



Technical Assistance Report

Project Number: 52322-002
Transaction Technical Assistance Facility (F-TRTA)
January 2019

Uzbekistan: Preparing Sustainable Energy Investment Projects

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Asian Development Bank

CURRENCY EQUIVALENTS

(as of 7 December 2018)

Currency unit	–	sum (SUM)
SUM1.00	=	\$0.0001222333
\$1.00	=	SUM8,181.08

ABBREVIATIONS

	–	
ADB	–	Asian Development Bank
F-TRTA	–	transaction technical assistance facility

NOTES

- (i) In this report, "\$" refers to United States dollars

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TRANSACTION TECHNICAL ASSISTANCE AT A GLANCE

1. Basic Data		Project Number: 52322-002	
Project Name	Preparing Sustainable Energy Investment Projects	Department/Division	CWRD/CWEN
Nature of Activity Modality	Project Preparation Facility	Executing Agency	UzbekEnergo, Uzbekneftegaz
Country	Uzbekistan		
2. Sector	Subsector(s)	ADB Financing (\$ million)	
✓ Energy	Electricity transmission and distribution		0.40
	Energy utility services		0.25
	Oil and gas transmission and distribution		0.85
		Total	1.50
3. Strategic Agenda	Subcomponents	Climate Change Information	
Inclusive economic growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive	Climate Change impact on the Project	Medium
Regional integration (RCI)	Pillar 2: Trade and investment		
4. Drivers of Change	Components	Gender Equity and Mainstreaming	
Governance and capacity development (GCD)	Client relations, network, and partnership development to partnership driver of change	No gender elements (NGE)	✓
Knowledge solutions (KNS)	Knowledge sharing activities		
Partnerships (PAR)	Bilateral institutions (not client government)		
	International finance institutions (IFI)		
	Official cofinancing		
	Private Sector		
	Regional organizations		
Private sector development (PSD)	Promotion of private sector investment		
5. Poverty and SDG Targeting		Location Impact	
Geographic Targeting	Yes	Nation-wide	High
Household Targeting	No		
SDG Targeting	Yes		
SDG Goals	SDG9		
6. Risk Categorization	Risk Categorization does not apply		
7. Safeguard Categorization	Safeguard Policy Statement does not apply		
8. Financing			
Modality and Sources		Amount (\$ million)	
ADB		1.50	
Transaction technical assistance: Technical Assistance Special Fund		1.50	
Cofinancing		0.00	
None		0.00	
Counterpart		0.00	
None		0.00	
Total		1.50	
Currency of ADB Financing: USD			

I. THE TECHNICAL ASSISTANCE FACILITY

A. Justification

1. The transaction technical assistance facility (F-TRTA) will provide project preparation support to a series of ensuing projects, comprising the: (i) Regional Gas Transmission Efficiency Enhancement Project (\$300 million), (ii) Distribution Network Modernization Program (\$300 million), and (iii) Regional Energy Transmission and Dispatch Enhancement Project (\$400 million). All ensuing projects are among the Government of Uzbekistan's priorities for energy sector development under Uzbekistan's 2030 strategy.¹ These projects will require similar preparation, due diligence, design and readiness activities, and this F-TRTA will reduce transaction costs through minimizing the need for stand-alone transaction technical assistance.

2. Uzbekistan's economy is at the crossroads. Weakening commodity, export prices and a downturn in trading partners' import demand is slowing down economic growth from its average rate of 8% to 5% in 2017.² In turn, Uzbekistan has embarked on a series of far-reaching reforms to boost its economy, including liberalizing foreign exchanges and initiating structural reforms of state enterprises. The energy sector has underpinned Uzbekistan's sustained growth, with an estimated share of 20% of the gross domestic product and 30% of national tax revenues. Natural gas considered as the most important indigenous source of energy and one of the driving forces of the country's economy comprises over 80% of the country's energy mix and 85% of electricity generated.

3. Uzbekistan's aging and dilapidated infrastructure in the whole energy supply chain increasingly results in system inefficiencies, unreliable gas and electricity supply that dampens the economic development and business confidence, and uneven access to energy across provinces contributing towards widening regional income disparities. The obsolete energy transmission and distribution system has developed serious problems overtime, such as increasingly frequent electricity blackouts and insufficient gas especially during peak demand times in the winter, putting social service systems, such as education and health care, at risk.

4. Uzbekistan's aging gas infrastructure and network underinvestment have led to supply shortages, inefficiency, high losses and low reliability. Built more than 50 years ago, the gas transmission system consists of a complex network of high- and medium-pressure pipelines equipped with physically degraded compressors with less than 30% of available capacity and lacking any centralized functions to measure, monitor, and control supply and demand. Most transmission facilities have not been tested or inspected for the past 30 years. Lack of periodic maintenance and insufficient capital investments resulted in technical losses of 15% and equivalent of Uzbekistan's gas export volumes. Without adequate capital investment in transmission modernization, automation, management of a system of this size, gas transportation remains highly decentralized and underutilized that leads to higher maintenance cost, greater operational risks and economic and financial losses. This imperils Uzbekistan energy security and constrain the national economy growth.

¹ Government of Uzbekistan. 2015. *Uzbekistan Towards 2030: Transition to the Resource-efficient Growth Model*. Tashkent. The proposed F-TRTA is included in the Country Operations Business Plan 2019-2021 for Uzbekistan (ADB. 2018. *Uzbekistan: Country Operations Business Plan (2019–2021)*. Manila. <https://www.adb.org/documents/uzbekistan-country-operations-business-plan-2019-2021>). The Government of Uzbekistan requested ADB assistance for the ensuing projects (the amounts indicated in paragraph 1 are for ADB financing).

² ADB. 2018. *Asian Development Outlook Update*. Manila.

5. The energy supply is increasingly becoming unreliable because of degraded infrastructure along the electricity supply chain and insufficient investments for rehabilitation. Compounded by the regional disparities in indigenous energy resources such as natural gas, hydropower and electricity demand centers, the poor conditions of transmission and distribution network result in higher risks of system outages, poor services and transmission losses estimated at 20% of net power generation. Technical losses mostly occur on the distribution system at 0.4 to 35 kilovolts, which are about three times higher than what could be expected from well-performing distribution companies. Investment in transmission and distribution networks is required to reduce overloading, improve supply reliability and significantly reduce electricity losses.

6. With poor electricity transmission infrastructure, Uzbekistan is unable to capitalize its export and transit potential. The power grid of Uzbekistan is a major component of the Central Asian power transmission network, and the Coordinating Dispatch Center in Tashkent manages network operation and planning. As increased interconnection and power trades are expected between Uzbekistan and neighboring countries, the supervisory monitoring and control of energy flows among countries and enhanced transmission network will be prerequisite to increased regional energy trade. At present, Uzbekistan is the only country in the Central Asian power system that does not have supervisory control and data acquisition in the national dispatch center. This results in the inefficient operation of energy assets and constrains Uzbekistan's capacity for regional power trade.

