REPUBLIC OF TAJIKISTAN

Open Joint Stock Company Shabakahoi Intiqoli Barq (SIB)

Project Implementation Unit

Regional Electricity Market Interconnectivity and Trade program (P509488)

TERMS OF REFERENCE (ToR)

Consulting Services for the preliminary design, support to bidding process and construction supervision for Dushanbe - Regar 500 kV transmission line and Modernization of existing substations at Dushanbe and Regar

Package Reference: REMIT-TJ-CS-QCBS

2026

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ABBREVIATIONS LIST

ADB	Asian Development Bank
AST	Auxiliary service transformer
AT	Autotransformer
BHBS	Breaker-and-a-half busbar scheme
B.Sc.	Bachelor of Science
C-ESMP	Contractor's implementation of environmental and social risk management plans
DBTB	Double busbar with transfer bus
DCS	Distributed Control System
DTCB	Dead tank circuit breaker
ESF	Environmental and Social Framework
ESHS	Environmental, Social, Health, and Safety
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
FAT	Factory Acceptance Test
FIDIC	Fédération Internationale Des Ingénieurs-Conseils (International Federation of Consulting Engineers)

HPP	Hydropower Plant
IFI	International Financial Institution
IPF	Investment Project Financing
kV	Kilovolt
LTCB	Live tank circuit breaker
MVA	Megavolt-ampere
OHL	Overhead Line
OHS	Occupational Health and Safety
OJSC	Open Joint Stock Company
PIU	Project Implementation Unit
QA/QC	Quality Assurance / Quality Control
RAP	Resettlement Action Plan
REI	Rules for Electrical Installations
REMIT	Regional Electricity Market Interconnectivity and Trade program
RPA	Relay protection and automation
SCADA	Supervisory Control and Data Acquisition

SEP	stakeholder engagement plan
SIB	Shabakahoi Intiqoli Barq
SPD	Standard Procurement Document
TL	Transmision Line
VT	Voltage transformer
WB	World Bank
WP	Work plan

1. Introduction

In June 2019, the Government of Tajikistan unbundled the vertically integrated utility Barqi Tojik (BT) into legally separate companies: BT (generation and market operation), Shabakahoi Intiqoli Barq (SIB, transmission and dispatch), and Shabakahoi Taqsimoti Barq (STB, distribution). Pamir Energy Company (PEC) operates a 25-year concession in Gorno-Badakhshan Autonomous Oblast (GBAO). There are also two independent power producers (IPPs): Sangtuda-1 (Russian-sponsored) and Sangtuda-2 (Iranian-sponsored), selling to BT under long-term PPAs.

SIB is the state-owned transmission system operator created in 2019 during the unbundling of BT. It owns and operates high-voltage transmission lines and substations of 110 kV and provides transmission and dispatch services nationwide (excluding GBAO, where the concession model operates). In the sector's new architecture, BT handles generation and market operation; STB handles distribution; IPPs feed generation under PPAs; and SIB's network is the backbone for power flows, dispatch, and regional interconnections.

SIB mandate includes: (i) Transmission reliability by reducing equipment failures in transmission and distribution is a tracked reform result; delays in escrow functioning were associated with service quality deterioration, underscoring the link between cash predictability and maintenance funding; (ii) Under Regional integration, SIB is responsible for increasing transmission capacity and digitalizing interconnections on Tajikistan's side under the Regional Electricity Market Interconnectivity and Trade MPA (2025)—supporting flexible flows for winter imports and summer exports and lowering system costs through optimized dispatch; (iii) Strategic coordination: SIB supports power flow from IPPs (e.g., Sangtuda-1) and BT plants, facilitates export arrangements (including Rogun-related PPAs as capacity comes online), and contributes to system planning alongside BT/STB under updated generation expansion and network development plans

SIB's performance is therefore pivotal to Tajikistan's broader reliability and regional trade ambitions.

2. Project Background

The Government of Tajikistan, through Open Joint Stock Company Shabakahoi Intiqoli Barq (SIB), is implementing the Regional Electricity Market Interconnectivity and Trade program has received financing from the World Bank. The program aims to strengthen Tajikistan's participation in the emerging Central Asian regional electricity market,

enhance cross-border trade capacity, improve the efficiency of the transmission system, and ensure compliance with environmental, social, and safeguard requirements.

The project to be implemented by the Project Implementation Unit of OJSC "Shabakahoi intiqoli barq" (PIU SIB). PIU SIB will be responsible for planning, budgeting, procurement, FM, M&E, reporting, and safeguards aspects of all components of the project in collaboration with other partners.

The Project will finance enhancement of the Transmission and distribution infrastructure of the energy system's improvement and to be supplied installed related Energy's sectors equipment in Dushanbe substation and Regar substation. The projects will support of improvement of market energy sector, secure and uninterrupted supply of power energy, enhancing the export of the generated energy throughout the country and the Asian region.

Below is a brief on each of the facilities to be financed:

(a) Dushanbe-500 Substation

The Dushanbe-500 Substation was commissioned in 2009 with one single-phase autotransformer AT-1 rated at 3×167 MVA, type 3×ODPFSZ-167000/500/220. The total installed capacity of the substation is 501 MVA. Power supply to the substation is provided via three 500 kV transmission lines: L-517, L-528, and L-529. Line L-517 connects the Dushanbe-500 and Regar-500 substations. Lines L-528 and L-529 connect the substation with the Rogun Hydropower Plant. The substation also interconnects the northern and southern parts of Tajikistan's power system via the 500 kV line L-518. The substation can receive or transmit power at the 220 kV level through lines L-DN-1 and L-DN-2 (Dushanbe-500–Nav), L-13D-1 and L-13D-2 (Dushanbe-500–Dushanbe CHP-2), as well as L-DD (Dushanbe-500–Daryokanar) and L-DO (Dushanbe-500–Oriyon-2).

