



**United States Energy Association  
Request for Proposal: Power System Modeling and Long-term Planning – National Electricity Transmission  
Company (Uzbekistan)**

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**REQUEST FOR PROPOSAL – Power System Modeling and Long-term Planning – National Electricity Transmission  
Company (Uzbekistan)**

**Closing date of RFP:** November 11, 2020

**Implementing Agency:** United States Energy Association

**Funding Agency:** United States Agency for International Development

The United States Energy Association (USEA) is inviting prospective organizations or individuals through this Request for Proposal (RFP) to submit proposals for developing a national dynamic model and planning models and providing comprehensive training on network modeling using DlgSILENT's PowerFactory software to the National Electricity Transmission Company (NETC) of Uzbekistan.

Proposals are due by 17:00 hours EST of the closing date. Please submit all proposals with a read receipt to Ms. Marina N. Barnett, Senior Program Coordinator, at [mbarnett@usea.org](mailto:mbarnett@usea.org). Proposals must be in digital format (PDF).

As this is a USAID-funded program, the RFP follows USAID Procurement Regulations and Laws. All bidder details will be kept confidential.

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## **I. INTRODUCTION**

The United States Energy Association (USEA) is an association of public and private energy-related organizations, corporations, and government agencies. USEA represents the broad interests of the U.S. energy sector by increasing the understanding of energy issues, both domestically and internationally.

Through a cooperative agreement with the USAID Bureau for Economic Growth, Education and Environment (E3), USEA implements the Energy Utility Partnership Program (EUPP), available to all USAID-assisted countries and USAID Missions. EUPP supports the efforts in USAID-assisted developing countries to increase environmentally sustainable energy production and to improve the operational efficiency and increased financial viability of their utilities and related institutions, with the goal of increasing the access of these countries to safe, reliable, affordable and environmentally sound energy services.

In Central Asia, EUPP works to create an enabling environment for the regional transfer to cleaner, more reliable power supply and encourage establishment of an integrated power market.

## **II. BACKGROUND**

Uzbekistan is fully self-sufficient in energy resources and is the largest electricity producer in Central Asia. The country's generating capacity is currently estimated at 12.9 GW, including 11 GW from thermal power plants (TPPs), 1.85 GW from hydropower plants (HPPs), and 133 MW from autoproducers. According to a Concept Note outlining

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RFP – Power System Modeling and Long-term Planning – National Electricity Transmission Company (Uzbekistan)

the Uzbekistan Government's plans for the country's power sector, published earlier this year, generating capacity will be increased to 29.3 GW and electricity production will be raised to 120.8 billion kWh by 2030.

In Uzbekistan, hydropower generation is considered as electricity produced from renewable energy sources. Renewable energy is currently produced mostly by HPPs and accounts for slightly more than 10% of the total electricity production. However, Uzbekistan plans to increase the share of renewable generation to 25% by constructing new renewable generation facilities, including solar, wind and hydropower, with a total capacity of over 8,400 MW.

The National Electricity Transmission Company carries out the operation and development of Uzbekistan's main electric network, supplies electricity to customers, and manages interstate transit and parallel operations with electric power systems of the neighboring states. The total length of the grid is approximately 158,450 miles, including 6,027 miles of 220-500 kV of major overhead transmission lines. NETC owns and operates 14 regional electric networks, a national dispatch center, a central relay protection and automation service, and 78 220-500 kV substations.

NETC utilizes DlgSILENT's PowerFactory software tool for transmission network analysis, modeling and planning.

### **III. IMPLEMENTATION AND APPROACH**

The purpose of this RFP is to solicit proposals from various candidate organizations or individuals, conduct a fair evaluation, and select the organization deemed most suitable to undertake the project.

#### **USEA Responsibilities**

USEA will be responsible for all logistical arrangements for the participants and consultants. This includes arrangements and associated costs for the following, for each of the two training sessions:

- Economy-class roundtrip airfare to Tashkent, Uzbekistan for up to 2 consultants per trip;
- Per diem (meals and lodging) for up to 2 consultants to include all travel and training days and maximum of 1 full day of rest prior to start of activity (Note: Lodging to be provided according to U.S. government regulations);
- Reimbursement of visa fees;
- Reimbursement of vaccinations (if needed) and travel medication costs;
- International health insurance for the duration of the travel to Tajikistan;
- Ground transportation to/from the airport;
- Local transportation to sites (if needed);
- Meeting space and A/V.

#### **Subcontract Agreement Management and Oversight**

A subcontract agreement between USEA and the Consultant shall be subject to all USAID Special Terms and Conditions, including all mandatory FAR Flow-Down clauses, where applicable, and the provisions included in 2CFR200 and 2CFR700. All bidders are strongly encouraged to review these provisions prior to submitting a proposal.