7. In 2017, Uzbekistan initiated comprehensive economic reforms that included liberalizing its exchange rate and restructuring its state-owned enterprises to solve long-standing difficulties associated with economic performance and efficiency. The liberalization of the foreign exchange regime and local currency devaluation created significant challenges to energy utilities, massively distorting the value of assets, capital structures and revenue generation under existing governance and financial management frameworks. To recover the sustainability of energy utilities, the government launched several initiatives and legislative acts for sector reforms that includes (i) development of cost reflective energy tariffs, (ii) adoption of international financial reporting standards and disclosures and (iii) strengthening financial management and corporate governance frameworks.³

8. **Government development plan.** The government formulated its vision, "Uzbekistan Towards 2030", with the aim to overcome social and economic challenges. The government recognizes the strong link between energy and economic growth, and the urgency to sustain gas supply by modernizing transmission infrastructure. The key priority is to maintain momentum on structural reforms and liberalizing economic activities that would lead to more financial resources for achieving long-term economic growth. Developing and implementing cost-reflective pricing for natural gas is essential to successful energy reforms. In "Uzbekistan Towards 2030", the government is committed to promote a resource-efficient growth model through (i) institutional and governance reforms in the energy sector with potential unbundling of upstream, mid-stream and downstream functions; and (ii) rationalized and cost-reflective pricing for gas and electricity.

9. Energy is one of ADB's priority sectors of engagement in Uzbekistan. The country partnership strategy indicates that energy sector operations will focus on reform and market development to meet energy demand with reliable, environmentally sustainable supply.⁴ The

³ Presidential Decree no. 3851, 2018, Tashkent, Uzbekistan.

⁴ ADB. 2012. *Country Partnership Strategy: Uzbekistan, 2012–2016*. Manila. <https://www.adb.org/documents/uzbekistan-country-partnership-strategy-2012-2016>; ADB. 2009. *Energy Policy*. Manila. <https://www.adb.org/documents/energy-policy>

government's request is also consistent with ADB's priorities under Strategy 2030 and based on the government's demonstrated commitment to reform.

10. The three ensuing energy projects to be prepared under the F-TRTA are of similar nature. These projects are aligned with the government's objectives to strengthen reliability of the energy sector to increase its sustainability and efficiency and mobilize private sector investments.⁵ The projects aim to improve the quality of energy supply, reduce aggregate technical and commercial losses, and improve the financial performance of energy utilities.

B. Outputs and Activities

11. **Output 1: energy sector project feasibility and preparation supported.** The F-TRTA will provide technical expertise to prioritize, plan and prepare the following sustainable energy investment projects: (i) Regional Gas Transmission Efficiency Enhancement Project, (ii) Network Distribution Modernization Program, and (iii) Regional Energy Transmission and Dispatch Enhancement Project. The technical assistance will include all necessary due diligence to assess technical suitability, and the economic, financial and social viability of the proposed projects. The F-TRTA will also address capacity and institutional issues, environmental and social safeguards, and climate adaptation and mitigation; and identify measures to strengthen project implementation. Detailed activities will include, as required: (i) technical feasibility studies; (ii) economic and financial analysis; (iii) financial management assessments; (iv) procurement assessments, plans and preparation of bidding documents, market analysis; (v) gender analysis, collection of baseline data and gender action plans; (vi) risk assessment and management plans; (vii) safeguards documents on environment, involuntary resettlement and indigenous peoples; (viii) integrity due diligence; (ix) initial poverty and social analysis; (x) climate adaptation and mitigation measures and climate risk and vulnerability assessment; (xi) sector assessment; (xii) project implementation consultant recruitment; and (xiii) assisting resettlement plan implementation.

12. **Output 2: financial management capacity building intervention and energy sector reforms.** This will include identifying potential financial management, reporting, disclosure and corporate governance issues, and defining the scope of capacity building to meet ADB's requirements on financial sustainability and management.

13. In addition, a strategy to mobilize and manage public-private partnerships in energy infrastructure at a national level will be developed. This will include supporting the government to improve its approach to identify, design, manage, tender, and negotiate private sector participation in energy projects. Also, the F-TRTA will help the government assess its investment pipeline and prioritize energy projects for mobilizing private investments via competitive bidding, and for some of these projects, undertake analysis to generate preliminary project profiles and facilitate investment roadshows.

14. Overall F-TRTA results and outputs will be disseminated through workshops, donor meetings, public private partnership and financial management thematic groups.

⁵ Resolution of the President of the Republic of Uzbekistan, No. PP-3107, On measures on the improvement of the oil and gas industry management system", 30 June 2017, Tashkent, Uzbekistan and PR no. 3851 (2018).

C. Cost and Financing

15. The F-TRTA is estimated to cost \$1,750,000 of which \$1,500,000 will be financed on a grant basis by ADB's Technical Assistance Special Fund (other sources). The key expenditure items are listed in Appendix 1.

16. The government will provide counterpart support in the form of counterpart staff, office space, office supplies and other in-kind contributions with an estimated value of approximately 17% of the total cost of the TA facility. The government was informed that approval of the F-TRTA facility does not commit ADB to finance any ensuing project.

D. Implementation Arrangements

17. The TA activities for an ensuing project will start only after ADB approves the project concept paper on the ensuing project.

18. ADB's Energy Division of the Central Asia Energy Department will administer the F-TRTA, and be responsible for selecting, supervising and evaluating consultants, and procuring goods. Uzbekneftegaz and Uztransgas will be the executing and implementing agencies for the Regional Gas Transmission Efficiency Enhancement Project. Uzbekenergo will be the executing and implementing agency for the Distribution Network Modernization Program, and Regional Energy Transmission and Dispatch Enhancement Project. The F-TRTA will be implemented over an 18-month period from January 2019 to June 2020.

19. The implementation arrangements are summarized in Table 2.

Table 2: Implementation Arrangements

Aspects	Arrangements		
Indicative implementation period	January 2019 – June 2020		
Executing agencies	Uzbekneftegaz for Regional Gas Transmission Enhancement Project; and Uzbekenergo for Distribution Network Modernization Program, and Regional Energy Transmission and Dispatch Enhancement Project		
Implementing agencies	Uzbekneftegaz and Uzbekenergo will be responsible for F-TRTA activities. State Committee of the Republic of Uzbekistan for Investment, and ADB will be responsible for F-TRTA implementation oversight, accountability for the outputs, and communications with consultants and stakeholders.		
Consultants	To be selected and engaged by ADB		
	Firm: (i) International, QCBS, 90:10	Selection title (i) Project Preparation Consultant for Regional Gas Transmission Efficiency Enhancement Project	\$534,300
	(ii) International, QCBS, 90:10	(ii) Project Preparation Consultant for Regional Energy Transmission and Dispatch Enhancement Project	\$400,000
	Individual: individual selection	International and national expertise (58.5 person-months)	\$565,700
Procurement	Not applicable		

