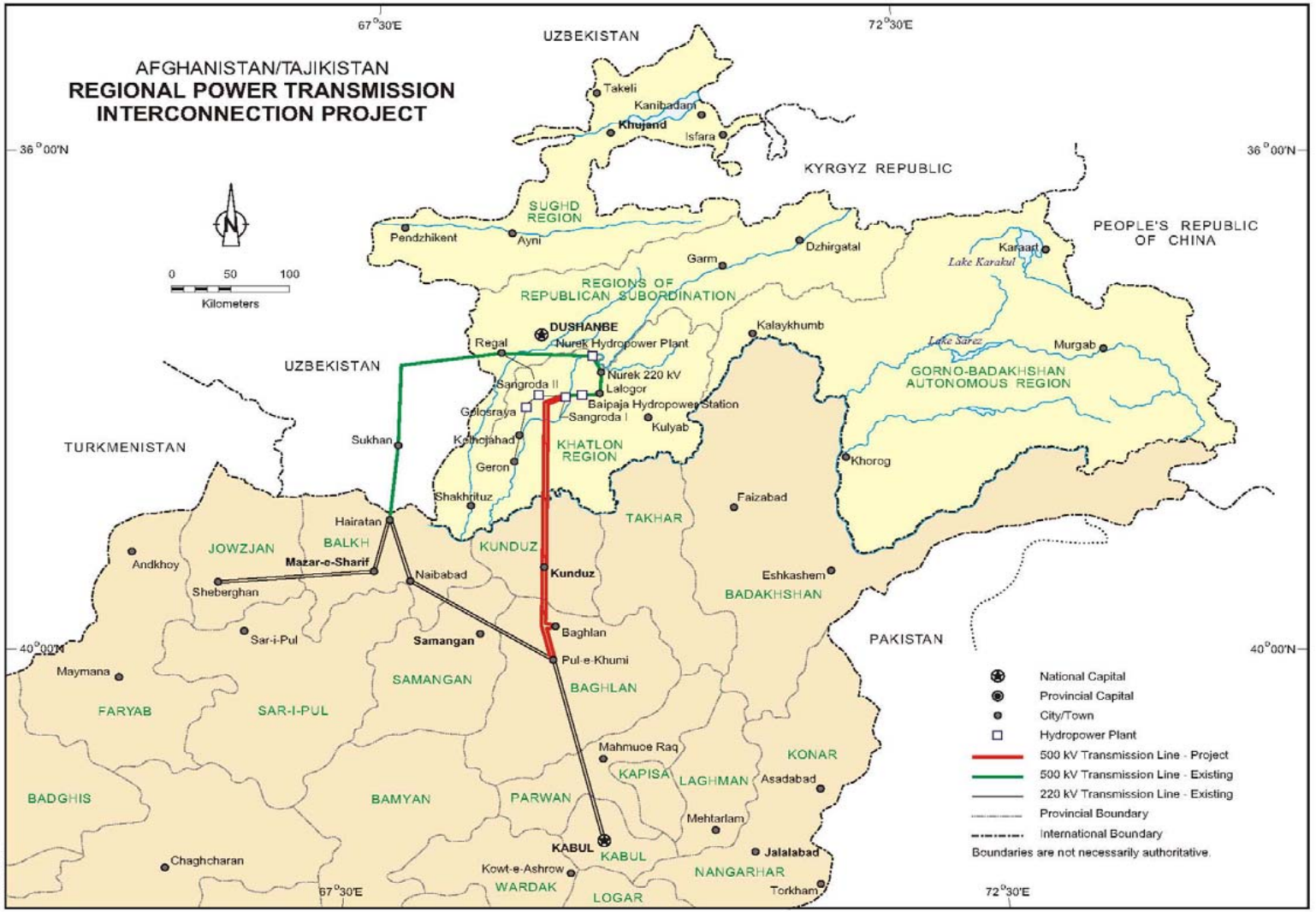
(v) Lack of competition and high bidding prices. The procurement plan provides for the issuance of a single tender with two separate components—one in Afghanistan and the other in Tajikistan—for the entire line. This arrangement is expected to attract more competition and lower bidding prices.

(vi) Weak performance of DABM during operation and maintenance of the Project. TA has been proposed to mitigate the risk of improper maintenance and operation.

Technical Assistance

Two advisory TA grants are attached to the loan: (i) $1.2 million for Afghanistan, and (ii) $1.5 million for Tajikistan.

The TA in Afghanistan will strengthen the capability of DABM in financial, managerial, commercial, and technical fields. It will finance human resource development and domestic and overseas training of DABM staff. It will be financed as a grant from ADB's TA funding program. International consultants will be required for 20 person-months and national consultants for 45 person-months. They will be recruited as a firm in accordance with ADB's *Guidelines on the Use of Consultants* (April 2006, as amended from time to time) using quality and cost-based selection. The TA in Tajikistan will help to improve the overall managerial capacity and technical and financial efficiency of BT by providing institutional and corporate governance support through the development of a management contract or other form of contract as appropriate. The TA will be financed on a grant basis by the Japan Special Fund, funded by the Government of Japan, for $1,500,000. International consultants will be required for 40 person-months and national consultants for 110 person-months. They will be recruited as a firm in accordance with ADB's *Guidelines on the Use of Consultants* (April 2006, as amended from time to time) using quality and cost-based selection.


AFGHANISTAN/TAJIKISTAN
REGIONAL POWER TRANSMISSION
INTERCONNECTION PROJECT
67°30'E
72°30'E
36°00'N
40°00'N
UZBEKISTAN
KYRGYZ REPUBLIC
PEOPLE'S REPUBLIC OF CHINA
TURKMENISTAN
PAKISTAN
Takeli
Kanibadam
Khujand
Isfara
SUGHD REGION
Pendzhikent
Ayni
Garm
Dzhirgatal
Karaart
Lake Karakul
REGIONS OF REPUBLICAN SUBORDINATION
DUSHANBE
Regal
Nurek Hydropower Plant
Nurek 220 kV
Lalogor
Sangroda II
Baipaja Hydropower Station
Golovnaya
Sangroda I
Kulyab
Kalaykhumb
Lake Sarez
Murgab
GORNO-BADAKHSHAN AUTONOMOUS REGION
Khorog
Sukhan
Kolhojahad
Geron
KHATLON REGION
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Faizabad
TAKHAR
Hairatan
JOWZJAN
BALKH
Mazar-e-Sharif
Andkhoy
Sheberghan
Naibabad
KUNDUZ
Kunduz
Eshkashem
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Baghlan
Sar-i-Pul
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BAMYAN
PARWAN
Mehtarlam
KABUL
KABUL
Jalalabad
Chaghcharan
Kowt-e-Ashrow
NANGARHAR
WARDAK
LOGAR
Torkham
0 50 100
Kilometers
National Capital
Provincial Capital
City/Town
Hydropower Plant
500 kV Transmission Line - Project
500 kV Transmission Line - Existing
220 kV Transmission Line - Existing
Provincial Boundary
International Boundary
Boundaries are not necessarily authoritative.
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I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on (i) the proposed loans to the Islamic Republic of Afghanistan and to the Republic of Tajikistan for the Regional Power Transmission Interconnection Project; (ii) proposed administration of a loan to be provided by the Organization of the Petroleum Exporting Countries (OPEC) Fund for International Development (OFID) for the Tajikistan component of the Project as joint financing; (iii) proposed technical assistance (TA) for improving the capacity of Da Afghanistan Breshna Moassessa (DABM), and (iv) proposed TA for strengthening corporate management of Barki Tajik (BT).

2. The Project was identified and prepared under the TA program of the Asian Development Bank (ADB). The Government of Tajikistan is actively pursuing opportunities to sell its excess power in spring and summer, while the Government of Afghanistan has identified power imports as the most effective way of meeting its short-term power shortfall. The Project was included in the regional project pipeline and endorsed by the energy and finance ministers and key power sector state-owned enterprises of both countries—BT and DABM—through the memoranda of understanding (MOU) signed with ADB on 24 September 2006 by Tajikistan and on 30 October 2006 by Afghanistan. The Fact-Finding Mission for the Project was undertaken from 28 August 2006 to 24 September 2006. The Project was formulated based on the findings of the TA[1] consultants and the ADB Mission. The design and monitoring framework is in Appendix 1.

II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES

A. Performance Indicators and Analysis

3. In Afghanistan, the total generation capacity has declined from about 456 megawatt (MW) in the 1990s to about 250 MW in 2005. Only 6–9% of the population has access to power, of which approximately 30% is in Kabul. The other provinces have even less access, with rural areas being virtually unserved. Of 475 MW of original installed generation capacity (261 MW hydropower, 151 MW thermal, and 63 MW diesel generation), much was destroyed or damaged during the war years and a significant portion of transmission and distribution networks were damaged, pillaged, or stolen.

4. The power sector master plan, finalized in October 2004, identified power import as the fastest way to reinstate electricity supply to Afghanistan in the short term. A 220 kilovolt (kV) double-circuit transmission line to facilitate import from Uzbekistan is now under construction with financing from ADB (from Hairatan/Mazar-e-Sharif to Pul-e-Khumri), Government of India (from Pul-e-Khumri to Chimtalah), World Bank (from Chimtalah to Kabul), United States Agency for International Development (USAID) (for demining and security), and Germany (for the construction of a 220 kV substations at Mazar-e-Sharif and Pul-e-Khumri).

5. Tajikistan has a surplus of power generation capacity in the summer months that could meet part of the power shortfall in Afghanistan. BT is the state-owned power company responsible for the development, operation, and maintenance of the power sector; and has installed generation capacity of 4,326 MW. Its operational assets also include about 4,300 circuit-kilometers (km) of transmission lines. Because of its generation mix (98% hydropower), Tajikistan's power system is directly linked to hydrologic conditions and seasons.

[1] ADB. 2004. *Technical Assistance to the Islamic Republic of Afghanistan for Preparing the National Power Transmission Grid Project*. Manila.

Therefore, in summer, Tajikistan has excess energy available for export. Part of this surplus is exported through Uzbekistan via its southern grid; the rest is not utilized and Tajikistan is forced to spill water without generating electricity because of lack of access to other power markets.

6. The Government of Tajikistan is actively pursuing new interconnection projects with its neighbors (Afghanistan and Pakistan) that will allow it to sell its excess power. On 9 December 2005, the minister of Energy of Tajikistan and the minister of Energy and Water of Afghanistan signed an MOU in Dushanbe that recorded the interest and readiness of Tajikistan to supply 300 MW during spring and summer to Afghanistan, and as much as Tajikistan can provide during the autumn and winter. On 21 February 2006, the two ministers entered into an MOU with the purpose of establishing a framework for enhancing bilateral power exchange and trade between the two countries.

B. Analysis of Key Problems and Opportunities

1. Institutional Framework in the Power Sector

7. In December 2004, the Ministry of Energy and Water (MEW) was created in Afghanistan by restructuring and merging the responsibilities of the Ministry of Water and Power and some responsibilities of the Ministry of Mines and Industry. MEW is responsible for power, gas, petroleum, and water resources. In the power sector, MEW owns and controls five state-owned enterprises responsible for (i) operations, (ii) civil works, (iii) construction, (iv) design consulting, and (v) research and development. The enterprises employ over 6,500 people. DABM is the unit responsible for operations of the power generation, transmission, and distribution facilities. It is by far the largest of these enterprises, with over 5,400 employees. DABM will be the Implementing Agency (IA) for Afghan component of the Project. DABM has very limited capacity in terms of all aspects of power utility management and will receive support under the Project.

8. In Tajikistan, at the policy and regulatory level, the Fuel and Energy Department in the Office of the President has overall responsibility for the energy sector. The Ministry of Energy (MOE), established in October 2000, is responsible for implementation of the energy policy of the Government of Tajikistan. The Agency on Anti-Monopoly Policy and Entrepreneurship acts according to the provisions of the Law on Natural Monopolies; and regulates the tariffs on electricity, gas, and district heat. It reports directly to the Office of the President.

9. At the operating level, the power sector in Tajikistan is the responsibility of the joint stock company BT,[2] a vertically integrated company in charge of generation, transmission, and distribution of electricity and heat for the whole country—except in the Gorno Badakshan region where a 25-year concession was given to a private company, Pamir Energy, in 2002. Under the present institutional arrangement, BT consists of a network of 10 subsidiary power generation companies, 11 subsidiary distribution companies, and 8 supporting companies (such as a research institute and a construction company). BT reports to MOE. BT serves a customer base of 969,000 and employs over 9,700 staff. Its biggest customer is Tursundaze Aluminum Smelter (TADAZ), which accounts for approximately 40% of the electricity sales in the country. BT will be the Executing Agency (EA) for the Tajik component of the Project. While considerable efforts have been made to improve the commercial operation of BT, support will be provided under the Project.

[2] BT became a joint stock company by Decree No. 272 of the Cabinet of Ministers of Tajikistan of 24 July 1992.

2. Energy Balance

10. Afghanistan is facing a serious power supply shortage which is expected to become more acute as demand grows. No new generation capacity is expected in the next few years. Areas to be supplied by the Project include the following:

(i) The capital Kabul, with a rapidly growing population of 4–5 million people, has no continuous power supply. The total effective generation capacity is 120 MW but total demand is estimated at 300–350 MW, with significant demand unserved through the grid system because of inadequate supply. A significant proportion of the supply is met through privately operated small diesel-fired units and through the DABM-operated North West Kabul diesel-fired plant, for which USAID financed the purchase of fuel until 2006.

(ii) The Kunduz Baglan and Pul-e-Khumri regions between the Tajikistan/ Afghanistan border and Kabul, which have a present load of 15 MW and an unserved demand estimated by DABM to be in excess of 80 MW.

(iii) The northern part of the country, which has demand of about 130 MW, including an estimated suppressed demand of about 80 MW.

11. Total demand is forecast to grow at 5.5% per annum to about 1,100 MW by 2020. To meet the growing demand, and with lack of domestic generation capacity, the 2004 power sector master plan identified the import of energy from neighboring countries as one of the short-term options to increase power supply in Kabul. The Government plans to import up to 150 MW each from Turkmenistan and Uzbekistan via Khulm and Pul-e-Khumri to meet winter demand, and up to 300 MW from Tajikistan via Kunduz and Pul-e-Khumri to meet summer demand.

12. In Tajikistan, the installed power generation capacity is 4,405 MW, mainly comprising six hydropower plants (HPPs) totaling 4,060 MW and two fossil fuel-fired combined heat and power stations totaling 345 MW. Annual hydropower energy output is about 16,000 gigawatt-hour (GWh) and electricity is delivered to nearly 100% of the population of almost 7 million. Nurek is by far the largest HPP and has been in operation since the mid-1970s with an installed capacity of 3,000 MW. It provides considerable regulation of the Vakhsh River and gives stability to the power system in Kazakhstan, Uzbekistan, Kyrgyz Republic, and Tajikistan. On average, Tajikistan currently has a summer surplus of 1,500 GWh available for export. This surplus will be increased by 2,700 GWh when Sangtuda-I HPP, currently under construction, will be commissioned in April 2009.

13. Tajikistan has three separate power systems (grids): (i) the southern system, (ii) the northern system (these two are interconnected but only via the Uzbekistan grid), and (iii) the small eastern (Pamir) system. The southern system is by far the largest, with installed capacity of 3,895 MW on the Vakhsh River and a further 15 MW elsewhere. The Khatlon region is served by the southern grid.

14. Both the southern system, which includes the capital Dushanbe, and the northern system have a generation deficit in winter and rely on imported energy from Uzbekistan. This is because of lack of snowmelt and consequent low river flow in autumn and winter. The strategy of the Government of Tajikistan is to increase the amount of electricity available during the winter by (i) developing new generating plants on the Vakhsh River; (ii) rehabilitating and upgrading the existing schemes; and (iii) reducing technical, transmission, and distribution losses while seeking new power markets for exporting its surplus energy in summer.

3. Pricing/Tariff Issues

a. Afghanistan

15. DABM recently doubled tariffs from an average of $0.0416 per kilowatt-hour (kWh) to $0.0830/kWh. The tariff increases took effect on 23 September 2006. This significant increase in tariffs was based on advice from USAID that it will no longer fund the purchase of diesel to run the North West Kabul diesel generator. USAID was subsidizing the cost of diesel in the amount of $50 million per year for the last 2–3 years. The higher tariffs will help to defray the cost of diesel purchases that DABM will incur during the next 2–3 winter seasons until electricity imports from Tajikistan and Uzbekistan replace the expensive diesel generation.

16. Assuming that sufficient imported electricity is available from Tajikistan and Uzbekistan to fully replace diesel generation, the new tariff significantly improves the financial sustainability of DABM. The average supply cost of DABM is estimated to be $0.080/kWh compared with the new tariff of $0.083/kWh As Uzbekistan's supply is limited to only 150 MW, some diesel generated power will be still be needed during winter and the average annual supply cost is likely to be higher than $0.083/kWh. Therefore, DABM will need to increase real tariffs further to reach cost recovery level in the event that only limited import supplies are available over the long term. This will be important for Afghanistan's ability to pay for power imports and the sustainability of the Project.

b. Tajikistan

17. The Government of Tajikistan has confirmed to ADB that it is developing an electricity tariff increase strategy in line with the commitment made to ADB and the World Bank in January 2006.[3] In September 2006, BT submitted a proposal to increase tariffs to reach an average tariff of $0.021/kWh (in 2003 terms) by 2010. This is a significant increase from the current average tariffs of $0.006/kWh. The new tariff is expected to be endorsed by the President and ratified by parliament in late November.

18. The Ministry of Finance (MOF) recognizes that rising tariffs mean that the social safety net needs to be strengthened to mitigate their effect on the poorest consumers. The present size of the social welfare tariff block is 250 kWh/month, which is relatively high. The current social safety net includes the Energy Compensation Mechanism, which provides a 100% subsidy for poor consumers that earn less than TJS20/capita/month. It is envisaged that rising tariffs will raise the tax revenues from BT's profits and additional dividend income to the Government of Tajikistan to levels sufficient to fund the safety net. MOF has committed to relend the concessionary loans from ADB and co-financiers' at the OCR rate of the London interbank offered rate (LIBOR) and use the difference in the interest to partly fund the social safety net together with additional budget provisions. Rationalization and tariff increases will be crucial for the long-term sustainability of the power sector in Tajikistan, together with maximizing export revenues.

4. Governments' Strategy and Plans

a. Afghanistan

19. In February 2004, the Government of Afghanistan formulated an electricity sector policy and power sector road map (Appendix 2). The main elements will enable the establishment of a

[3] MOU on Energy Sector Development Strategy signed in Dushanbe in January 2006.

regulatory framework; and restructuring, unbundling, and commercialization of the sector. The policy plans to supply the entire country with reliable power and create 730,000 more connections by 2010. The Government of Afghanistan aims to make more power available in the main regions by (i) investing in system rehabilitation; (ii) increasing supply, partly by importing more power; and (iii) expanding generation, transmission, and distribution infrastructure.

20. The reform plan of the Government of Afghanistan is to corporatize and eventually unbundle DABM, appoint a new board of directors, and form four regional vertically integrated business units. MEW will be responsible for sector policy and planning, and will continue to prepare and implement sector policies, coordinate external assistance programs, and improve governance of the sector.

b. Tajikistan

21. In 2005, the Government of Tajikistan developed a strategy based on a two-track approach for the domestic and export markets. The first track focuses on the domestic market, and comprises a set of policy and investment measures aimed to bring the sector to reasonable operating conditions and improve its financial viability. This policy includes (i) the implementation of a medium-term tariff policy; (ii) a social protection policy for energy services to improve the effectiveness of the scheme and ensure a more targeted approach to support the poor; and (iii) an institutional reform policy for the energy sector to improve the transparency and efficiency of operations, enable electricity trade, and pave the way for private sector participation in the sector. The second track focuses on increasing electricity exports—first using existing seasonal surpluses in the summer, then by developing newer hydroelectric capacities for export to countries in the region (including Afghanistan, People's Republic of China, Iran, Pakistan, and Russia). Some seasonal exports to Afghanistan and Russia via Uzbekistan are already occurring, and the Government of Tajikistan is developing additional hydropower capacities with foreign investors, e.g., from Russia and Iran.

5. Lessons

22. The key lessons learned from ADB operations in Central Asia in terms of regional cooperation are that Central Asian countries are still in a transition stage. Commercial arrangements between governments are quite often dictated more by political than economic considerations. For example, Tajikistan could not maximize the use of its excess generation through export sales during the summer season because of the unwillingness of Uzbekistan to import Tajik power surplus, and transmission constraints in Uzbekistan. Therefore, excess water is spilled without generating electricity. The Regional Transmission Modernization Project[4] in Tajikistan and Uzbekistan aimed to develop power trade relations between the two countries by maximizing the use of hydropower generation but it could not be implemented because the countries were unable to agree on the terms of a power trade framework agreement. Given this experience, agreement on power trade should be achieved during the project design stage. These lessons are included in the project design. The intergovernmental agreement on power trade was a condition for loan negotiations. The agreement was signed and is dated 17 November 2006. A power purchase agreement (PPA) is currently in force for the existing 8 MW interconnection between the two countries until 2009 and a new PPA will be agreed between the two power utilities as stipulated in the intergovernmental agreement.

