

REQUEST FOR PROPOSALS

FEASIBILITY STUDY FOR THE

TRANSMISSION LINES PROJECT

Submission Deadline: **4:00 PM**

LOCAL TIME

MARCH 28, 2011

Submission Place: Attention: USTDA Grant Competition
Kazakhstan Electricity Grid Operating Company
Joint Stock Company
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SEALED PROPOSALS SHALL BE CLEARLY MARKED AND RECEIVED PRIOR TO THE TIME AND DATE SPECIFIED ABOVE. PROPOSALS RECEIVED AFTER SAID TIME AND DATE WILL NOT BE ACCEPTED OR CONSIDERED.

REQUEST FOR PROPOSALS

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Section 1: INTRODUCTION

The U.S. Trade and Development Agency (USTDA) has provided a grant in the amount of US\$988,004 to the Kazakhstan Electric Grid Operating Company (the “Grantee”) in accordance with a grant agreement dated September 20, 2010 (the “Grant Agreement”). This Grant would fund a feasibility study (the “Feasibility Study”) to evaluate the construction of electric transmission lines (the “Project”) in Kazakhstan (the “Host Country”). The Grant Agreement is attached at Annex 4 for reference. The Grantee is soliciting technical proposals from qualified U.S. firms to provide expert consulting services to perform the Feasibility Study.

1.1 BACKGROUND SUMMARY

KEGOC owns and is responsible for operating the grid and all electric power high voltage (220 kilovolts and higher) transmission lines in Kazakhstan, which constitute about 24,000 kilometers (km) of transmission lines. As part of its system, KEGOC owns and operates 74 substations. The company is 100% owned by the national state holding company, Samruk-Kazyna.

KEGOC invested more than \$200 million in electric power transmission expansion and improvements in 2009, and over the next 15 years it plans to invest more than \$3.5 billion. The company has prioritized transmission lines to Kyrgyzstan and to connect existing and future hydropower facilities with significant load centers (net consumption areas). In particular, KEGOC is planning to construct a 920 kilometer (km) 500 kV transmission line that will connect an existing hydropower plant at Shulbinsk (702 MW) and the planned 68 MW Bulak hydropower plant (which will also through water storage upstream allow for increased power delivery from Shulbinsk) to load centers in Aktogai (primarily to be used for electrification of a railway line) and Almaty, the largest city in Kazakhstan. This line will also improve north-south transmission connections, which is important because Kazakhstan has a majority of its generation capacity in the north and east and its load centers in the center and south.

A second 200 km 500 kV transmission line from Almaty to Kemin, Kyrgyzstan will connect Kazakhstan, which already imports some hydropower-generated electricity from Kyrgyzstan, to the expanding transmission grid in Kyrgyzstan, and potentially through Kyrgyzstan to Tajikistan. With planned new hydropower facilities in Kyrgyzstan and Tajikistan, this would provide lower cost hydropower to Kazakhstan, particularly in the summer.

In addition to the above two transmission lines that will be the subject of this study, KEGOC is planning construction of a line from Ekibastuz to Shulbinsk, which would, with Shulbinsk-Almaty, create a new North-South transmission line route. KEGOC will be arranging for a separate feasibility study for this portion of the transmission network.

Excerpts from a background Definitional Mission are provided for reference in Annex 2.

1.2 OBJECTIVE

This feasibility study grant will fund an evaluation of two 500 kilovolt transmission lines in Kazakhstan. The FS will study one transmission line that will connect new and existing hydropower plants in eastern Kazakhstan to high consumption areas, and another transmission line from Kemin, Kyrgyzstan to Almaty, Kazakhstan that would provide more connection for Almaty with hydropower in Kyrgyzstan. The Terms of Reference (TOR) for this Feasibility Study are attached as Annex 5.

1.3 PROPOSALS TO BE SUBMITTED

Technical proposals are solicited from interested and qualified U.S. firms. The administrative and technical requirements as detailed throughout the Request for Proposals (RFP) will apply. Specific proposal format and content requirements are detailed in Section 3.

The amount for the contract has been established by a USTDA grant of US\$988,004. **The USTDA grant of \$US988,004 is a fixed amount. Accordingly, COST will not be a factor in the evaluation and therefore, cost proposals should not be submitted.** Upon detailed evaluation of technical proposals, the Grantee shall select one firm for contract negotiations.