Aspects	Arrangements
Advance contracting	Consultants for the Regional Gas Transmission Efficiency Enhancement Project
Disbursement	The TA resources will be disbursed following ADB's <i>Technical Assistance Disbursement Handbook</i> (2010, as amended from time to time).
Asset turnover or disposal arrangement upon TA completion	Not applicable

Source: Asian Development Bank

20. **Consulting services.** ADB will engage the consultants following the ADB Procurement Policy (2017, as amended from time to time) and the Staff Instructions on ADB Administered Consulting Services.⁶ The F-TRTA will require consultancy services from international consulting firms (at least 67 person-months, comprising of 27 person-months of international experts, and 40 person-months of national experts) for conducting due diligence on the (i) Regional Gas Transmission Efficiency Enhancement Project, and (ii) Regional Energy Transmission and Dispatch Enhancement Project. The consulting firms with experience in energy (gas and electricity) will be recruited using quality- and cost-based selection method with a quality to cost ratio of 90:10. In addition, individual consultants (at least 21.5 person-months of international experts, and 69 person-months of national experts) will be recruited.⁷ Any consultant position not envisaged at this time but needed during implementation will be recruited as individual consultants. The recruitment of these consultants as individuals is justified to retain the flexibility of engaging these consultants, as required.

II. THE PRESIDENT'S DECISION

21. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$1,500,000 on a grant basis to the Government of Uzbekistan for preparing Sustainable Energy Investment Projects, and hereby reports this action to the Board.

⁶ Terms of Reference for Consultants (accessible from the list of linked documents).

⁷ The individual consultants to be engaged for the Distribution Network Modernization Program will supplement the consultants engaged under the stand-alone TA for this project.

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Amount
Asian Development Bank^a	
A. Consultants	
1. Remuneration and per diem	
a. International consultants	855.5
b. National consultants	328.5
2. Out-of-pocket expenditures	
a. International and local travel	130.0
b. Vehicle rental	12.0
c. Surveys	80.0
d. Training, seminars, and conferences	20.0
e. Reports and communications	11.0
f. Office support ^b	12.0
B. Contingencies	51.0
Total	1,500.0

Note: The technical assistance (TA) is estimated to cost \$1,500,000, of which contributions from the Asian Development Bank are presented in the table above. The government will provide counterpart support in the form of counterpart staff, office space, office supplies, and other in-kind contributions. The value of government contribution is estimated to account for 17% of the total TA cost.

^a Financed by ADB's Technical Assistance Special Fund (TASF-other sources).

^b Provision for consultants' local office operations (e.g. support staff)

Source: Asian Development Bank estimates.

PROJECTS UNDER TECHNICAL ASSISTANCE FACILITY

Table A2.1: Indicative Consultants' Input Allocation
(person-month)

Item	Total	Regional Gas Transmission Efficiency Enhancement Project Complex	Distribution Network Modernization Program Complex	Regional Energy Transmission and Dispatch Enhancement Project Complex
Indicative Risk Category				
A. International Consultants				
Gas sector specialist/team leader	6.0	6.0	0.0	0.0
Gas transmission specialist	3.0	3.0	0.0	0.0
Public-private partnership specialist	3.0	1.0	1.0	1.0
Financial management and economics specialist	3.0	2.0	0.0	1.0
Environment specialist	7.0	3.0	2.0	2.0
Social development specialist	6.0	2.0	2.0	2.0
Procurement specialist	4.0	3.0	0.0	1.0
Energy specialist	2.5	0.0	2.5	0.0
Transmission (telecommunication) engineer	2.0	0.0	0.0	2.0
Transmission (SCADA) engineer	3.0	0.0	0.0	3.0
Transmission line engineer	2.0	0.0	0.0	2.0
Subtotal (A)	41.5	20.0	7.5	14.0
B. National Consultants				
Project coordinator	12.0	12.0	0.0	0.0
Gas sector specialist	9.0	9.0	0.0	0.0
Gas transmission specialist	6.0	6.0	0.0	0.0
Environment specialist	11.0	6.0	2.0	3.0
Social development specialist	13.0	5.0	4.0	4.0
Gender specialist	7.0	2.0	5.0	0.0
Financial management and economics specialist	4.0	0.0	3.0	1.0
Procurement specialist	10.0	6.0	2.0	2.0
Power distribution engineer	3.0	0.0	3.0	0.0
Transmission (telecommunication) engineer	3.0	0.0	0.0	3.0
Transmission (SCADA) engineer	3.0	0.0	0.0	3.0
Transmission line engineer	3.0		0.0	3.0
Subtotal (B)	84.0	46.0	19.0	19.0
Total (A+B)	125.5	66.0	26.5	33.0

SCADA = supervisory control and data acquisition

Table A2.2: Basic Project Information

Item	Regional Gas Transmission Efficiency Enhancement Project	Distribution Network Modernization Program	Regional Energy Transmission and Dispatch Enhancement Project
ADB financing	\$300 million	\$300 million	\$200 million
Lending modality	Project loan	Results-based loan	Project loan
Board approval	March 2020	October 2019	October 2020
Outcome	Uzbekistan gas transmission efficiency enhanced	Efficient and reliable electricity services to customers, particularly for vulnerable communities in the rural and remote areas	Modernized transmission network and enhanced monitoring functions to improve operational efficiency and reliability of the overall power system
Executing agency	Uzbekneftegaz	Uzbekenergo	Uzbekenergo

ADB = Asian Development Bank

LIST OF LINKED DOCUMENTS

1. Terms of Reference for Consultants
2. Risk Assessment and Risk Management Plan

TERMS OF REFERENCE FOR CONSULTANTS

A. Regional Gas Transmission Efficiency Enhancement Project

1. Consulting Firm

1. **Gas sector specialist/team leader (international, 6 person-months [pm]).** The expert will have (i) a master or higher degree in petroleum economics or petroleum engineering, preferably with a postgraduate qualification in any of these fields; (ii) at least 15 years of international work experience in oil and gas; and (iii) hands-on experience in development and/or implementation of at least 3 gas transmission projects. The expert will:

- (i) manage the consulting team and individual consultants hired for the project, and ensure quality outputs;
- (ii) develop a detailed work plan and implementation schedule;
- (iii) review the status of gas transmission networks' investment plan for expansion, evaluating the least-cost option for gas modernization and rehabilitation work;
- (iv) prepare technical feasibility of rehabilitating and upgrading compressor system and associated facilities (pipeline network, etc);
- (v) review the scope of investment, and prepare detailed cost estimates, detailed technical specifications for bidding documents, implementation schedule and arrangements;
- (vi) assess current pricing policies for gas transmission, and recommend cost reflective pricing mechanism for project sustainability;
- (vii) prepare capacity building assessment and timebound action plan to ensure project sustainability;
- (viii) assess leakages of gas at various stages, and conduct hazard analysis and mitigation measures.