The substation can receive or transmit power at the 220 kV level through lines L-DN-1 and L-DN-2 (Dushanbe-500–Nav), L-13D-1 and L-13D-2 (Dushanbe-500–Dushanbe CHP-2), as well as L-DD (Dushanbe-500–Daryokanar) and L-DO (Dushanbe-500–Oriyon-2).

The 500 kV switchyard is arranged in a breaker-and-a-half busbar scheme. Each 500 kV transmission line has its own voltage transformer (VT) and can be connected to either of the two 500 kV busbar systems. The 500 kV circuit breakers are dead-tank type LW-13A-550U with SF_6 insulation.

The 220 kV switchyard is arranged with two main busbars and a transfer bus, connected to 9 bays. The 220 kV circuit breakers are live-tank type LW-25-252 with SF_6 insulation. Each 220 kV transmission line has its own voltage transformer (VT) and can be connected to either of the two 220 kV busbar systems.

The Dushanbe-500 Substation is equipped with one auxiliary service transformer rated at 800 kVA. The auxiliary service transformer (AST) is supplied from the 35 kV winding of autotransformer AT-1. The substation also has a backup power supply from an independent substation.

(b) Regar -500 Substation

The Regar-500 Substation was commissioned in 1974 with two single-phase autotransformers AT-1 and AT-2, rated at 2×(3×267) MVA. In 1987, a third autotransformer AT-3 with a capacity of 3×267 MVA was commissioned. The autotransformers are of type AODCTN-267000/500/220. The total installed capacity of the substation is 2403 MVA.

In 2014–2015, autotransformers AT-1 and AT-2 were replaced with new autotransformers of the same capacity, type 3×ODPFSZ-267000/500/220. Power supply to the Regar-500 Substation is provided through four 500 kV transmission lines: L-505, L-506, L-507, and L-517.

Lines L-505 and L-506 connect the Regar-500 Substation with the Nurek Hydropower Plant, while line L-507 connects it with the Guzar Substation located in the Republic of Uzbekistan. Through line L-507, interconnection with the Central Asian power system is ensured. Line L-517 (500 kV) connects the Regar-500 and Dushanbe-500 substations. The substation can also be supplied at the 220 kV level through lines L-RSh (Regar–Sherabad, Republic of Uzbekistan), L-RZ (Regar–Zarchob, Republic of Uzbekistan), and L-NR (Regar–Nav)

The 500 kV switchyard is arranged in a breaker-and-a-half busbar scheme. Each 500 kV transmission line has its own voltage transformer (VT) and can be connected to either of the two 500 kV busbar systems via the corresponding circuit breakers.

Connections of autotransformers AT-1, AT-2, AT-3 and line L-517 are equipped with dead-tank circuit breakers LW30 A550/Y5000-63, while lines L-505, L-506, and L-507 are equipped with live-tank circuit breakers HPL-550 B2 with SF_6 insulation.

The 220 kV switchyard is arranged with two main busbars and a transfer bus, connected to 17 bays. The 220 kV circuit breakers are live-tank type LTB-245 E1 with SF_6

insulation. Each 220 kV transmission line has its own voltage transformer (VT) and can be connected to either of the two 220 kV busbar systems.

The Regar-500 Substation is equipped with two main and one standby auxiliary service transformers. The main auxiliary service transformers (AST) rated at 1000 kVA are supplied from the 35 kV windings of autotransformers AT-1 and AT-2. The standby auxiliary transformer is supplied from the 35 kV winding of autotransformer AT-3. The substation also has a backup supply from an independent substation.

The program will be implemented in: Republic of Tajikistan, Republic of Uzbekistan, and Kyrgyz Republic.

The program includes components covering feasibility assessments, transmission and market infrastructure development, cross-border interconnections, and institutional strengthening via implementation of the energy sector high voltage infrastructure. The REMIT program is specifically structured into the following key components:

i. **Component 1: Transmission Infrastructure Development** (Construction of a new 500 kV single circuit Transmission line between Dushanbe substation and Regar substation).
ii. **Component 2: Modernization and Extension of Substations** (Extension of the 500 kV Dushanbe Substation and Modernization of the 500 kV Regar Substation).
iii. **Component 3: Project Management and Supervision Services** (including this consultancy and detailed design services for the 500 kV Rogun Overhead Line HPP -Saykhun substation.

To ensure effective implementation, SIB intends to engage a qualified consulting firm to provide comprehensive project management support, including feasibility study analysis, procurement, contract management, and construction supervision.

3. Objectives of the assignment

The objective of the consulting services is to support the Open Joint Stock Company "Shabakahoi intiqoli barq" (SIB) and its Project Implementation Unit (PIU) in the preparation, implementation, and supervision of the REMIT Program, specifically under the following components:

Component 1: Transmission Infrastructure Development Ensure the successful planning, design, procurement, and implementation construction of a new 500 kV single-circuit transmission line between Dushanbe substation and Regar substation. Optimize the feasibility study, strengthen project bankability, and support timely contract award and supervision. To support the implementation of procurement, supervision, commissioning, and warranty period services.

Component 2: Modernization and Extension of Substations Support the planning, design review, modernization, and extension of the 500 kV Dushanbe and Regar substations. Ensure the feasibility, operational efficiency, and reliability of the substations. Assist in procurement, supervision, commissioning, and support during the extended warranty period. Facilitate knowledge transfer, capacity building, and compliance with environmental, social, and labor requirements.

The consulting services under Component 1: Transmission Infrastructure Development and Component 2: Modernization and Extension of Substations shall be carried out in two distinct phases:

Phase 1: Encompasses all activities from the review and optimization of the feasibility study through preparation of bidding documents, support during the procurement process, and assistance up to the award of contracts for the transmission line and substation works. This phase be implemented under a Lump Sum contract. These tasks—Feasibility Assessment and Pre-design, Preparation of Tender Documentation, and Procurement Support—involve well-defined deliverables and outputs that can be clearly specified and priced in advance.

