



**United States Energy Association**

**Request for Proposal: Central Asia Regional Power System Modeling and Stability Study – Regional Coordinating Dispatch Center Energia**

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## **REQUEST FOR PROPOSAL – Central Asia Regional Power System Modeling and Stability Study – Regional Coordinating Dispatch Center Energia**

**Closing date of RFP:** December 3, 2021

**Implementing Agency:** United States Energy Association (USEA)

**Funding Agency:** United States Agency for International Development (USAID)

The United States Energy Association is inviting prospective organizations or individuals through this Request for Proposal (RFP) to submit proposals for implementing a project on Central Asia Regional Power System Modeling and Stability Study for the Regional Coordinating Dispatch Center (CDC) Energia.

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 is a nonprofit, apolitical, nonlobbying organization founded in 1924. USEA's mission has two pillars of equal importance. USEA serves as a resource, by convening energy stakeholders to share policy, scientific, and technological information to foster the advancement of the entire energy sector. Internationally, USEA promotes energy development by expanding access to safe, affordable, and environmentally acceptable energy in partnership with the U.S. Government.

Through a cooperative agreement with the United States Agency for International Development (USAID) Bureau for Development, Democracy, and Innovation (DDI), USEA implements an Energy Utility Partnership Program (EUPP) available to all USAID-assisted countries and USAID missions. EUPP supports USAID-partner countries in their efforts to increase environmentally sustainable energy production and improve the operational efficiency and financial viability of their utilities and related institutions. The goal of the EUPP is to increase access in USAID-assisted countries to 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

The five Central Asian countries – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan – shared a unified energy grid in the last decades of the Soviet Union until the system fell apart in 2003. Today, power systems of Kazakhstan, Kyrgyzstan, Uzbekistan, and Tajikistan<sup>1</sup> are interconnected into the united Central Asian Power System (CAPS), and in July 2019 all five Central Asian states and Afghanistan signed an agreement to connect their electric grids and unify their electricity markets.

Coordination and monitoring of power system operations in Central Asia is carried out by the Regional Coordinating Dispatch Center (CDC) Energia, located in Tashkent, Uzbekistan. Established in 2007, CDC Energia is an international, non-state, non-commercial organization operating under the jurisdiction of the Republic of Uzbekistan. CDC Energia performs direct operational management of cross-border transmission lines, maintains reliable parallel operations within CAPS, coordinates international power flows, planning, supervision of regional emergency automation and relay protection systems, and administers inter-system frequency control and electricity transit services.

CDC Energia utilizes DlgSILENT PowerFactory software for network planning and modeling.

## III. IMPLEMENTATION AND APPROACH

The purpose of this RFP is to solicit proposals from interested organizations or individuals (private/government/non-governmental/institutes/not-for-profit/civil societies) deemed most suitable to undertake the project. The bidder can propose an association/consortium/partnership of maximum two organizations, however, one organization must be identified as the lead organization.

### Subcontract Agreement Management and Oversight

An agreement between USEA and the selected bidder shall be subject to all USEA/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>
- USAID Mandatory Standard Provisions that are mentioned in USEA's cooperative agreement (Annexure-E)

Subcontract agreement management, oversight of contractual obligations, and payment will be carried out by USEA. USEA will be responsible for any communication with USAID regarding the subcontract.

### USEA Involvement and Responsibilities

USEA will be involved in all the activities under a subcontract agreement between USEA and the Consultant in the following ways:

- Review and approval of proposed activities
- Review and approval of deliverables
- Approval of invoices for payment

USEA will also be responsible for all logistical arrangements for the participants and consultants. This includes arrangements and associated costs for the following, for the two trainings to be conducted within the framework of this project:

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<sup>1</sup> Although Tajikistan was disconnected from the other countries in 2009, it retains formal participation in the parallel operations agreement, and is working to reconnect to CAPS.