- Standard Provisions for U.S. Nongovernmental Organizations:  
<https://www.usaid.gov/sites/default/files/documents/1868/303maa.pdf>
- 2CFR200: <https://www.gpo.gov/fdsys/pkg/CFR-2014-title2-vol1/pdf/CFR-2014-title2-vol1-part200.pdf>
- 2CFR700: <https://www.gpo.gov/fdsys/pkg/CFR-2015-title2-vol1/pdf/CFR-2015-title2-vol1-part700.pdf>

Subcontract agreement management, oversight and payment will be carried out by USEA.

#### IV. SCOPE OF WORK

**Purpose:** The purpose of this program is to enhance NETC's capacity for network modeling, analysis and long-term planning. The ultimate outcome will be the creation of an enabling environment for expanded integration of renewable generation and for the establishment of a unified power system in Central Asia.

**Objectives:** The objectives of this program shall include:

- 1) Developing a national dynamic model of Uzbekistan's network for the existing network topology;
- 2) Developing planning models – static and dynamic – for 5- and 10-years horizons to include planned renewable generation;
- 3) Providing NETC planning engineers with comprehensive training on developing and improving national models using the DlgSILENT's PowerFactory software.

**Tasks:** The tasks to be performed by the Consultant under this Scope of Work shall include the following:

- Task 0:** Sign Subcontract Agreement: Once the subcontract agreement has been signed by both parties, the consultant will be allowed to invoice 10% of the total cost of the subcontract agreement.
- Task 1:** Conducting a webinar on project methodology and data collection to prepare NETC to collect and provide all data necessary to develop a national dynamic model and planning models.
- Task 2:** Conducting a 3-day training program (Training 1) to prepare NETC to develop/improve a national dynamic model using DlgSILENT PowerFactory software.
- Task 3:** Developing a national dynamic model for the existing network topology. The model will be constructed to represent two characteristic regimes (peak and off-peak) and three hydrology scenarios for each regime (wet, average and dry hydrology).
- Task 4:** Conducting a 3-day training program (Training 2) to further enhance NETC's modeling and analytical capacity to perform advanced contingency analyses taking into account multi-level contingencies, tripping simulations and corrective actions; implement renewable generation and simulate their effects on the grid; perform Inertia/Governor load flow calculation; perform PV, QV analysis, and reactive power planning using DlgSILENT PowerFactory software.
- Task 5:** Developing planning models – static and dynamic – for 5- and 10-years horizons to include planned renewable generation.

Training sessions and webinars shall be delivered in the Russian language.

Training sessions shall include pre-training and post-training surveys administered to all participants. A pre-training survey shall be designed to assess participants' baseline knowledge and competencies and to identify knowledge gaps and weak areas. The planned training courses shall be modified to address the identified gaps. A post-training/skill assessment survey shall be designed to measure participating trainees' progress.

**Deliverables:** Based on the Scope of Work, the following deliverables and products shall be submitted:

- Task 1:** **Deliverable 1.** Digital copies – in English and in Russian – of a presentation outlining project methodology and data questionnaires to be provided to NETC for collecting all data necessary to develop a national dynamic model and planning models submitted to USEA at least 2 weeks prior to conducting the webinar.

- Task 2:** **Deliverable 2.** Digital copies – in English and in Russian – of a draft training program 1 curriculum, and pre-training and post-training surveys submitted to USEA at least 2 weeks prior to conducting the training.
- Deliverable 3.** Conduct a 3-day training program (Training 1), including all necessary theoretical and practical elements, for up to 10 participants to prepare NETC to develop/improve a national dynamic model using DigSILENT PowerFactory software. Digital copies – in English and in Russian – of the full training curriculum, including manuals, presentations and all other training materials developed for NETC and distributed to the participants.
- Deliverable 4.** Digital copies – in English – of a Training Report 1 on approach, accomplishments and recommendations.
- Task 3:** **Deliverable 5.** A national dynamic model for the existing NETC network topology. The model will be constructed to represent two characteristic regimes (peak and off-peak) and three hydrology scenarios for each regime (wet, average and dry hydrology).
- Deliverable 6.** Digital copy – in English – of a brief Model Creation Report, comprising the developed dynamic model overview and recommendations for future steps.
- Task 4:** **Deliverable 7.** Digital copies – in English and in Russian – of a draft training program 2 curriculum, and pre-training and post-training surveys submitted to USEA at least 2 weeks prior to conducting the training.
- Deliverable 8.** Conduct the 2<sup>nd</sup> 3-day training program (Training 2), including all necessary theoretical and practical elements, for up to 10 participants to further enhance NETC’s modeling and analytical capacity to perform advanced contingency analyses taking into account multi-level contingency analyses, tripping simulations and corrective actions; implement renewable generation and simulate their effects on the grid; perform Inertia/Governor load flow calculation; perform PV, QV analysis, and reactive power planning using DigSILENT PowerFactory software. Digital copies – in English and in Russian – of the full training curriculum, including manuals, presentations and all other training materials developed for NETC and distributed to the participants.
- Deliverable 9.** Digital copies – in English – of a Training Report 2 on approach, accomplishments and recommendations.
- Task 5:** **Deliverable 10.** Planning models – static and dynamic – for 5- and 10-years horizons to include planned renewable generation.
- Deliverable 11.** Digital copy – in English – of a brief Models Creation Report, comprising the developed planning models overview and recommendations for future steps.
- Deliverable 12.** Digital copy – in English – of a final report to include the following:
- An overview of the consultancy (background and the Scope of Work);
  - Statement of consultant’s background and key qualifications;
  - Recommendations for improving operations of the utility based on the work performed during this consultancy;
  - Recommendations for further technical assistance.