2. **Gas transmission specialist (international, 3 pm).** The expert will have (i) a master or higher degree in petroleum engineering or related field; (ii) at least 10 years of international work experience in oil and gas, and (iii) hands-on experience in developing and/or implementing at least three oil and gas projects. The expert will (i) undertake technical review and analysis of existing gas transmission networks and associated infrastructure; (ii) assess leakages of gas at various stages, and conduct hazard analysis and mitigation measures; (iii) undertake technical due diligence of the project, and validate key operational and business assumptions; (iv) prepare detailed cost estimates, implementation schedule and arrangements; and (v) prepare capacity building assessment and timebound action plan to enhance operational and maintenance to ensure project sustainability.

3. **Environment specialist (international, 3 pm).** The expert will have (i) an advanced degree in environmental studies (or other relevant field) from an accredited educational institution; and (ii) at least 15 years working experience, including practical experience in environmental monitoring, reporting, stakeholder consultations (include names and contact information of previous clients), and preparing environmental impact assessment (EIA) and environmental management plan (EMP) reports. The expert should be familiar with projects financed by international financial institutions.

4. The expert will undertake an EIA study in accordance but not limited to the scope of the services listed below and prepare an EIA report using the outline in Asian Development Bank's

(ADB) Safeguard Policy Statement (SPS 2009).¹ The EIA is required to suit the project and meet ADB requirements. The study shall include, but not limited to preparation and execution of a scoping exercise, baseline studies, study of alternatives, data analyses, impact assessment, and the identification of applicable environmental mitigation measures to compile the EMP. The expert will undertake the following tasks:

- (i) Perform a scoping exercise to (a) determine the study (data) boundaries, to clarify what shall and shall not be included in the EIA study; (b) determine the environmental issues (including direct, indirect and cumulative impacts) that will be addressed in the EIA, together with the required level of detail and level of aggregation; (c) identify applicable local (i.e., communal and municipal), regional, national, and international regulations and standards, and clarify their applicability to the EIA and the project; (d) provide a preliminary assessment of available baseline information and its use for the EIA; (d) select and clarify the assessment methods to be used; (e) include a preliminary identification of project alternatives which shall be included in the EIA study; (f) outline the conditions and requirements for the baseline studies, as well as a baseline study plan; and (g) enable mutual understanding and commitment among ADB, Uzbekneftegaz and other competent authorities, consultants and other stakeholders on the scope, process and methodology of the EIA.
- (ii) Prepare a description of the scope, physical characteristics and technical specifications of the project. This description shall include all physical and technical aspects, specifications and characteristics of the compressor stations, pipeline and all associated facilities (e.g. project-related infrastructure and above ground installations), activities during the different project phases, and the project schedule. This should be supplemented with maps that show the location in relation to the background environment of the area. All information should be adequately cross referenced.
- (iii) Present relevant baseline information taking into account the probable regions of influence of the project; and collect data on relevant physical, biological and socio-economic conditions.² Data collection shall draw upon available information from state agencies, research organizations, digital resources and geographic information system databases, public third parties, and feasibility studies supplemented as necessary by field investigations, including sampling and lab analyses.

¹ Available in <https://www.adb.org/documents/safeguard-policy-statement>.

² Data shall include, but may not be limited to, the following areas: (a) physical conditions including geology, geomorphology, topography, soils, climate and meteorology, ambient air quality, surface and groundwater hydrology, existing water quality status, existing sources of air emissions, noise (acquire baseline data on a 24-hour basis at representative points and prepare a constructed baseline using these); (b) biological conditions including an inventory of flora and fauna, wildlife and wildlife migration routes, biodiversity, endangered species, sensitive habitats and other ecological (sensitive) areas; (c) Ramsar wetlands if present in the area; (d) physical cultural resources (PCR) and with it, requiring a PCR survey prior to the start of project construction and a Chance Find Procedure to be observed during construction; depending on whether there are PCR suspected and their importance, these may be avoided through route selection during the DRS; and (e) socio-economic conditions including land ownership and land-use, pipeline protection zones, and the proximity and potential overlap of the project and all its associated facilities and infrastructure with residential and economic locations, archaeological and historical properties, planned development activities, transport routes and availability of utilities and services, as well as a summary of data obtained during the social safeguard surveys (including population, community structures, employment, distribution of income, goods and services, recreation, public health).

- (iv) Perform an environmental audit of the existing facilities to determine the existence of any areas where the project may cause or is causing environmental risks or impacts. A typical environmental audit report includes the following major elements: (a) executive summary; (b) facilities description, including both past and current activities; (c) summary of national, local, and any other applicable environmental laws, regulations, and standards; (d) audit and site investigation procedure; (e) findings and areas of concern; and (f) corrective action plan that provides the appropriate corrective actions for each area of concern, including costs and schedule.
- (v) Perform a full impacts analysis for the construction and operation stages of the project and propose mitigation measures to minimize and/or remove the impacts. Conduct noise and air quality modelling studies for the compressor stations, including any other equipment or facility likely to affect background noise levels and air quality;
- (vi) Identify any associated facilities and assess the impacts of those;
- (vii) Assess environmental impacts of the operation and its ancillary activities also discuss cumulative environmental impacts;
- (viii) Perform a systematic comparison of different project alternatives, whereby per alternative the environmental consequences and impacts are identified, assessed and compared. The study shall support the project with the development of a base case design and rule out some design alternatives that are not viable from an environmental and/or social perspective. The study of alternatives shall take into account, but may not limit itself to, the pipeline route and project sites, technologies, and no project.
- (ix) Perform a risk-based analysis of the likely risks of the project in terms of explosions, leakages, and emergency scenarios during the operation phase.
- (x) Propose state-of-the-art mitigation measures to minimize, mitigate or altogether remove the impacts.
- (xi) Prepare the EIA report as required by ADB's Safeguards Policy Statement. The EIA should contain maps and figures to explain the details and all supporting data and studies performed as part of the EIA should be duly annexed.
- (xii) As part of the EIA, prepare an EMP including the appropriate mitigation technologies, an environmental monitoring plan with monitoring indicators, and institutional arrangements and responsibilities (including cost estimates and training). As part of the EMP, prepare an outline framework for the site-specific EMPs to be prepared by the contractor as part of the EIA appendix. Ensure that the EIA contains an environmental management cost, i.e., the cost for implementing the EMP in the field.
- (xiii) Prepare the project environment climate mitigation and adaptation assessment.
- (xiv) Assess the possibility of obtaining clean development mechanism related support for possible greenhouse gas reductions.
- (xv) Conduct an institutional environmental capacity review with regards to the Uzbekneftegaz's implementation capacity for environmental safeguards. Prepare a capacity development program to deal with each of the identified capacity gaps.
- (xvi) Conduct meaningful public consultations with communities and relevant stakeholders in the area of influence of the project at least twice at different stages

during the EIA process. Consult all local and national level stakeholders, including community-based organizations and national and international NGOs actively working in the area. Ensure and provide evidence that the findings and concerns of the communities have been addressed in the EIA report.

- (xvii) Prepare a grievance redress mechanism that is operational for the project, including community representation along the entire alignment of the pipeline.