[4] ADB. 2002. *Report and Recommendation of the President on a Proposed Loan to the Republic of Tajikistan and Uzbekistan for the Regional Power Transmission Modernization Project.* Manila.

23. Another important lesson is implementation delay in Afghanistan and Tajikistan. Delays have occurred in both countries mainly because of lack of familiarity with ADB guidelines and procedures. The Project will be the third ADB project in both countries and such delays should no longer be encountered. However, in Afghanistan, MEW still lacks sufficient skills so the project design includes provision to strengthen the existing project implementation unit (PIU) and to assist MEW in implementing and administering the Project in a timely manner.

24. Competition in Afghanistan is weak because of security reasons, and bid prices are higher than the engineer's estimates. To improve competition, the project design involves a single bid for both the Afghan and Tajik parts of the transmission line. This is expected to attract additional bidders as about 75% of the works have to be carried out in Tajikistan where there are no security issues.

25. Previous loan covenants were too ambitious and could not be met within the agreed time frame. Treatment of the arrears of the aluminum smelter TADAZ with BT reached agreement but the target for accounts receivable of 3 months was not met. In addition, the commitment to increase tariffs was not met as the tariff targets were too high. With hindsight, the time given to reach the targets may have been too tight and the targets too ambitious. While it is useful to set challenging targets, they must be realistic and achievable, and the EA management must be committed to achieve them. The pace of sector reform has been slow. The unbundling of BT and tariff increases are behind schedule and need to be reconsidered. To address these issues, a TA is included which will help to improve the corporate governance of BT and facilitate sector reforms and financial viability.

26. **ADB Strategy**. ADB's regional cooperation program, which links and complements the individual country programs, has focused on identifying infrastructure needs and providing the investment environment for promoting cross-border trade in the areas of energy, trade, and transportation. In the energy sector, ADB's focus is on (i) maximizing the utilization of national resources and assets; (ii) benefiting neighboring countries by rationalizing and encouraging regional energy trade, based on market principles and (iii) rehabilitating existing infrastructure. The Project is fully in line with ADB's regional and country-specific strategies.

6. External Assistance

27. **Afghanistan**. The power sector in Afghanistan has received substantial support from several aid agencies including (i) ADB: transmission; (ii) World Bank: distribution, generation in Kabul and other key cities, capacity building for management improvement and commercialization of DABM; (iii) German development cooperation through KfW banking group (KfW): rehabilitation of power distribution networks and hydropower plants serving the Kabul area; and (iv) USAID: institutional strengthening and restructuring of MEW, rehabilitation of power generation plants, and purchase of essential fuel supplies. The governments of India and Iran have also provided assistance to finance key power transmission links (summarized in Appendix 3 and detailed in Supplementary Appendix I).

28. **Tajikistan.** The power sector in Tajikistan has received support totaling $123 million from several aid agencies including (i) World Bank: cofinancing the Pamir Private Power Project and a loss reduction project; (ii) Islamic Development Bank (IsDB): Dushanbe substations rehabilitation, construction of small hydropower plants, and transmission line feasibility study; (iii) Kuwait Fund for Arabic and Economic Development (KFAED): Dushanbe distribution system rehabilitation; (iv) Swiss State Secretariat for Economic Affairs (SECO) cofinancing of several

power projects; and (v) ADB: Power Rehabilitation Project.[5] The Aga Khan Foundation has invested equity in the Pamir Private Power Project (summarized in Appendix 3 and detailed in Supplementary Appendix I).

III. THE PROPOSED PROJECT

A. Impact and Outcome

29. The impact of the Project will be enhanced regional cooperation through transmission interconnectivity in the power sector between Afghanistan and Tajikistan. The outcome of the Project will be (i) increased power export and income generation capacity of Tajikistan by increasing the capacity of its south grid hydropower generation; (ii) restored power supply and reduced cost for consumers in Afghanistan; (iii) improved capacity of the utility operation of DABM, and (iv) improved commercial operation of BT.

B. Outputs

30. The Project consists of Afghan and Tajik components.

1. Afghan Component

Part A: Transmission Line that includes:

(i) A new double-circuit river crossing at Sherkan Bandar city (50% to be financed under the Tajik component).
(ii) Approximately 157 km of new double-circuit 220 kV transmission line from Sherkan Bandar river border crossing to Pul-e-Khumri via Kunduz and Baglan substations.
(iii) Demining of the route for the transmission line between Pul-e-Khumri and Sherkan Bandar.

Part B: Substations that includes:

(i) Construction of new 220kV switchyards at Kunduz and Baglan substations, and supply and installation of high accuracy export/import metering equipment at the new 220 kV switchyard of Kunduz substation, and
(ii) connection of the new 220 kV transmission line to the 220kV Pul-e-Khumri substation.

2. Tajik Component

Part A: Transmission Line that includes:

(i) Construction of a new 220 kV double-circuit river crossing at Karadum village (50% of the cost to be financed under the Afghan component).
(ii) Construction of approximately 118 km of new double-circuit 220 kV transmission line from Karadum river border crossing to Sangtuda substation.

[5] ADB. 2000. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan and Technical Assistance Grants to Tajikistan for the Power Rehabilitation Project.* Manila.

Part B: Substation that includes:

(i) Supply and installation of high accuracy export/import metering equipment at the Sangtuda substation.
(ii) Construction of two line bays to connect the new 220 kV transmission line to the Sangtuda substation.

Part C: Generation that includes:

(i) Replacement of Transformer T3 at Golovnaya HPP.
(ii) Dredging of canals at the Prepadnaya and Centralnaya HPPs.
(iii) Rehabilitation and upgrade of unit 3 at Golovnaya HPP.
(iv) Rehabilitation of the excitation system at Baipaza HPP.
(v) Optimization of the operation of the Vakhsh cascade.

Part D: Metering that includes supply of bulk metering systems in southern grid transmission substations.

C. Special Features

1. Power Purchase Agreement (PPA)

31. Under the intergovernmental agreement, both countries agreed that a PPA should be signed and negotiated prior to contract award. The PPA will define: (i) the parties; (ii) the term of the PPA (20 years); (iii) buyer minimum purchase obligations; (iv) seller minimum supply obligation; (v) penalties for failure to supply or failure to sell; (vi) delivery and billing point; (vii) price and terms of payment; (viii) condition for effectiveness; (ix) payment process and financial guarantees on the seller and buyer side (access to necessary property and construction facilities and local labor, if any), and form and operation mode for cross-border assets. A copy of the intergovernmental agreement is in Supplementary Appendix F.

2. Afghanistan

32. **Private Sector Participation/Strengthening DABM and North Electric Power System Capacity**. In Afghanistan, the power sector needs large amounts of investment in generation, transmission, and distribution. The Government of Afghanistan has relied on aid finance to meet its capital expenditure, and operation and maintenance (O&M) costs are sometimes externally financed. It is unable to recover full operation cost and this is worsened by growing insecurity and safety concerns. The dependency on aid financing of the Government of Afghanistan is likely to continue in the short to medium term, as the overall investment climate is not favorable to private or other investors. However, in the interim, aid financing will benefit the private sector by reducing operational, regulatory, and policy uncertainties. Private sector participation will take two forms: (i) large-scale involvement (not necessarily direct equity investment) in generation to supply base load for Kabul or other main cities, and (ii) small-scale generation and distribution (by domestic entrepreneurs) in isolated rural areas. Private sector investment barely exists in the energy sector but it may be the only viable option to electrify large parts of the country quickly. Many years of war have left a weak power supply monopoly, unlike many other countries facing deregulation. Therefore, regulation, rules, and agencies—while urgently needed—must be carefully crafted so as not to discourage investment.

33. Ongoing construction of the transmission line from Pul-e-Khumri to Kabul, delayed preparation of the Second Emergency Power Rehabilitation Project under World Bank financing,

rehabilitation of the Kabul distribution network, and the Project underscore the need for a timely decision by the Government of Afghanistan on the management and operational arrangements for these vital assets. The Government of Afghanistan appreciates the need to develop this arrangement and carry out competitive bidding to select a management contractor for 3–5 years. This arrangement will improve the effectiveness and efficiency of DABM and North Electric Power System in delivering reliable power supply in Afghanistan. The financial viability and strength of DABM and North Electric Power System will be enhanced through improved accounts receivable management, asset management, business planning, and sound financial management practices. ADB, together with the loan, will provide assistance along with the World Bank and other donors involved in the power sector in Afghanistan in identifying and financing the necessary preparatory works to enable private sector participation through a management contract.

34. **Demining Operations**. Although the major portion of the transmission line passes through cleared terrain, a few zones have been identified near Kunduz where demining will be required. The specialized agency selected under the bidding process will have to clear the route for the development of the transmission network from Pul-e-Khumri to Shekhanbandar. An estimated $1 million for demining is included in the project loan amount.

35. **Project Implementation Unit**. MEW will use the services of the existing PIU. ADB requested MEW to add an additional staff member to the PIU to take the Project into account. MEW was also requested to appoint a dedicated full-time project director who will be in charge, in addition to the normal administrative tasks inherent to project management, to negotiate and coordinate with the Tajik counterparts.

3. Tajikistan

36. **Private Sector Participation in Generation**. The Government of Tajikistan has succeeded in attracting foreign investors in the Tajik power sector. RAO Unified Energy System (UES) of Russia is currently completing the 670 MW Sangtuda-I hydropower plant on the Vakhsh River under a build-own-operate scheme. The Government of Iran has expressed interest in the construction of Sangtuda-II (220 MW) hydropower plant on the same river under a build-operate-transfer scheme. Other private investors have expressed interest in the development of new hydropower generation facilities. This will increase Tajikistan generation capacity and allow firm power year-round exports. The Project provides an incentive for private sector participation in the form of an export market to Afghanistan and further to Pakistan.

37. **Restructuring and Commercialization of BT**. The energy sector plan, agreed under the Power Rehabilitation Project (footnote 6) in November 2000, required the implementation of a restructuring plan for BT. The key requirements of this plan included: (i) implementation of the energy law, (ii) creation of a ministry of energy, (iii) adoption of a comprehensive commercialization and corporatization plan for BT (by December 2003), and (iv) unbundling of BT into incorporated independent electricity companies by December 2004.

38. Most of the elements of the restructuring plan have been implemented. However, BT has not met the target date for unbundling. The consultants who are currently working under this project recommended that managerial, commercial, financial, and technical skills should be identified and strengthened before the unbundling takes place. In preparation for unbundling, ADB will, together with the loan, provide a TA that will set in place conditions to improve corporate governance of BT for 3–5 years to meet agreed financial, technical, operational, and commercial objectives. A management contract will be pursued where the contractor's performance will be measured by setting key performance indicator targets relating

to (i) improving the reliability of the electric power networks; (ii) expanding access to network services; (iii) reducing costs and improving commercial operations, particularly in the area of billing and collection; and (iv) improving corporate functions and processes, including enterprise governance.

39. **Project Implementation Unit.** The Government of Tajikistan has reformed the existing PIU within BT. Under the new arrangement, a centralized project management unit (PMU) will handle all projects in the power sector financed by international finance institutions. The centralized PMU will be managed and controlled by the Government of Tajikistan and financed by BT. Taking into account the regional dimension of the Project, ADB and the Government agreed to set up a separate PIU within BT with a project director reporting directly to the chairperson of BT.

D. Project Investment Plan

40. The total project cost is estimated at $109.5 million including physical and price contingencies, financing charges during construction, taxes, and duties. The cost of the Afghanistan component is $55.5 million (inclusive of taxes and duties) and the Tajikistan component is estimated to cost $54.0 million (exclusive of taxes and duties). Project cost estimates are summarized in Table 1. Detailed cost estimates are in Appendix 4.

Table 1: Project Cost Summary
($ million)

Item	Total	AFG	TAJ
A. Base Cost[a]			
1. Transmission Line	45.7	25.7	23.0
2. New Substations	12.5	12.5	–
3. Generation Upgrading/Rehabilitation	14.8		12.4
4. Bulk Metering	1.5	–	1.7
5. Implementation Consultant	3.3	1.3	2.0
6. Others	3.6	3.2	0.4
7. Taxes and Duties[b]	1.3	3.3	0.0
Subtotal (A)	**82.7**	**44.0**	**41.9**
B. Contingencies			
1. Physical Contingencies[c]	9.8	5.5	4.7
2. Financial Contingencies	5.4	2.9	2.4
Subtotal (A+B)	**97.9**	**54.4**	**49.0**
C. Interest During Construction	5.6	1.1	5.0
Total (A+B+C)	**109.5**	**55.5**	**54.0**
%	100	50.7	49.3

AFG=Afghanistan, TAJ=Tajikistan.
[a] 2006 prices.
[b] Taxes and duties under the Project are not payable in Tajikistan.
[c] Ten percent physical contingencies for most items.
[d] Based on 2% escalation (annual disbursements 20%, 39%, 31%, 10%).
[e] Assuming 5.5% used for relending to Barki Tajik (Tajikistan) and 1% for relending to DABM (Afghanistan).
Source: Asian Development Bank estimates.

E. Financing Plan

41. The financing plan for the Project is summarized in Table 2 and detailed in Appendix 4.

Table 2: Financing Plan
($ million)

Source	Total	AFG	TAJ
ADB	56.5	35.0	21.5
OFID Fund	8.5		8.5
IsDB	10.0		10.0
ARTF/Other	16.5	16.5	
Equity (Government of Afghanistan/BT)	18.0	4.0	14.0
Total Project	**109.5**	**55.5**	**54.0**

ADB = Asian Development Bank, AFG = Afghanistan, ARTF = Afghanistan Reconstruction Trust Fund, BT = Barki Tajik, IsDB = Islamic Development Bank, OFID = OPEC Fund for International Development, TAJ = Tajikistan.
Source: Asian Development Bank estimates.

42. The Government of Afghanistan has requested a loan of $35.0 million from ADB's Special Funds resources to help finance the Project which will cost $55.5 million. The loan in various currencies equivalent to $35.0 million in Special Drawing Rights will have a 32-year term, including a grace period of 8 years with an interest rate of 1% during the grace period and 1.5% thereafter. The Government of Afghanistan will relend the loan proceeds denominated in local currency to DABM on the same terms as the ADB loan. The Government of Afghanistan has approached the Afghanistan Reconstruction Trust Fund (ARTF) and other cofinancers to cofinance the Project with a $16.5 million loan. It is assumed that the loan will be on the same terms as the ADB loan. As the budget for infrastructure projects of the Government of Afghanistan is limited, ADB and the co-financier have agreed to fund the entire investment with a minimum contribution from the Government of Afghanistan of $4 million to cover local taxes and duties and security during construction.

43. The Government of Tajikistan has requested a loan of $21.5 million from ADB's Special Funds resources to help finance the Project which will cost $54.0 million. The loan in various currencies equivalent to $21.5 million in Special Drawing Rights will have a 32-year term, including a grace period of 8 years with an interest rate of 1% during the grace period and 1.5% thereafter. The Government of Tajikistan will relend the loan proceeds to BT, at an interest rate applicable to ADB's LIBOR-based lending facility with a grace period of 5 years and repayment period of 25 years. The foreign exchange risk will be borne by the Government. Cofinancing in the amounts of $8.5 million from OFID will be provided on a joint basis and $10.0 million from IsDB, will be provided on a parallel basis on similar concessional terms as the ADB loan. BT will provide funding of $14.0 million, partly through the supply of aluminum cables for the transmission lines. However, it was made clear to BT that this did not imply that ADB condoned the barter arrangement with TADAZ; rather, this was being done partly to help liquidate the idle aluminum cable stock.

F. Implementation Arrangements

1. Project Management

44. For Afghanistan, MEW will be the EA for the Project. It will have overall responsibility for implementation of the Project—specifically, the timely mobilization of counterpart financing and cofinancing, as required. It will carry out supervision of the works and issuance of work permits, supervision of testing, and commissioning. DABM will be the IA and will be responsible for O&M of the facilities. Taking into account the regional dimension of the Project, MEW will appoint a full-time project director who will be responsible—in addition to the normal project tasks related

to project administration—for coordinating with the Tajik counterparts to ensure the smooth and timely progress of the Project. To mitigate the lack of skill and experience of the EA, the Project includes provision of an advisory team in project administration as described in Appendix 15.

45. For Tajikistan, BT will be the EA for the Project. It will appoint a full-time project director who will be responsible—in addition to the normal project tasks related to project administration—for coordinating with the Afghan counterparts to ensure the smooth and timely progress of the Project. A new and independent PIU will be set up for this Project.

2. Implementation Period

46. The Project will be implemented in 24 months, with target completion by 31 March 2009 for the Afghan and Tajik components of the transmission line. The other Tajik components are expected to be completed by 30 June 2010. Project implementation will commence in February 2007.

3. Procurement

47. All goods and services procured under the ADB and OFID loans will be in accordance with ADB's *Procurement Guidelines* (April 2006, as amended from time to time), based on the joint assessment of the Borrower's capacity to handle the procurement activities. For construction of the transmission line and in order to increase competition, it is envisaged to have a single tender for both Afghan and Tajik components. However evaluation of the bid, contract negotiations and contract award will be carried out separately for each component in order not to penalize the Tajik component with high costs experienced in past projects in Afghanistan. The ongoing project preparatory TA[6] will fund the preparation of the full bidding documents. This will permit a contract to be signed for construction in early 2007 and ensure the timely commissioning of the line.

48. The main packages (i.e., the transmission line and substation works) will be procured under international competitive bidding (ICB) using a single-stage two-envelope procedure on the basis of engineering, procurement, and construction contracts (turnkey contracts). Metering will also be procured under ICB using the single-stage one-envelope procedure. For Tajikistan, installation of the meters will be done by BT staff as part of counterpart financing. Rehabilitation of canals, which will be entirely financed as counterpart financing, will be procured following national competitive bidding (NCB).

4. Consulting Services

49. Consulting services will be needed to assist BT and MEW/DABM in implementing the Project. The consultants will also assist BT and MEW/DABM in environmental management and monitoring social and resettlement safeguards. In Afghanistan, international consulting services (about 45 person-months) and national consulting services (about 30 person-months) will be required for project management, detailed design, preparation of bidding documents, assistance in procurement, construction supervision, installation of equipment, and testing and commissioning of the plants. In Tajikistan, about 60 person-months of international and 80 person-months of national consulting services will be required. The consultants will also assist BT and MEW/DABM in environmental management and monitoring social and resettlement safeguards. All consultants will be recruited as a firm by BT and MEW/DABM in accordance with ADB's *Guidelines on the Use of Consultants* (April 2006, as amended from time

[6] ADB. 2004. *Technical Assistance to Afghanistan for Preparing the National Power Transmission Grid Project*. Manila.

to time) using quality and cost-based selection (full technical proposal). The consultant is expected to be fielded in mid-2007. The outline terms of reference for consultants are in Appendix 10.

5. Anticorruption Policy

50. ADB's policy *Anticorruption* (1998) will be enforced. Consistent with its commitment to good governance, accountability, and transparency, the Government of Afghanistan and the Government of Tajikistan are aware that 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* are included in the loan regulations and the bidding documents for the Project. In particular, all contracts financed by ADB in connection with the Project shall include provisions specifying the right of ADB to audit and examine the records and accounts of the EA and all contractors, suppliers, consultants, and other service providers as they relate to the Project.

51. In particular for Tajikistan, payment of the electricity exports to Afghanistan will be done through a transit account established at a nominated bank for the purposes of collecting revenues generated by supply of electricity to Afghanistan. The details of the account will be provided in the PPA. The funds accumulated in this account will be used by BT exclusively for the purposes of maintenance and rehabilitation of the existing facilities and for new investments by agreement with the Government of Tajikistan. The account will be subject to annual audit by an external auditor acceptable to ADB.

52. BT and MEW/DABM will establish within 1 year from the date of effectiveness a website that will present information on externally funded projects. For this Project, the website will provide information on, among others, financial statements of BT and MEW/DABM; and procurement activities, including the list of participating bidders, name of the winning bidder, basic details on bidding procedures adopted, amount of the contract awarded, the list of goods and/or services purchased, and their intended and actual utilization.

6. Disbursement Arrangements

53. All disbursements under the ADB loan will be carried out in accordance with ADB's *Loan Disbursement Handbook* (2001). Direct payment procedures will be utilized for the procurement and consulting services contracts.

7. Accounting, Auditing, and Reporting

54. There will be continued monitoring and evaluation of project implementation, with timely reporting deadlines. MEW and BT (as EAs under the Project) will prepare quarterly reports on the progress of project implementation and provide ADB and the co-financiers with copies of these reports. ADB will review the implementation of the Project on a regular basis, at least once a year, and will monitor overall performance of each of the EAs and DABM. Within 3 months of project completion, each of the EAs will provide ADB with a project completion report covering details of implementation and other information required by ADB. Each of the EAs will maintain separate records and accounts for the Project and will have the accounts audited annually by independent auditors acceptable to ADB. Copies of audited project accounts will be provided to ADB within 6 months of the end of each relevant fiscal year.

8. Project Performance Management System

55. Each of the governments, through the EA and with the assistance of the implementation consultants, will establish within 6 months of loan effectiveness a comprehensive project performance management system acceptable to ADB to monitor and evaluate the project performance as a whole, as well as delivery of the planned facilities and project benefits under the Afghan and Tajik components.