Phase 2: Includes supervision and contract management during construction, commissioning, and project close-out, extending through the final acceptance and the end of the warranty period.

This task involves ongoing, day-to-day support during project implementation, construction supervision, and commissioning—activities whose duration and intensity may vary depending on site conditions, contractor performance, and project progress.

4. Scope of Services

The consulting firm shall provide services under the REMIT Program for **Component 1: Transmission Infrastructure Development** and **Component 2: Modernization and Extension of Substations**:

Phase I A. Component 1: Transmission Infrastructure Development (Construction of a new 500 kV single circuit Transmission line between Dushanbe substation and Regar substation).

a) Under this component, the consulting firm will but not limited to the followings:**Feasibility Study Review and Optimization**

A Feasibility study for REMIT Program was prepared by M/s Monenco in 2025.

i. Conduct a detailed review and comprehensive analysis of the existing feasibility study, evaluating financial, technical, market, operational, and risk aspects;

ii. Provide clear recommendations and optimizations to strengthen the overall project feasibility, bank ability, and implementation robustness;
iii. Review available documentation: as-built drawings, equipment data sheets, single-line diagrams, and previous inspection reports;
iv. Review existing system and operational requirements of the power system;
v. Review civil works requirements and prepare all civil works requirements;
vi. Provide experts opinion on the route of construction 500 kV Transmission Line.

b) Bidding Documents and Procurement Support

i. Prepare detailed bidding documents with rated evaluation criteria in accordance with the World Bank Procurement Regulations;
ii. Ensure the use of the latest World Bank Standard Procurement Documents (SPDs) for all relevant activities;
iii. Provide technical support to the Client during the bidding process;
iv. Provide technical support to the Client during the procurement process and in the preparation of the bid evaluation report.
v. Support the contract award process, including handling complaints and providing clarifications to bidders.

B. Component 2: Modernization and Extension of Substations (Extension of the 500 kV Dushanbe Substation and Modernization of the 500 kV Regar Substation).

Under this component, the consulting firm will but not limited to the followings:

a) Feasibility Study Review and Optimization

i. Conduct a detailed review and comprehensive analysis of the existing feasibility study related to the extension of the Dushanbe Substation and modernization of the Regar Substation;
ii. Evaluate the technical, financial, operational, and risk aspects of the proposed works and recommend clear improvements and optimizations to enhance system reliability, operational efficiency, and project feasibility;
iii. Review existing system and operational requirements of the power system;
iv. Review civil works requirements and prepare all civil works, control buildings, auxiliary buildings, any other related civil works necessary for the substation' requirements;
v. To conduct an assessment of the condition of the existing power equipment at substations and provide recommendations for replacement or repair.

b) Design Review and Technical Specifications

i. Review and update the preliminary and detailed designs, ensuring alignment with international standards (REI, IEC, IEEE) and system requirements;

ii. To prepare or update technical specifications, single-line diagrams, control and protection schemes, and equipment lists (including transformers, circuit breakers, disconnectors, relay protection systems, automation and SCADA systems);

iii. To ensure compatibility and integration with the existing transmission network associated with the substations.

c) Bidding Documents and Procurement Support

- Develop comprehensive bidding documents with rated evaluation criteria, in using the most recent Standard Procurement Documents (SPDs);
- Support the Client during the pre-bidding process, including clarification responses and pre-bid meetings;
- Assist the Client in the preparation of the Bid Evaluation Report, ensuring full compliance with World Bank requirements;
- Support the Client in debriefing, and resolution of any bidder complaints.

Phase II

a) Component 1: Transmission Infrastructure Development (Construction of a new 500 kV single circuit Transmission line between Dushanbe substation and Regar substation).**Contract and Construction Management**

i. Provide procurement support and contract management services throughout project implementation;

ii. Act as the Engineer under FIDIC Conditions of Contract, ensuring technical compliance and quality assurance;

iii. Supervision tasks, quality assurance, safety oversight, and contract administration.

b) Technical supervision and quality control

i. Verification and approval of permits and licenses in accordance with the legislation of the Republic of Tajikistan prior to the commencement of any activities at the facility (ies);

ii. Detailed review of instructions and the work plan (WP) of contractor before starting work;

iii. Approval of designs, analysis, and recording of design solutions for geotechnical works and foundation types depending on soil composition;

iv. Verification of the accuracy of the support location according to the layout, control of the profiling and alignment of the line route;

v. Checking certificates and the quality of materials (metal structures, insulators, wires) before installation;

vi. Monitoring the process of assembling and installing supports, as well as mandatory checking of the grounding device to ensure electrical safety;

vii. Direct observation of the process of tension conductors and lightning protection cables;

viii. Control measurements of sag and tension forces to prevent overload of supports and compliance with dimensions to the ground or to objects located near the line;

ix. Preparation of hidden work reports (especially for foundations and grounding);

x. Continuous monitoring of compliance with occupational health and safety rules when working at height and with lifting mechanisms;

xi. The engineer is required to maintain an engineering log of work at the site, a register of instructions, test and inspection reports, as well as all correspondence with the contractor;

xii. Compiling weekly reports on the progress of work, keeping records of work performed at the facility (ies), and promptly reporting any problems that arise.

c) Environmental and Social Compliance

i. Ensure full compliance with the World Bank's Environmental and Social Framework (ESF);

ii. Monitor and ensure that Works Contractors comply with the local labor requirement

iii. are allocated to local labor for transmission line and substation construction contracts;

iv. To conduct a compliance analysis of the prepared ESIA and ESMP.

d) Capacity Building and Knowledge Transfer

i. The consultant shall strengthen the institutional capacity of SIB and PIU staff through targeted training and knowledge transfer in procurement, contract management, and project supervision.

ii. The consultant shall include in their proposal a training approach and plan, evaluating trained staff, and sharing training materials. The topics that should be covered include High voltage system, Substation and Transmission Line, Operation of the High Voltage Substation and Transmission Line combined and others as the consultant deems fit.

e) Regional Integration and Energy Market Development

- Facilitate activities that promote regional energy trade and integration within the regional electricity market framework.

f) Testing, Commissioning, and Handover

i. Supervise and verify all factory acceptance tests (FAT), site acceptance tests (SAT), and system integration tests;

ii. Oversee energization, commissioning, and final handover, ensuring performance compliance with design parameters and contractual obligations;

iii. Prepare detailed commissioning and operational documentation, including as-built drawings, test reports, and operation manuals.

iv. Provide technical and contract management support throughout the extended warranty period of the facilities to ensure compliance with performance obligations and resolution of any defects.