5. **Public-private partnership specialist (international, 1 pm).** The expert will have at least a university degree in business, finance, engineering or related field; and 15 years' relevant experience. The expert will (i) identify, review, and analyze the existing policy, regulatory, and institutional frameworks and capacity for private sector involvement in financing, constructing, operating and maintaining gas transmission and distribution infrastructure; (ii) evaluate the constraints on the existing frameworks and capacities' abilities to enhance public sector financing capacity and attract private sector participation according to the government's objectives; (iii) determine the reforms necessary to establish the policy, regulatory, and institutional frameworks and capacity that will enable the government to attract private finance to develop gas transmission and distribution infrastructure in line with government objectives; and (iv) carry out a market assessment considering demand risk and potential mitigations that may be available, including any legislative or regulatory measures.

6. **Gas sector specialist/deputy team leader (national, 9 pm).** The expert will have (i) a bachelor or higher degree in petroleum economics or petroleum engineering, preferably with a postgraduate qualification; (ii) at least 10 years of international work experience in oil and gas; and (iii) hands-on experience in development of gas sector assessments at least in 3 countries. The expert will (i) prepare detailed assessment of gas exploration, transmission arrangements and market demands in Uzbekistan, Central Asia and China; (ii) prepare gas sector assessment for Uzbekistan based on review of technical specifications and present capacity of the existing transmission pipelines, evaluating the potential for rehabilitation and upgrading to ensure more efficient operations; and (iii) determine key infrastructure that need to be developed for this purpose, and estimate the required investments for 2020-2025.

7. **Gas transmission specialist (national, 6 pm).** The expert will have a bachelor's or higher degree in petroleum engineering or related field, and at least 10 years of experience in oil and gas sector. The expert will (i) support the consulting team in collecting and processing major technical data and information, (ii) provide inputs to prepare the gas sector assessment; (iii) assist in reviewing the status of the gas transmission network plans for rehabilitation and expansion, and defining/evaluating the least-cost option for gas infrastructure modernization; (iv) support in reviewing the scope and capital, and preparing cost estimates, implementation schedule and arrangements and contracting; and (v) support in assessing current natural gas pricing policies, and recommending adequate pricing mechanism for project sustainability.

8. **Environment specialist (national, 6 pm).** The expert will have a bachelor's degree in environmental science or engineering; and at least 8 years of experience in carrying environmental studies for projects, and preparing EMP and EIA, including for gas projects. The expert will assist the international environmental specialist in (i) preparing an EIA, EMP, and site-specific EMPs; and (ii) assessing the possibility of obtaining clean development mechanism related support for possible greenhouse gas reductions; and (iii) assisting the EA in delivering meaningful public consultations at least twice at different stages during the EIA process.

2. Individual Consultants

9. **Social development specialist (international, 2 pm).** The expert will have at least bachelor's degree in community development, anthropology, sociology or other related field; and 10year experience in resettlement planning and implementation, and addressing resettlement issues for development projects, preferably in Central and West Asia. Knowledge of ADB's SPS is required. Experience with resettlement planning in Uzbekistan is an advantage.

10. The expert will help conduct assessments and propose actions for the project, prepare loan documents, and support capacity development for the EA and IA, from a social development perspective, including land acquisition and resettlement (LAR). S/he will provide support to ensure that the project embodies social development. S/he will undertake the following tasks:

- (i) Advise Uzbekneftegaz, Uzbekenergo and participating local government(s) on ADB's SPS requirements and procedures.
- (ii) Review national and local laws and regulations, administrative arrangements and requirements, and budgetary processes vis-à-vis ADB's involuntary resettlement safeguard requirements, as described in ADB's SPS and recommend gap-filling measures as needed.
- (iii) Identify potential LAR impacts of the project, conduct preparatory surveys (inventory of loss, socioeconomic survey of project-affected households).
- (iv) Work closely with other TA consultants in exploring design options to avoid LAR impacts for the project.
- (v) Together with the national social development expert and consulting firm engaged to conduct the replacement cost study, determine the replacement costs of all categories of losses;
- (vi) Prepare a LAR plan in accordance with ADB's SPS. If no LAR impacts are identified, prepare a social due diligence report instead.
- (vii) Conduct meaningful consultations with affected households and other relevant stakeholders. Work closely with the EA and IA initiating a participatory process for preparing and approving the LAR plan.
- (viii) Assess the capacity and commitment of the responsible institutions to plan, update, and implement the LAR plan, and propose capacity building/training programs, as needed.
- (ix) Ensure overall project compliance with ADB's involuntary resettlement safeguards. Work closely with other TA consultants to ensure LAR impacts, mitigation measures and required resources are reflected in the overall project design, cost estimates, and other relevant project documents. Enhance existing project social impact reports, where appropriate.
- (x) Prepare the project's involuntary resettlement and categorization form.
- (xi) Prepare LAR-related sections for the loan documents, including the ADB report and recommendations of the President and loan agreements, as directed by ADB and the technical assistance (TA) consulting firm team leader, and incorporate comments received.

- (xii) In close coordination with the other TA consultants, develop a project-specific grievance redress mechanism to handle complaints in an effective and culturally-appropriate manner.

11. **Social development specialist (national, 5 pm).** The expert will have at least a bachelor's degree in community development, anthropology, sociology or other related field; and 5 years of relevant experience in resettlement planning and implementation and addressing issues for development projects.

12. The expert will help conduct assessments and actions for the project, and support capacity development for Uzbekneftegaz and Uzbekenergo from a gender perspective. S/he will provide support to ensure that the project embodies commitment to achieving gender equality and women's empowerment. S/he will undertake the following tasks:

- (i) Analyze legal and regulatory frameworks on social safeguards and recommend gap-filling measures as needed.
- (ii) Identify potential land acquisition and resettlement impacts of the project and conduct preparatory surveys as per the requirements of ADB's SPS.
- (iii) Conduct meaningful consultations with affected households and other relevant stakeholders.
- (iv) Incorporate the costs of all mitigation measures in the project cost estimates.
- (v) Preparing social safeguards documents (e.g. LAR plan, social due diligence report).

13. **Gender specialist (national, 2 pm).** The expert shall have at least bachelor's degree in social science, economics, or other related fields, or its equivalent and 7 years of relevant experience in carrying out gender assessment and analysis, preferably of state-owned companies and of consumer behavior. Previous experience in undertaking social studies and analysis in the power sector in Uzbekistan and English skills are desirable.

14. The expert will help conduct assessments and actions for the project, and support capacity development for Uzbekneftegaz and Uzbekenergo from a gender perspective. S/he will provide support to ensure that the project embodies commitment to achieving gender equality and women's empowerment. S/he will undertake the following tasks:

- (i) Prepare gas sector assessment from the gender perspective, identifying gender specific issues including gender representative opportunities for employment and empowerment in decision making.
- (ii) Review Uzbekneftegaz's human resource policy and practices and propose gender fair and women-friendly policies/activities/measures.
- (iii) Develop and assist in gender awareness-raising programs and training Uzbekneftegaz's key management staff.
- (iv) Analyze data on percentage of women taking energy-related courses, such as engineering, math, science in technical and vocational education and training institutions and universities and review these institutions and universities as potential partners of Uzbekneftegaz to mainstream gender in the gas sector.
- (v) Assess the quality of existing reports, information/data generated by Uzbekneftegaz from a gender perspective.
- (vi) Assess all potential positive and negative impacts of the project on consumer groups and Uzbekneftegaz's staff from a gender perspective.