9. Project Review

56. Regular annual ADB review missions will be undertaken to discuss the latest progress, and address current and emerging problems by developing mitigating measures. An in-depth midterm review will be undertaken not later than in 2008 by ADB together with the EAs, the IA, and co-financiers, as appropriate to assess whether the project outcomes are likely to be achieved. The midterm review will focus on relevant institutional, administrative, organizational, technical, environmental, social, economic, financial, and other relevant aspects that may have an impact on the performance of the Project and its continuing viability.

G. Executing Agencies

1. Afghanistan

57. DABM, is responsible to MEW for O&M of the country's generation, transmission, and distribution assets as well as for metering, billing, and revenue collection. It employs about 5,400 people.

58. **Financial Management and Sustainability**. Financial management assessment of DABM was undertaken to evaluate its ability to undertake and fulfill ADB's fiduciary requirements for the Project. While the financial management for the IA has been improving over the last few years, it was still found to be unsatisfactory. Capacity and institutional development have been proposed under the Project, which will help to further strengthen financial management capacity. A World Bank-funded program is currently in place to improve the financial management of DABM, including improvement of its accounting systems and billing and collection. The ADB-proposed attached TA will further strengthen DABM's capacity in accounting and financial management, which would further improve the financial management of DABM in the short to medium term.

59. A review of DABM's past financial accounts showed that it had insufficient cash flow to even meet its operational requirements and that its financial position needs to be significantly improved. Recognizing this, on 23 September 2006, the Government of Afghanistan increased the average tariff by almost 100% to $0.083/kWh. This tariff increase, together with the benefit of cheap imported electricity from the Project, will substantially improve its financial situation. Assuming continued annual tariff increases at the rate of inflation, DABM will be able to generate sufficient cash flows to cover operating costs and meet its future debt servicing obligations. The summary projected income statement, cash flow, and a balance sheet are in Appendix 8 and detailed analysis is provided in Supplementary Appendix E.

2. Tajikistan

60. The EA for the Tajikistan component, BT, is responsible for the O&M of the power sector for most of the country including generation, transmission, and distribution. BT, which reports to MOE, employed 9,800 staff in 2005.

61. **Financial Management and Sustainability**. Financial management assessment of BT was satisfactory, but further strengthening of institutional and financial capacity will be needed to meet best practice standards. Under the Project, TA support for commercialization of BT will be provided and a management contract will be pursued.

62. A review of the past financial statements indicates that revenues are only sufficient to cover current operating expenses. Tariff increases are badly needed for financial sustainability. With the commitment of the Government of Tajikistan to increase the current tariffs progressively from an average of $0.006/kWh to $0.021/kWh (in 2003 terms) by 2010, and partly assisted by the incremental income from the Project, BT's financial situation is expected to improve greatly and will enable it to meet its operating costs and future debt servicing obligations. The summary projected income statement, cash flow, and a balance sheet are in Appendix 8 and detailed analysis is provided in Supplementary Appendix E.

IV. TECHNICAL ASSISTANCE

63. The Project includes two TAs to improve the capacity of IAs both in Afghanistan and Tajikistan. The rationale and details of the TAs are discussed below.

64. **Afghanistan TA**. This is designed to improve the capacity of DABM in utility operations. DABM depends heavily on the Government of Afghanistan and donor support to fund its operational and capital expenditure programs. It is necessary to improve the institutional, technical, and financial capacity of DABM. Two key areas would improve DABM's overall performance: (i) strengthening institutional and management capacity to meet operational demands, and (ii) improving and expanding the capacity for technical employees of DABM. The TA is expected to start by March 2007 and be completed by March 2009.

65. Strengthening the institutional management capacity of DABM will make it able to handle routine operational work in the areas of planning, budgeting, financial management, and accounting. Of these, special attention should be given to improvement of billing, collection, and metering skills. Improving and expanding capacity for technical employees of DABM is the second area of the TA. While capacity improvement through intensive training courses in generation, transmission, and distribution is needed for DABM, training priority should be given to transmission because of the nature of the Project. Therefore, setting up long-term training courses for DABM's current staff and future employees is for the long-term sustainability of the Project. The total cost of the TA is estimated at $1,320,000. The TA will be entirely financed on a grant basis from ADB's TA funding program in the amount of $1,200,000. The government of Afghanistan will finance the remaining $120,000 through in-kind contribution. The TA will finance the services of international consultants for 20 person-months and national consultants for 45 person-months. They will be recruited as a firm in accordance with ADB's *Guidelines on the Use of Consultants* using the quality and cost-based selection method (full technical proposal). The outline terms of reference are in Appendix 13.

66. **Tajikistan TA**. This is designed to strengthen and improve internal management and customer responsiveness and reliability of BT, a public-owned power company in Tajikistan. BT's management and institutional capacity have been improved but its services are still poor and inefficient. While unbundling is the long-term solution and a target for BT in the short term, BT needs to develop and establish an efficient management and rational institutional structure to effectively design and control the planning, budgeting, revenue management, and corporate accounting system. These skills should be identified and good corporate governance practices

should be in place before BT's unbundling takes place. The TA is expected to start by March 2007 and be completed by September 2009.

67. The outputs of the TA will be: (i) preparation of the legal framework enabling the implementation of a management or similar form of contract; (ii) definition of performance criteria (commercial, financial, and technical); and (iii) selection of a management contractor for 3–5 years to introduce corporate governance within BT and to improve the financial and technical efficiency of the power utility to pave the way to further unbundling and privatization. The TA is estimated to cost $1,800,000 equivalent. As requested by the Government of Tajikistan, ADB will provide $1,500,000 equivalent, to be financed on a grant basis by the Japan Special Fund, funded by the Government of Japan. The Government of Tajikistan will finance the remaining cost equivalent to $300,000 through in-kind contribution. The TA will finance the services of international consultants for 40 person-months and national consultants for 110 person-months. They will be recruited as a firm in accordance with ADB's *Guidelines on the Use of Consultants* (April 2006, as amended from time to time) using the quality and cost-based selection method (full-technical proposal). The outline terms of reference are in Appendix 14.

V. PROJECT BENEFITS, IMPACTS, ASSUMPTIONS, AND RISKS

A. Financial and Economic Assessment

68. All the components of the Project are part of the least-cost development program. The Project considered transmission supply alternatives to Kabul and related areas with grid supply to replace small-scale isolated diesel generation (with cost as high as $0.33/kwh). The Project is the most effective way to provide reliable and affordable power supply in Afghanistan. On an incremental basis, the Project will greatly increase power capacity to provide relatively cheap and low-cost electricity supply to households and enterprises. The rehabilitation components in Tajikistan will increase power generation and export capacity in a cost-effective manner.

69. The financial analysis of the Project was conducted from the perspective of DABM and BT. The analysis is based on total capital costs, including physical contingencies and taxes but excluding price contingencies and financing charges. Only incremental costs and revenues have been included in cash flows.

70. For Afghanistan, the financial benefits of the transmission interconnection are significant, given the high level of unserved demand for electricity and the average tariff of $0.083/kWh. In addition, Afghanistan will invest in two substations along the route of the line, in Kunduz (population 950,000) and Baglan provinces (population 850,000). The substations will permit incremental electricity sale to meet unserved demand in these towns. However, to realize the full value of the substations, additional downstream distribution costs of $15 million and $10 million, spread over 5 years, have been included into the costs of the Kunduz and Baglan substations. This cost will be borne by the Government of Afghanistan after completion of the substations. In Afghanistan, security concerns increased the operational costs for the transmission line by 33%, compared with those in Tajikistan.

71. For Tajikistan, the financial benefit is from the export of incremental hydroelectricity which has no alternative value in summer when river flows are high. Assuming a sale price of $0.025/kWh at the border, it will be a win-win situation for both countries. Additional investments include upgrading and rehabilitation of four HPPs in the Vaskh River Cascade. The investments, which will result in an average incremental generation capacity of 320 GWh per year, will help reduce the winter electricity shortfall in Tajikistan.

72. The financial evaluation of the Project was undertaken in real terms using constant 2006 prices. The project cost estimates and the financial projections in nominal terms were converted to real terms by adjusting for the projected effects of foreign and domestic inflation and currency fluctuations. Incremental costs and benefits were derived by evaluating the financial position of the EAs, BT, and DABM, under with- and without-project scenarios. The financial internal rate of return (FIRR), computed on an after-tax basis, is 12.4% for the Afghanistan component and 20.8% for the Tajikistan component. This compares favorably with the weighted average cost of capital (WACC), also computed on an after-tax basis, of 0% for Afghanistan and 3.0% for Tajikistan. Sensitivity analysis indicates that the FIRR is robust under adverse conditions. The Project is considered both financially viable and sustainable. Detailed analysis is in Appendix 9.

73. Economic analysis was conducted for the Project. To test the economic viability of the Project, the economic internal rate of return (EIRR) was calculated on the basis of incremental cost-and-benefit streams associated with each project. Economic returns are high for the Project. This stems from the new transmission link which enables Tajikistan to export its surplus hydropower energy to mitigate the power shortage in Afghanistan. Willingness to pay was estimated considering the current cost of diesel generation of $0.33/kWh. Financial costs were adjusted to reflect the true economic opportunities forgone and realized because of the Project. For Tajikistan, an export price of $0.025/kWh was used as calculation base for border price. For Tajikistan, the EIRR of the Project was 31.1%—15.7% for the hydropower plant component and 40.1% for the transmission line. For Afghanistan, the EIRR of the Project was 31.0%—39.6% for the transmission line part and 19.8% for the Kunduz/Baglan part.

74. Various financial and economic sensitivity analyses were conducted, including capital cost increases, benefits (volume and/or tariff) decreases, and delay in implementation. The financial sensitivity analysis showed some low returns in the Afghanistan case but still exceeding the WACC. However, the EIRR values remained well above the 12% cutoff for all scenarios. In addition, political instability and security will also affect project implementation. This is particularly important for Afghanistan where project risks are high. Although it is difficult to quantify such damage to the Project, political instability and security will mostly cause the Project cost increase and implementation delay. The calculation results showed that with 30% cost increase and one-year delay, the FIRR was acceptable at 7.5% and the EIRR was 19.6%, still above 12%. Analysis is provided in Appendix 9 and detailed analysis is in Supplementary Appendix D.

75. Distribution of economic benefits arising from the Project in Tajikistan and from savings of imported electricity of the Project in Afghanistan was calculated at a discount rate of 12%. The poverty impact analysis showed that 53% of economic benefits will go to poor people living below the official poverty line in Afghanistan and 54% of economic benefits will go to the poor in Tajikistan.

B. Regional Benefits

76. This regional Project will generate additional revenues to the Tajik economy and lower the cost of power for consumers in the Afghan economy. The power trade under the Project will facilitate economic growth to bring additional benefits to the region.

77. Distribution analysis for regional cooperation was conducted to examine the distribution of the Project's benefits for the two countries, using the same EIRR methodology and assumptions for discount rate, price numeraire, constant price, and standard conversion factor adjustment. Through this Project, increased trade is an additional benefit for the region as the Project will promote trade in electricity and trade from other areas. The net economic benefits of

regional cooperation from trade are estimated at $114.3 million at 12% of discount rate for both countries. It is estimated that Tajikistan would share 47% of the benefits and Afghanistan should share 53% of the benefits from the Project. Therefore, the Project is a win-win example of regional cooperation.

C. Social and Poverty Impacts

78. Land acquisition or impacts on crops will be extremely limited—both for the Afghanistan and the Tajikistan components of the Project—and will depend only on the construction of tower bases and expansion of Baglan substation. All other items constructed under the Project, including temporary access roads, will have no impacts on property and livelihoods. No house will be affected and no resettlement is needed in either country. In Afghanistan, most of the transmission line will pass over unused desert land where impacts will be greatly limited by locating the towers within the tower footing of an old Soviet line in disuse or by using poles instead of towers. In Tajikistan, most of the transmission line will pass in unused desert land and impacts will occur only where the transmission line has to cross strips of cultivated land. To plan the compensation program, the EAs have prepared a short resettlement plan (RP) for each component. Each RP fits the relevant national law/regulation and ADB's policy on *Involuntary Resettlement* (1995) and *Operations Manual F2 on Involuntary Resettlement*. The RPs provide impacts figures, describe the compensation and rehabilitation framework, and detail all RP implementation mechanisms/responsibilities. After detailed design completion, the RP will be reviewed and, if necessary, updated as a condition for approval of the civil works contract. Implementation of the RP in accordance with ADB requirements will be a condition for the notice to proceed with civil works mobilization. The Afghanistan and the Tajikistan RPs are summarized in Appendix 11, and are in Supplementary Appendixes G and H.

79. No project-affected person in Afghanistan or Tajikistan fits the definition of indigenous person provided by *The Bank's Policy on Indigenous Peoples* (1998). Therefore, there will be no impact on indigenous peoples from either of the project components.

D. Poverty and Social Assessment

80. In Afghanistan, the Project will (i) provide cheap electricity and improved summer power supplies to Afghanistan, which will ensure continuous provision of electricity to local users and lessen the country's dependence on other much more expensive indigenous or foreign sources; and (ii) provide savings that will influence year-round power flows and allow greater purchasing ability during winter. The gains obtained will directly benefit the poor as money saved in summer months will translate to lower year-round tariffs for them. In Tajikistan, the Project will (i) increase the budget needed to improve the availability of electricity during winter by selling part of its summer hydropower surplus to Afghanistan; and (ii) permit improvement of the efficiency of the sources of indigenous winter power, develop new generating assets, or increase the country's purchasing capacity for additional winter power imports. Greater year-round access to electricity in Afghanistan and Tajikistan will also indirectly benefit poor and vulnerable consumers by allowing more efficient operations to hospitals, schools, and other social utilities, which are often hardest hit by inadequate power supply and quality. Improved power supplies will also encourage light industrial and commercial activity, creating employment opportunities and improving productivity and the quality of outputs in the manufacturing and agriculture sectors.

E. Environmental Impacts

81. The Project is classified category “B”. Initial environmental examinations (IEEs) for both the Tajikistan and Afghanistan components of the Project were prepared, anticipating insignificant environmental impacts which can be readily mitigated by the implementation of standard mitigation measures and good engineering practices in the design and construction of transmission lines, access roads, canal excavation, and spoil management. Such measures are specified in both environmental management plans (EMPs) and relevant contract documents. Furthermore, any minor environmental impacts are offset by the environmental benefits, especially the additional power generation without extra greenhouse gas emission from the Project. Minimal impact is expected on any ecologically important area and the nearest protected area, the Tigrovaya Balka Nature Reserve, is at least 11.5 km from the alignment. The biophysical resources along the proposed transmission line alignment and the project facilities are areas of low habitat value, mainly comprising sparsely vegetated semidesert areas. On the Tajikistan side, there are numerous existing transmission lines and towers, and the Project will create negligible additional visual impacts. Little cumulative impacts, including transboundary or induced impacts, are expected mainly because no new hydropower generation will be added. Therefore, no modification of the actual water flows are expected which might affect riparian countries.

82. BT is responsible for adequate implementation of the EMP for the Tajikistan component. It currently has an environmental monitoring unit which received on-the-job training from the implementation consultant of the Power Rehabilitation Project (footnote 6), and is considered to have the experience and capacity to undertake environmental management functions for the Project. MEW is its counterpart on the Afghan side. Since MEW currently has limited capacity, training of staff in environmental management will be necessary. This will be undertaken by an international environmental specialist during project implementation. Effective implementation of the EMP will be monitored throughout each phase of the Project.

F. Project Risks

83. The overall political and security situation remains volatile and uncertain in Afghanistan. Such instability might create delays in implementation and cost overruns. A longer-term issue is the post-construction security of the transmission line asset, hence its ability to indirectly generate cash flows to repay the loan. An interministerial committee was set up in September 2006 and will continue to provide guidance on all security matters.

84. Adequate coordination with other donors and agencies will ensure that all components necessary to supply Kabul will be in place when the interconnection between the two countries is ready. These include not only the completion of the Pul-e-Khumri to Kabul transmission line but also rehabilitation of the distribution system in Kabul.

85. Weakness of the EA in both countries could lead to delays in implementation. However, steps have been taken to mitigate this risk (paras. 23 and 44).

86. Lack of financial capability from the Afghan side to pay for the power imports is a risk. Average tariff levels were increased by 100% in September 2006, which will help the ability of DABM to pay for power imports. It is envisaged that DABM will obtain a bank guarantee covering up to 2 months of import, which will further mitigate this risk.

87. Regular tariff increases over the next few years in Tajikistan are necessary to ensure that the EA is able to generate electricity and service the debt. The governments have recently taken steps to increase tariffs and have initiated significant tariff increases.

88. There are potential risks of inadequate EMP implementation because MEW has limited environmental capacity. Training of MEW staff in environmental management and monitoring, which will be provided initially by an international environmental specialist included in the project implementation consultant's team, will be necessary to establish routine environmental monitoring protocols, and undertake periodic environmental monitoring and audit of construction works during construction. Risks on inadequate EMP implementation can thus be minimized.

VI. ASSURANCES

A. Specific Assurances

89. In addition to the standard assurances, the governments of Afghanistan and Tajikistan, DABM , BT, and MEW have given the following assurances, which are incorporated in their respective legal documents.

90. **Trade Enhancement**. The governments will comply with the terms of the intergovernmental agreement including: (i) minimum take or pay assurance by Afghanistan, security of supply assurance by Tajikistan, (ii) long-term tariff certainty through tariff escalation agreement and (iii) financial guarantee for coverage of the obligations of the parties.

91. **Tariffs**. Each of the governments will ensure that (i) tariffs are adequately adjusted during project implementation so that BT and DABM, as appropriate, comply with the financial covenants, as discussed in paras. 93 and 94 below; (ii) a lifeline tariff structure has been reviewed in the medium term in order to provide an element of tariff subsidy to the poor; and (iii) public awareness programs are undertaken to educate the public on the need for a rational electricity tariff scheme and the importance of energy conservation.

92. The Government of Tajikistan will ensure that the interest margin arising from relending of the ADB loan and loans provided by the co-financiers are used to fund the subsidy of the lifeline tariff.

93. **Financial Matters**. The government of Afghanistan will take all necessary measures including tariff adjustments to ensure that DABM complies with the following financial covenants:

(i) The accounts receivable (a) do not exceed the equivalent aggregate amount of 6 months of billings at the end of each quarter from 20 September 2007; and (b) from 20 March 2009 onward, are maintained at the level of the aggregate amount of 3 months of billing.
(ii) An operating ratio is maintained at a level of less than 90% from fiscal year ending 20 March 2008

94. The Government of Tajikistan will take necessary measures to ensure that:

(i) An operating ratio is maintained at a level of less than 90% from fiscal year ending 31 December 2008.
(ii) BT shall not incur any debt, unless its free cash flows for the twelve months prior to the date of such incurrence shall be at least 1.3 times the estimated debt

service requirements of BT for any succeeding year on all debt of BT, including the debt to be incurred.

(iii) By 31 December 2008, BT establishes an escrow account at a nominated bank for accumulating payments received from electricity sales to Afghanistan. The accumulated funds shall be used by BT exclusively for the purposes of repayment of the principal and interest of the subsidiary loan, for maintenance and rehabilitation of existing facilities and for new investments;

(iv) BT, by 30 June 2007, stops all barter trading and takes necessary measures to require cash payments in full from all its consumers; and

(v) By 31 December 2008, BT liquidates inventory levels from the current 9 months of sales as at June 2005 to 6 months of sale revenue, and from June 2008 onwards, maintains the inventory at a level not exceeding the equivalent of the aggregate amount of 3 months of sale revenue.

(vi) The accounts receivable (a) do not exceed the equivalent aggregate amount of 6 months of billings at the end of each quarter from 31 December 2008; and (b) from 31 December 2009 onward, are maintained at the level of the aggregate amount of 3 months of billing.

95. **Governance**. The governments agree that:

(i) No material changes (either financial, structural, or operational) to, nor major asset transfer to and from, the EA and/or IA, as appropriate, are formally approved or implemented during the term of the loan without prior ADB approval if such changes would or would likely affect the ability of the EA and/or IA, as appropriate, to perform its obligations under the Project Agreement and/or Subsidiary Loan Agreements, as appropriate.

(ii) The EA will provide adequate funds to carry out independent audits that are acceptable to ADB, for the project and corporate accounts.

(iii) All payments of the electricity exports from Tajikistan to Afghanistan are done to a transit account established in the name of BT at a nominated bank. The details of the account must be provided in the PPA. The funds accumulated in this account will be used by BT exclusively for the purposes of maintenance and rehabilitation of the existing facilities and for new investments by agreement with the Government of Tajikistan. The account will be subject to annual audit by an independent auditor acceptable to ADB.

(iv) During 1 year of project effectiveness, the EAs and/or DABM will establish a website that will present information on externally funded projects. For this Project, the website will provide information on, among others, financial statements of BT and MEW/DABM, as appropriate; and procurement activities including list of participating bidders, name of the winning bidder, basic details on bidding procedures adopted, amount of the contracts awarded, the list of goods and/or services purchased, and their intended and actual utilization.