- Economy-class roundtrip airfare to Tashkent, Uzbekistan for up to 2 consultants
- 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 (Lodging to be provided according to U.S. government regulations)
- Reimbursement of visa fees
- Reimbursement of vaccinations (if needed), travel medication costs and COVID-19 tests
- International health insurance for the duration of the travel to Uzbekistan
- Ground transportation to/from the airport
- Local transportation to sites (if needed)
- Meeting space and A/V.

USEA will follow the U.S. Department of State and the Centers for Disease Control and Prevention (CDC) guidelines when making travel and in-person programming decisions and arrangements.

### **Non-Disclosure Agreement**

Depending on data requirements, the Consultant might be requested to sign a Non-Disclosure Agreement (NDA) with the CDC Energia.

## **IV. SCOPE OF WORK**

### **Purpose**

The purpose of this program is to enhance the capacity of CDC Energia’s planning staff for power system modeling and long-term planning utilizing the DlgSILENT PowerFactory software. 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.

### **Objective**

The objectives of this program shall include:

- 1) Developing a regional dynamic model for the existing network topology
- 2) Providing CDC Energia personnel with comprehensive training on developing and improving national models using the DlgSILENT’s PowerFactory software
- 3) Conducting a study to determine potential future network instability issues due to the integration of new renewable generation facilities and developing possible technical and engineering solutions to address those issues (System Stability and Reliability Study – Current State)
- 4) Providing CDC Energia personnel with comprehensive training on modeling stability and reliability issues 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 1:** Conduct a webinar on project methodology and data collection to prepare CDC Energia to collect and provide all data necessary to develop a regional dynamic model and conduct a system stability and reliability study.

**Task 2:** Develop a regional 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 3:** Conduct a 5-day training (Training 1) for CDC personnel on dynamic model development and operation using DigSILENT PowerFactory software.

**Task 4:** Conduct a load flow and N-1 security study to determine potential network instability issues due to the integration of new renewable generation facilities and possible technical and engineering solutions to address those issues (System Stability and Reliability Study – Current State).

**Task 5:** Conduct a 5-day workshop to train CDC personnel to model system stability and reliability issues using the DigSILENT PowerFactory software (Training 2), and to present the system reliability and stability study results to CDC personnel and regional stakeholders.

The webinar, trainings and workshop shall be delivered in the Russian language.

Training sessions shall include pre-training and post-training surveys administered to all participants. Pre-training surveys 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. Post-training/skill assessment surveys 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 CDC Energia for collecting all data necessary to develop a regional dynamic model and a system stability and reliability study submitted to USEA at least 2 weeks prior to conducting the webinar.

**Task 2:** **Deliverable 2.** A regional 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).

**Deliverable 3.** Digital copy – in English – of a brief Model Creation Report, comprising the developed dynamic model overview and recommendations for future steps.

**Task 3:** **Deliverable 4.** 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 5.** Digital copies – in English and in Russian – of the full training curriculum, including manuals, presentations and all other training materials developed for CDC Energia and distributed to the participants.

**Deliverable 6.** Digital copies – in English – of a Training Report 1 on approach, accomplishments, and recommendations.

**Task 4:** **Deliverable 7.** Digital copies – in English and in Russian – of a **draft** report on the System Stability and Reliability Study – Current State submitted to USEA and CDC Energia for their review.

**Deliverable 8.** Digital copies – in English and in Russian – of a **final** report on the System Stability and Reliability Study – Current State. The report shall incorporate updates and responses to USEA and CDC Energia's comments.

**Task 5:** **Deliverable 9.** Digital copies – in English and in Russian – of a draft presentation of the results of the System Stability and Reliability Study submitted to USEA at least 2 weeks prior to conducting the presentation to CDC Energia personnel and regional stakeholders.

**Deliverable 10.** 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 11.** Digital copies – in English and in Russian – of the full training curriculum, including manuals, presentations and all other training materials developed for CDC Energia and distributed to the participants, and a final presentation of the results of the System Stability and Reliability Study.

**Deliverable 12.** Digital copies – in English – of a Training Report 2 on approach, accomplishments, and recommendations.

