Terms of reference

for the development of technical specifications, feasibility study and bidding documents for the implementation of the management information system (Enterprise Resource Planning System) in «NATIONAL ELECTRIC NETWORKS OF UZBEKISTAN» JSC

A. Background

1. **Country context.** Beginning in 2017, the Government has embarked on a series of ambitious structural reforms that seek to transition from a relatively closed command economy to a market-oriented one. In February of 2017 the Government approved a five-year Development Strategy for 2017-2021. At the core of the Strategy is a broad market-oriented reform policy. The Strategy is guided by an annual state program that is approved every year. The Strategy covers five priority areas: (i) enhancing the state and public institutions; (ii) securing the rule of law and reform of the judicial system; (iii) promoting economic development and liberalization; (iv) fostering the development of the social sphere; and (v) promoting security, inter-ethnic and religious tolerance, and constructive foreign policy.

2. **Energy sector context.** The energy sector is a major contributor to the country's GDP (it accounted for about 20 percent of the total production output and 6 percent of GDP in 2017), one of the large revenue generators (energy exports—predominantly natural gas—accounted for 21 percent of total commodity exports in 2017), a major supporter of capital investments (close to 50 percent of total capital investments in 2016), and among the largest job providers (the sector employs about 170,000 people).

3. The electricity sector was managed mainly by the vertically integrated Uzbekenergo (UE) (see Paragraph 7 for the recent UE unbundling). The majority of the generation, transmission, and distribution assets were owned and operated by subsidiaries of UE. Electricity was generated by seven thermal power plants and three combined heat and power plants. Unitary enterprise Energosotish was the single buyer and supplier of electricity in the country. Uzelectroset was the system operator providing dispatch, transmission, and network services, and included seven regional high-voltage (HV) transmission network affiliate operators. Electricity was distributed to end-users by 14 regional electricity distribution companies.

4. **Recent sector reforms.** The Government recognizes that reliable electricity supply is necessary for sustainable economic growth and development. Therefore, the Government is moving ahead with ambitious reforms that seek to introduce competitive market principles in sector management and operations. Several recently undertaken critical reviews have identified the following key objectives for sector reform: (i) improving service delivery and reliability; (ii) leveraging private investment financing in energy generation and distribution; (iii) enhancing the financial viability of the sector; (iv) improving transparency and accountability of sector entities; and (v) unbundling sector SOEs as an initial step towards the adoption of market-based model for the energy sector in the future.

5. With the support of the World Bank (WB), the Government has been undertaking major reforms in the power sector. Sector oversight functions have been consolidated under the Ministry of Energy (MoE) that was established in February 2019. A subsequent decision was made in March 2019 to unbundle UE into separate Generation ("Thermal Power Plants" JSC),

Transmission ("National Electric Networks of Uzbekistan" JSC / NES), and Distribution ("Regional Distribution Network" JSC) companies.

6. The role of transmission company (National Power Networks of Uzbekistan, JSC / NES). According to Resolution of the President dated March 27, 2019 No.RP-4249, the transmission company is entrusted with the following key functions:

- transmission system operation and development;
- transmission of electricity within the country;
- regional connectivity and electricity trade (export and import);
- dispatch management of the power system;
- single buyer of electricity from generation companies, including independent power producers, as well as the sale of electricity to distribution companies.

B. Objectives

The main goal of the Consultant's work is the development of a design for the introduction of a Management Information System -Enterprise Resource Planning (MIS-ERP) of the Customer and the supervision of the progress of the modernization of MIS. Including:

- system design project (architecture, MIS infrastructure).
- assessment of the required amount of modernization to ensure the recommended architecture of the system and MIS infrastructure.
- development of system requirements, technical conditions for purchased equipment, which are subsequently sold through the next stage of procurement, for which procurement documentation should be prepared.

In order to improve corporate governance and company performance, it is necessary to conduct a thorough diagnosis of existing information technologies, develop a clear IT development strategy and make investments in upgrading MIS. The development of the MIS should be carried out in accordance with the regulations approved by the Ministry for the Development of Information Technologies and Communications of the Republic of Uzbekistan, as well as with the Comprehensive Program for Digitalization of the Electric Power Industry of Uzbekistan (approved on May 30, 2019).

Customer MIS should be a complete ERP system that meets the MRP standard. In particular, it should include:

- Integrated computerized system for monitoring electricity generation and its efficiency .;
- Integrated accounting system that is uniform for all subsidiaries and meets the requirements of IFRS;
- Automated register of fixed assets of the Customer's group of companies (asset analysis system);
- Monitoring system for international and local commercial transactions;
- An integrated system that allows you to collect and monitor information for reporting on key performance indicators.