96. **Environmental Measures**. Each of the governments will ensure that:

(i) The preparation, design, construction, implementation, and operation of the Project is carried out in compliance with applicable laws and regulations, ADB's *Environment Policy* (2002) and the agreed IEE, and all monitoring and mitigation measures identified in the EMP are implemented to the satisfaction of ADB.

(ii) Contracts with civil works contractors will comply with the IEE.

(vii) Adequate funds are provided annually for O&M and the project facilities are operated and maintained in accordance with all national safety and O&M guidelines, including safe storage of construction, rehabilitation, and maintenance materials to prevent contamination of soil and water with fuel and lubricants or any hazardous materials.
(viii) The EAs will ensure that each quarterly progress report to be provided to ADB includes information on the implementation of the IEE.

97. **Security**. The Government of Afghanistan will ensure that:

(i) No notice to proceed shall be issued until certification has been obtained from the demining agency that the route for the development of the transmission network from Pul-e-Khumri to Sherkan-Bandar has been cleared of unexploded ordnance.

98. **Social Safeguards**. The governments will ensure that:

(i) The preparation, design, construction, and implementation of the Project complies with applicable laws and regulations. ADB's policy on *Involuntary Resettlement*, *Operations Manual* F2 on Involuntary Resettlement, and the provisions detailed in the RP.
(ii) The review and, if necessary, update of the RP following the completion of the detailed design and its approval by ADB will be a condition for contract award to the transmission line contractor.
(iii) The full implementation of the compensation program as detailed in the RP will be a condition for issuance of the notice to proceed for the transmission line contractor.
(iv) The documentation on the detail of the implementation of the RP will be submitted to ADB in a timely manner in the appropriate quarterly report.

99. **Social Aspects**

(i) All contractors will (a) comply with all applicable labor laws, (b) use their best efforts to employ women and local people negatively affected by the Project or living in its vicinity; (c) disseminate information at work sites on the risks of sexually transmitted diseases and HIV/AIDS for those employed during construction; and (d) be required not to differentiate between men and women's wages or benefit for work of equal value.

100. **Cofinancing**. In case the cofinancing does not materialize, ADB and the Borrower will consult with the view to reducing the scope of the project.

101. **Sangtuda Substation**. Not later than two months prior the commissioning of the transmission line, the Sangtuda substation is commissioned and become operational.

B. Conditions of Loan Effectiveness

102. Each of the governments has agreed to the following as conditions for effectiveness of the Loan Agreements:

(i) Each of the Loan and Project Agreements has been signed and all conditions for their effectiveness have been satisfied.

(ii) Each of the Subsidiary Loan Agreements, satisfactory to ADB, has been delivered on behalf of the governments and respective sub-borrower, and has become fully binding, subject only to the effectiveness of the respective Loan Agreement.

VII. RECOMMENDATION

103. I am satisfied that the proposed loans would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve

(i) the loan in various currencies equivalent to Special Drawing Rights 23,563,000 to the Islamic Republic of Afghanistan for the TAJ-AFG Regional Power Transmission Interconnection Project (the Project) from ADB's Special Funds resources with an interest charge at the rate of 1.0% per annum during the grace period and 1.5% per annum thereafter; a term of 32 years, including a grace period of 8 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan and Project Agreements presented to the Board;

(ii) the loan in various currencies equivalent to Special Drawing Rights 14,475,000 to the Republic of Tajikistan for the Project from ADB's Special Funds resources with an interest charge at the rate of 1.0% per annum during the grace period and 1.5% per annum thereafter; a term of 32 years, including a grace period of 8 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan and Project Agreements presented to the Board;

(iii) the administration by ADB of the loan in an amount of $8.5 million equivalent as a joint financing to the Republic of Tajikistan for the Project to be provided by the OPEC Fund for International Development;

(iv) the provision of technical assistance not exceeding the equivalent of $1.2 million to the Government of the Islamic Republic of Afghanistan for Improving the Capacity of DABM; and

(v) the provision of technical assistance not exceeding the equivalent of $1.5 million to the Government of the Republic of Tajikistan for Strengthening Corporate Management of Barki Tajik.

Haruhiko Kuroda
President

28 November 2006

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
Impact Enhance regional cooperation in the power sector, through transmission interconnectivity	• Mutually beneficial power trade between TAJ and AFG by June 2009	• National statistics in AFG and TAJ • Annual power system reports and statistics	
Outcome Fast restoration of power supply in AFG and reducing cost of electricity for power consumers Increased power export capability of TAJ and access to new power market Increased generation capacity in Tajikistan southern grid	• Increase consumption per capita in AFG from 21 kWh/year to 35 kWh/year • TAJ revenue increase by $15 million per year • AFG power costs decreases by $25 million a year • Power exported from TAJ up to 300 MW by June 2009 • 100% replacement of Kabul diesel gas turbine power station during the 6 summer months by June 2009 • Improve power supply to Kunduz, Kabul, and related areas in AFG. The 300 MW peak demand in Kabul is satisfied by June 2009. • Retail sale of electricity in Kunduz and Kabul areas increased • Collection rates increase in AFG and TAJ • In AFG, import from TAJ increases from 8	• Power quality and reliability indicators, including SAIDI and SAIFI • Metering and SCADA information as provided by the Tajik and Afghan system control centers • Financial audited statement of BT and DABM	**Assumptions** • 300 MW of electricity is available for export to AFG for a minimum of 6 months of the year • AFG pays for all electricity received in a timely manner • The transmission line and substation equipment are properly operated and maintained • There are no major failures of existing generating equipment and transmission lines in TAJ • DABM improves billing and revenue collection • AFG MOF gets necessary funding to back up DABM for the settlement of TAJ bills • Government of Afghanistan to approve tariff increases for full cost recovery by 2009 • PPA unforced and implemented **Risks** • Payment delays, nonpayment • Change in political wills • Increase of insecurity in north AFG resulting in blasting and sabotage actions

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
Improve capacity of DABM in utility operation Improve commercial operation of BT	MW to 300 MW • Training undertaken and improved operation • Management contract in place with performance criteria		• Severe drought in TAJ
Outputs 1. Investment: a. Construction of transmission line from Sangtuda substation to the Pianj River crossing b. Construction of river crossing on the Pianj River c. Construction of Kunduz 220/110/20 kV substation d. Construction of Kunduz Pul-e-Khumri transmission line e. Rehabilitation of Golovnaya HPP unit 3 f. Supply and installation of Transformer T3 in Golovanaya replaced g. Supply of metering equipment in transmission substation h. Rehabilitation of Baipaza excitation system i. Rehabilitation of canals in Perpadnaya and Golvnaya HPP 2. Improvement of the institutional	• 320 GWh p.a. of additional electricity available to consumers by 2009 • 300 MW firm export from Tajikistan to Afghanistan over 6 months a year by June 2009 • Transmission line project is commissioned by December 2008 • Improved power reliability (96% availability) at Kunduz substation by March 2009	• Quarterly progress reports and review missions • Taking over certificates for implementation contracts • Project completion reports	**Assumptions** • Strong coordination between AFG and TAJ during project implementation • The bid period and construction phase of the Project are managed well • BT and DABM staff is properly trained in maintaining new equipment, and funds are available for maintenance • Long-term (15–20 years) PPA signed and implemented between BT and DABM with guarantee from MOF in place **Risks** • Lack of competition in AFG, resulting in high bidding price • Delays in construction, poor construction methods and practices • Transmission power system between Pul-e-Khumri and Kabul, (implemented by others) is not completed on time • Construction of Sangtuda substation in TAJ is delayed

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
capacity of DABM and BT			
Activities with Milestones **TAJ Component** 1. Recruitment of the implementation consultant (by 4/2007) 2. Contracts award for five contractors (by 4/2007) 3. Bid evaluation and contract award (by 4/2007) 4. Construction of substations (by 1/2009) 5. Lot 1: Replacement of Transformer T3 at Golovnaya HPP (by 6/2010) 6. Lot 2: Rehabilitation of two canals: Perepadnaya and Centralnaya tailrace canals (by 1/2009) 7. Lot 3: Upgrading of metering arrangements at transmission substations (by 6/2009) 8. Lot 4.1: Rehabilitation of Unit 3 at Golovnaya HPP (by 1/2010) 9. Lot 4.2: Rehabilitation of the excitation system at Baipaza HPP (by 8/2009) TA Strengthening Corporate Management of Barki Tajik **AFG Component** 1. Recruitment of the implementation consultant (by 4/2007) 2. Preparation of bid documents for the transmission component of the Project (by 11/2006) 3. Approvals/No objections to bid documents ADB/MEW (by 12/2006) 4. Bidding (by 12/2007) 5. Bid evaluation and contract award (by 4/2007) 6. Construction of substations (by 1/2009) 7. Construction of transmission lines (by 3/2009) TA Improving the Capacity of Afghanistan Electricity Authority			**Inputs** • ADB: $21,500,000 • OFID: $8,500,000 • IsDB: $10,000,000 • Government of Tajikistan: $14,000,000 • **Total: $54,000,000** • TA Grant: $1,500,000 • ADB $35,000,000 • Government of Afghanistan: $4,000,000 • ARTF: $16,500,000 • **Total: $55,500,000** • TA Grant: $1,200,000

ADB = Asian Development Bank, AFG = Afghanistan, ARTF = Afghanistan Reconstruction Trust Fund, BT = Barki Tajik, DABM = Afghanistan Electricity Authority (Da Afghanistan Breshna Moassessa), GWh = gigawatt-hour, HPP = hydropower plant, IsDB = Islamic Development Bank, kWh = kilowatt-hour, kV = kilovolt, MEW = Ministry of Energy and Water (Afghanistan), MOF = Ministry of Finance, MW = megawatt, OFID = OPEC Fund for International Development, OPEC = Organization of the Petroleum Exporting Countries, PPA = power purchase agreement, SAIDI = System Average Interruption Duration Index, SAIFI = System Interruption Frequency Index, TAJ = Tajikistan.

POWER SECTOR ANALYSIS AND SECTOR ROAD MAP

A. Afghanistan[1]

1. Power Sector

1. The power sector is one of the least developed sectors in Afghanistan, and it is the main bottleneck for economic development. Afghanistan is well endowed with hydropower, natural gas, and coal. Some estimates put hydropower potential at 25,000 megawatt (MW), of which 5,000 MW are inside Afghanistan and the rest on the border of Amu Darya. Hydropower is the key source (about 75% of total) of power supply in Afghanistan. The main dams are Kajakai in Helmand Province near Kandahar, Mahipar, and Breshna-Kot in Nangarhar Province near Jalalabad; and Dahla in Kandahar Province. Kabul is fed by three hydroelectric power stations, with a combined output of 80 MW (nameplate rating of 188 MW).

2. Total generation capacity has declined from about 456 MW in the 1990s to about 250 MW in 2006. Only about 6–9% of the population has access to power, of which approximately 30% is in Kabul. The other provinces have even less access, with rural areas being virtually unserved. Before the conflict in 1980, power transmission lines comprised about 140 circuit-kilometers (km) of 220 kilovolt (kV) transmission lines and about 1,080 circuit-km of 110 kV transmission lines. Many were destroyed during the war and only some 110 kV lines are now operating. The damaged 220 kV lines have been downgraded to operate at 110 kV while some damaged 110 kV lines now operate at 35 kV.

2. Demand Scenarios

3. Energy demand forecasts have been made by ongoing studies on the power sector master plan (up to 2020) and the gas development master plan (up to 2025). The power demand forecast is based on adjusted actual energy sales of 2002. Adjusted demand includes suppressed demand, which is around 75% of the energy supplied. In the basic forecast, energy demand is assumed to reach 3,861 gigawatt-hour (GWh) in 2020, giving an average annual growth rate of 6.3%. In the high forecast, energy demand is assumed to reach 5,640 GWh in 2020, or 46% higher than the basic forecast, implying an average growth rate of 8.2%.

4. The present peak load is assumed at around 215 MW for all of Afghanistan. Adding a suppressed demand assumed to be 138 MW, the peak load starting point for the forecasts is 363 MW. In the basic forecast, the peak load is assumed to increase to 911 MW in 2020. This gives an average annual growth rate of 5.2%. The growth rate for the peak load is somewhat lower than the growth rate for energy demand since the load factor is assumed to increase during the forecast period. In the high forecast, the peak load is assumed to increase to 1,316 MW in 2020. This gives an average annual growth rate of 7.4%.

3. Supply Options

5. **Business as Usual.** Business as usual assumes that the existing practices of energy development will continue without any changes in strategy. Development of known hydropower, natural gas, oil, and coal reserves will continue; indigenous hydropower, natural gas, and coal

[1] ADB. 2005. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan and Asian Development Fund Grant and Technical Assistance to the Islamic Republic of Afghanistan for the Power Transmission and Distribution Project*. Manila.

will be used for power generation; no program on energy conservation will be initiated; and development and management of biomass fuels will continue without any linkages with commercial energy development program. The gap between projected demand and indigenous supply can only be reduced with a serious exploration program; otherwise, the gap will have to be met from imported sources.

6. **Reference Option**. Additional issues included in the reference option are (i) enhancement of exploration, appraisal, and extraction of indigenous nonrenewable energy resources; (ii) implementation of effective programs to conserve energy; and (iii) integration of commercial energy and biomass fuels program to maintain a sustainable supply of biomass fuels. Exploration and appraisal of oil and natural gas will be enhanced; development of hydropower, natural gas, and coal will continue; new and renewable energy sources will be harnessed; a program will be undertaken to conserve commercial energy and biomass fuels; and development of biomass fuels will be considered along with the development of commercial energy sources.

7. A business-as-usual scenario would put a strain on the economy with a sharp increase in energy demand. It would require additional fuel because of a lack of energy conservation measures, and may cause severe environmental degradation caused by overexploitation of biomass fuels. The analysis used the reference option.

8. The Government's power sector master plan estimates over $1.5 billion for the recommended generation and transmission development plan up to 2020 whereas the World Bank estimates a requirement of about $1.9 billion on generation and transmission alone for the next 7 years. Distribution will require another $800 million, according to the master plan.

4. Sector Road Map and Sustainability

9. The Government has developed a detailed road map for the power sector (Table A2.1). In the preparatory phase, focus will be on capacity building, improvement of billing and collection, theft control, and development of a master plan. To date, the Government has met its targets. In the medium term (2005–2007), the focus will be on developing a power sector law, establishing independent regulation, separating generation from distribution, commercializing Kabul Distribution Company, and finalizing key transmission infrastructure. The longer-term target is the establishment of a national transmission grid and increased access to 75% for households.

10. The power sector's ability to provide sustainable economic and social benefits will need reliable infrastructure (investment in power generation, transmission, and distribution); capable institutions; and appropriate cost recovery. While investment in infrastructure is not an essential precondition for sustainability in other countries, the power sector of Afghanistan will not be able to deliver basic services to existing consumers without investment. Table A4.2 summarizes the initiative by the Government and other donors to ensure the overall sustainability of the power sector.

TABLE A2.1: AFGHANISTAN POWER SECTOR ROAD MAP

Phase Activities	Preparatory Phase 2003–2004	Intermediate Phase 2005–2007	Long-Term Phase 2008–2010	Results
Legislation	• New constitution enacted • National economic legislation completed • MWP policy framework approved • Power sector law prepared	• Power sector law enacted • Law and regulations completed and implemented		• Comprehensive power sector regulation is functional
Regulator	• Capacity building in MWP on regulation functions • MWP continues to adjust tariffs in Kabul to cost-recovering levels • Study on future industry structure completed	• Independent regulatory agency created	• Independent regulatory agency fully operational	• The regulatory agency is operating independently
Utility Operation	• Basic commercialization activities undertaken • Billing and collection • Accounting systems • Cost of service analysis • Metering and connections • Theft control • New connections	• Separate generation and distribution companies established according to the policy framework • KDC created and a management contract awarded	• Generation and distribution companies ready for deeper private sector participation	• Distribution and generation companies provide efficient and reliable power with private sector participation • The Government has a subsidiary role in the sector
Physical Infrastructure	• Master plan for power sector completed • Reconstruction projects are completed (ADB, German development cooperation through KfW, World Bank) • Study/plan for Kabul and major provincial cities distribution network completed • Key feasibility studies initiated • Implementation of urgent priority projects according to master plan initiated • Study on options to expand rural access	• Hairitan–Kabul transmission line constructed • IDA and soft loans finance new projects in KDC (200,000 new customers connected) • MEW constructs new distribution projects around the country (200,000 new customers connected) • Master plan priority generation and transmission projects initiated • Rural electrification program implemented	• KDC connected 200,000 new customers • New generation installed in the order of 200 MW • Electricity reaches 75% of all districts • Backbone of national transmission grid constructed	• 40% access is achieved (from 4–6% today) • Overall system losses are reduced from 40–50% to 20–30%

ADB = Asian Development Bank, KDC = Kabul Distribution Company, KfW= Kreditanstalt für Wiederaufbau, MEW = Ministry of Energy and Water, MW = megawatt, MWP = Ministry of Water and Power.
Source: World Bank 2004, Report No. T762-AFG, Appendix 2.

Table A2.2: SUSTAINABILITY OF AFGHANISTAN'S POWER SECTOR

Drivers	Existing Condition	Medium-Term Scenario (activities by donors and Government)
1. Transmission grid and distribution system	Dilapidated transmission and distribution network, no national grid, large number of customers in secondary (and rural) towns disconnected from the local grid, no ability to bring imported (least-cost) electricity to Kabul	Investments in new transmission (USAID, ADB); distribution (ADB, World Bank). By mid-2008, most investments will be in place, completing the transmission capacity to bring imported electricity to Kabul. Rehabilitated distribution increases access to electricity for more customers.
2. Generation capacity available at least-cost production	Reliance on rehabilitated hydropower and expensive diesel generation for Kabul; small amount of imports, mostly for northern border towns; remote rural areas using expensive diesel; renewable options being piloted on a small scale	Hydropower stations around Kabul rehabilitated (USAID); completion of the Shebhargan gas generation (USAID/ World Bank); renewable energy pilots widely implemented (German development cooperation through KfW, USAID, ADB).
3. Institutions • Management capacity • Commercial practices and accounting system • Billing and collection • Tariff level and structure	No clear separation of roles between MEW and DABM, nonexistent accounting and cash management system (especially for collection of revenue outside Kabul), cost recovery less than 50%, tariff structure out of date	Unbundling and corporatization of DABM, energy law, and independent regulation (World Bank). Regulation by contract as an immediate transition (ADB); PRR make ministries more efficient and focused (Government, World Bank, and ADB); capacity building: English language, management (ADB, World Bank); accounting (World Bank); MEW'S ability to plan (ADB); metering and billing (World Bank, German development cooperation through KfW, and USAID).
4. Cost recovery • Technical and nontechnical losses • Customers' ability to pay • Willingness to pay	Technical and nontechnical losses very high (estimated at 35–40%), overall data quality is poor, customers are poor and unable to pay, government departments owe DABM about $30 million (more than 11 months of revenue), customers are willing to pay more and consider electricity as a basic need	Losses reduced by rehabilitation of substations (ADB); rehabilitation of generation (USAID); optimum dispatch (ADB); and installation of new meters (World Bank, German development cooperation through KFW). With income-generating activities, customers' ability to pay will improve; tariff will be increased to improve recovery (50% by 2006, World Bank).

ADB = Asian Development Bank, DABM = Da Afghanistan Breshna Moassessa, KfW = Kreditanstalt für Wiederaufbau, MEW= Ministry of Energy and Water, PRR = Priority Reform and Restructuring, USAID= United States Agency for International Development.
Source: ADB estimates.

B. Tajikistan

1. Sector Overview

11. Tajikistan has abundant hydropower resources, which are a cheap source of electricity generation that can be easily exported to neighboring countries. Experts estimate that less than 10% of its 40,000 megawatt (MW) potential is currently utilized. Nurek—the largest hydropower plant, with capacity of 3,000 MW—has insufficient storage, so it spills water every summer but cannot supply a winter deficit of about 1,800 gigawatt-hour (GWh).

12. In winter, hydropower generation depends on storage of water in reservoirs. When storage level depletes, the country has to rely on imported oil, gas, and coal to meet its energy requirements. Tajikistan imports electricity from Uzbekistan from January until April every year, despite self-sufficiency in installed generation capacity.

13. At the policy and regulatory level, the Fuel and Energy Department in the Office of the President has overall responsibility for the energy sector. The Ministry of Energy (MOE), established in October 2000, is responsible for implementation of the Government energy's policy. The Agency on Anti Monopoly Policy and Entrepreneurship acts according to the provisions of the Law on Natural Monopolies and regulates the tariffs on electricity, gas, and district heat. It reports directly to the Office of the President. A separate regulatory body for the sector does not exist.

14. At the operating level, the power sector is the responsibility of the joint stock company Barki Tajik[1] (BT), a vertically integrated company in charge of generation, transmission, and distribution of electricity and heat[2] for the whole country—except the Gorno Badakshan region where a 25-year concession period was given to a private company, Pamir Energy, in 2002. Under the present institutional arrangement, BT consists of a network of 10 subsidiary power generation companies, 11 subsidiary distribution companies, and 8 supporting companies (such as a research institute and a construction company). It serves a customer base of 969,754 and employed 9,772 staff in 2005. BT reports to MOE.