1.4 CONTRACT FUNDED BY USTDA

In accordance with the terms and conditions of the Grant Agreement, USTDA has provided a grant in the amount of US\$988,004 to the Grantee. The funding provided under the Grant Agreement shall be used to fund the costs of the contract between the Grantee and the U.S. firm selected by the Grantee to perform the TOR. The contract must include certain USTDA Mandatory Contract Clauses relating to nationality, taxes, payment, reporting, and other matters. The USTDA nationality requirements and the USTDA Mandatory Contract Clauses are attached at Annexes 3 and 4, respectively, for reference.

Section 2: INSTRUCTIONS TO OFFERORS

2.1 PROJECT TITLE

The project is called Feasibility Study for 500 kV Kazakhstan - Kyrgyzstan (Almaty - Kemin) and 500 kV Shulbinsk HPP – Aktogai – Taldykorgan – Almaty Transmission Lines Project (hereinafter the FS).

2.2 DEFINITIONS

Please note the following definitions of terms as used in this RFP.

The term "Request for Proposals" means this solicitation of a formal technical proposal, including qualifications statement.

The term "Offeror" means the U.S. firm, including any and all subcontractors, which responds to the RFP and submits a formal proposal and which may or may not be successful in being awarded this procurement.

2.3 DEFINITIONAL MISSION

USTDA sponsored a Definitional Mission to address technical, financial, sociopolitical, environmental and other aspects of the proposed project. A copy of the report is attached at Annex 2 for background information only. Please note that the TOR referenced in the report are included in this RFP as Annex 5.

2.4 EXAMINATION OF DOCUMENTS

Offerors should carefully examine this RFP. It will be assumed that Offerors have done such inspection and that through examinations, inquiries and investigation they have become familiarized with local conditions and the nature of problems to be solved during the execution of the Feasibility Study.

Offerors shall address all items as specified in this RFP. Failure to adhere to this format may disqualify an Offeror from further consideration.

Submission of a proposal shall constitute evidence that the Offeror has made all the above mentioned examinations and investigations, and is free of any uncertainty with respect to conditions which would affect the execution and completion of the Feasibility Study.

2.5 PROJECT FUNDING SOURCE

The Feasibility Study will be funded under a grant from USTDA. The total amount of the grant is not to exceed US\$988,004.

2.6 RESPONSIBILITY FOR COSTS

Offeror shall be fully responsible for all costs incurred in the development and submission of the proposal. Neither USTDA nor the Grantee assumes any obligation as a result of the issuance of this RFP, the preparation or submission of a proposal by an Offeror, the evaluation of proposals, final selection or negotiation of a contract.

2.7 TAXES

Offerors should submit proposals that note that in accordance with the USTDA Mandatory Contract Clauses, USTDA grant funds shall not be used to pay any taxes, tariffs, duties, fees or other levies imposed under laws in effect in the Host Country.

2.8 CONFIDENTIALITY

The Grantee will preserve the confidentiality of any business proprietary or confidential information submitted by the Offeror, which is clearly designated as such by the Offeror, to the extent permitted by the laws of the Host Country.

2.9 ECONOMY OF PROPOSALS

Proposal documents should be prepared simply and economically, providing a comprehensive yet concise description of the Offeror's capabilities to satisfy the requirements of the RFP. Emphasis should be placed on completeness and clarity of content.

2.10 OFFEROR CERTIFICATIONS

The Offeror shall certify (a) that its proposal is genuine and is not made in the interest of, or on behalf of, any undisclosed person, firm, or corporation, and is not submitted in conformity with, and agreement of, any undisclosed group, association, organization, or corporation; (b) that it has not directly or indirectly induced or solicited any other Offeror to put in a false proposal; (c) that it has not solicited or induced any other person, firm, or corporation to refrain from submitting a proposal; and (d) that it has not sought by collusion to obtain for itself any advantage over any other Offeror or over the Grantee or USTDA or any employee thereof.

2.11 CONDITIONS REQUIRED FOR PARTICIPATION

Only U.S. firms are eligible to participate in this tender. However, U.S. firms may utilize subcontractors from the Host Country for up to 20 percent of the amount of the USTDA grant for specific services from the TOR identified in the subcontract. USTDA's nationality requirements, including definitions, are detailed in Annex 3.

2.12 LANGUAGE OF PROPOSAL

All proposal documents shall be prepared and submitted in English and Russian.