In the course of discussing the results of the Consultant's work, additional proposals may be put forward.

C. Scope of work

Task 1: IT Diagnostics and IT strategy;

Task 2: analyze the state of the MIS, analyze gaps and make recommendations;

Task 3: designing the MIS and developing specifications;

Task 4: Contract management and supervision of the modernization of the MIS, building capacity to work with the MIS.

TASK 1: Diagnostics of IT processes and development of IT strategy

The consultant should conduct a high-level review and analysis of all IT processes in order to identify discrepancies between what is operated in the company and what is considered the best international practice. Subject to analysis:

- physical infrastructure;
- application infrastructure;
- information security issue;
- business processes of IT support, acquisition, development, and IT implementation planning;
- IT development strategy.
- compliance with national regulations and standards related to IT development.

Based on the results of the analysis and on the results of consultations with the Customer's employees and management, the Consultant must:

- identify and select critical processes that require priority re-engineering and modernization, which can bring tangible benefits to the Customer and reduce the company's risks.
- conduct in-depth diagnostics of these areas and identify detailed measures to improve processes or create new processes and management information systems that eliminate existing deficiencies.
- recommend a plan for implementing IT development measures aimed at eliminating deficiencies in the company's management processes. The implementation plan should contain: a detailed work plan, budget and schedule, training activities, documentation of procedures, and, if necessary, updating of systems.

The result of Task 1 will be: an improved strategy for the development of the Customer's ICT, which provides a specific plan (Roadmap) for its implementation, indicating the priority and future stages.

Task 2: analyze the state of the MIS, analyze gaps and make recommendations for MIS design;

The Consultant must:

- Examine the "finished" software products of world and national developers for suitability for use by the Customer;
- Review existing and projected (based on available project documentation) automated management information systems and current reporting processes to management across the Customer's group of companies, among others including reporting on:
 - parameters of main power transmission networks;
 - network performance indicators;
 - the degree of satisfaction of customers;
 - as well as corporate functions such as finance, accounting, investment, human resources, and risk management.
- Identify gaps in the management system of «NATIONAL ELECTRIC NETWORKS OF UZBEKISTAN» JSC identify problem areas when integrating the MIS with individual systems.

- Conduct a review of all functional business processes of the ERP system in order to identify gaps between what IS available in JSC «NATIONAL ELECTRIC NETWORKS OF UZBEKISTAN» JSC and what is considered best practice.
- Also consider the problems of integration with other external systems (ASKUE, SCADA, etc. the list can be supplemented based on the recommendation of the consultant).
- Identify management information systems, reports, and reporting processes that are (a) available and performing satisfactorily; (b) available but flawed; and (C) not available at all;
- Prioritize identified gaps and indicate which of the shortcomings are critical and need to be addressed as a priority, and include recommendations;
- The draft report on the results of the analysis of shortcomings should be ready for discussion with the management of «NATIONAL ELECTRIC NETWORKS OF UZBEKISTAN» JSC and under the supervision of the World Bank within 1 month after the start of Task #1.
- Conduct workshops with senior management as well as operational managers responsible for receiving and transmitting electricity to ensure that the draft report accurately reflects actual reporting practices.
- Finalize the report on the analysis of shortcomings, taking into account the feedback received during consultations and seminars with the participation of the management of «NATIONAL ELECTRIC NETWORKS OF UZBEKISTAN» JSC The report should list the shortcomings to be eliminated, indicating the order of priority of implementation, agreed with the management of «NATIONAL ELECTRIC NETWORKS OF UZBEKISTAN» JSC and the World Bank, as well as approximate implementation dates and costs for implementation.
- study the" ready-made " software products of world and national developers for acceptability of use by the Customer;
- Recommend a plan for implementing measures to re-engineer the management system, aimed at eliminating gaps or weaknesses in the processes of «NATIONAL ELECTRIC NETWORKS OF UZBEKISTAN» JSC in terms of maximum compliance with the international level. The implementation plan should include a detailed work plan, budget and schedule, training activities, documentation of procedures, and, if necessary, updating of systems.
- The draft report on the implementation plan for the development of MIS should be prepared within 2 months after the start of work and submitted for discussion to the management of «NATIONAL ELECTRIC NETWORKS OF UZBEKISTAN» JSC and the World Bank.
- Conduct seminars for senior management to review the results of the tasks described above, and finalize the report on the implementation plan for it development, taking into account the results of discussions with «NATIONAL ELECTRIC NETWORKS OF UZBEKISTAN» JSC and the World Bank, and obtain Customer Approval for the developed plan.
- Manage the implementation process and monitor the implementation of the agreed plan.