15. BT's transmission network consists of three separate grids: (i) one in the north in 220 kilovolt (kV) connecting the sole hydropower plant (Kairaikum hydropower plant—240 MW); (ii) the central grid with an installed generation capacity of 3,895 MW; and (iii) one in the west in the Gorno Badakshan region.

16. As in many former Soviet republics, 100% of the population has access to the electricity grid, and BT—despite scarce resources and investment since the fall of the Soviet Union—has maintained supply to all connected customers.

17. The operational and financial performance of BT has improved over the last 5 years. However, technical and nontechnical losses in the transmission and distribution systems are still high (estimated to be around 20% technical and 20% nontechnical).

[1] BT became a joint stock company by Decree No. 272 of the Cabinet of Ministers of Tajikistan of 24 July 1992.
[2] BT is responsible for heat supply to Dushanbe and Khujand only. The heat and power combined plant in Yavan has not been in operation since 1997.

2. Government Policy and Sector Reforms

a. Government Policy

18. The Government has approved a strategic plan to improve the overall situation in the electricity sector, as part of a general plan to rationalize the availability and utilization of energy in Tajikistan, including gas and heating.

19. It is taking a two-track approach to energy sector development:

(i) The first track focuses on the domestic energy sector, taking a sector-wide approach by covering the electricity, gas, and heating sectors. The main aim of this track is the recovery of the domestic energy sector, for which purpose the Government is intending to take a series of policy and investment measures.

(ii) The second track of the development strategy is oriented toward export markets. This strategy calls for realizing the sector's significant potential to contribute to meeting the country's economic growth through electricity exports. At present, there are electricity surpluses in the summer which are already being exported to neighboring Afghanistan, Kazakhstan, Uzbekistan, and Russia. It is intended to intensify these exports and secure more long-term contracts for existing surpluses.

20. A number of policy measures are also being considered by the Government to support the implementation of its strategy for the energy sector. These include the following.

(i) **Revised energy pricing policy**. In the power sector, despite tariff increases in the past few years, the current tariffs are quite low compared with the financial viability level of $0.021/kWh in constant terms. The Government is proposing a gradual yearly increase of tariffs from 1 January 2007 to bring them to cost recovery by the end of 2010. The Government will also take measures for large consumers, including Tursunzade Aluminum Smelter (TADAZ), to pay their arrears for electric power consumed and to make advance payments for electricity in the future.

(ii) **Loss reduction and improved revenue collection program**. A loss reduction program sponsored by the World Bank is under implementation for the electricity and gas sectors, which will initially focus on reducing commercial losses and improving collections. Metering devices will be replaced and modern billing systems will be introduced.

(iii) **Energy efficiency program**. A program will be implemented which comprises energy demand side management and efficiency enhancement. On demand side management, within the expected TADAZ concession contract between the Government and the joint stock company Russian Aluminum, efforts will be made to shift the bulk of TADAZ production from winter to summer to facilitate elimination of winter electricity deficits.

(iv) **Increasing energy supply**. Options for increasing energy supply, particularly during the winter months, are being investigated. These include rehabilitation and modernization of Nurek HPP, Kairakum HPP, Golovnaya HPP, and cascade of Varzob HPPs, which will allow the installed generating capacity to be increased by 500–550 MW.

b. Sector Reforms

21. The Government set up a high-level working group, headed by the energy minister, to lead restructuring via a presidential decree dated 3 June 2003. On 9 December 2004, MOE set up a commission to draw up a plan for restructuring of BT in accordance with instructions issued by the Government. The commission's report[3] was submitted for review to the Government on 14 July 2005. The report envisages a cautious approach to restructuring, with unbundling taking place in a number of stages within a conservative time frame.

22. The commission report recommends the following to be achieved by 2008:

(i) Creation of a single company that will own and operate the installed generation capacity and transmission lines above 110 kV.
(ii) Establishment of three distribution companies: one for Sogd region; one for the central region, including the city of Dushanbe and its regions; and one for the Khatlon region.

23. During the second phase of the reforms from 2008 to 2012, the Commission proposes to separate the generation and the transmission lines above 110 kV into two separate companies.

c. Tariffs and Revenue Collection

24. The tariff system is intended to be cost-based and is inherited from the Soviet time. Tariffs are calculated based on expenses divided by the total electricity transmitted and a profit element that is currently set at 15%.

25. BT has made a number of efforts to improve revenue collection, including reducing the category of consumers from seven (industrial, agricultural, pumps and pumps stations for water supply, nonindustrial, communal utilities enterprises, city electric transport, and residential) to three (industrial, budget, and residential).

26. The Government has increased electricity tariffs to improve cost recovery since 2000, but in a moderate way. From January 2007 onward, the Government has committed to make a substantial increase with the support of the Asian Development Bank (ADB) and the World Bank.

27. Since the enforcement of a disconnection policy, collection rates have improved over the last few years. TADAZ recently paid some long outstanding debts and has commitments to clear past debts.

3. Sector Focus

28. As defined in the country strategy and program update,[4] ADB strategy is driven by the three sector goals: (i) utilizing the hydropower export potential; (ii) improving efficiency; and (iii) achieving financial sustainability, which will promote new investments in the sector.

[3] Commission's Report. July 2005. Individual Restructuring Plan of OJSHC "Barki Tajik" for period 2005–2015. Dushanbe.
[4] ADB. 2005. *Country Strategy and Program Update (2006–2008): Tajikistan*. Manila.

SUMMARY EXTERNAL ASSISTANCE TO THE POWER SECTOR

Agency	Project Title/Project Description[1]	Amount (million)
Afghanistan		
German Development Cooperation through KfW and GTZ	• Rehabilitation of Kabul Region Electric Grid	€16.1
	• Rehabilitation of Kabul Region Electric Grid – Phase II	€9.0
	• Rehabilitation of Mahipar and Sarobi Hydropower Plants	€6.6
Government of India	• Construction of the Kabul to Pul-e-Khumri transmission line through the Silang bypass	
Government of Iran	• Construction of low voltage transmission lines from Iran to Zaranj and from Iran to Heart	$2.5
	• Construction of high voltage transmission lines from Iran to Heart	$14.0
United States Agency for International Development	• Technical assistance to MEW and other interventions in the sector including provision of fuel supplies to Kabul, Jalalabad, and Kandahar	$80.0
World Bank's International Development Association	• Emergency Infrastructure Reconstruction Project	$15.5
	• Project to finance investments in distribution and generation and a technical assistance to commercialize operation of Afghanistan Electricity Authority	$200
Tajikistan		
Asian Development Bank	• Loan 1817-TAJ: Power Rehabilitation Project	$34.0
	• Loan 1912-TAJ: Emergency Baipaza Landslide Stabilization Project	$5.3
Islamic Development Bank	• Rehabilitation of two substations, Jangal and Novaya, 220 kV	€10.0
	• Construction of Small HPS in Rural Area	$9.3
Kuwait Fund for Arabic Economic Development	• Rehabilitation of Dushanbe City Distribution Network Project	$13.0
Swiss State Secretariat for Economic Affairs (SECO)	• Power Rehabilitation Project	$8.1
	• Pamir Private Power Project	$5.0
	• SECO-WB Energy Loss Reduction Project	$8.0
World Bank	• Pamir Private Power Project	$26.0
	• Energy Losses Reduction Project	$18.0
RAO Unified Energy System (private sector)	• Completion of the Sangtuda-I hydropower plant	$500.0

[1] Detailed description of power sector projects can be found in Supplementary Appendix I.

DETAILED COST ESTIMATES AND FINANCING PLAN

Table A4.1: AFG: Regional Power Transmission Interconnection Project[a]

($ million)

Item	Costs	Financing		
	Total	ADB	ARTF	Government
A. Investment Costs[b]				
1. Transmission Line	25.7	25.7		
2. Kunduz Substation	7.5		7.5	
3. Baglan Substation	5.0		5.0	
4. Implementation Consultant	1.3	1.3		
5. Incremental Administration, Training and PIU Support	1.5	1.5		
6. Demining	1.0	1.0		
7. Taxes and Duties	1.3			3.3
8. Security During Construction	0.7			0.7
Subtotal (A)	**44.0**	**29.5**	**12.5**	**4.0**
B. Contingencies				
1. Physical Contingencies[c]	5.5	2.8	2.7	
2. Financial Contingencies[d]	2.9	2.0	0.9	
Subtotal (A+B)	**54.4**	**34.3**	**16.1**	**4.0**
C. Interest During Construction[e]	1.1	0.7	0.4	
Total Project Cost	**55.5**	**35.0**	**16.5**	**4.0**
(%)	100	63.1	29.7	7.2

ADB = Asian Development Bank, ARTF = Afghanistan Reconstruction Trust Fund, PIU = project implementation unit.

[a] It is estimated that local currency costs will be less than 10% of the total project cost.

[b] 2006 prices.

[c] Ten percent physical contingencies for the transmission line and about 20% for the substation based on lessons learned from previous project (ADB. 2005. *Report and Recommendation to the Board of Directors on a Proposed Loan and Asian Development Fund Grant and Technical Assistance to the Islamic Republic of Afghanistan for the Power Transmission and Distribution Project.* Manila.

[d] Based on 2% escalation (annual disbursements 20%, 30%, 40%, 10%).

[e] Assuming 1.0% used for relending to DABM.

Source: Asian Development Bank estimates.

Table A4.2: TAJ: Regional Power Transmission Interconnection Project[a]
($ million)[a]

Item	Costs	Financing			
	Total	ADB	IsDB	OFID	BT
A. Investment Costs[b]					
1-a. Engineering, Supply, and Construction of the Transmission Line and 220 kV Line Bay at Sangtuda	18.0	10.7		7.3	
1-b. Supply of conductors					5.0
2. Baipaza HPP Excitation System	1.9	1.9			
3. Bulk Metering	1.7	1.7			
4. Golovanaya HPP Transformer T3	2.4				2.4
5. Golovanaya HPP Unit 3	9.2		8.7		0.5
6. Dredging Canals: Centralnaya and Perepodnaya HPPs	0.5				0.5
7. Implementation Consultant	2.0	2.0			
8. Optimization of the Vakhsh River Cascade	0.8	0.8			
9. Land Acquisition and Compensation	0.2	0.2			
10. Environmental Monitoring	0.2	0.2			
Subtotal (A)	**41.9**	**17.5**	**8.7**	**7.3**	**8.4**
B. Contingencies					
1. Physical Contingencies[c]	4.7	2.4	0.8	0.7	0.8
2. Financial Contingencies[d]	2.4	1.1	0.5	0.5	0.3
Subtotal (A+B)	**49.0**	**21.0**	**10.0**	**8.5**	**9.5**
C. Interest During Construction[e]	5.0	0.5			4.5
Total Project Cost (A+B+C)	**54.0**	**21.5**	**10.0**	**8.5**	**14.0**
(%)	100	40	19	16	26

ADB = Asian Development Bank, ARTF = Afghanistan Reconstruction Trust Fund, BT = Barki Tajik, HPP = hydropower plant, IsDB = Islamic Development Bank, kV = kilovolt, OFID = OPEC Fund for International Development.

[a] It is estimated that local currency costs will be less than 10% of the total project cost.
[b] 2006 prices.
[c] Ten percent physical contingencies for most of the items.
[d] Based on 2% escalation (annual disbursements 20%, 30%, 40%, 10%).
[e] Assuming 5.5% used for relending to Barki Tajik.

Source: Asian Development Bank estimates.

PROCUREMENT PLAN FOR AFGHANISTAN

Project Information	The Project will finance the construction of a 220 kilovolt (kV) double circuit transmission line that will link Sangtuda 1 hydropower plant in Tajikistan to Pul-e-Khumri via Kunduz in Afghanistan. This link will permit 300 megawatt (MW) to be exported from Tajikistan during summer and as much as Tajikistan can provide during winter. In Tajikistan, the Project will aim to rehabilitate the Khatlon Region grid. The Project will finance 16 contract packages and related consulting services for detailed engineering design, preconstruction activities, construction supervision, and performance monitoring and evaluation.
Countries	Islamic Republic of Afghanistan
Name of Borrower	Ministry of Finance
Loan or TA Reference	
Date of Effectiveness	
Amount	$35 million (Afghanistan)
Of which Committed, US$	
Executing Agency	Ministry of Energy and Water (Afghanistan)
Approval Date of Original Procurement Plan	30 October 2006
Approval of most recent Procurement Plan	30 October 2006
Publication for Local Advertisements	30 October 2006
Period Covered by this Plan	October 2006 to April 2008

Procurement Thresholds, Goods and Related Services, Works, and Supply and Install

Procurement Method	**To be used above**
ICB Works	$1 million and more
LIB	Less or equal to $1million
Exceptional Methods	
LIB will be used for demining purposes as there are only few demining agencies operating in Afghanistan. This package cannot be procured under a competitive bidding process.	Demining activities have been estimated to cost about $1 million.

ICB = international competitive bidding, LIB = limited international bidding.

PROCUREMENT PLAN FOR TAJIKISTAN

Project Information	The Project will finance the construction of a 220 kilovolt (kV) double circuit transmission line that will link Sangtuda in Tajikistan to Pul-e-Khumri via Kunduz in Afghanistan. This link will permit 300 megawatt (MW) to be exported from Tajikistan during the summer and as much as Tajikistan can provide during winter. The Project will also aim to rehabilitate the Khatlon Region grid. The project will finance 16 contract packages, and related consulting services for detailed engineering design, preconstruction activities, construction supervision, and performance monitoring and evaluation.
Countries	Republic of Tajikistan
Name of Borrower	Ministry of Finance of the Republic of Tajikistan
Loan or TA Reference	
Date of Effectiveness	To be determined
Amount	$50 million (Tajikistan)
Of which Committed, US$	nil
Executing Agency	Barki Tajik (Tajikistan)
Approval Date of Original Procurement Plan	23 September 2006
Approval of most recent Procurement Plan	23 September 2006
Publication for Local Advertisements	November 2006
Period Covered by this Plan	September 2006 to March 2008

Procurement Thresholds, Goods and Related Services, Works and Supply and Install

Procurement Method	**To be used above**
ICB Works	$1 million and more
ICB Goods	Not applicable
NCB Works	Less than $1 million
Exceptional Methods	
Limited international bidding will be used for the procurement of the power transformer T3 at Golovanya HPP. This package is entirely financed by the Government as counterpart financing. Barki Tajik has already replaced one transformer in this HPP and would probably like to select the same manufacturer	Estimated cost of this package is $2.4 million.

HPP = hydropower plan, ICB = international competitive bidding, NCB = national competitive bidding.

Procurement Thresholds, Consultants Services

Procurement Method	**To be used above** (value $)
Quality and Cost-Based Selection	$1 million
Consultants' Qualifications Selection	Not applicable
Least Cost Selection	Not applicable
Exceptional Methods	Not applicable

LIST OF CONTRACT PACKAGES IN EXCESS OF $100,000
GOODS, WORKS, AND CONSULTING SERVICES FOR AFGHANISTAN

Location	Contract Description	Estimated Cost ($ million)	Procurement Method[a]	Expected Date of Advertisement	Prior Review Y/N
I. Transmission Line					
1. Transmission line from Pul-e- Khumri to Baglan, Kunduz and Sherkan Bandar, including the river crossing over the Pianj River	Turnkey contract for the engineering, procurement, and construction of the Afghan components of the line, including the river crossing	25.7	ICB	November 2006	Yes
II. Demining					
3. Demining activities on the corridor of the transmission line	Turnkey contract for demining activities	1.0	LIB	November 2006	Yes
III. Consulting Services					
Project engineering design, preconstruction activities, construction supervision, performance monitoring and evaluation for Afghanistan		1.3	QCBS	Advertisement in November 2006 RFP issued by February 2007	Yes

ICB = international competitive bidding, kV = kilovolt, LIB = limited international bidding, QCBS = quality and cost-based selection, RFP = request for proposal.

[a] For ICB contracts, three copies of the invitations for bids and all related bidding documents should be submitted to the Asian Development Bank (ADB) for approval 21 days prior to the proposed date for issuing of the bidding documents. The bid evaluation reports and proposals for contract award should be submitted to ADB for review and approval at least 30 days before the expiration of the bid validity. All contracts will follow one-stage two-envelope bidding procedure with post-qualification.

[b] Request for proposal for full technical and financial proposals will be issued. Evaluation reports on technical and financial proposals and draft negotiated contract and minutes should be submitted for ADB approval.

LIST OF CONTRACT PACKAGES IN EXCESS OF $100,000
GOODS, WORKS, AND CONSULTING SERVICES FOR TAJIKISTAN

Location	Contract Description	Estimated Cost ($ million)	Procurement Method[a]	Expected Date of Advertisement	Prior Review Y/N
I. Transmission Line					
1. Sangtuda-Afgan border, river crossing and extension of Sangtuda substation	Turnkey contract for the engineering, procurement and construction of the Tajik and Afghan components of the line, including the river crossing. It will also include the extension of substations in Tajikistan.	18.0	ICB	November 2006	Yes
II. Rehabilitation works					
1. Golovnaya, replacement of the Transformer T3	Engineering, supply, and installation of a new transformer at Golovanaya HPP	2.4	LIB	January 2008	No[b]
2. Rehabilitation of canals at Perepadnaya and Centralnaya HPPs	Contract for excavation works	0.5	NCB	January 2008	No[b]
3. Supply of bulk metering system in transmission substations	Supply only of 424 bulk power meters in the transmission substations in the southern grid	1.7	ICB	January 2008	Yes
4. Rehabilitation of unit 3 at Golovanya HPP	Supply and installation of new turbines, generators, and control systems at Golovnaya, under a turnkey contract including design, engineering, and construction	9.2	ICB	January 2008	No[c]
5. Rehabilitation of the excitation system at Baipaza HPP and	Supply and installation of new thyristors controlled excitation system and temperature control system at Baipaza	1.9	ICB	January 2008	Yes
6. Optimization of the operation of the Vakhsh cascade	Study supply and installation of optimization software and computers for the optimization of the operation of the cascade	0.6	LIB	January 2008	No
II. Consulting Services					
Project engineering design, preconstruction activities, construction supervision, performance monitoring and evaluation for Tajikistan		2.0	QCBS	Advertisement in November 2006, RFP issued by February 2007	Yes

FTP = full technical proposal, HPP = hydro power plant, ICB = international competitive bidding, LIB = limited international bidding, NCB = national competitive bidding, RFP = request for proposal.

[a] For ICB contracts, three copies of the invitations for bids and all related bidding documents should be submitted to the Asian Development Bank (ADB) for approval 21 days prior to the proposed date for issuing of the bidding documents. The bid evaluation reports and proposals for contract award should be submitted to ADB for review and approval at least 30 days before the expiration of the bid validity. All contracts will follow one-stage two-envelope bidding procedure with post-qualification.

[b] Packages that will be 100% financed by the Government as counterpart financing.

[c] Package financed under Islamic Development Bank (IsDB) under parallel cofinancing.

[d] Request for proposal for full technical and financial proposals will be issued. Evaluation reports on technical and financial proposals and draft negotiated contract and minutes should be submitted for ADB approval.

IMPLEMENTATION SCHEDULE

	Tasks	2006	2007												2008												2009												2010											
		N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
A.	**Tajikistan New 220 kilovolt (kV) Double Circuit Line**																																																		
1.	Issue bid document and bidding period																																																	
2.	Bid evaluation																																																	
3.	Contract award																																																	
4.	Sangtuda Substation, 2new 220 kV line bays																																																	
5.	Double circuit 220 kV Transmission Line, Sangtuda to Karadum (detailed design)																																																	
6.	Review/update and implement the resettlement plan																																																	
7.	Double circuit 220 kV transmission line,construction works																																																	
8.	Double circuit 220 kV river crossing Karadum/Shekanbandar																																																	
B.	**Afghanistan New 220 kV Double Circuit Line**																																																	
1.	Issue bid document and bidding period																																																	
2.	Bid evaluation																																																	
3.	Contract award																																																	
4.	Kunduz substation upgrade, 220/20 kV 25 megavolt-amperes (MVA), 220/110 40 MVA																																																	
5.	Baglan 220/20kV substation																																																	
6.	Double circuit 220 kV Transmission Line, Pul-e-Khumri to Sherkan Bandar (detailed design)																																																	
7.	Demining																																																		
8.	Review/update and implement the resettlement plan																																																	
9.	Double circuit 220 kV transmission line, construction works																																																	
C.	**Rehabilitation of Khatlon Power System - Transformer 3**																																																	
1.	Prepare bid documents and Asian Development Bank (ADB), Barki Tajik (BT) approval																																																	
2.	Bidding period																																																	
3.	Bid evaluation																																																	
4.	Negotiation																																																	
5.	Contract award																																																	
6.	Golovnaya Transformer T3 replacement - Supply, install, and commission.																																																	
D.	**Rehabilitation of Khatlon Power System - Canal Rehabilitation**																																																	
1.	Contractor recruitment (national competitive bidding)																																																	
2.	Contract award																																																	
3.	Perepadnaya Canal cleaning																																																	
4.	Centralnaya Canal cleaning																																																	
E.	**Rehabilitation of Khatlon Power System - Metering Upgrade**																																																	
1.	Contractor recruitment (limited international bidding)																																																	
2.	Contract award																																																	
3.	Supply and install meters																																																	
F.	**Rehabilitation of Khatlon Power System - Golovnaya and Baipaza**																																																	
1.	Prepare bid documents and ADB, BT approval																																																	
2.	Bidding period																																																	
3.	Bid evaluation																																																	
4.	Negotiation																																																	
5.	Contract award																																																	
6.	Design by supplier																																																	
7.	Golovnaya Unit No. 3 - Manufacture and deliver new turbine runner and other equipment																																																	
8.	Golovnaya Unit No. 3 - Install and commission new turbine runner and other equipment																																																	
9.	Baipaza excitation and temperature monitoring - Supply and deliver new equipment																																																	
10.	Baipaza excitation and temperature monitoring - Install and commission new equipment																																																	

FINANCIAL PERFORMANCE AND PROJECTIONS

A. Afghanistan Electricity Authority

1. The financial statements of the Afghanistan Electricity Authority (DABM) for the period 2004–2005 (based on actual data) and 2006–2015 (based on forecasts) are in Table A8.4. As DABM does not maintain an audited set of accounts or follow acceptable accounting reporting standards, the results of this analysis needs to be treated with caution. However, the trends in the projections are still useful to appreciate DABM's future financial situation. The bases and assumptions used for the forecast period are described below.