- **Component 2: Modernization and Extension of Substations** (Extension of the 500 kV Dushanbe Substation and Modernization of the 500 kV Regar Substation).

a) Contract and Construction Management

i. Provide procurement and contract management support during project implementation;

ii. Act as the Engineer under FIDIC Conditions of Contract, as applicable, to supervise construction, installation, and commissioning activities;

iii. Consultant is responsible for formal review and approval of all detailed designs, drawings, and technical submittals, ensuring compliance with project specifications and international standards;

iv. Identify, analyze, and monitor the critical path of substation modernization and extension works to maintain schedule control and timely completion;

v. Verification and approval of certification of payments, evaluation of claims, completed works;

vi. Review approve/reject the variation orders to the contracts;

vii. Develop, review and issuance of Taking-Over and Performance Certificates.

b) Construction supervision

i. Supervise construction site supervision work, ensuring that all work complies with contract terms, drawings, and international standards;

ii. Implement and monitor quality assurance and control procedures, conduct regular inspections, and maintain detailed documentation;

iii. Ensure compliance with health and safety standards, conduct safety inspections, and report incidents;

iv. Prepare weekly progress reports, keep records of work completed on site, and promptly report any issues that arise;

v. Oversee commissioning, verify test results, and participate in final handover of the site;

vi. Monitor compliance with environmental and social standards, report deviations, and maintain communication with the local community;

vii. Provide mentoring to local staff and facilitate knowledge transfer;

viii. Use digital tools for project management and documentation;

c) Technical supervision and quality control

i. Verify and approve permits and licenses in accordance with the legislation of the Republic of Tajikistan before starting any activity at the facility;

ii. Familiarize yourself in detail with the instructions and work plan (WP) for equipment installation. Review test plans before starting work;

iii. Approve designs, analyze and record design solutions for geotechnical works and foundation types depending on soil composition;

iv. Monitoring the installation of switchgear/outdoor switchgear, autotransformers, reactors, current/voltage transformers, and busbars, as well as mandatory inspection of grounding devices to ensure electrical safety;

v. Review of test plans and calculations of protective device settings (RZA) to ensure correct operation of circuit breakers in the event of accidents;

vi. Testing of relay protection and automation (RPA) for operation. Checking of electromagnetic and mechanical interlocks (protection against personnel errors);

vii. Integration of equipment into SCADA (dispatch control), SAS, and RTU (remote terminal unit) systems, as well as debugging of communication channels (telecommunications). Verification of substation control cybersecurity

viii. Verification of certificates and material quality, comparison of nameplates (labels) of all equipment with the specified specifications prior to installation;

ix. Preparation of hidden work reports (especially for foundations and grounding);

x. Checking and controlling the preparation of the equipment commissioning program. Monitoring compliance with the regulations for operational switching during the first start-up and delivery under load;

xi. Continuous monitoring of compliance with occupational health and safety rules when working at height and with lifting mechanisms;

xii. The engineer is required to maintain an engineering log of work at the facility, a register of instructions, test and inspection reports, as well as all correspondence with the contractor;

xiii. Prepare weekly reports on the progress of work, keep records of work performed at the facility, and promptly report any problems that arise.

d) Testing, Commissioning, and Handover

i. Supervise and verify all factory acceptance tests (FAT), site acceptance tests (SAT), and system integration tests;

ii. Supervise the commissioning processes, energization, and final handover of the facilities, ensuring that operational performance meets the design parameters and contractual requirements;

iii. Lead site supervision activities, ensuring all works comply with contract specifications, drawings, and international standards;

iv. To oversee all commissioning activities, verifying test results, and ensuring proper documentation;

v. To participate in final inspections and preparation of punch lists;

vi. Review of FAT/SAT procedures and QA/QC documentation;

vii. Witnessing FAT for GIS, transformers, relays, SCADA and other major equipment;

viii. Approving commissioning checklists;

ix. Supervising energization steps with the system operator;

x. Ensuring as-built drawings match site conditions;

xi. Ensuring O&M manuals and training are delivered;

xii. The Engineer shall prepare a comprehensive Commissioning Report and certify that the systems meet contractual performance guarantees;

xiii. Monitor the preparation and submission by the Contractor of detailed operation and commissioning documentation, including certificates, as-built drawings, test reports, and operation manuals;

xiv. Prepare a detailed commissioning report and confirm that all installed equipment complies with contractual performance guarantees and international standards.

e) Environmental, Social, Health, and Safety (ESHS) Compliance

i. Ensure full compliance with the World Bank Environmental and Social Framework (ESF) and national environmental regulations;

ii. Monitor contractor adherence to ESHS management plans, occupational safety standards, and community engagement commitments;

iii. Appoint a supervising engineer responsible for monitoring the contractor's compliance with ESMP, RAP, and community engagement obligations;

iv. Provide regular reporting on environmental and social performance indicators;

v. Review and approve the contractor's environmental and social management plans (ESMP) for a specific facility prior to the commencement of any work, ensuring compliance with the project's EIA and PSR;

vi. To supervise, monitor, and report on the contractor's implementation of environmental and social risk management plans (C-ESMP), stakeholder engagement plan (SEP), and resettlement action plan (RAP), including labor relations, occupational health and safety, and resolution of complaints from the local population.

f) Capacity Building and Knowledge Transfer

i. Strengthen the capacity of SIB and PIU staff through hands-on training in substation design review, testing, commissioning, control of equipment and asset management;

ii. Develop training modules and operation manuals to ensure effective knowledge transfer and long-term sustainability of operations;

iii. Supervision Engineer to mentor local staff and facilitate on-the-job training in supervision, QA/QC, and safety

g) System Integration and Regional Connectivity

i. Ensure that the upgraded substations are fully integrated with the national grid and support regional power trade objectives under the REMIT Program;

ii. Provide recommendations for digitalization, automation, and future scalability (e.g., SCADA upgrades, protection coordination, cyber-security);

iii. Provide technical and contract management support throughout the extended warranty period of the facilities to ensure compliance with performance obligations and resolution of any defects.