The result of Task 2 will be: Recommendations, TORs, for creating a modern customer MIS as an ERP system that meets the MRP standard and meets the principle of scaling in the development of the Customer's ICT system. The implementation of these recommendations should be included in the contract for the ERP implementation project.

Task 3: Preparation of Feasibility Study and Procurement Support to the NES;

The Consultant shall develop documents Feasibility Study (FS) and Procurement Documents for Development of the MIS-ERP (PDs) as follows:

- Prepare Feasibility Study in accordance with Uzbekistan local regulations (Resolution of the President of Republic of Uzbekistan dated July 16, 2018, No.RP-3857) which shall include:
 - Technical analysis;
 - Preliminary design;
 - Cost estimate; and
 - Economic and financial assessment.
- Develop the Project Procurement Strategy for Development (PPSD) and prepare Procurement Documents for Development of MIS-ERP in compliance with the set of Procurement Documents - PD) in compliance with the World Bank Procurement Regulations for IPR Borrowers, dated July 2016 and revised in 2017 and 2018.. The Documents shall be cleared by the Bank. Also the consultant shall support the NES(Customer) to
 - based on the TORs developed prepare Procurement Documents to contract a Bidder to carry out works on the modernization of the MIS;
 - assist the Customer in conducting the tender, to prepare responses to requests for clarification, if any, from the bidders, and organizing the opening of proposals and preparing the bid-opening Protocol;
 - evaluate proposals and prepare bids evaluation report (BER) for approval by the Borrower, as well as for clearance by the World Bank;
 - assist the Customer in negotiating and concluding a contract with the winning bidder after awarding the contract;

The result of Task 3 will be: Preparation of Feasibility Study and development of Bidding Documents (technical and functional specifications and others) .

The following documents and studies, among others, shall be made available for the consultant to analyse and incorporate where appropriate:

- draft terms of reference for the introduction of ERP in "Uzbekenergo" JSC.
- draft Feasibility Study for the introduction of ERP in "Uzbekenergo" JSC.
- draft bidding documents for the introduction of ERP in "Uzbekenergo" JSC.

Task 4: Contract management and supervision of the modernization of the MIS, building capacity to work with the MIS.

The Consultant must:

- prepare an implementation plan for the modernization of the MIS, including a detailed work plan, budget and schedule, a plan for training personnel, documenting procedures and, if necessary, upgrading systems, including the ICT infrastructure;
- act as a project Manager and primary coordinator of relationships with the contractor performing the MIS upgrade, and resolve issues related to notifications, instructions, orders, certification, obtaining permits, and other types of interaction in accordance with the MIS upgrade contract in matters of supervision and management of the MIS upgrade contract on behalf of the Customer;
- to ensure the implementation of the project in accordance with schedule and within budget on a regular basis reporting to the Customer about any changes;
- ensure that all updates, systems and infrastructure are fully tested (if necessary, in parallel with existing systems, until the official acceptance by the user is carried out) in accordance with the test procedures adopted as a standard in this industry;

- assist in the process of checking the contractor's work and issuing certificates for making payments to the contractor;
- to prepare periodical reports about the progress of the work;
- ensure that the Customer's management and employees are fully trained to use the new systems and infrastructure.
- prepare operating instructions and other necessary documentation for procedures.
- provide additional services within the working hours requested by the Customer within the framework of this Contract.

The result of Task 4 will be: a design of modern MIS of the Customer, that meets international standards, which will dramatically increase the efficiency of power system management and improve its performance indicators.

Institutional capacity building for the modernization of the MIS.

The consultant must ensure that the management and employees of JSC «NATIONAL ELECTRIC NETWORKS OF UZBEKISTAN» are fully trained in the use of new systems and infrastructure using the distance learning system. The consultant must also prepare operating instructions and other necessary documentation for the procedures.

D. Qualifications

Experts (key and non-key)

Experts must have proven experience in conducting diagnostics and implementing an MIS (ERP) system, as well as in developing and implementing management information systems for the electric power industry that cover all functions.

Experience in the Central Asian region or other developing countries, as well as knowledge of the Russian language is highly encouraged. Previous experience in projects funded by international financial institutions, including the World Bank, will be an advantage.

For all positions of national experts, knowledge of the Russian language is mandatory.

Key experts (international consultants)

For all positions of international consultants, it is desirable to have knowledge of Russian and English.

<u>MIS expert (project Manager)</u>. A qualified it or MIS (ERP) engineer with a bachelor's degree or higher in the relevant Sciences or equivalent qualifications, preferably with 5 years of experience in leading project teams and 10 years of experience in designing and implementing MIS for large corporate clients (with more than 1000 employees). An MIS expert should preferably have experience working with energy companies. Previous experience in the Central Asian region or other developing countries, as well as knowledge of the Russian language are highly desirable. Experience in projects funded by international financial institutions, including MDB will be an advantage.