2. **Inflation and Exchange Rate**. Foreign inflation rates are assumed to be 2% and local inflation 5% during the forecast period. The local currency is forecast to decline against the US dollar, consistent with purchasing power parity treatment as shown in Table A8.1.

Table A8.1: Exchange Rate

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
AF/$	50.0	51.4	52.9	54.5	56.1	57.7	59.4	61.2	63.0	64.8

Source{s}: **Please list table source/s here. Use Arial 9 pt. font.**

3. **Tariff**. Average tariffs are assumed to increase in accordance with the tariff increases announced by the Government which took effect from 23 September 2006. The average real tariff forecast is $0.083/kWh for the three main categories of consumers—domestic, commercial and government agencies, and nongovernment organizations. The previous average tariff was $0.0816/kWh. The tariff is assumed to rise with inflation.

4. **Sales**. With increasing supply of imported electricity, sales are forecast to grow at 5–6% per annum over the medium term to meet the suppressed demand for electricity.

5. **Taxes and Duties** are assumed to be as follows: income tax rate: 20%; turnover tax: 2% of revenues.

6. **Operating Expenses and Taxation**. The cost of fuel and cost of purchasing power are assumed to grow with increased sales and inflation. To attract and retain quality employees and to improve the maintenance of assets, wages and operation and maintenance costs are assumed to increase by 5% per annum in real terms until 2010 and at the inflation rate thereafter.

7. **Accounts Receivable** are modeled to decline to 3 months of revenue by 2010.

8. **Fixed Assets** are assumed to grow in line with high forecast capital expenditures, in particular because of the effect of the extensive transmission projects being undertaken in Afghanistan, including this Project.

9. **Long-Term Debt** includes the Asian Development Bank (ADB) loans for this Project and new approved loans.

10. Detailed financial statement projections are in Supplementary Appendix E.

B. Barki Tajik

11. The financial statements of Barki Tajik (BT) for the period 2003–2005 (based on actual data) and 2006–2015 (based on forecasts) are in Table A8.5. The bases and assumptions used for the forecast period are described below.

12. **Inflation and Exchange Rate**. Foreign inflation rates are assumed to be 2% and local inflation 5% during the forecast period. The local currency is forecast to decline against the US dollar, consistent with purchasing power parity treatment as shown in Table A8.2.

Table A8.2: Exchange Rate

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
TJS/$	3.30	3.39	3.49	3.60	3.70	3.81	3.92	4.40	4.16	4.28

Source{s}: **Please list table source/s here. Use Arial 9 pt. font.**

13. **Tariff**. Average tariffs are assumed to increase in line with the tariff proposal submitted by BT to the Ministry of Energy (MOE) and the Anti-Monopoly Commission in September 2006. They are expected to be ratified by parliament in November 2006, soon after the Presidential election on 6 November 2006. The proposed tariff increases are in line with—but about 10% lower than—the tariffs proposed by the World Bank. Average tariffs are projected to reach 7.66 Dirams or $0.021/kWh in 2010 versus the proposed World Bank tariff of 8.6 Dirams/kWh or $0.023/kWh. Afterward, the tariff is assumed to rise in line with the projected domestic inflation rate of 5.0%. The average real tariff forecast in cents/kWh and Dirams/kWh are shown in Table A8.3.

Table A8.3: Average Real Tariff Forecast

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Dirams/kWh	1.90	2.87	3.60	5.32	7.66	7.66	7.66	7.66	7.66	7.66
Cents/kWh	0.58	0.85	1.03	1.52	2.07	2.07	2.07	2.07	2.07	2.07

Source{s}: **Please list table source/s here. Use Arial 9 pt. font.**

14. **Sales**. With real tariff increases, energy sales are estimated to decline by 1% per annum until 2010, 0% in 2011, and 1.2% per annum afterward.

15. **Taxes and duties** are assumed to be 25% for income tax and 20% for VAT.

16. **Operating Expenses and Taxation**. The cost of fuel and cost of purchase power are assumed to grow with increased sales and inflation. To attract and retain quality employees and to improve the maintenance of assets, wages and operation and maintenance costs are assumed to increase by 5% per annum in real terms until 2010 and at the inflation rate thereafter.

17. **Accounts receivable** are modeled to decline from 9 months of revenue in 2005 to 3 months of revenue by 2010.

18. **Fixed Assets** are assumed to grow in line with high forecast capital expenditures, in particular because of the effect of the Exim Bank funded $320 million North South and Khatlon transmission lines.

19. **Long-Term Debt** includes ADB loans for this Project and new approved loans, such as the $320 million Chinese Exim Bank loan for the North South and Kahltlon transmission lines.

20. Detailed financial statement projections are in Supplementary Appendix E.

Table A8.4: DABM Financial Projections
(AF million)

Year Ending 31 March	Actual			Forecast				
	2004	2005	2006	2007	2008	2009	2010	2015
Income Statement Summary								
Revenue	889	1,573	1,849	2,321	3,286	3,891	5,273	8,794
Operating Cost	1,069	2,380	2,889	3,619	4,692	5,114	4,240	6,683
Income Before Tax	(181)	(807)	(1,040)	(1,298)	(1,406)	(1,222)	1,033	2,111
Tax	0	0	0	0	0	0	0	422
Net Income After Tax	(181)	(807)	(1,040)	(1,298)	(1,406)	(1,222)	1,033	1,689
Dividends	0	0	0	0	0	0	0	0
Net Surplus to Reserves	(181)	(807)	(1,040)	(1,298)	(1,406)	(1,222)	1,033	1,689
Balance Sheet Summary								
Non-current Assets	3,368	2,808	3,999	13,568	22,956	27,481	33,120	55,215
Current Assets	208	400	428	487	756	1,590	4,178	23,389
Total Assets	**3,576**	**3,207**	**4,427**	**14,055**	**23,712**	**29,072**	**37,299**	**78,604**
Current Liabilities	375	679	982	750	634	454	309	901
Long term Debt	0	135	2,091	11,383	19,998	25,040	30,254	52,978
Net Assets	3,201	2,393	1,353	1,922	3,080	3,577	6,735	24,725
Equity	3,201	2,393	1,353	1,922	3,080	3,577	6,735	24,725
Cash Flow Summary								
Net Cash Flow from Operating Activities	(265)	(231)	(248)	(217)	(454)	(53)	2,159	4,423
Net Cash Flow from Investing Activities	0	(135)	(1,956)	(10,643)	(10,406)	(5,732)	(7,081)	(5,471)
Net Cash Flow from Financing Activities	0	135	1,956	11,145	11,114	(6,647)	7,179	5,078
Increase in Cash and Cash Equivalents	(265)	(231)	(248)	285	253	862	2,256	4,031
Key Performance Indicators								
Operating Ratio (%)	120	151	156	155	141	129	78	74
Return on Net Fixed Assets (%)	(5)	(26)	(31)	(15)	(8)	(5)	(3)	(3)
Accounts Receivable (months)	2.8	3.0	2.8	2.5	2.8	2.9	2.9	2.9
Current Ratio	0.6	0.6	0.4	0.4	1.2	3.5	13.5	25.9
Debt/(Debt + Equity) Ratio (%)	0	5	61	86	87	87	82	68

( ) = negative, DABM = Afghanistan Electricity Authority.
Source: Asian Development Bank estimates.

Table A8.5: Barki Tajik Financial Projections
(TJS million)

Year Ending 31 December	Actual			Forecast					
	2003	2004	2005	2006	2007	2008	2009	2010	2015
Income Statement Summary									
Revenue	179	182	327	285	361	445	655	927	1,258
Operating Cost	130	117	155	235	257	312	353	401	625
Income Before Tax	48	65	172	50	103	134	302	525	633
Tax	17	24	32	9	22	30	72	128	158
Net Income After Tax	31	41	140	41	81	104	230	398	475
Dividends	0	0	0	0	0	0	0	199	238
Net Surplus to Reserves	31	41	140	41	81	104	230	199	238
Balance Sheet Summary									
Non-Current Assets	856	881	946	1,166	1,772	2,156	2,845	2,672	3,542
Current Assets	154	222	343	359	401	503	822	886	767
Total Assets	**1,010**	**1,103**	**1,289**	**1,525**	**2,173**	**2,659**	**3,306**	**3,557**	**4,309**
Current Liabilities	78	116	132	94	96	98	102	112	242
Long Term Debt	8	32	60	297	865	1,250	1,666	1,712	1,289
Other	30	19	32	28	24	21	17	14	0
Net Assets	895	936	1,065	1,106	1,187	1,291	1,521	1,720	2,778
Equity	895	936	1,065	1,106	1,187	1,291	1,521	1,720	2,778
Cash Flow Summary									
Net Cash Flow from Operating Activities	51	1	73	94	161	230	352	528	695
Net Cash Flow from Investing Activities	(41)	(36)	(101)	(273)	(651)	(449)	(409)	(281)	(321)
Net Cash Flow from Financing Activities	5	25	27	219	559	359	380	(200)	(401)
Increase in Cash and Cash Equivalents	14	(11)	(1)	39	70	139	323	47	(27)
Key Performance Activities									
Operating Ratio (%)	72	64	46	76	69	64	48	38	43
Return on Net Fixed Assets (%)	0	4	14	4	7	8	16	25	18
Accounts Receivable (months)	4.1	3.6	8.7	6.7	5.4	4.4	3.6	3.0	3.0
Current Ratio	2.0	1.9	2.6	3.8	4.2	5.1	8.0	7.9	3.2
Debt/(Debt + Equity) Ratio (%)	4	5	8	23	43	50	53	50	32

( ) = negative.
Source: Asian Development Bank estimates.

FINANCIAL AND ECONOMIC ANALYSIS FOR AFGHANISTAN AND TAJIKISTAN

A. Rationale

1. The Project facilitates a higher volume of electricity trade between Afghanistan and Tajikistan. Afghanistan has one of the lowest per capita energy consumptions in the world, and is badly in need of more electricity supply. Tajikistan has surplus electricity during the summer months when there is excess hydroelectric capacity because of high river flows. Incremental electricity is produced at minimal cost in Tajikistan and will be exported to Afghanistan at a likely tariff of $0.025 per kilowatt-hour (kWh), while Afghanistan's marginal cost of electricity generated through diesel firing can be as high as $0.330/kWh. The Project will offer a win-win situation for both countries.

2. All the components are part of the least-cost expansion program developed under the power system master plan. The plan considers transmission supply alternatives to Kabul and related areas with grid supply and replaces large-scale isolated diesel generation. The Project is the least-cost option for developing a transmission line from Afghanistan to Tajikistan. On an incremental basis, the Project will greatly increase power capacity to provide relatively cheap and low-cost electricity supply to households and enterprises. Currently, diesel generation costs $0.33/kWh. The Project can supply power with an estimated average cost of imported electricity of $0.025/kWh at the border.

B. Financial Analysis

1. Project Viability Analysis

3. The project viability analysis was undertaken on a conservative basis, assuming that the expensive diesel-fired plant in Kabul, which provides a significant incentive for importation by Afghanistan, only runs at 50% capacity. While transmission lines have a serviceable life of 40 years, a project life of only 20 years has been used.

2. Afghanistan and Tajikistan Transmission Lines

4. The financial internal rate of return (FIRR) has been computed for the project components from the perspective of the power utilities in each country based on the following key assumptions.

5. The benefit accruing to Tajikistan from the transmission interconnection line is mainly through the sale of incremental electricity, assumed at $0.025/kWh, which is in excess of Tajikistan's needs during the summer season and hence has no alternative value. The benefit accruing to Afghanistan is that the import displaces generation from Kabul's high cost diesel-fired power generation plant with an incremental cost of $0.330/kWh and imports from Uzbekistan at $0.030/kWh. The additional import from Tajikistan also helps to meet some of the unserved energy in Kabul, which has a rapidly growing population currently estimated at 4 million.

6. Other project components include: (i) in Tajikistan, several subprojects whose benefits accrue from the prevention of major plant shutdown and plant capacity and efficiency improvements; and (ii) in Afghanistan, construction of two new substations in Kunduz (population 950,000) and Baglan (population 850,000) that will meet unserved and incremental demand.

7. The financial analysis shows that the FIRR of the transmission project and the individual subprojects all exceed their respective weighted average cost of capital (WACC) for both countries. The Project is attractive to both Afghanistan (FIRR 12.4%) and Tajikistan (FIRR 20.8%), and well exceeds the Project's WACC for both countries of 0% and 3%, respectively. The analysis, including key assumptions and sensitivity analyses, is summarized in Tables A9.1 to A9.4.

C. Economic Analysis

1. Assumptions for Economic Cost of Project Components

8. To convert financial project cost into economic cost, turnover and income taxes were deducted, and capital costs remained with no contingencies in the base capital cost. Annual operation and maintenance and administration costs were calculated in economic prices (financial prices adjusted using the standard conversion factor). The cost of supply was valued based on the long-run marginal cost for generation and transmission as calculated in the power sector master plan. Consistent with the financial analysis, 20 years is used for the project economic analysis. Investment is assumed to take place during 2007–2009 and project benefits are assumed to be realized from 2009.

2. Quantification of Benefits

9. The main benefits for Tajikistan are from (i) the transmission line from Tajikistan for the long-term reliable electricity to Afghanistan for summer season, (ii) rehabilitation of existing substations, and (iii) provision of some metering. Incremental benefits were calculated from increased outputs and exports to Afghanistan.

10. For Afghanistan, main benefits included (i) increased availability and capacity of power supply for Kabul and Kunduz from the transmission line from Tajikistan, (ii) connection of related northern areas of Afghanistan, (iii) rehabilitation of Kunduz and Baglan substations, and (iv) replacement of electricity from diesel sources and loss reduction. The incremental benefits were calculated as savings from diesel generation, savings from Uzbekistan imports ($0.03/kWh), and incremental sales. Incremental benefits were calculated using customers' willingness to pay.

11. The total demand in Kabul is estimated at 300 megawatt (MW), and the demand on electricity will continue to grow with economic growth. The Project can provide reliable electricity to the areas where the transmission line will pass. This will greatly benefit local people with no access to electricity, and privately operated generators based on diesel or petrol-powered generation for electricity. Thus, the transmission line will benefit the whole economy, residences, the Government, and enterprises with cheap electricity. The economic benefits of extending supply to Kunduz and Baglan areas are estimated based on the cost of alternative energy sources used for existing consumption levels, and based on the willingness to pay for induced consumption because of the availability of reliable grid supply.

12. Economic analysis revealed that electricity savings in Afghanistan or equivalent savings in other forms of energy is approximately $0.33/kWh. The analysis covered the benefits from increased electricity supply that would attract investment in the country and, consequently an economic subsidy to household consumers (below 300 kWh/ for 2 months) and partial subsidies (below 700 kwh/ for 2 months) will be covered by the Government's budget.

3. Economic Internal Rate of Return

13. To test the economic viability of the Project, the economic internal rate of return (EIRR) was calculated on the basis of incremental cost-and-benefit streams associated with each project. The economic analysis evaluated the economic performance of the proposed components by comparing the with- and without-project scenarios, i.e., the economic value of the incremental supply of electricity that the components will provide compared with the existing patterns of energy use in non-electrified areas.

14. Economic returns are acceptable for the Project and robust for most. This stems from increased transmission capacity to bring reliable power in Tajikistan to mitigate the power shortage in Afghanistan. On average, the Project will bring reliable and cheap power to Afghanistan. Considering the current cost of diesel generation of $0.33/kWh, willingness to pay was estimated to be high even with the tariff increase. The viability of the Project was analyzed from a broader national perspective in terms of the EIRR. The financial costs were adjusted to reflect the true economic opportunities forgone and realized on account of the Project. The economic analysis was based on the following additional assumptions:

(i) A standard conversion factor of non-tradable goods of 0.9 is used for both Tajikistan and Afghanistan.
(ii) Based on willingness to pay for the transmission line, savings for NW Kabul diesel generation was calculated at border price of $0.0325/kWh; and at border price of $0.030/kWh for the rest of analysis.
(iii) The shadow exchange rate is 1.10 for Afghanistan and 1.11 for Tajikistan.

15. For Tajikistan, the EIRR of the Project was 31.1%. The EIRR was 15.7% for the hydropower plant component and 40.1% for the transmission line. For Afghanistan, the EIRR of the Project was calculated at 31.0%, with the transmission line part of 39.6% and Kunduz/Baglan part of 19.8%.

16. The distribution of economic benefits arising from the Project in Tajikistan and from savings of imported electricity of the Project in Afghanistan was calculated at a discount rate of 12%. The poverty impact analysis showed that 53% of economic benefits will go to poor people living below the official poverty line in Afghanistan and 54% of economic benefit will go to the poor in Tajikistan.

4. Sensitivity Analysis

17. Various financial and economic sensitivity of the project performance to changes in key variables was tested. The FIRR and EIRR values remained robust for all scenarios. This is particularly important for Afghanistan where risks of the Project seem high. The sensitivity analysis reveals that a 1-year delay will bring the FIRR down to 10.6%, from the base case of 12.4%, and lower the EIRR to 24.5% from a base case of 31.0%. This implies that the delay in implementation will incur economic costs. In addition, political instability and security will also affect project implementation. This is particularly important for Afghanistan where project risks are high. Although it is difficult to quantify such damage to the Project, political instability and security will mostly cause the Project cost increase and implementation delay. The calculation results showed that with 30% of capital cost increase and a 1-year delay, the FIRR was acceptable at 7.5% and the EIRR was 19.6%, still above 12%.

5. Regional Cooperation Benefits

18. Distribution analysis for regional cooperation was conducted to examine the distribution of the Project's benefits for the two countries in the region, using the same EIRR methodology and assumptions for discount rate, price numeraire, constant price, and standard conversion factor adjustment. This Project offers the additional regional benefit of increased trade, as it will promote trade in electricity and encourage trade from other areas. The net economic benefits of regional cooperation from trade are estimated at $114.3 million at 12% of discount rate for both countries. Tajikistan should share 47% of benefits and Afghanistan should share 53% of benefits from the Project. This is a typical win-win case of regional cooperation.

Table A9.1: AFG: Financial Internal Rate of Return

($ million)

Item	NPV	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2020	2025	2026
Incremental Inflow														
Savings: NW Kabul diesel generation	52.6				14.3	15.9					12.8	15.9	15.9	15.9
Savings: Uzbekistan imports	41.9				3.9	3.9	8.1	9.6	8.0	9.5	9.9	9.9	9.9	9.9
Incremental Sales: Kabul unserved demands	5.3					2.5						2.0	2.0	2.0
Incremental sales through new substations	55.5				4.4	5.5	7.1	8.7	10.4	12.0	13.6	15.3	15.3	15.3
Total	**155.4**				**22.6**	**27.8**	**15.2**	**18.3**	**18.3**	**21.5**	**36.3**	**43.1**	**43.1**	**43.1**
Incremental Outflow														
Capital Costs	45.3		10.3	15.5	23.1	7.7	2.5	2.5	2.5	2.5	2.5			
Power Import Costs	68.3				6.5	8.2	10.2	12.3	11.7	13.8	15.9	17.8	17.8	17.8
Operations and Maintenance Costs	28.3				4.9	5.3	5.1	5.2	5.3	5.4	5.6	6.0	6.0	6.0
Taxes	12.2				2.2	2.8	(0.1)	0.2	0.3	0.6	3.1	4.1	4.1	4.1
Total	**154.1**		**10.3**	**15.5**	**36.7**	**24.0**	**17.8**	**20.2**	**19.8**	**22.3**	**27.1**	**27.8**	**27.8**	**27.8**
Net Cash Flow	**1.3**		**(10.3)**	**(15.5)**	**(14.1)**	**3.8**	**(2.5)**	**(1.8)**	**(1.5)**	**(0.8**	**9.2**	**15.3**	**15.3**	**15.3**
FIRR	**12.4%**													

( ) = negative, AFG = Afghanistan, FIRR=financial internal rate of return, NPV= net present value, NW = north west.
Source: Asian Development Bank estimates.