5. Duration of Assignment

The assignment period is 48 months divided into: 12 months For the Phase 1 and 36 months for the Phase 2.

6. Implementation Arrangements

The Consultant’s team will include in the technical approach an methodology proposed arrangements in each phase.

The Consultant’s team shall provide organizing of project progress presentations and reports, arrange for regional coordination meetings, as well as prepare and oversee the implementation of minutes of meetings of project control’s on implementation.

C. Facilities

The Client will be responsible for providing adequate office space for the Consultant in Dushanbe Client's premises.

All available Project information (including copies of all critical documentation such as; the Financing Documents, Resettlement Action Plan, the Environmental and Social Analysis and Audit report, Stakeholder Engagement Plan and Environmental and Social Action Plan and other relevant documents will be made available for the Consultant by the Client.

D. Costs of executing the assignment

The Consultant will be responsible for all costs that will be incurred in undertaking the Assignment, including, but not limited to, office facilities, communication, internet connections, transportation costs, accommodation, translation services etc., all in accordance with the agreed budget. The Consultant will supply

(a) the necessary computer hardware, which should include the licensed software registered in the name of the Client, as well as

(b) other necessary office equipment and furniture, required to deliver the services.

All computer and office equipment shall be transferred by the Consultant to the Client upon contract completion, as evidenced by the corresponding handover certificate.

The Consultant will provide residential accommodation and local and international transportation for its staff. The Consultant will also be responsible for all salaries, fees, allowances, insurance, leave pay and taxes for the staff involved in the assignment.

7. Reporting & Deliverables

The Consultant will report to the SIB PIU on all aspects of the Assignment. The Consultant will also liaise with the Bank's team to ensure that the WB is regularly updated on the progress of the Assignment and status of Project implementation.

The Consultant will provide deliverables addressing in detail all tasks as specified in Section 3: Scope of Work. Unless otherwise agreed, all deliverables and documents will be in English and Russian languages and submitted both in hard copy and electronically.

The Consultant shall use digital project management and reporting tools (e.g., MS Project, Primavera, QA/QC software) to ensure all documentation is maintained electronically and is accessible to the PIU and stakeholders.

All reports shall include geotagged photos, GIS layers (for TL), inspection records, NCRs, and test results. A period of two weeks shall be allowed for the review and approval. The Consultant will report to the PIU SIB and provide the following deliverable:

Table 1 “List of deliverables and delivery schedule”

Report	**Date**	**No. of Copies English**	**No. of Copies Russian**	**E-version**
Phase 1				
Inception Report	1 month after contract effectiveness	2	3	1
Feasibility Study Review and Optimization for Construction of a new 500 kV single circuit Transmission line between Dushanbe and Regar cities	2 months after contract effectiveness	2	3	1
Feasibility Study Review and Optimization for Extension of the 500 kV Dushanbe Substation and Modernization of the 500 kV Regar Substation	2 months after contract effectiveness	2	3	1
Preliminary Design for Construction of a new 500 kV single circuit Transmission line between Dushanbe and Regar cities and for Extension of the 500 kV Dushanbe Substation and Modernization of the 500 kV Regar Substation	2 months after contract effectiveness	2	3	1

Bidding Documents for Construction of a new 500 kV single circuit Transmission line between Dushanbe and Regar cities and Extension of the 500 kV Dushanbe Substation and Modernization of the 500 kV Regar Substation	4 months after contract effectiveness	2	3	1
Assist SIB in evaluation and prepare Technical Bid Evaluation Reports for Construction of a new 500 kV single circuit Transmission line between Dushanbe and Regar cities and Extension of the 500 kV Dushanbe Substation and Modernization of the 500 kV Regar Substation	Within 4–7 weeks after the opening of the technical bids.	2	3	1
Combined Bid Evaluation Reports for Construction of a new 500 kV single circuit Transmission line between Dushanbe and Regar cities and Extension of the 500 kV Dushanbe Substation and Modernization of the 500 kV Regar Substation	2 weeks after financial bids opening	2	3	1

Participate in Pre contract award discussions between SIB PIU and the Most Advantageous Bidder for Construction of a new 500 kV single circuit Transmission line between Dushanbe and Regar cities and Extension of the 500 kV Dushanbe Substation and Modernization of the 500 kV Regar Substation and prepare minutes for SIB PIU review and processing	2 weeks after receiving "no objection" from the Bank to the Combined Bid Evaluation Reports	2	3	1
Prepare Draft Contracts for Construction of a new 500 kV single circuit Transmission line between Dushanbe and Regar cities and Extension of the 500 kV Dushanbe Substation and Modernization of the 500 kV Regar Substation incorporating positions agreed during pre-contract award discussions.	1 week after pre-contract award discussions	2	3	1
Phase 2				
Daily site records by Resident Engineers; Weekly progress summaries submitted to Client by email	Every end of the week	2	3	1
Monthly Progress Report	Within 7 working days of end of a	2	3	1

	reporting period			
Project Covenant/indicator's Progress Report	Quarterly	2	3	1
Monthly Environmental and Social Report	Monthly	2	3	1
Draft Project Completion	After 4 weeks of Project Completion	2	3	1
Review of Operational manuals	1 month before acceptance	2	1	1, Pdf
Review of As built drawings (location of all new & rehabilitated assets)	1 month before acceptance	2	1	CAD (all drawings); ArcViewGIS
Project Completion	Within 4 weeks of receiving the Client's comments	2	3	1

All reports, deliverables, and communications shall acknowledge the support of the World Bank. The Consultant shall support SIB in ensuring donor visibility through appropriate use of logos, references in project communications, and invitations to key project events.