**Deliverable 13.** Digital copy – in English – of a final Project 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 2022 and take approximately 12 months to complete. 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 follow the structure outlined below, contain the following components, and be within page limitations. **Failure to follow the outline and page limits prescribed or exclusion of any of the required items will impact the proposal’s scoring.** Maximum proposal limit 50 pages (inclusive of cover page and annexes).

<b>Cover letter</b>			
	<b>Description</b>	<b>Notes</b>	<b>Maximum page limit</b>
	<p>Must include bidder’s current Data Universal Numbering System (D-U-N-S) number</p> <p>Provide status of System of Award Management (SAM) registration</p>	Proposals without a DUNS number will not be considered and need not apply.	2 pages

<b>Technical proposal</b>			
<b>Subject heading</b>	<b>Description</b>	<b>Notes</b>	<b>Maximum page limit</b>
<b>Understanding of the issues</b>	Demonstration of an understanding of the issues outlined in the SoW		1 page
<b>Technical approach</b>	Approach to implementing the SoW		4 pages
<b>Schedule of tasks</b>	Proposed schedule of tasks and deliverables per the SoW		2 pages
<b>Team assignments &amp; Bio sketches</b>	For each member of the team:  1 <sup>st</sup> : Summary of work to be performed by/assignment of each individual proposed  2 <sup>nd</sup> : (Immediately following the assignment) Short bio sketch that highlights the individual's direct experience with the subject matter	The bidder can propose a consortium of multiple organizations and/or individuals; however, one organization must be identified as the lead organization who will enter into contract with USEA and be in compliance with the SAM and DUN registration noted in this RFP.	1 page per person total  ½ page for assignment per person, followed by ½ page for bio sketch
<b>Financial proposal</b>			
<b>Subject heading</b>	<b>Description</b>	<b>Notes</b>	<b>Maximum page limit</b>
<b>Summary of costs</b>	Line-item budget excluding labor with detailed justification of all costs associated with the project, including direct and indirect costs (printing, administrative supplies, etc.).	Must be in USD Must be inclusive of taxes (if applicable)	2 pages
<b>Labor fees</b>	Anticipated labor costs, broken down by the number of man-hours and fully loaded daily rate for each individual proposed for this project	Must include names and titles of the individuals Must be in USD Must be inclusive of taxes & fees (if applicable) All salary information will be kept confidential	2 pages
<b>Annex</b>			
	<b>Description</b>	<b>Notes</b>	<b>Maximum page limit</b>
<b>Annex 1</b>	Proof of System of Award Management (SAM) registration	Please note that <a href="#">SAM registration</a> is a 10-step process and can take several weeks to complete. Please refer to this <a href="#">guide</a> for more information. If a bidder has not completed the SAM registration process by the proposal submission due date, USEA will accept a proposal if it includes a PDF copy of an email from " <a href="mailto:notification@sam.gov">notification@sam.gov</a> " to the bidder stating that the bidder " <i>successfully submitted the entity registration for NAME OF COMPANY in the U.S. Government's System for Award Management (SAM)</i> ".	

		Proposals without proof of SAM registration or an email from <a href="mailto:notification@sam.gov">notification@sam.gov</a> stating acceptance of SAM application, will not be considered and need not apply.	
<b>Annex 2</b>	Curricula Vitae	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).	2 pages per person
<b>Annex 3</b>	USAID Contractor Employee Biographical Data Sheet	Completed USAID Contractor Employee Biographical Data Sheet forms for each employee proposed for this project <a href="https://www.usaid.gov/sites/default/files/documents/1868/AID-1420-17-6-13-19FINAL.doc">https://www.usaid.gov/sites/default/files/documents/1868/AID-1420-17-6-13-19FINAL.doc</a>	1 page per person
<b>Annex 4</b>	Organization experience	Summary of the company's or companies' background and experience with similar projects	5 pages

## 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:      20%:    Experience with similar projects (for each consultant & the organization in general)  
    25%:    Subject matter expertise (education and professional experience)  
    25%    Technical approach  
    30%:    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 **November 19**. All questions and answers will be posted on USEA's website.

**END OF RFP**