Table A9.2: AFG: Economic Analysis Base Case

($ million)

Item	NPV	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2020	2025	2026
Incremental Infllow														
Savings: NW Kabul diesel generation	68.4	0.0	0.0	0.0	18.6	20.7	0.0	0.0	0.0	0.0	16.6	20.7	20.7	20.7
Savings: Uzbekistan imports	50.2	0.0	0.0	0.0	4.7	4.7	9.8	11.6	9.5	11.4	11.8	11.8	11.8	11.8
Incremental Sales: Kabul unserved demands	6.4	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	2.5	2.5	2.5
Incremental sales through new substations	66.6	0.0	0.0	0.0	5.2	6.5	8.5	10.5	12.4	14.4	16.4	18.3	18.3	18.3
Total	**191.7**	**0.0**	**0.0**	**0.0**	**28.6**	**35.0**	**18.3**	**22.0**	**22.0**	**25.8**	**44.8**	**53.3**	**53.3**	**53.3**
Incremental Outflow														
Capital Costs	40.6	0.0	8.9	13.4	20.4	7.0	2.5	2.5	2.5	2.5	2.5	0.0	0.0	0.0
Power Import Costs	68.3	0.0	0.0	0.0	6.5	8.2	10.2	12.3	11.7	13.8	15.9	17.8	17.8	17.8
Operations and Maintenance Costs	27.4	0.0	0.0	0.0	4.7	5.1	4.9	5.0	5.1	5.3	5.4	5.8	5.8	5.8
Total	**136.3**	**0.0**	**8.9**	**13.4**	**31.6**	**20.3**	**17.7**	**19.8**	**19.3**	**21.5**	**23.8**	**23.5**	**23.5**	**23.5**
Net Cash Flow	**55.4**	**0.0**	**(8.9)**	**(13.4)**	**(3.0)**	**14.7**	**0.6**	**2.2**	**2.7**	**4.3**	**21.1**	**29.7**	**29.7**	**29.7**
EIRR	**31.0%**													

( ) = negative, AFG = Afghanistan, EIRR = economic internal rate of return, NW = north west.
Source: Asian Development Bank estimates.

Table A9.3: TAJ: Financial Internal Rate of Return
($ million)

Item	NPV	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2020	2025	2026
Incremental Infllow														
Increased Generation/Sales-HPP	13.2				(0.7)	1.7	4.4	2.9	3.5	2.9	2.9	2.9	2.9	2.9
Avoidance of Emergency Repair Costs	3.0						3.1		2.0					
Increased Exports to Afghanistan	68.3				6.5	8.2	10.2	12.3	11.7	13.8	15.9	17.8	17.8	17.8
Total	**84.5**				**5.8**	**10.0**	**17.7**	**15.2**	**17.2**	**16.7**	**18.8**	**20.7**	**20.7**	**20.7**
Incremental Outflow														
Capital Costs	32.2		9.3	17.8	14.8	4.7								
Operations and Maintenance Costs	13.5				1.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8
Taxes	16.3				0.9	1.5	3.5	2.8	3.3	3.2	3.7	4.2	4.2	4.2
Total	**62.0**		**9.3**	**17.8**	**17.3**	**8.9**	**6.2**	**5.6**	**6.0**	**5.9**	**6.5**	**7.0**	**7.0**	**7.0**
Net Cash Flow	**22.5**		**(9.3)**	**(17.8)**	**(11.5)**	**1.1**	**11.5**	**9.7**	**11.1**	**10.8**	**12.3**	**13.7**	**13.7**	**13.7**
FIRR	**20.8%**													

( ) = negative, FIRR = financial internal rate of return, HPP = hydropower plant, Tajikistan, NPV = net present value.
Source: Asian Development Bank estimates.

Table A9.4: TAJ: Economic Analysis Base Case
($ million)

Item	NPV	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2020	2025	2026
Incremental Infllow														
Increased Generation/Sales-HPP	15.9	0.0	0.0	0.0	(0.9)	2.1	5.2	3.5	4.2	3.5	3.5	3.5	3.5	3.5
Avoidance of Emergency Repair Costs	3.5	0.0	0.0	0.0	0.0	0.0	3.7	0.0	2.4	0.0	0.0	0.0	0.0	0.0
Increased Exports to Afghanistan	75.1	0.0	0.0	0.0	7.2	9.1	11.3	13.5	12.9	15.1	17.5	19.5	19.5	19.5
Total	**94.6**	**0.0**	**0.0**	**0.0**	**6.3**	**11.1**	**20.2**	**17.1**	**19.4**	**18.7**	**21.0**	**23.1**	**23.1**	**23.1**
Incremental Outflow														
Capital Costs	32.2	0.0	8.4	21.0	8.4	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operations and Maintenance Costs	13.5	0.0	0.0	0.0	1.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8
Total	**45.7**	**0.0**	**8.4**	**21.0**	**10.1**	**6.9**	**2.7**	**2.7**	**2.7**	**2.7**	**2.8**	**2.8**	**2.8**	**2.8**
Net Cash Flow	**48.9**	**0.0**	**(8.4)**	**(21.0)**	**(3.8)**	**4.3**	**17.5**	**14.3**	**16.7**	**15.9**	**18.2**	**20.3**	**20.3**	**20.3**
EIRR	**31.1 %**													

EIRR = economic internal rate of return, HPP = hydropower plant, NPV = net present value, TAJ = Tajikistan.
Source: Asian Development bank estimates.

OUTLINE TERMS OF REFERENCE FOR IMPLEMENTATION CONSULTANTS

1. An international team of consultants (the consultant) will be responsible for the Executing Agency (EA) to develop and implement a comprehensive project management plan to ensure the most efficient, timely, and economical implementation of the Regional Power Transmission Interconnection Project (the Project). This plan should take into consideration the engineering technology required, the resources and costs involved, and the critical time frame for completion of the Project.

2. The consultant will be responsible during the pre-construction phase for conceptual design, elaboration of technical specifications, and tender documents. It will assist the EA in the evaluation of bids and preparation of bid evaluation reports to be submitted to the Asian Development Bank (ADB) and other co-financiers. It will provide expertise during the implementation phase, including making recommendations for testing, and commissioning of all components of the Project.

3. **Pre-Construction Phase.** The consultant will be responsible for the following:

(i) Conducting field visits of the project sites and collecting all necessary data for carrying out the conceptual design. Special care will be taken during data collection as well as during conceptual design with the interfaces between existing and new equipment. Close cooperation between the consultants in Afghanistan and Tajikistan is required for the preparation of lot 1, which consists of the construction of the transmission line and substations both in Afghanistan and Tajikistan.

(ii) Reviewing soil tests and foundations calculation for the high voltage substations and transmission lines to ensure that they can be reused with new equipment; reviewing the structural design of gantries and towers to ensure their capability to handle supplementary loads.

(iii) Reviewing existing studies and preparing a detailed design study report, including the main characteristics of new equipment; drawing (general layout cross-section drawing, line profile, single line diagrams, foundations and steel structure calculations; and other studies such as insulation coordination as required; detailed cost estimates with bill of quantities; implementation schedule; and procurement packaging. The report will provide sufficient details to be used as a basis for the preparation of technical specifications and tender documents.

(iv) Preparing the tender document, upon approval of the conceptual design report, in accordance with ADB's *Procurement Guidelines* (April 2006, as amended from time to time) and its co-financiers' standards and procedures.

(v) Assisting the EA during the tendering period, including but not limited to organization of site visits, assistance during pre-bid meeting, clarification of tender documents, bid opening, and bid evaluation. For lot 1 on the construction of the transmission line and substations in Afghanistan and Tajikistan, the pre-bid meeting, opening of the bids, and bids evaluation will be carried out jointly by the project implementation unit (PIU) of both countries. The consultant will thus have to liaise closely with its counterpart in the other country. It is anticipated that the pre-bid meeting and the bid evaluation will be carried out in Tajikistan.

(vi) Participating in the contract negotiations. For lot 1, it might be possible that the contract negotiation be conducted jointly between Afghanistan and Tajikistan in case of a single successful bidder for the entire line.

(vii) Along with preparation of the final detailed design, reviewing the changes in design affecting the resettlement plan (RP) and environmental management plan (EMP); assessing whether a new affected person (AP) census and impacts assessment is needed; and if so, carrying out the new surveys and updating the RP detailing appropriate and possibly additional compensation entitlements fitting ADB's *Involuntary Resettlement Policy (1995)* requirements, impact figures, and costs accordingly. Ensuring that the approval of the contractor's contract is preceded by the review/update of the RP. In addition, ensuring that no construction takes place before the compensation program detailed by the RP is fully implemented and ADB provides no-objection to contractors' mobilization.

(viii) Assisting during preparation of contract documents.

4. **Construction Phase.** The consultant will be responsible for the following:

(i) Preparing a project implementation manual covering the project organization, payment procedures, and project time schedule and quality insurance program. The consultant will also establish a computerized project monitoring program using off-the-shelf software packages.

(ii) Preparing the overall disbursement plan, monitoring costs, and maintaining project accounts.

(iii) Reviewing and approving the engineering design drawings, calculations, delivery program, and documents submitted by the contractors.

(iv) Monitoring the execution of the Project in line with the project time schedules and the work programs provided by the contractors.

(v) Advising the EA and seeking approval from ADB and/or from other co-financiers for any variation orders to be issued to the contractors.

(vi) Identifying any problem areas during project implementation, proposing remedial actions, and promptly reporting any outstanding issues to the EA.

(vii) Conducting field visits at regular and appropriate times during construction testing and commissioning. For the transmission line, the consultant will organize for coordination purposes a joint review meeting at regular intervals (not more than once every quarter).

(viii) Advising the EA on any contractual or technical disputes that may arise between contractors and the EA during the implementation phase.

(ix) Providing advice and support to the EA for the settlement of contractor claims.

(xi) In line with the work programs of the contractors, preparing and advising the EA on the outage planning of existing facilities during implementation. The outage planning will be modified/updated regularly and will have to take into account any unplanned outages resulting from any faults arising in the network. The consultant will give special attention to minimizing as much as possible the impact of the outages in the supply of power. Considerations such as seasonal or weekly constraints will have to be taken into account. The consultant should hold

periodic meetings with the operators of the National Load Central Dispatch Center for this purpose.

(xii) Coordinating safety measures between live components in operation and components under rehabilitation. Giving advice and when required training to Afghanistan Electricity Authority (DABM) and Barki Tajik (BT) on safety planning and safety measures.

(xiii) Witnessing factory inspections and performance tests within the framework of the contracts.

(xiv) Reviewing and approving the calculations for protection settings submitted by the contractor.

(xv) Reviewing and approving the commissioning test reports submitted by the contractors; attending the commissioning phase; establishing the list of deficiencies after commissioning; and preparing a time frame for the contractor to remedy the deficiencies. Establishing a monitoring program for the use of the EA.

(xvi) Reviewing and approving the as-built drawings and operation and maintenance manuals.

(xvii) Preparing and issuing the provisional acceptance certificate for the works as well as for the spare parts. Preparing the final taking over certificate along with the final payments to be issued by the EA after the end of the warranty period and the remedy of all deficiencies.

5. **Project Administration**. During project implementation, in addition to providing on-the-job training to the EA in the fields of procurement, contract management, technical, environmental, and social issues, the consultant will do the following:

(i) Keep records of all correspondence between the EA, contractors, the consultant, and ADB.

(ii) Keep records of any disbursement under the Project. Prepare and update on a regular basis the forecast disbursement schedule.

(iii) Develop and implement applicable procedures required to ensure adequate control of the manufacturing, factory tests, delivery, and acceptance of the materials and equipment.

(iv) Update the overall project disbursement schedule and physical target accomplishment periodically.

(v) Prepare and implement an environment monitoring plan on the basis of the initial impact assessment report.

(vi) Assist with the implementation and, if necessary, periodic revisions of the RP and ensure that timely reporting on RP implementation is carried out and included in the quarterly report. Assist the EA and the local government with necessary public consultations. Liaise with EA and local government to ensure that all compensations are paid in a timely manner and that the right-of-way is cleared socially and in terms of security (demining).

(vii) Undertake project monitoring and evaluation during the project implementation.

(viii) Prepare the project completion report.

Table A10.1 Cost Estimate, Afghanistan

($ million)

Item	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank Financing			
1. Consultants			
a. Remuneration and Per Diem			
i. International	860		860
ii. National	30		30
2. International Travel	120		120
3. Local Transport	80		80
4. Office Equipment	30		30
5. Report and Communications	20		20
6. Office Support	30		30
7. Contingencies	130		130
Subtotal (A)	**1,300**		**1,300**
B. Government Financing			
1. Office Space		100	100
2. Logistics		50	50
3. Counterpart Staff		150	150
4. Contingencies		0	0
Subtotal (B)		**300**	**300**
Total			**1,600**

Source: Asian Development Bank estimates.

Table A10.2 Cost Estimate, Tajikistan

($ million)

Item	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank Financing			
1. Consultants			
a. Remuneration and Per Diem			
i. International	1,200		1,200
ii. National	120		120
2. International Travel	120		120
3. Local Transport	50		50
4. Purchase of 2x4 wheel drive cars	60		60
5. Computers and Office Equipment	60		60
6. Translation, Secretarial Services	90		90
7. Reports and Training Materials	50		50
8. Office Support	50		50
9. Contingencies	200		200
Subtotal (A)	**2,000**		**2,000**
B. Government Financing			
Office Space		150	150
Logistics		150	150
Counterpart Staff		200	200
Contingencies		0	0
Subtotal (B)		**500**	**500**
Total	**2,000**		**2,500**

Source: Asian Development Bank estimates.

SUMMARY SOCIAL SAFEGUARDS

A. Afghanistan

1. Background

1. The Islamic Republic of Afghanistan has requested $35 million from the Asian Development Bank (ADB) to undertake the Afghan leg of the Regional Power Transmission Interconnection Project (the Project) connecting Shekhanbandar on the Tajikistan border to the Pul-e-Khumri station via a 147 kilometer (km) 220 kilovolt (kV) transmission line. The Project—to be implemented with the Ministry of Energy and Water (MEW) as executing agency (EA) and the Afghanistan Electricity Authority (DABM) as implementing agency (IA)—will require minimal land acquisition and no resettlement. Most of the transmission line (81%) will cross unused desert land; in the remaining tracts, towers will be set on an unused transmission line tower bases or poles will be used. The Kunduz station improvement will not require land acquisition while the Baghlan station expansion will require only 300 square meters (m^2). A total of 61 families will be affected by the Project (768 individuals). All of them will have some crop affected and 16 will permanently lose some land (364 m^2 in total). No affected family will be severely affected[1] or will need rehabilitation.

2. To plan the compensation program for these impacts, the EA has prepared a short resettlement plan (RP) [2] in accordance with Afghanistan law and ADB's *Involuntary Resettlement* (1995) and *Operations Manual* F2 on Involuntary Resettlement. The RP provides impacts figures, describes the compensation/rehabilitation framework, and details all RP implementation mechanisms/responsibilities. After detailed design completion, the RP will be reviewed and, if necessary, updated as a condition for approval of the civil works contract. RP implementation in accordance with ADB requirements will be a condition for civil works mobilization.

2. Compensation and Rehabilitation Framework

3. The basic compensation/rehabilitation principles are as follows: (i) land acquisition will be avoided or at least minimized; (ii) compensation will ensure the maintenance of the pre-project living standards of affected persons (APs); (iii) APs will be fully informed/consulted on compensation options; (iv) AP sociocultural institutions will be supported/used; (v) land acquisition provisions will apply equally to women and men; (vi) lack of formal title will not be a bar to compensation/rehabilitation; (vii) particular attention will be paid to women-headed households and vulnerable groups; (viii) land acquisition will be conceived and executed as an integral part of the Project and land acquisition budgets will be included in project costs; and (ix) compensation will be fully provided prior to ground leveling and demolition.

4. The RP also sets the eligibility/entitlement provisions for impacts caused by the Project (Table 11.1).

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[1] Impacts are considered severe if more than 200 affected persons (APs) have to be resettled or suffer more than 10% income losses. If so, a full resettlement plan (RP) must be prepared. Losses are not severe if less than 200 APs are to be resettled or suffer >10% income losses. If so, only a short RP must be prepared. Based on ADB. *Operations Manual* Section F2/OP & BP (2003).

[2] Based on the benchmarks for impact significance (footnote 1), and given the number of APs and type of impacts they suffer, this Project will not cause severe losses so only a short RP was prepared.

Table A11.1: Entitlements Matrix (Afghanistan)

Asset	Specification	Affected Persons	Compensation Entitlements
Permanent Land Acquisition	Newly acquired land	Holders of titles, land-use certificate, customary rights, squatters	Cash replacement free of taxes, registration, and transfer costs—except for squatters who are given rehabilitation in the form of compensation for one additional crop
	Land acquired before (old tower base, leases)	Same	No compensation for land; only for crops
Temporary Land Occupation		Same	Rent/plot rehabilitation equal to one tenth of land value. Tenants to share the lump sum with land use certificate holders in accordance with their contract
Crops	Crops affected	All affected persons including holders of land use certificate, customary rights holders, tenants, and squatters	One crop compensation in cash at full market rate for one harvest by default for impacts caused by tower/poles bases plus crop compensation for crop damages occurring during construction (on a default area of 50 m^2). Tenants use rights holders will share compensation based on their contract.
Communal Assets			Rehabilitation/substitution of the affected structures
Other entitlements (in case applicable after RP review)			
Houses/ Structures	All house structures	Owners	Replacement rate compensation based on new materials, labor, and transport cost, free from depreciation, transaction costs salvaged materials for whole affected item/section of it.
Trees	All trees under the line	Owners	Fruit trees compensated in cash based on net market income of one harvest for the number of years needed to regrow the tree at the same productive level of tree lost. Nonproductive/not-yet productive trees to be compensated at the cost to reproduce a tree of the same age and dimensions of the tree lost. Tree owners can keep the wood value in addition to compensation.
Business Salary		Business owners, salary holders	Lump sum one-time grant of AF3,000 ($60).

AF = afghani, RP = resettlement plan.

3. RP Implementation Mechanisms and Responsibilities

5. **Institutional Responsibilities**. In view of the minimal and geographically circumscribed impacts caused by the Project, the RP organization will be very simple. MEW will have overall responsibility for RP preparation, implementation, and financing and will exercise its functions at local level through DABM offices. A project implementation unit (PIU) under MEW is tasked with general project execution tasks. At the PIUs, RP tasks will be handled by an RP team which will keep close communication with affected families, local DABM offices, and local governments. The RP officer will be closely assisted by the resettlement team of the project implementation consultants which will plan and execute all post-detailed design surveys and, if necessary, update the RP. The consultants will also assist the RP officer in organizing and implementing the delivery of compensation/rehabilitation provisions.

6. **Disclosure/Public Consultation**. The RP has been prepared based on repeated consultation with the affected families. As an appraisal condition, The RP in English will be disclosed on the ADB website while the RP in Dari will be disclosed in the APs' communities.

7. **Grievance Procedures**. APs will first lodge a complaint with local MEW offices in Kunduz or Pul-e-Khumri. If no settlement is reached within 14 days, the complaint will be lodged to the PIU. If the grievance remains unsettled, APs may then seek redress at the appropriate court.

8. **Monitoring**. The PIUs will internally monitor and report to the EA on land acquisition and resettlement (LAR) implementation. The EA will report to ADB quarterly.

9. **Finances and Schedules**. As indicated in the RP, the compensation and rehabilitation program for the Project is $6,286, including 15% contingency.

4. Indigenous Peoples Issues

10. The Project will not affect people that may be classified as indigenous under *The Bank's Policy on Indigenous Peoples* (1998). Although affected families may belong to different ethnic groups, essentially Pashtun or Tajik, all of them fully participate in local political and economic life in project areas, and are involved on equal terms in mainstream Afghan culture and society which is multiethnic.

B. Tajikistan

1. Background

11. The Government of Tajikistan has requested $21.5 million from ADB to undertake the Tajikistan leg of the Project, connecting Sangtuda Hydropower Plant with the Afghan border via a 118 km 220 kV transmission line. The Project, to be implemented with Barki Tajik (BT) as the EA, will require minimal land acquisition and cause no resettlement as most of the transmission line will cross unused desert land. In total, there will be 22 affected families (176 individuals) and one collective enterprise. They will lose about 1,423 m^2 of land permanently and 1,450 m^2 temporarily during construction. All of them will also lose some crops.

12. To plan the compensation program for these impacts, the EA has prepared an RP[3] in accordance with Tajikistan law and ADB's *Involuntary Resettlement* and *Operations Manual* F2 on Involuntary Resettlement. The RP provides impact figures, describes the compensation/ rehabilitation framework, and details all RP implementation mechanisms/responsibilities. After detailed design completion, the RP will be reviewed and, if necessary, updated as a condition for approval of the civil works contract. RP implementation in accordance with ADB requirements will be a condition to civil works mobilization.