1.1. Contents of the Reports

The consultant shall hand over all data collected during the course of the assignment to the client in formats approved by the client. Furthermore, all calculation sheets must be made available to the client at the end of the project and, on request, at any stage of the project.

1.1.1. Design Review Phase

1. **Inception Report**

The report shall outline the Consultant's mobilization, the work plan, strategy, mobilization schedule, staffing plan, project understanding and methodology, a quality assurance plan, risk management plan and timetable for the services. The quality assurance plan shall include the following (i) A quality policy statement setting out the objectives of the plan, a costed work plan for implementation of activities, and (ii) The personnel who will implement the work plan including their qualifications, roles and responsibilities and authority.

2. **Feasibility Study Review and Optimization**

   Detailed description and comprehensive analysis (based on agreed criteria) of the Feasibility Study Review and Optimization for Construction of a new 500 kV single circuit Transmission line between Dushanbe and Regar cities and the Feasibility Study Review and Optimization for Extension of the 500 kV Dushanbe Substation and Modernization of the 500 kV Regar Substation (iv) Environment and social assessments as indicated in task description for tasks 1&2.

3. **Draft Preliminary Design Report**

   This report shall include but not limited to;

4. **Final Preliminary Design Report**

   The final preliminary design report shall be prepared with amendments arising from client's comments on the draft design review report.

5. **Tender document.**

   The tender documentation package shall be prepared as an output from activities under the draft design review report.

1.1.2. Construction Phase

During the construction phase, the consultant shall submit reports as stated in **Table 1** The reports shall, as a minimum, meet the following requirements:

1. **Monthly Construction Progress Reports**

- The monthly and quarterly progress reports shall state the status of project implementation (i.e. actual vs. planned physical progress; actual vs. planned expenditures), E&S compliance, risks and mitigation, actual staffing levels and deployment of equipment by the contractor against planned, claims status, financial information (payments & financial progress), updated risk register, all

agreed and all new variation and compensation events, all issues requiring client attention, health and safety information, and other information that may have an impact on project progress. The report shall include a Gantt chart and should include photographic evidence of progress. In addition, the report should project cash flows and work progress over the next three months. Deployment of the Consultant's Key experts and non-key experts at Construction Stage will be cleared by the Client depending on the projected Contractor's work programme. The Consultant shall accordingly update its staff deployment plan on a monthly basis. Any additional needs of staff that may arise during the month will be subject to clearance by the Client.

2. **Substantial Project Completion Report**

The substantial completion report shall state the project scope, principal activities by the consultant and the contractor (including deployment of resources during project implementation), the contractor's performance, all project relevant observations of the consultant, Summary of execution, lessons learned, final costs, and recommendations for operation and maintenance. major issues that were encountered during project implementation and how these were solved, the project schedule citing all delays if any, and financial information. Most important, the substantial completion report shall include a list with all snags to be addressed during the defects liability period, if any, and propose a time schedule for addressing the issues that have been identified. Recommendations shall be made to the Client on how to improve service provision. The substantial completion report shall also include a presentation on the report to be made by the consultant to the Client.

1.1.3. Defects Notification/. Phase

During the defects liability phase, the consultant shall submit reports as stated in **Table 1** The reports shall, as a minimum, meet the following requirements:

1. **Interim/Quarterly Reports**

   The interim progress report shall state progress of the contractor on addressing items on the snag list, all observations on the performance of the project installations, system weaknesses and defects, and warranty issues. In addition, the report shall report the consultant's and / or the contractor's progress on the undertaking of staff training.
2. **Operational Manuals**

   The consultant shall ensure that suppliers / manufacturers / the contractor submit all operational manuals to the client in the formats and numbers of copies specified in **Table 1 "List of deliverables"**
   As Built Drawings
   The supervision consultant shall submit all 'as built drawings' to the client in the format and numbers of copies specified in **Table 1.**
3. **Asset Register Update**

The supervision consultant shall collect data on all rehabilitated and new assets to update the client's asset register. The software used for this purpose shall be agreed with the client. Data on the location of all civil structures shall be handed to the client in ArcView GIS, or a format agreeable to the client.

4. **Completion of Training Report**

   The completion of training report shall state the training obligations of the consultant and the contractor, as agreed with the client, the type and duration of training activities undertaken, the number of participants in each training and their professional background, training outputs and achievements, as well as recommendations for further / continued training if any.

5. **Final Completion Report**

   The final completion report shall include the same type of information as outlined for the 'substantial completion report'. In addition, it shall show the status of all outstanding actions that were to be completed during the defects liability period.

8. Qualification requirements and selection criteria

The Consulting Firm shall be a legally established international consulting entity with demonstrated experience and capability in the power and energy sector. The firm must meet the following minimum qualification criteria:

The firm shall have a minimum of ten (10) years of proven experience in the power and energy sector involving transmission and substation systems of voltage level 400 kV and/or above, including 500 kV systems, under projects financed by International Financial Institutions (IFIs) such as the Asian Development Bank (ADB), World Bank (WB), or European Bank for Reconstruction and Development (EBRD).