2.13 PROPOSAL SUBMISSION REQUIREMENTS

The **Cover Letter** in the proposal must be addressed to:

Attention: USTDA Grant Competition
Kazakhstan Electricity Grid Operating Company
Joint Stock Company
37, Beibitshilik St., Saryarka District
Astana 01000, Republic of Kazakhstan

Phone: (7172) 31 95 22

Fax: (7172) 97 04 55

E-Mail: Zharmagambetova@kegoc.kz, Zhenusova@kegoc.kz,
Nurtaza_N@Kegoc.kz

An Original of your proposal in English and Russian and five (5) copies of the proposal in Russian must be received at the above address no later than 4:00, on MARCH 28, 2010. A copy of the proposal in English and Russian in electronic form must be received at the above E-mail addresses no later than 4:00, on MARCH 28, 2010.

Proposals may be either sent by mail, overnight courier, or hand-delivered. Whether the proposal is sent by mail, courier or hand-delivered, the Offeror shall be responsible for actual delivery of the proposal to the above address before the deadline. Any proposal received after the deadline will be returned unopened. The Grantee will promptly notify any Offeror if its proposal was received late.

Upon timely receipt, all proposals become the property of the Grantee.

2.14 PACKAGING

“The original and each copy of the proposal must be sealed to ensure confidentiality of the information. The proposals should be individually wrapped and sealed, and labeled for content

including "original" or "copy number x"; the original and five (5) copies should be collectively wrapped and sealed, and clearly labeled.

Neither USTDA nor the Grantee will be responsible for premature opening of proposals not properly wrapped, sealed and labeled.”

2.15 AUTHORIZED SIGNATURE

The proposal must contain the signature of a duly authorized officer or agent of the Offeror empowered with the right to bind the Offeror. The Offeror shall also submit the documents certifying the power of its officer or agent to sign documents relating to this project implementation.

2.16 EFFECTIVE PERIOD OF PROPOSAL

The proposal shall be binding upon the Offeror for NINETY (90) days after the proposal due date, and the Offeror may withdraw or modify this proposal at any time prior to the due date upon written request, signed in the same manner and by the same person who signed the original proposal.

2.17 EXCEPTIONS

All Offerors agree by their response to this RFP announcement to abide by the procedures set forth herein. No exceptions shall be permitted.

2.18 OFFEROR QUALIFICATIONS

As provided in Section 3, Offerors shall submit evidence that they have relevant past experience and have previously delivered advisory, feasibility study and/or other services similar to those required in the TOR, as applicable.

2.19 RIGHT TO REJECT PROPOSALS

The Grantee reserves the right to reject any and all proposals.

2.20 PRIME CONTRACTOR RESPONSIBILITY

Offerors have the option of subcontracting parts of the services they propose. The Offeror's proposal must include a description of any anticipated subcontracting arrangements, including the name, address, and qualifications of any subcontractors. USTDA nationality provisions apply to the use of subcontractors and are set forth in detail in Annex 3. The successful Offeror shall cause appropriate provisions of its contract, including all of the applicable USTDA Mandatory Contract Clauses, to be inserted in any subcontract funded or partially funded by USTDA grant funds.

2.21 AWARD

The Grantee shall make an award resulting from this RFP to the best qualified Offeror, on the basis of the evaluation factors set forth herein. The Grantee reserves the right to reject any and all proposals received and, in all cases, the Grantee will be the judge as to whether a proposal has or has not satisfactorily met the requirements of this RFP.

2.22 COMPLETE SERVICES

The successful Offeror shall on its own settle the matters relating to (a) provision of local transportation, office space and secretarial and technical support required to perform the TOR if such support is not provided by the Grantee; (b) provide and perform all necessary labor, supervision and services; and (c) in accordance with best technical and business practice, and in accordance with the requirements, stipulations, provisions and conditions of this RFP and the resultant contract, execute and complete the TOR to the satisfaction of the Grantee and USTDA.