- (vii) Prepare socioeconomic profiles of the project-affected communities in the project areas following relevant ADB guidelines and publications, and government requirements.
- (viii) Prepare a set of recommendations to engender the National Program on Modernization of Gas Infrastructure based of the gender analyses conducted.
- (ix) Identify opportunities for employment of local populations in the project, and any skills training that may help improve the capital base of the local populations (if applicable).
- (x) Assess the gender category of the project as Some Gender Elements (SGE), and prepare a set of gender action/activities to meet SGE requirements;
- (xi) Assess Uzbekneftegaz and Uzbekenergo's gender capacity for gender-sensitive planning and implementation, as well as the potential institutional partners and stakeholder groups, including relevant NGOs and communities.

15. **Procurement specialist (international, 3 pm).** The expert shall have at least (i) bachelor's degree in procurement, civil engineering, law or related fields; (ii) 7 years of experience in high-value and complex procurement and contract management in the energy sector; (iii) knowledge of and experience in engineering, procurement and construction/turnkey contracts; and (iv) advance knowledge of ADB or/multilateral development banks and national public procurement policies and procedures. Preference will be given to candidates with (i) experience in procurement reviews/audits and sectoral or agency procurement assessments, and (ii) regional/country experience.

16. The expert will help Uzbekneftegaz and Uzbekenergo in procurement for the project and provide capacity building. S/he will (i) conduct procurement capacity building and training; (ii) assist in contract packaging, determining the appropriate procurement methods and bidding/consultant selection procedures, and preparing the procurement plan for the project; (ii) Prepare, with technical support and inputs from other specialists, bidding documents and request for proposals; and (iv) support in bid evaluation and consultant selection, and monitor procurement progress and compliance with ADB procedures.

17. **Procurement specialist (international, 6 pm).** The expert shall have at least (i) bachelor's degree in procurement, civil engineering, law or related field; (ii) 7 years of experience in high-value and complex procurement and contract management in the energy sector; (iii) knowledge of and experience in engineering, procurement and construction/turnkey contracts; and (iv) advance knowledge of ADB or/multilateral development banks and national public procurement policies and procedures. Preference will be given to candidates with experience in procurement reviews/audits and sectoral or agency procurement assessments experience.

18. S/he will assist with the tasks of the international procurement specialist, and also support preparing the logistic plan and schedule for imported equipment.

19. **Project coordinator (national, 12 pm).** The expert shall have at least (i) bachelor's degree in economics, finance, business administration or engineering; (ii) 7 years of work experience in project coordination, preferably in oil and gas sector; and (iii) knowledge of Uzbekistan energy sector, government approval procedures, and energy reforms. Previous working experience with the State Committee for Investments, Ministry of Finance or Uzbekneftegas is preferred.

20. The expert will assist Uzbekneftegaz and ADB in facilitating communications, information and deliverables among the project stakeholders. S/he will undertake the following tasks:

- (i) Support project coordination with key stakeholders, including the other TA consultants and development partners.
- (ii) Collect the primary economic, financial and country statistics required for project preparation and implementation.
- (iii) Support ADB missions and follow up communications with government and stakeholders.
- (iv) Support and provide technical expertise to Uzbekneftegas in coordinating project preparation.
- (v) Arrange and join all meetings of TA consultants with the government, and keep track of discussions and information requested from the government
- (vi) Follow up with the government on pending issues and information requests.
- (vii) Update the status of the consultants' work plans and schedules of deliverables.

B. Distribution Network Modernization Program (Individual Consultants)

21. **Public-private partnership specialist (international, 1 pm).** The expert will have at least a university degree in business, finance, engineering or related field and at least 15 years' experience in related area. S/he will (i) identify, review, and analyze the existing policy, regulatory, and institutional frameworks and capacity for private sector involvement in financing, constructing, operating and maintaining power distribution utilities; (ii) evaluate the constraints on the existing frameworks and capacities' abilities to enhance public sector financing capacity and attract private sector participation according to the government's objectives; (iii) determine the reforms necessary to establish the policy, regulatory, and institutional frameworks and capacity that will enable the government to attract private finance for the development of power distribution utilities in line with government's objectives; and (iv) carry out a market assessment to consider demand risk and potential mitigations that may be available – including the consideration of any legislative or regulatory measures.

22. **Environment specialist (international, 2 pm).** The expert will have at least a bachelor or higher degree in environmental engineering/science, and at least 15 years of relevant experience in carrying out environmental studies, including initial environmental examinations (IEEs) of infrastructure projects, especially for power distribution. S/he will undertake the following tasks:

- (i) Prepare a detailed program safeguard system assessment and program action plan, which will include key components to ensure that the program is in overall compliance with SPS including sub-project screening requirements and overall environmental principals and also set out monitoring requirements of agreed measures linked with disbursement indicators, which will ensure stronger ownership of the government and executing agency.
- (ii) Prepare a detailed waste management plan based on audits of existing capacity within Uzbekistan for waste (hazardous and non-hazardous) and PCBs, provide input from Provincial Nature Protection Committee on how much actual PCB is in the waste oil.
- (iii) Review Uzbekenergo's environmental management capability and recommend institutional strengthening measures
- (iv) Ensure that the costs for implementation of recommended environmental management and monitoring plans, and any capacity strengthening measures, are included in the project's development costs
- (v) Recommend appropriate environmental mitigation measures for identified significant impacts and monitoring plans to address these impacts; and assess the

environmental benefits of the proposed activities and any capacity-strengthening measures that may be needed for the implementation of environmental management and monitoring plans

- (vi) Ensure that the program safeguard system assessment and program action plan is included in the project implementation contracts

23. **Environment specialist (national, 2 pm).** The expert will have at least a bachelor or higher degree in environmental engineering/science and at least 10 years of relevant experience in carrying environmental studies, including IEEs. S/he will support the tasks of the international environment specialist.

24. **Social development specialist (international, 2 pm).** The expert will have at least a bachelor's degree in environmental science/engineering, and at least 10 years of experience in carrying out environmental studies for projects, and preparing IEEs and EIAs, including for power distribution projects. S/he will (i) assess the program environment safeguard system, and conduct a climate change mitigation assessment, (ii) develop action plans to address the gaps and recommend measures for using the national environment and climate change regulations and systems in accordance with the principles of ADB's SPS; and (iii) examine Uzbekenergo's safeguards management systems, and consolidate the social safeguard system assessment into a program safeguard system assessment.