[3] Based on the ADB *Operations Manual* (OM) Section F2/OP & BP (2003), the content/complexity of an RP varies depending on the degree of impact severity of a project. When impacts are severe (more than 200 APs to be resettled or suffering more than 10% income losses), a full RP will be prepared. When losses are not severe (less than 200 APs to be resettled or suffering >10% income losses), only a short RP will have to be prepared. Given the number of APs and the type of impacts they suffer, the Project will not cause severe losses, therefore only a small RP has been prepared.

2. Compensation and Rehabilitation Framework

13. The basic compensation/rehabilitation principles are as follows: (i) land acquisition will be avoided or at least minimized; (ii) compensation will ensure the maintenance of APs' pre-project living standards; (iii) APs will be fully informed/consulted on compensation options; (iv) AP sociocultural institutions will be supported and used; (v) LAR provisions will apply equally to women and men; (vi) lack of formal title will not be a bar to compensation/rehabilitation; (vii) particular attention will be paid to women-headed households and vulnerable groups; (viii) LAR will be conceived and executed as an integral part of the Project and LAR budgets will be included in project costs; and (ix) compensation will be fully provided prior to ground leveling and demolition.

14. The RP also sets detailed eligibility/entitlement provisions (Table 11.2) for assets affected by the Project.

Table A11.2: Entitlements Matrix (Tajikistan)

Asset	Specification	Affected People	Compensation Entitlements
Temporary Land Occupation		Holders of land use certificate or customary rights and tenants	Lump sum rent for occupation. If applicable, land-use certificate holders will share the rent with tenants based on their contract.
Permanent Acquisition of Arable Land	All land losses	Holders of land use certificate or customary rights	Land x land compensation with plots of equal value/productivity to plots lost or cash for affected land at replacement cost free of taxes, registration, transfer costs.
Crops	Crops affected	All affected persons including holders of land use certificates, customary rights holders, and tenants	One crop compensation in cash at full market rate for one harvest by default for impacts caused by tower bases. One additional crop compensation for crop damages occurring during construction (on a default area of 50 m^2). Tenants and use rights holders will share the compensation based on their contract.
Community Assets			Rehabilitation/substitution of the affected structures

3. RP Implementation Mechanisms and Responsibilities

15. **Institutional Responsibilities**. The Ministry of Energy (MOE) will have overall responsibility for RP preparation, implementation, and financing and will exercise its functions via the PIU at BT. At the PIUs, RP tasks will be handled by BT environment and resettlement team which will collaborate with BT district offices and district governments in the implementation of the compensation/rehabilitation program at local level. The project implementation consultants will assist the environment and resettlement officer in organizing and implementing the delivery of compensation/rehabilitation provisions.

16. **Disclosure/Public Consultation**. The RP has been prepared based on repeated consultation with the affected families. As an appraisal condition, the RP in English will be disclosed on the ADB website while the RP in Russian will be disclosed in the APs' communities. An information pamphlet briefly describing the Project, its compensation rehabilitation entitlements, and main implementation dates in Russian will be sent to all affected families.

17. **Grievance Procedures**. APs will first lodge a complaint with the District BT office. If settlement is not reached within 14 days, the complaint will then be lodged to the BT environmental and resettlement team at the PIU. If the grievance is still not settled, the APs may seek redress at the appropriate court.

18. **Monitoring**. The PMUs will internally monitor and report to the EA on LAR implementation on a monthly basis. The EA will report to ADB each quarter.

19. **Finances and Schedules**. As indicated in the RP, the cost of the compensation and rehabilitation program for the Project, including 15% contingency, is TJS43,473 ($12,786).

4. Indigenous Peoples Issues

20. The Project will not affect people that may be classified as indigenous under The Bank's Policy on Indigenous People. Ethnically, the affected families are either Tajik or Uzbek. They all participate equally in the economy and are well inserted in the mainstream multiethnic Tajikistan national culture.

SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

A. Linkages to the Country Poverty Analysis

Is the sector identified as a national priority in country poverty analysis? AFG ☒ Yes ☐ No TAJ ☒ Yes ☐ No	Is the sector identified as a national priority in country poverty partnership agreement? AFG ☒ Yes ☐ No TAJ ☒ Yes ☐ No

The Project will have direct poverty reduction potential in Afghanistan, where it will provide the poor in several regions of the country with year-round electricity access at preferential tariffs. The rural poor in Tajikistan will enjoy improved irrigation/water supply in agricultural production in summer and to a lesser degree in winter. Greater year-round access to electricity both in Afghanistan and Tajikistan will also indirectly benefit poor and vulnerable consumers by allowing more efficient operations to hospitals, schools, and other social utilities, which are often hardest hit by inadequate power supply and quality. Improved power supplies will also encourage light industrial and commercial activity, creating employment opportunities, and improving productivity and the quality of outputs in the manufacturing and agriculture sectors. Such developments will trickle down with beneficial effects on the poor.

B. Poverty Analysis

Targeting Classification: General Intervention

Afghanistan and Tajikistan are the poorest countries in the region, with poverty incidence of 70% and 61%, respectively. Electricity is an input to most economic processes so it is essential for poverty alleviation. Provision of electricity for Afghanistan and Tajikistan is one of the key tasks for both countries. The proposed Project will build a transmission line from Tajikistan to provide 300 megawatt (MW) of electricity to Afghanistan to reduce electricity shortage. Although the impact on poverty reduction cannot be quantified, the low cost of power supply will benefit poor consumers in Afghanistan and the income of electricity supply will benefit the poor in Tajikistan. The low electricity cost from the transmission line can expand electricity consumption to the poor in Afghanistan and Tajikistan. Both governments will also provide some lifeline subsidies to poor people.

C. Participation Process

Is there a stakeholder analysis? ☒ Yes ☐ No

Is there a participation strategy? ☒ Yes ☐ No

The Asian Development Bank (ADB) is providing technical assistance (TA) regarding poverty analysis and social protection of the poor in case of tariff increase.[1] Moreover, the piggy-backed TAs aim to develop a website within respective power utilities that will be used for dissemination of information and public awareness and participation.

D. Gender Development

Increased electrification will improve women's living conditions and productivity. The Project is not a gender-specific program.

[1] ADB. 2005. *Technical Assistance for the Establishment of the CAREC Members Electricity Regulators Forum*. Manila.

Has an output been prepared?	☐ Yes	☒ No

E. Social Safeguards and other Social Risks

Item	**Significant/ Not Significant/ None**	**Strategy to Address Issues**	**Plan Required**
Resettlement	☐ Significant ☒ Not significant ☐ None	Only small and scattered land acquisition and impacts on crops. No resettlement is envisaged.	☐ Full ☒ Short ☐ None
Affordability	☒ Significant ☐ Not significant ☐ None	Lifeline tariff is being reviewed to better target the poor.	☒ Yes ☐ No
Labor	☐ Significant ☐ Not significant ☒ None		☐ Yes ☒ No
Indigenous Peoples	☐ Significant ☐ Not significant ☒ None	Affected persons belong to different ethnic groups but none of them are vulnerable or fully fit the characteristics of indigenous peoples defined in *The Bank's Policy on Indigenous Peoples* (1998).	☐ Yes ☒ No
Other Risks and/or Vulnerabilities	☐ Significant ☐ Not significant ☒ None		☐ Yes ☒ No

TECHNICAL ASSISTANCE TO AFGHANISTAN FOR IMPROVING THE CAPACITY OF DABM

A. Objective

1. The technical assistance (TA) is designed to improve the capacity of Afghanistan Electricity Authority (DABM)—a power company owned by the Government of Afghanistan with 5,583 employees. DABM maintains and operates power generation, transmission, and distribution facilities in Afghanistan. It depends heavily on government and donor support to fund its operational and capital expenditure programs. Until 2005, even salaries of DABM staff were paid from the Ministry of Energy and Water (MEW) budget. Improving institutional, technical, and financial capacity of DABM is necessary if the Project is to be implemented by DABM. Two key areas would improve DABM's overall performance: (i) strengthening institutional and management capacity to meet operational demand, and (ii) improving and expanding capacity for technical employees of DABM.

B. Activities

2. **Strengthening Institutional and Management Capacity**

(i) Preparing guidelines and teaching materials for capacity building, covering corporate management, human resources management, planning, budgeting, financial management and accounting, and internal auditing and reporting.
(ii) Using the guidelines and teaching materials to design constant and vocational training to DABM employees. After training, DABM staff should be able to handle management and operational work on financial management and accounting. This activity will include designing training courses for (a) DABM management on managing skills for corporations; (b) accounting and financial management, including courses for financial reporting system at basic, medium, and high levels; (c) corporate planning and budget management; (d) tariff collection and management; and (e) billing and metering management.
(iii) Establishing selection criteria and terms of reference for the training institutions.
(iv) Conducting training through regular training courses—eight training courses of 4 weeks duration, with 30 participants each.
(v) Preparing reports, including an evaluation report on completion of the training program.

3. **Improving and Expanding Capacity for Technical Employees of DABM**

(i) Designing training courses for the generation, transmission, and distribution network to improve the operational efficiency of DABM technical staff. This should include courses for:

    (a) Transmission network operation and maintenance, including following routine operational regulations and rules, transmission line security control and supervision, replacement of spare parts, and maintenance work.
    (b) Generation management: hydropower plant management (covering control centre work, replacement of spare parts) and maintenance and protection; and diesel and coal generation (including temperature

and meter control of the control center and the technical repairing from generators, checking of turbines, replacement of blades, and other maintenance).

(c) Distribution, including power substation technical control, power grid control, installation and replacement of metering system, loss management, optimum dispatch, network overhaul, and customer services.

(ii) Establishing selection criteria and terms of reference for the training institutions.

(iii) Conducting training through regular training courses—eight training courses of 4 weeks duration, with 30 participants each.

(iv) Prepare reports, including an evaluation report on completion of the training program.

C. Outputs

4. The TA will help improve skills that will increase the overall efficiency of operations. It will improve operational efficiency through institutional, financial, and technical training. Outputs will include:

(i) an inception report;
(ii) guidelines and teaching materials on institutional and financial management;
(iii) course design of institutional and financial management;
(iv) course design of technical training for transmission, generation, and distribution;
(v) an interim report;
(vi) a training report; and
(vii) a final report.

D. Schedule and Location of the TA

5. The TA is scheduled for 2 years, starting in January 2007.

E. Cost Estimates

6. The total cost of the TA is estimated at $1,320,000 equivalent. The TA in the amount of $1,200,000 will be financed entirely on a grant basis from the Asian Development Bank's (ADB's) TA funding program. The Government will finance the balance of $120,000 through in-kind contribution. Detailed cost estimates are shown in Table A13.

Table A13: Cost Estimates
($ million)

Item	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank Financing[a]			
1. Consultants			
a. Remuneration and Per Diem			
i. International	400		400
ii. National	90		90
2. International Travel	55		55
3. Local Transport	15		15
4. Office and Training Equipment	30		30
5. External Training	400		400
6. Reports and Training Materials	90		90
7. Contingencies	120		120
Subtotal	**1,200**		**1,200**
B. Government Financing			
1. Office Space		80	80
2. Logistics		40	40
3. Contingencies			
Total	**1,200**	**120**	**1,320**

[a] Financed from the Technical Assistance Special Fund.
Source: Asian Development Bank estimates.

F. Implementation Arrangements

7. DABM will be the Executing Agency (EA) for the TA. DABM will coordinate with ADB and the Department of Education of MEW on selection of candidates to participate in the training programs.

8. The TA will finance the services of international consultants for 20 person-months and national consultants for 45 person-months. The consultants will be engaged through a firm in accordance with ADB's *Guidelines on the Use of Consultants* (April 2006, as amended from time to time). Consultants will have expertise in operation and maintenance of generation, transmission, and distribution facilities including customer care management, billing, commercial and financial management of power utilities and training within the energy sector, and will conduct a training needs assessment of MEW and DABM.

9. Training equipment, including computers and multimedia projectors, will be provided. Teaching materials (such as reference books, instructional video, English library books, and testing and other technical equipment required for the training center) will be provided under the TA. All equipment will be procured in accordance with ADB's *Procurement Guidelines* (April 2006, as amended from time to time), and will be handed over to the Department of Education of MEW upon completion of the TA.

TECHNICAL ASSISTANCE TO TAJIKISTAN FOR STRENGTHENING CORPORATE MANAGEMENT OF BARKI TAJIK

A. Objective

1. The technical assistance (TA) is designed to strengthen and improve the internal management and customer responsiveness and reliability of Barki Tajik (BT), a public-owned power company in Tajikistan. During the past 5 years BT's management and institutional capacity have improved but its services are still poor and inefficient. Current technical losses are assessed to be around 16% and nontechnical losses about 14%. The company is run by a chairperson without the control of a board of directors, the decision making process is not transparent, and there are no external controls. The Government of Tajikistan (the Government) plans to restructure and unbundle the company starting in 2008. Although unbundling is a long-term solution and target for BT as designed under the Power Rehabilitation Project,[1] in the short- term, BT must establish an efficient management and rational institutional structure to effectively design and control the planning, budgeting, revenue management, and corporate accounting system. One way to achieve immediate results in terms of efficiency and proper management structure is through a 3–5 year performance-based management contract or other form of contracts.

B. Scope

2. An international consulting firm will be recruited to undertake the following activities:

(i) conducting an audit (managerial, financial, commercial, and technical) of BT and of the power sector in Tajikistan;
(ii) by benchmarking against similar projects around the world, define the most appropriate scheme (service contract, management contract, lease, etc.) that best suits the objectives of the Government and local environment in Tajikistan;
(iii) organizing a study tour or inviting resource persons from relevant countries where performance based management contracts have been implemented successfully;
(iv) preparing and conducting training programs as needed on the various forms of private sector participation, showing the advantages and disadvantages, short- and long-term benefits for the country/power utility, different modes of contracting, etc.;
(v) assessing the potential interest of the private sector in performance based management contracts n Tajikistan;
(vi) proposing a structure to the Government regarding the corporate governance of BT, including the formation of board of directors for BT and the preparation of a board of directors' code of conduct, terms of reference, fiduciary duties, and related function rules;
(vii) developing a website for BT to advertise information on the company, project and ongoing procurement, technical and financial results, etc.;
(viii) defining jointly with the Government the performance criteria that will apply to the management contract, and fixing realistic and achievable targets;
(ix) specifying clear targets about system performance to be achieved over the contract;

[1] ADB. 2000. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan and Technical Assistance Grants to Tajikistan for the Power Rehabilitation Project*. Manila.

(x) reviewing Tajikistan's legal framework and proposed amendments if necessary to accommodate for the management contract of a power utility;
(xi) assessing the cost of the remuneration fee for the contractor (fixed fee plus incentive under the performance-based contract); proposing a mode of remuneration for the contractor that is suitable and acceptable to the Government;
(xii) defining the duration of the contract;
(xiii) defining the criteria and way to measure the transfer of knowledge and training of BT staff;
(xiv) drafting the pre-qualification documents for the selection of the contactor;
(xv) evaluating the pre-qualification submissions and recommending a list of qualified potential bidders to the Government;
(xvi) drafting the bidding documents for the selection of the contractor;
(xvii) assisting the Government during the bidding process; and
(xviii) assisting the Government in the evaluation of bids.

C. Outputs

3. The TA will help improve the overall managerial capacity and technical and financial efficiency of BT by providing institutional and corporate governance support through the development of a management contract or other form of contract as appropriate. The expected results are:

(i) an inception report (1 month after commencement of services);
(ii) an implementation report with detailed steps and work plan (6 months after commencement of services);
(iii) progress reports on implementation (quarterly);
(iv) a pre-qualification document (8 months after commencement of services);
(v) bidding documents (8 months after commencement of services);
(vi) a pre-qualification evaluation report (9 months after commencement of services);
(vii) a bid evaluation report (17 months after commencement of services); and
(viii) a project completion report (23 months after the commencement of services).

D. Schedule and Location of the TA

4. The TA is scheduled for 2.5 years, starting in March 2007.

E. Cost Estimates

5. The total cost of the TA is estimated at $1,800,000 equivalent. The Government of Tajikistan has requested ADB to finance $1,500,000. The TA will be financed on a grant basis by the Japan Special Fund, funded by the Government of Japan. The Government will finance the remaining cost, equivalent to $300,000 through in-kind contributions. Detailed cost estimates are shown in Table A14.

Table A14: Cost Estimates
($ million)

Item	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank Financing[a]			
1. Consultants			
a. Remuneration and Per diem			
i. International	800		800
ii. Domestic	120		120
2. International Travel	110		110
3. Local Transport	20		10
4. Training, study tour	150		150
5. Seminar, conference, workshop	60		60
5. Reports and Training Materials	90		90
6. Contingencies	150		150
Subtotal	**1,500**		**1,500**
B. Government Financing			
1. Office Space		50	
2. Logistics		50	
3. Counterpart Staff		150	
4. Contingencies		50	
Subtotal		**300**	
Total	**1,500**	**300**	**1,800**

[a] Financed by the Japan Special Fund, funded by the Government of Japan.
Source: Asian Development Bank estimates.

F. Implementation Arrangements

6. The Ministry of Energy (MOE) will be the Executing Agency (EA) for the Project. MOE will nominate a core group of counterpart staff, headed by the TA director, to work closely with the consultant on a day-to-day basis.

7. The TA will finance the services of international consultants for 40 person-months and national consultants for 110 person-months. The consultants will be engaged through a firm in accordance with ADB's *Guidelines on the Use of Consultants* (April 2006, as amended from time to time). The consultant team will have expertise in the power sector; private sector participation under management contracts and other forms of contracts; and financial, commercial, technical, and legal expertise.

8. Training equipment, including computers and multimedia projectors, will be provided. Teaching materials (such as reference books, instructional video, English library books, and testing and other technical equipment required for the training center) will be provided under the TA. All equipment will be procured in accordance with ADB's *Procurement Guidelines* (April 2006, as amended from time to time), and will be handed over to BT on completion of the TA.

AFGHANISTAN INCREMENTAL ADMINISTRATION, TRAINING, AND PROJECT IMPLEMENTATION UNIT SUPPORT

A. Background Information

1. The Ministry of Energy and Water (MEW) manages controls and operates the power sector of Afghanistan through eight departments and four state-owned enterprises, of which the largest is Afghanistan Electricity Authority (DABM).

2. Overall, capacity in the power sector to carry out core accountability functions is weak, both at MEW and DABM. This is particularly evident in the implementation by MEW of major capital investments that are being made in the sector, and in specific areas such as procurement, technical, and financial management.

3. To date, MEW has been assisted by the project support implementation unit financed by the Afghan Reconstruction Trust Fund (ARTF) to cope with the technical, procurement, and financial management of ongoing projects. Since September 2006, the services of the project support implementation unit have been discontinued. The senior advisor to MOE has been also transferred to the Ministry of Economy. The project implementation unit (PIU) within MOE relies only on the assistance of a single project implementation consultant financed by the Asian Development Bank (ADB), whose services will end on 31 December 2006.

4. As in other sectors, low civil service wages are not sufficient to attract younger professional staff who can replace the ageing workforce which has technically outdated skills.

5. The capacity of MEW for preparing the budget and overseeing public spending in the sector is weak. MEW also has weak planning capability—all MEW projects have equal importance and it has enormous difficulties prioritizing them.

6. MEW has a procurement unit which requires considerable strengthening both in terms of technical (engineering) capacity and in procurement principles and practices.

7. MEW is fully committed by its project administration task and does not have the resources to work on its own mandate—to dictate the policy of the sector, including necessary tariff increases, power utility reporting, and restructuring of DABM.

8. To address the above issues, it is proposed to (i) strengthen MEW with support from an international consultant who will secure this new capital investment, (ii) assist MEW in the supervision of ongoing projects, and (iii) reinforce the existing PIU.

B. Description of the Services

9. The consultants will assist MEW in (i) project administration of the ADB projects (ongoing and new); (ii) setting up and updating the project accounting system; (iii) providing advice to MEW in terms of project management and reporting to ADB; and (iv) technical matters including but not limited to procurement.

10. The consultants will provide training to MEW staff in procurement issues; financial and accounting systems; and environmental, resettlement, social and poverty issues.

11. The consultant will provide advice to MEW in terms of planning development of a strategy for the power sector; tariffs; and other issues such as reduction of technical and nontechnical losses, negotiation and implementation of power purchase agreements, reporting from power utility, budgeting, etc.

C. Expertise Required

12. A total of 50 person-months of international consulting services will be required. These include the following:

(i) Senior advisor to the minister (24 person-months)
(ii) Senior advisor to the PIU/capacity building (24 person-months)
(iii) Financial analyst (2 person-months)

D. Duration of the Services and Reporting Requirements

13. The duration of the services will be about 24 months. The consultants will prepare an inception report within 1 month after the commencement date, monthly reports during the duration of the services, and a completion report.

E. Costs

14. The total budget of the consulting services is $1.5 million. MEW will provide office space and furniture free of charge.

Table A15: Cost Estimates for Consulting Services
($ million)

Items	Foreign Exchange	Local Currency	Total Cost
Asian Development Bank Financing			
1. Consultants			
a. Remuneration and Per Diem	1,000		1,000
b. International Travel	80		80
2. PIU Administration, Training, Remuneration, Travel, Office Supplies		270	270
3. Contingencies	120	30	150
Total	**1,200**	**300**	**1,500**

PIU = project implementation unit.
Source: Asian Development Bank estimates.