2.23 INVOICING AND PAYMENT

Deliverables under the contract shall be delivered on a schedule to be agreed upon in a contract with the Grantee. The Contractor may submit invoices to the designated Grantee Project Director in accordance with a schedule to be negotiated and included in the contract. After the Grantee's approval of each invoice, the Grantee will forward the invoice to USTDA. If all of the requirements of USTDA's Mandatory Contract Clauses are met, USTDA shall make its respective disbursement of the grant funds directly to the U.S. firm in the United States. All payments by USTDA under the Grant Agreement will be made in U.S. currency. Detailed provisions with respect to invoicing and disbursement of grant funds are set forth in the USTDA Mandatory Contract Clauses attached in Annex 4.

Section 3: PROPOSAL FORMAT AND CONTENT

To expedite proposal review and evaluation, and to assure that each proposal receives the same orderly review, all proposals must follow the format described in this section.

Proposal sections and pages shall be appropriately numbered and the proposal shall include a Table of Contents. Offerors are encouraged to submit concise and clear responses to the RFP. Proposals shall contain all elements of information requested without exception. Instructions regarding the required scope and content are given in this section. The Grantee reserves the right to include any part of the selected proposal in the final contract.

The proposal shall consist of a technical proposal only. A cost proposal is NOT required because the amount for the contract has been established by a USTDA grant of US\$988,004, which is a fixed amount.

Offerors shall submit the proposals in English and Russian, five (5) copies of the proposal in Russian and a copy of the proposal in English and Russian in electronic form. Proposals received by fax cannot be accepted.

Each proposal must include the following:

- Transmittal Letter,
- Cover/Title Page,
- Table of Contents,
- Executive Summary,
- Company Information,
- Organizational Structure, Management Plan, and Key Personnel,
- Technical Approach and Work Plan, and
- Experience and Qualifications.

Detailed requirements and directions for the preparation of the proposal are presented below.

3.1 EXECUTIVE SUMMARY

An Executive Summary should be prepared describing the major elements of the proposal, including any conclusions, assumptions, and general recommendations the Offeror desires to make. Offerors are requested to make every effort to limit the length of the Executive Summary to no more than five (5) pages.

3.2 COMPANY INFORMATION

For convenience, the information required in this Section 3.2 may be submitted in the form attached in Annex 6 hereto.

3.2.1 Company Profile

Provide the information listed below relative to the Offeror's firm. If the Offeror is proposing to subcontract some of the proposed work to another firm(s), the information below must be provided for each subcontractor.

1. Name of firm and business address (street address only), including telephone and fax numbers.
2. Year established (include predecessor companies and year(s) established, if appropriate).
3. Type of ownership (e.g. public, private or closely held).
4. If private or closely held company, provide list of shareholders and the percentage of their ownership.
5. List of directors and principal officers (President, Chief Executive Officer, Vice-President(s), Secretary and Treasurer; provide full names including first, middle and last). Please place an asterisk (*) next to the names of those principal officers who will be involved in the Feasibility Study.
6. If Offeror is a subsidiary, indicate if Offeror is a wholly-owned or partially-owned subsidiary. Provide the information requested in items 1 through 5 above for the Offeror's parent(s).
7. Project Manager's name, address, telephone number, e-mail address and fax number.

3.2.2 Offeror's Authorized Negotiator

Provide name, title, address, telephone number, e-mail address and fax number of the Offeror's authorized negotiator. The person cited shall be empowered to make binding commitments for the Offeror and its subcontractors, if any.

3.2.3 Negotiation Prerequisites

1. Discuss any current or anticipated difficulties which may impact the ability of the Offeror or its subcontractors to complete the Feasibility Study as proposed and reflect such impact within the project schedule.
2. Identify any specific information which is needed from the Grantee before commencing contract negotiations.

3.2.4 Offeror's Representations

If any of the following representations cannot be made, or if there are exceptions, the Offeror must provide an explanation.