25. **Social development specialist (national, 4 pm).** The expert will have at least a bachelor's degree in social development or related fields and at least 10 years of relevant experience. S/he will (i) prepare poverty and social analysis using participatory methods to assess the type and significance of the project impacts on the poor, women, and any other vulnerable group; (ii) assist in sector assessment and program review to bring out impact of program by women; (iii) recommend measures to engage local people-especially women-in program monitoring and evaluation; and (iv) prepare program results framework and the program monitoring and evaluation systems.

26. **Energy specialist (international, 2.5 pm).** The expert will have least a bachelor's degree with 15 year of experience in related area. S/he will (i) review status of power distribution arrangements; (ii) review technical specifications and present capacity of the existing distribution utilities, and evaluate the potentials for rehabilitation and upgrading to ensure more efficient operations; (iii) determine the general technical feasibility of rehabilitating and upgrading the existing power distribution system; (iv) assess power losses at various stages and conduct hazard analysis; and (v) determine power distribution infrastructure that need to be developed.

27. **Gender specialist (national, 5 pm).** The expert will have at least a bachelor's degree in social science, economics, political science, international development or any related field with women's studies or gender as a major course, and at least 10 years of relevant experience. S/he will (i) provide gender technical advice and guidance, (ii) formulate the gender action plan, building on the gender mainstreaming strategy of the project, (iii) coordinate with ADB and Uzbekenergo to incorporate the gender action plan in the overall country gender framework, (iv) lead capacity-building activities on gender mainstreaming for Uzbekenergo staff and volunteers, including development or application of tools, coaching and mentoring, and (v) establish a gender network for the project.

28. **Financial management specialist (national, 3 pm).** The expert will have at least a bachelor's degree in economics/ finance, relevant professional qualification (ACCA, CFA, CPA), and 10 years of relevant experience in financial analysis of projects and corporate due diligence.

S/he will (i) assess the government program's adequacy and economic efficiency, results and links with disbursements under the program, expenditures and financing, and implementation arrangements; (ii) identify necessary measures and actions to be taken to strengthen the government investment program for inclusion in the program action plan; (iii) assess the program's fiduciary systems ability to manage fiduciary risks and provide reasonable assurance for the appropriate use of program funds; and (iv) prepare program expenditure and financing assessment; fiduciary systems assessment; financial management systems assessment for Uzbekenergo; and risk mitigation plan, including capacity development activities for inclusion in the program action plan and the piggyback TA design with clear results and monitoring measures.

29. **Procurement specialist (national, 2 pm).** The expert will have at least a bachelor's degree with 10 years of experience in procurement-related area. S/he will (i) conduct program's procurement system assessment and prepare risk mitigation plan as integral part of fiduciary assessment; and (ii) prepare the program integrated risk mitigation and provide inputs to the fiduciary assessment and integrated risk mitigation plan.

30. **Power distribution engineer (national, 3 pm).** The expert will have at least a bachelor's degree with 10 year of experience in related area. S/he will assist the international power distribution engineer in (i) reviewing the status of power distribution arrangements; (ii) reviewing the technical specifications and present capacity of the existing distribution utilities, and evaluating the potential for rehabilitation and upgrading to ensure more efficient operations; (iii) determining the general technical feasibility of rehabilitating and upgrading the existing power distribution system; (iv) assessing power losses at various stages and conducting hazard analysis; and (v) determining power distribution infrastructure that need to be developed.

C. Regional Energy Transmission and Dispatch Enhancement Project (Consulting Firm)

31. **Transmission (supervisory control and data acquisition [SCADA]) specialist/team leader (international, 3 pm).** The expert will have at least a bachelor's degree in electrical engineering, and 15 years of power sector experience to include design, appraisal and bid evaluation of SCADA. S/he will undertake the following tasks:

- (i) Coordinate the activities of the team and develop detailed work plan and implementation schedule. Act as Team Leader to ensure quality and timely project deliverables of all team members.
- (ii) Develop technical design and configuration of power transmission SCADA component.
- (iii) Prepare cost estimates.
- (iv) Assist ADB fact-finding mission as required.
- (v) Draft the relevant sections of ADB's report and recommendation of the president (RRP).
- (vi) Prepare technical specifications of the bidding documents, including bid evaluation criteria, for the SCADA component.
- (vii) Assist Uzbekenergo in issuing bidding documents, organizing site visits, pre-bid meetings, responding to requests for clarification on bidding documents, evaluating bids, and preparing bid evaluation reports.

32. **Public-private partnership specialist (international, 1 pm).** The expert will have at least a bachelor's degree in business, finance, engineering or related field, and 15 years of experience in related area. S/he will (i) identify, review, and analyze the existing policy, regulatory, and

institutional frameworks and capacity for private sector involvement in financing, constructing, operating and maintaining power transmission utilities; (ii) evaluate the constraints on the existing frameworks and capacities' abilities to enhance public sector financing capacity and attract private sector participation according to the government's objectives; (iii) determine the reforms necessary to establish the policy, regulatory, and institutional frameworks and capacity that will enable the government to attract private finance to develop power transmission utilities in line with government objectives; and (iv) carry out a market assessment to consider demand risk and potential mitigations that may be available – including the consideration of any legislative or regulatory measures.

33. Financial management and economics specialist (international, 1 pm). The expert will have at least a bachelor's degree in finance/ economics, relevant professional qualification (ACCA, CFA, CPA), and 15 years of relevant experience in economic and financial analyses of projects, and financial management assessment. S/he will undertake the following tasks:

- (i) Conduct economic analysis, determine the economic rate of return of the proposed investment components, assess their economic viability and provide the economic rationale for the project, including an analysis of alternatives and sensitivity and risk analyses, in accordance with ADB's Guidelines for the Economic Analysis of Projects (1997), and Guidelines for the Financial Governance and Management of Investment Projects Financed by the Asian Development Bank.
- (ii) Prepare an entire project cost estimate, separating foreign exchange and local currency, including physical and price contingencies, interest during construction, commitment fee and other financing charges
- (iii) Prepare a financial valuation of the project using financial internal rate of return and weighted average cost of capital computations in order to evaluate the financial viability of the project, in accordance with ADB's Financial Management and Analysis Guidelines (2005) and the Financial Due Diligence Methodology note (2009).
- (iv) Provide inputs to inception, interim, draft final, final and relevant sections of RRP
- (v) Assist ADB missions and provide inputs as required.

34. Environment specialist (international, 2 pm). The expert will have at least a bachelor's degree in environmental engineering/science, and 15 years of relevant experience in carrying out environmental studies, including IEE for infrastructure projects, especially for power transmission. S/he will undertake the following tasks:

- (i) Assess and confirm that the proposed transmission components are not within the protected areas, if any. If the proposed components lie within such zones, elucidate the regulatory procedures and protection measures needed to obtain environmental and forestry clearance from the relevant national and provincial government agencies
- (ii) Prepare an IEE for transmission lines and the substations in accordance with ADB's SPS, and any applicable procedures or guidelines for environmental assessment required by the government, taking into account the likely impacts associated with their locations, designs, and construction activities, as well as the long-term impacts during operation, including identification of environmental issues from activities directly induced by the project.
- (iii) Prepare EMP for the project based on the detailed design. Ensure that necessary mitigation measures are in place. Assess the adequacy of the cost estimates for the proposed EMP.