The firm shall have successfully completed similar assignments with a voltage level of 400 kV and/or above as followings:

The firm shall demonstrate expertise and successful implementation of assignments in the following areas:

i. Transmission Line Systems:

At least one (1) completed project involving the design, construction, or supervision of a transmission line system with a voltage level of 400 kV and/or above.

ii. Substation Projects:

At least one (1) completed project involving the construction or supervision of a substation similar in nature and complexity to the proposed assignment, with a voltage level of not less than 400 kV.

iii. High-Voltage Project Management and Construction Supervision (FIDIC)

Experience in at least one (1) high-voltage (≥400 kV) transmission line or substation project involving contract administration and site supervision under FIDIC Red and Yellow Book conditions.

iv. The Consulting Firm shall propose a qualified team of experts with relevant technical and managerial experience in power transmission and substation projects of 400 kV and/or above. The team shall collectively demonstrate strong expertise in project management, design review, construction supervision, and contract administration under FIDIC conditions.

v. Proven experience with Environmental and Social Impact Assessment (ESIA), Environmental and Social Management Plans (ESMPs), and Resettlement Action Plans (RAPs) in compliance with international safeguard policies (e.g., World Bank, ADB, or other multilateral development banks) and familiarity with occupational health and safety (OHS) standards, community health and safety, and labor management procedures for large infrastructure projects.

vi. Established Quality Assurance / Quality Control (QA/QC) systems for engineering design and construction supervision, experience in project scheduling, cost control, and risk management using recognized software tools (e.g., Primavera, MS Project) and capability to implement progress monitoring and reporting systems aligned with FIDIC supervision requirements.

vii. 500 kV transmission system design and studies, including load flow, stability, and protection coordination and geotechnical and topographical surveys, including mountainous or seismic terrain

viii. To prepare or update technical specifications, single-line diagrams, control and protection schemes, and equipment lists (including transformers, circuit breakers, disconnectors, relay protection systems, automation and SCADA systems);

9. Qualification Requirements of Key Staff

Within the technical proposal, the consultant shall elaborate on the envisaged logistical setup and deployment of appropriate skills for execution of the assignment. The consultant shall present the staffing schedule in a manner that clearly shows the stage and duration where each of the proposed team members is planned to be involved in the project.

An organogram reflecting the responsibilities of each staff member and line management setup of the proposed team shall be part of the proposal. It is recommended that the consultant integrates local expertise into the project execution team.

All key experts proposed by the Consulting Firm shall have strong proficiency in the English language, both written and spoken, to ensure effective communication, reporting,

and coordination with the Client and International Financial Institutions. The Consultant should add to the team other technical, non-technical and administrative staff to ensure successful execution of the assignment.

Proficiency in Russian and/or Tajik languages shall be considered a distinct advantage.

1. Project Manager -Transmission Line Engineer with a University degree of at least B.S. in Electrical Engineer, Civil Engineer (a Master degree would be an advantage). Minimum 15 years of professional general experience in the power energy sector. At least 10 years of specific experience in design, construction, and/or supervision of high-voltage transmission line projects (≥400 kV). Proven experience as Team Leader / Project Manager for at least two (2) large-scale transmission/substation projects financed by International Financial Institutions (ADB, World Bank, EBRD, etc.) within last 10 years. Demonstrated familiarity with FIDIC Red and Yellow Book contract administration and site supervision. Previous experience in Central Asia or similar comparable regions will be an advantage. Fluency in English and Russian (or Tajik language) both written and spoken is mandatory.

2. Deputy Project Manager - Substation Engineer with at least a B.Sc. degree in a relevant discipline (a Master degree would be an advantage). Minimum 10 years' experience in power energy sector. Minimum 8 years of specific experience in planning and implementation of substation projects, with regard at 500/220/35 kV substations or higher, including new construction, rehabilitation of existing substations and all related equipment; Fluency in English, both written and spoken is mandatory; Fluency in Russian or Tajik, both written and spoken would be an advantage. Participation in at least of 2 IFI financed projects with similar complexity in Central Asia or comparable region.

3. Procurement Expert - At least a B.Sc. degree in an engineering, international studies, economics or law (a Master's degree would be an advantage); Fluency in English and Russian (or Tajik language) both written and spoken is mandatory. 10 years general professional experience in IFI procurement with proven experience as procurement advisor or as procurement manager. Experience in procurement of power sector projects to be demonstrated by at least 2 (two) contracts (especially electricity transmission and substation would be an advantage); Theoretical and practical knowledge and experience of IFI (especially WB, ADB and/or EBRD) procurement rules; Theoretical and practical knowledge and experience of FIDIC conditions of contract demonstrated by experience in the successful completion of at least 2 (two) FIDIC-based contracts (Red, Yellow, Silver or Gold books edition 1999 or later); Experience in applying e-Procurement Platform (in any shape) would be an advantage; Regional (Central Asia) experience would be an advantage.

4. Expert in high voltage network and equipment installation and maintenance - At least a B.Sc. degree in electrical engineering or similar (a Master degree would be an advantage); Fluency in English and Russian (or Tajik language) both written and spoken is mandatory. Minimum 10 years of general experience related to design, construction and operation of power networks 400 kV (and above) in power energy sector; Minimum 5 years of experience with implementation of projects for construction

and rehabilitation and commissioning of 400 kV (and above) substations transmission lines; Regional (Central Asia) experience would be an advantage.

5. Design Engineer - At least a B.Sc. degree in relevant a field related to power facilities design (a Master degree would be an advantage); Fluency in Russian or Tajik, both written and spoken would be an advantage. Minimum 10 years professional experience related to designing of 500kV substations and OHLs in power sector; Minimum 5 years of specific experience with designing of 500kV substations and OHLs; Regional (Central Asia and CIS) experience would be an advantage.

6. Relay protection, Control and SCADA engineer - At least University degree in Electrical or Power Engineering (Master's degree preferred). Specialization or certification in protection and control systems or SCADA/automation is desirable. Minimum 10 years of professional experience in the design, testing, commissioning, and/or supervision of relay protection, control, and SCADA systems for high-voltage substations and transmission networks (≥500 kV) in power energy sector.