1. Offeror is a corporation [*insert applicable type of entity if not a corporation*] duly organized, validly existing and in good standing under the laws of the State of _____. The Offeror has all the requisite corporate power and authority to conduct its business as presently conducted, to submit this proposal, and if selected, to execute and deliver a contract to the Grantee for the performance of the Feasibility Study. The Offeror is not debarred, suspended, or to the best of its knowledge or belief, proposed for debarment, or ineligible for the award of contracts by any federal or state governmental agency or authority. The Offeror has included, with this proposal, a certified copy of its Articles of Incorporation, and a certificate of good standing issued within one month of the date of its proposal by the State of _____.
2. Neither the Offeror nor any of its principal officers have, within the three-year period preceding this RFP, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government contract or subcontract; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating federal or state criminal tax laws, or receiving stolen property.
3. Neither the Offeror, nor any of its principal officers, is presently indicted for, or otherwise criminally or civilly charged with, commission of any of the offenses enumerated in paragraph 2 above.
4. There are no federal or state tax liens pending against the assets, property or business of the Offeror. The Offeror, has not, within the three-year period preceding this RFP, been notified of any delinquent federal or state taxes in an amount that exceeds \$3,000 for which the liability remains unsatisfied. Taxes are considered delinquent if (a) the tax liability has been fully determined, with no pending administrative or judicial appeals; and (b) a taxpayer has failed to pay the tax liability when full payment is due and required.
5. The Offeror has not commenced a voluntary case or other proceeding seeking liquidation, reorganization or other relief with respect to itself or its debts under any bankruptcy, insolvency or other similar law. The Offeror has not had filed against it an involuntary petition under any bankruptcy, insolvency or similar law.

The selected Offeror shall notify the Grantee and USTDA if any of the representations included in its proposal are no longer true and correct at the time of its entry into a contract with the Grantee. USTDA retains the right to request an updated certificate of good standing from the selected Offeror.

3.3 ORGANIZATIONAL STRUCTURE, MANAGEMENT, AND KEY PERSONNEL

Describe the Offeror's proposed project organizational structure. Discuss how the project will be managed including the principal and key staff assignments for this Feasibility Study. Identify the Project Manager who will be the individual responsible for this project. The Project Manager shall have the responsibility and authority to act on behalf of the Offeror in all matters related to the Feasibility Study.

Provide a listing of personnel (including subcontractors) to be engaged in the project, including both U.S. and local subcontractors, with the following information for key staff: position in the project; pertinent experience, curriculum vitae; other relevant information. If subcontractors are to be used, the Offeror shall describe the organizational relationship, if any, between the Offeror and the subcontractor.

A manpower schedule and the level of effort for the project period, by activities and tasks, as detailed under the Technical Approach and Work Plan shall be submitted. A statement confirming the availability of the proposed project manager and key staff over the duration of the project must be included in the proposal.

3.4 TECHNICAL APPROACH AND WORK PLAN

Describe in detail the proposed Technical Approach and Work Plan (the "Work Plan"). Discuss the Offeror's methodology for completing the project requirements. Include a brief narrative of the Offeror's methodology for completing the tasks within each activity series. Begin with the information gathering phase and continue through delivery and approval of all required reports.

Prepare a detailed schedule of performance that describes all activities and tasks within the Work Plan, including periodic reporting or review points, incremental delivery dates, and other project milestones.

Based on the Work Plan, and previous project experience, describe any support that the Offeror will require from the Grantee. Detail the amount of staff time of the Grantee or other participating agencies and any work space or facilities needed to complete the Feasibility Study.

3.5 SECTION 5: EXPERIENCE AND QUALIFICATIONS

Provide a discussion of the Offeror's experience and qualifications that are relevant to the objectives and TOR for the Feasibility Study. If a subcontractor(s) is being used, similar information must be provided for the prime and each subcontractor firm proposed for the project. The Offeror shall provide information with respect to relevant experience and qualifications of key staff proposed. The Offeror shall include letters of commitment from the individuals proposed confirming their availability for contract performance.

As many as possible but not more than six (6) relevant and verifiable project references must be provided for the Offeror and any subcontractor, including the following information:

Project name,
Name and address of client (indicate if joint venture),
Client contact person (name/ position/ current phone and fax numbers),
Period of Contract,
Description of services provided,
Dollar amount of Contract, and
Status and comments.

Offerors are strongly encouraged to include in their experience summary primarily those projects that are similar to or larger in scope than the Feasibility Study as described in this RFP.

Section 4: AWARD CRITERIA

Individual proposals will be initially evaluated by a Tender Committee of representatives from the Grantee. The Committee will then conduct a final evaluation and completion of ranking of qualified Offerors. The Grantee will notify USTDA of the best qualified Offeror, and upon receipt of USTDA's no-objection letter, the Grantee shall promptly notify all Offerors of the award and negotiate a contract with the best qualified Offeror. If a satisfactory contract cannot be negotiated with the best qualified Offeror, negotiations will be formally terminated. Negotiations may then be undertaken with the second most qualified Offeror and so forth.