- (iv) Review Uzbekenergo's environmental management capability, and recommend institutional strengthening measures.
- (v) Ensure that components such as transmission lines and access roads specifically for the project must have environmental assessments.
- (vi) Ensure that the costs for implementing recommended environmental management and monitoring plans and any capacity strengthening measures are included in the project's development costs.
- (vii) Recommend appropriate environmental mitigation measures for identified significant impacts, and monitoring plans to address these impacts; and assess the environmental benefits of the proposed activities and any capacity-strengthening measures that may be needed for implementing the environmental management and monitoring plans.
- (viii) Ensure that the EMP is included in the project implementation contracts.

35. **Social development specialist (international, 2 pm).** The expert will have at least a bachelor's degree in social development or related field, and 10 years of relevant experience. S/he will (i) conduct social, gender and poverty analysis, and prepare a necessary strategy and measures; (ii) prepare resettlement framework, indigenous peoples planning framework, and resettlement plans, indigenous peoples plan (if required); (iii) identify appropriate compensation methodologies where required; (iv) incorporate all mitigation measures into cost estimates; and (v) prepare a program/action plan for meaningful consultation.

36. **Procurement specialist (international, 1 pm).** The expert will have at least a bachelor's degree, and 15 years of experience in procurement. S/he will undertake the following tasks:

- (i) Update country procurement system assessment and prepare risk mitigation plan as an integral part of the fiduciary assessment.
- (ii) Assess Uzbekenergo's procurement capacity and propose risk mitigation and capacity development action plan.
- (iii) Prepare the program integrated risk mitigation and provide inputs to fiduciary assessment and integrated risk mitigation plan.
- (iv) Prepare the project's bidding documents in accordance with ADB's Procurement Framework (2017) and relevant standard bidding documents.
- (v) Assist Uzbekenergo in developing the procurement plan, addressing clarifications during the procurement process, evaluating bids, and preparing bid evaluation reports.
- (vi) Recommend necessary procurement capacity building that need to be addressed under the project.

37. **Transmission (telecommunication) engineer (international, 2 pm).** The expert will have least a bachelor's degree in engineering, and 15 years of relevant experience in telecommunications for power transmission system. S/he will (i) review existing reports and designs to confirm the need, design and implementation plans for the telecommunications component of the project, and gather relevant data and information; (ii) assess power transmission telecommunications conditions and investment plan, assess the sector and project risks, and update the said assessment; (iii) prepare project design documents, including detailed technical specifications for the telecommunications component of the project; and (iv) update site survey and analysis.

38. **Transmission line engineer (international, 2 pm).** The expert will have at least a bachelor's degree in engineering, and 15 years of relevant experience in power transmission operation and planning. S/he will undertake the following tasks:

- (i) Assess power transmission and investment plan, assess the sector and project risks, and update the power sector assessment;
- (ii) Carry out engineering and design activities related to transmission line design, such as engineering analysis and design, route selection, materials acquisition, structural and foundation design, and project and construction management.
- (iii) Prepare project construction documents such as: plan and profile drawings; design drawings; engineering, material, and construction specifications; project schedules and bills of materials.
- (iv) Develop project design alternatives and corresponding cost estimates.
- (vi) Design rehabilitation of existing and/or construction of new transmission facilities.
- (vii) Prepare project design documents including detailed technical specifications for the project.

39. **SCADA specialist/deputy team leader (national, 3 pm).** The expert should have at least a bachelor's degree in electrical engineering, and 10 years of power sector experience to include design, appraisal and bid evaluation of SCADA. S/he will support the tasks of the transmission (SCADA) specialist/team leader.

40. **Financial management and economics specialist (national, 1 pm).** The expert should have at least a bachelor's degree in finance/ economics, relevant professional qualification (ACCA, CFA, CPA), and 8 years of relevant experience in economic and financial analyses of projects, and financial management assessment. S/he will support the tasks of the international financial management and economics specialist.

41. **Environment specialist (national, 3 pm).** The expert should have at least a bachelor's degree in environmental engineering/science, and 10 years of relevant experience in carrying out environmental studies, including IEE for infrastructure projects, especially for power transmission. Assist the international expert in assessing and confirming that the proposed transmission components are not within the protected areas, if any. S/he will support the international environment specialist in the following tasks:

- (i) Prepare an IEE for transmission lines and the substations in accordance with ADB's SPS, and any applicable procedures or guidelines for environmental assessment required by the government, taking into account the likely impacts associated with their locations, designs, and construction activities, as well as the long-term impacts during operation, including identification of environmental issues from activities directly induced by the project.
- (ii) Prepare EMP for the project based on the detailed design. Ensure that necessary mitigation measures are in place.
- (iii) Review Uzbekenergo's environmental management capability and recommend institutional strengthening measures.
- (iv) Recommend appropriate environmental mitigation measures for identified significant impacts, and monitoring plans to address these impacts; and assess the environmental benefits of the proposed activities and any capacity-strengthening measures that may be needed for implementing the environmental management and monitoring plans.
- (v) Ensure that the EMP is included in the project implementation contracts.

42. **Social development specialist (national, 4 pm).** The expert should have at least a bachelor's degree in social development or related field, and 10 years of relevant experience. S/he will support the tasks of the international social development specialist.

43. **Procurement specialist (national, 2 pm).** The expert should have at least a bachelor's degree with 10 years of experience in procurement-related area. S/he will support the tasks of the international procurement specialist.

44. **Transmission (telecommunication) engineer (national, 3 pm).** The expert should have at least a bachelor's degree in engineering, and 10 years of relevant experience in telecommunications for power transmission system. S/he will support the tasks of the international transmission (telecommunication) engineer.

45. **Transmission line engineer (national, 3 pm).** The expert should have at least a bachelor's degree in engineering, and 10 years of relevant experience in power transmission operation and planning. S/he will support the tasks of the international transmission line engineer.

RISK ASSESSMENT AND RISK MANAGEMENT PLAN

Risk Description	Rating	Mitigation Measures	Responsibility
Unexpected macroeconomic shocks that hinder the implementation of national policies and investment plans	Substantial	Sustained engagement with executing and implementing agencies, and flexible approach to respond to any changed priorities due to political economy will ensure successful TA implementation	ADB staff
Inadequate ownership and participation of key government agencies and staff to support processing and implementation of policy and planning updates and investment proposals	Moderate	Sustained engagement with the State Committee on Investments and executing and implementing agencies responsible for the delivery of energy development issues confirm the scope of project preparation and targeted investments.	ADB staff, TA Consultants
Inappropriate procurement modes are used for ensuing investment projects	Moderate	Providing procurement capacity building and assistance in preparing procurement plans, bidding documents, and requests for proposals.	ADB staff, TA Consultants

ADB = Asian Development Bank; TA = technical assistance