Experience in at least two (2) large-scale transmission or substation projects. Proven expertise in protection coordination studies, control logic design, communication protocols (IEC 61850, IEC 60870-5, DNP3), and integration of protection and SCADA systems with the national grid. Familiarity with substation automation systems, remote terminal units (RTUs), and digital control systems (DCS). Strong knowledge of international standards (IEC, IEEE) and manufacturer testing practices. Fluency in English, Russian and/or Tajik (oral and written) is an advantage.

7. Civil Engineer - At least a B.Sc. degree in civil engineering or similar in relevant discipline) (a Master degree would be an advantage); Fluency in English and Russian (or Tajik language) both written and spoken is mandatory; Minimum 15 years of general experience in construction sector; At least 10 years' experience in construction of energy facilities including rehabilitation or construction of 500/220kV (or higher) substations; Participation in at least one project in CIS region experience within last 5 years.

8. Environmental & Social Specialist - At least a B.Sc. degree in relevant discipline (e.g. biology, environment etc) (a Master degree would be an advantage); Fluency in English and Russian (or Tajik language) both written and spoken is mandatory; Minimum 10 years' experience in environmental and social studies, impact assessment and implementation of mitigation measures during construction on similar projects; Specific experience in environmental requirements according to local law to be demonstrated by successful completion of at least 2 (two) projects carried out according to local law. Practical knowledge and understanding of WB's environmental and social requirements and past experience of assistance in their successful implementation. Experience of working as Gender Specialist would be considered an advantage.

9. Occupational Health and Safety Specialist - At least a B.Sc. degree in a relevant discipline (a Master degree would be an advantage) or internationally recognised safety qualification (Diploma or equivalent) Fluency in English and Russian (or Tajik

language) both written and spoken is mandatory. Minimum 10 years professional experience related to safety management during construction. At least 10 years' experience with safety management on projects involving medium or high voltage electrical infrastructure, including rehabilitation of existing projects and working in the vicinity of live electrical equipment; At least 5 (five) years of regional experience;

10. Quality Assurance / Quality Control Specialist - At least with a University degree in Civil, Electrical, Mechanical, or Power Engineering. Certification in Quality Management (e.g., ISO 9001 Lead Auditor) is desirable. Minimum 10 years of professional experience in QA/QC for large-scale power transmission and substation projects (≥500 kV). At least 8 years of experience in construction supervision, material inspection, testing, and commissioning of transmission lines, substations, and related infrastructure. Familiarity with construction codes, international standards (IEC, IEEE), and best practices in electrical and civil works for high-voltage infrastructure. Strong knowledge of project management, risk management, and reporting tools (e.g., Primavera, MS Project, or QA/QC software). Fluency in English or Russian and/or Tajik (oral and written) is mandatory.

11. Site Supervision Coordinator-At least a B.Sc. degree in relevant an engineering discipline electrical engineer, construction engineer (a Master degree would be an advantage); Fluency in English and Russian (or Tajik language) both written and spoken is mandatory. Minimum 10 years of general experience in power energy sector; 5 years of specific experience in site supervision and commissioning of power sector projects; Experience in construction and rehabilitation of 500kV substations or similar including transmission lines.

12. OHL Engineer -At least with a University degree in Electrical or Power Engineering. Minimum 8 years of experience in high-voltage transmission line design, construction, and supervision (≥400 kV) in power energy sector. Relevant experience in towers, foundations, conductor installation, sag-tension calculations, and line routing. Previous involvement in IFI-funded projects preferred. Russian/Tajik is mandatory. English is preferred.

13. Substation Engineer - At least with a University degree in Electrical or Power Engineering. Minimum 8 years in substation design, construction supervision, and commissioning (≥400 kV, preferably 500 kV) in power energy sector. Relevant experience with busbar configuration, equipment installation, protection and control systems, and SCADA integration. IFI project experience is preferred. Russian/Tajik is mandatory. English is preferred.

14. Health and safety specialist-At least with a University degree in Occupational Health and Safety, Environmental Engineering, or related field. Minimum 5–8 years of experience in construction safety management, preferably in high-voltage transmission or substation projects (≥400 kV). Relevant experience in IFI-funded projects and compliance with OHS, EHS, and IFC/ADB standards. Russian/Tajik is mandatory. English is preferred.

15. Telecommunication Engineer - At least with a University degree B.S. telecommunications, computer science, information technology, electronic engineering, physics, or another technical subject strong technical skills in network protocols and wireless technologies. Minimum 5–8 years in telecommunications and strong knowledge of protocols such as TCP/IP, MPLS, BGP, and VoIP is crucial. Relevant expertise in wireless technologies like 5G, LTE, and Wi-Fi in high-voltage transmission or substation projects (≥400 kV). Familiarity with optical systems like DWDM and SDH/SONET is important for many roles. Experience with network monitoring tools and performance optimization techniques is required. Russian/Tajik is mandatory. English is preferred.

Proposed man months for the supervision period of the contract

#	**Positions**	**man months**
1	Project Manager / Team Leader	14
2	Deputy PM / Senior Substation Engineer	9
3	Procurement Expert	7
4	Expert in high voltage network and equipment installation and maintenance	5
5	Design Engineer	4
6	Relay protection, Control and SCADA engineer	6
7	Civil Engineer	5
8	Environmental & Social Specialist	4
9	Occupational Health and Safety Specialist	5
10	Quality Assurance / Quality Control Specialist	6
11	Site Supervision Coordinator	28

12	OHL Engineer	24
13	Substation Engineer	24
14	Health and safety specialist	12
15	Telecommunication Engineer	12
	Total	**165**

Quality Management

The Consultant shall also provide the necessary level of quality assurance and control of the work. The Consultant will be required to demonstrate in their proposal, evidence of adoption of use of a Quality Assurance System (ISO 9001 or equivalent) as well as to describe how quality control will be implemented in the course of the project.

Annex 1 Monthly Progress Report

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