**Reporting:** The consultant will report to USEA.

**Schedule:** The project is expected to begin in January 2021 – pending lifting of international travel restrictions due to COVID-19 – and take approximately 12 months to complete.

Task	Activities	Deliverables	Target Completion Date
Task 1	Conduct webinar on project methodology & questionnaires	Presentation on methodology Data questionnaires	January 31, 2021
Task 2	Conduct 3-day training program	Curriculum Pre- and post-training surveys Training materials Training report	April 30, 2021
Task 3	Develop national dynamic model	National dynamic model	May 31, 2021
		Model Creation Report	June 30, 2021
Task 4	Conduct 2 <sup>nd</sup> 3-day training program	Curriculum Pre- and post-training surveys Training materials Training report	August 31, 2021
Task 5	Develop planning models	Planning models	October 31, 2021
		Models Creation Report	November 30, 2021
		Final report	December 31, 2021

These tentative assignment dates are provided solely for information purposes and the benefit of bidders. Modification of these assignment dates will not constitute a change in scope.

## V. PROPOSAL CONTENT

The proposal must contain the following:

- a) A cover letter to the proposal, including a bidder's Data Universal Numbering System (D-U-N-S) number and proof of a current registration in the System of Award Management (SAM). **Proposals without a DUNS number or proof of SAM registration will not be considered.**
- b) A technical proposal, including:
  - a. Demonstration of an understanding of the issues to be addressed under the proposed scope of work specified above by providing a summarized technical approach (not to exceed 3 pages). This section should include the bidder's general approach to implementing different tasks and activities described in the SoW above and must include an adequate description of training methodology;
  - b. Proposed project schedule to perform the tasks under this project highlighting any deviations from the scope of work specified above;
  - c. Bio sketches of personnel, including at least 1 – 2 subject matter experts one of which will be a team leader that will be dedicated to the project. Proposed personnel must be skilled at DigSILENT PowerFactory modeling software;
  - d. Summary of relevant experience of each proposed team member for (not beyond) the past 10 years. Relevant experience should be listed chronologically (starting with the most recent). Not to exceed 3 pages for each proposed team member;
  - e. Summary of the work to be performed by each employee proposed for this project.
- c) A financial proposal, including:
  - Detailed justification (i.e. line item budget), including direct and indirect costs (translation (if applicable), interpretation (if applicable), printing, administrative supplies, etc.);
  - Labor costs (detailed structure of man-hours) and level of effort for each employee proposed for this project.
- d) Completed USAID Contractor Employee Biographical Data Sheet forms for each employee proposed for this project (<https://www.usaid.gov/forms/aid-1420-17>).

## VI. EVALUATION CRITERIA

**All bidders are required to provide a DUNS number and maintain a current SAM registration. Proposals without a DUNS number or proof of SAM registration will not be considered.**

Selection of an offer for a subcontract award will be based on an evaluation of proposals against qualifications, subject matter expertise, technical approach and budget justification. Proposals shall first be evaluated from a technical standpoint (qualifications, subject matter expertise and technical approach) without regard to proposed budget justification. For those proposals determined to be technically acceptable, budget justification will be evaluated.

Evaluation Criteria:     25%:   Experience with similar projects (for each consultant & the organization in general)  
                              25%:   Subject matter expertise (education and professional experience)  
                              30%:   Technical approach  
                              20%:   Cost

## VII. QUESTIONS AND CLARIFICATIONS

All questions and clarification requests related to this RFP should be submitted via email to Ms. Marina N. Barnett, Senior Program Coordinator, at [mbarnett@usea.org](mailto:mbarnett@usea.org) no later than October 28, 2020. All questions and answers will be provided to all prospective bidders.

END OF RFP