The MIS expert / project Manager will be responsible for the following:

- (i) Coordination with other team members to ensure effective and successful completion of tasks assigned under the contract;
- (ii) Coordination of actions with JSC «NATIONAL ELECTRIC NETWORKS OF UZBEKISTAN» as a contact person, as well as provision of additional services within reasonable limits requested with JSC «NATIONAL ELECTRIC

NETWORKS OF UZBEKISTAN» in order to fulfill the contract for the modernization of the MIS;

- (iii) Coordination with other capacity building consultants;
- (iv) Review and ensure the proper quality and timeliness of all reports;
- (v) Review of design solutions and technical specifications of the MIS prepared by other team members;
- (vi) Supervision and assistance to the procurement expert and representatives with JSC «NATIONAL ELECTRIC NETWORKS OF UZBEKISTAN» in the preparation of tender documentation, especially, in terms of technical issues, evaluation of proposals and preparation of the evaluation report, conducting contract negotiations;
- (vii) Supervision and monitoring of the implementation of the MIS modernization project;
- (viii) Review and confirm the detailed technical solution proposed by the contractor for upgrading the MIS, as well as ensuring that the contractor's projects and works meet the requirements set out in the specifications;
- (ix) Development and maintenance of a quality assurance plan within the project, as well as ensuring compliance with the requirements of the plan;
- (x) Certification of Executive drawings and certification of interim payments;
- (xi) Preparation of payment reports, as well as analysis of the reasons for delays, with the provision, if necessary, of suggestions for correcting the situation.

<u>Expert on IT system and MIS</u>. A qualified IT engineer with a bachelor's degree or higher in Computer Sciences or equivalent qualifications, preferably with 5 years of experience in designing and implementing MIS systems for large corporate clients (with more than 1,000 employees). An MIS expert should preferably have experience working with energy companies. Previous experience in the Central Asian region or other developing countries, as well as knowledge of the Russian language are highly desirable. Experience in projects funded by international financial institutions, including the World Bank, will be an advantage.

The MIS expert will be responsible for the following:

- (i) Coordination with the project Manager and other team members to ensure effective and successful execution of the tasks assigned under the contract;
- (ii) Coordination of actions with JSC «NATIONAL ELECTRIC NETWORKS OF UZBEKISTAN» as necessary;
- (iii) Coordinate with other capacity-building consultants as needed; and
- (iv) Managing the implementation of Task 2 and Task 4 in terms of their area of expertise.

<u>Procurement Expert:</u> A qualified procurement expert with a bachelor's degree or higher and with at least 10 years of relevant work experience in IFI projects. IT/ICT systems procurement related experience would be highly preferred. Fluency in English language (fluent Russian or Uzbek would be an advantage) is required.

"Non-key" experts (use of national consultants is encouraged)

Expert positions include the following:

- (i) Expert on MIS.
- (ii) Experts in IT and in areas of coverage of ERP functionality
- (iii) Administrator
- (iv) Office manager

1.Non-key experts must have a bachelor's degree or higher in Computer Sciences, engineering, accounting, or other equivalent qualifications. Consultants should preferably have experience working on projects funded by international financial organizations. Russian language skills are required for all positions of national experts.

Non key consultants are responsible for assisting key experts in the following areas:

- (i) Monitoring of project implementation;
- (ii) Data collection and assistance in preparing documents;
- (iii) Visits to the project site;
- (iv) Interaction with the management and employees of JSC «NATIONAL ELECTRIC NETWORKS OF UZBEKISTAN» as well as, as necessary, representatives of state bodies.

E. Deliverables

The expected duration of this assignment is nine (9) months with the following key milestones, assuming that only one week is required for the preliminary financing decision to be reached.

All documents shall be prepared both in Russian and English language.

The Consultant shall deliver the Inception Report in one (1) month from the commencement of the consultancy services, describing methodology and workplan to complete the assignment.

The Consultant shall deliver the Report on Task 1, Task 2 and Task 3 shall be delivered in three (3) months since the commencement of the consultancy service.

The Consultant shall deliver the Feasibility Studies in six (6) months from the commencement of the consultancy services, shall deliver the Complete Package of Bidding Documents in eight (8) months. Both documents (Feasibility Study and Bidding Documents) shall be in Russian and English language.

E. Payment Schedule

The milestones' payment to the Consultant will be in accordance with the following table upon approval of each deliverable.

Milestones	Payment (% of total price)
Inception Report	10%
Feasibility Study	30%
Complete Package of Tender	40%
Documentation	
Project completion	20%