The selection of the Contractor will be based on the following criteria:

1. **Technical Experience (50 points):** Firm and team experience in feasibility studies on, or management of implementation of, similar projects involving transmission line design and construction.
2. **Work Plan and Methodology (35 points):** Adequacy of the proposed work plan and suggested overall approach in responding to the Terms of Reference. Soundness and thoroughness of the technical approach and work plan detailed in the proposal and the overall quality of the presentation should be evaluated. The proposal should provide an organization chart of key personnel with their qualifications and a staffing schedule for each key activity.
3. **Regional Experience (15 points):** Firm and team's familiarity with electricity transmission in the region, particularly in Kazakhstan, including local and international conditions, regulations and requirements.

Proposals that do not include all requested information may be considered non-responsive.

Price will not be a factor in contractor selection.

ANNEX 1

KAZAKHSTAN ELECTRICITY GRID OPERATING COMPANY, JSC, 37, BEIBITSHILIK ST., SARYARKA DISTRICT, ASTANA 01000, REPUBLIC OF KAZAKHSTAN

B –KAZAKHSTAN: TRANSMISSION LINES FEASIBILITY STUDY PROJECT

POC Nina Patel, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. KAZAKHSTAN: TRANSMISSION LINES FEASIBILITY STUDY PROJECT. The Grantee invites submission of qualifications and proposal data (collectively referred to as the "Proposal") from interested U.S. firms which are qualified on the basis of experience and capability to develop a feasibility study for 500 kV Kazakhstan - Kyrgyzstan (Almaty - Kemin) and 500 kV Shulbinsk HPP – Aktogai – Taldykorgan – Almaty Transmission Lines Projects including:

1. Evaluation of the technical feasibility of construction of two potential transmission line expansions;
2. Evaluation of the economic and financial feasibility, including potential risks of the construction, as well as potential funding sources of the construction of the two transmission line projects.

KEGOC owns and is responsible for operating the grid and all electric power high voltage (220 kilovolts and higher) transmission lines in Kazakhstan, which constitute about 24,000 kilometers (km) of transmission lines. As part of its system, KEGOC owns and operates 74 substations. The company is 100% owned by the national state holding company, Samruk-Kazyna. KEGOC invested more than \$200 million in electric power transmission expansion and improvements in 2009, and over the next 15 years it plans to invest more than \$3.5 billion. The company has prioritized transmission lines to Kyrgyzstan and to connect existing and future hydropower facilities with significant load centers (net consumption areas).

In particular, KEGOC is planning to construct a 920 kilometer (km) 500kV transmission line that will connect an existing hydropower plant at Shulbinsk (702 MW) and the planned 68 MW Bulak hydropower plant (which will also through water storage upstream allow for increased power delivery from Shulbinsk) to load centers in Aktogai (primarily to be used for electrification of a railway line) and Almaty, the largest city in Kazakhstan. A second 200km 500kV transmission line from Almaty to Kemin, Kyrgyzstan will connect Kazakhstan, which already imports some hydropower-generated electricity from Kyrgyzstan, to the expanding transmission grid in Kyrgyzstan, and potentially through Kyrgyzstan to Tajikistan.

The U.S. firm selected will be paid in U.S. dollars from a \$988,004 grant to the Grantee from the U.S. Trade and Development Agency (USTDA).

A detailed Request for Proposals (RFP), which includes requirements for the Proposal, the Terms of Reference, and a background definitional mission report are available from USTDA, at 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901. To request the RFP in PDF format, please go to: <https://www.ustda.gov/USTDA/FedBizOpps/RFP/rfpform.asp>. Requests for a mailed

hardcopy version of the RFP may also be faxed to the IRC, USTDA at 703-875-4009. In the fax, please include your firm's name, contact person, address, and telephone number. Some firms have found that RFP materials sent by U.S. mail do not reach them in time for preparation of an adequate response. Firms that want USTDA to use an overnight delivery service should include the name of the delivery service and your firm's account number in the request for the RFP. Firms that want to send a courier to USTDA to retrieve the RFP should allow one hour after faxing the request to USTDA before scheduling a pick-up. Please note that no telephone requests for the RFP will be honored. Please check your internal fax verification receipt. Because of the large number of RFP requests, USTDA cannot respond to requests for fax verification. Requests for RFPs received before 4:00 PM will be mailed the same day. Requests received after 4:00 PM will be mailed the following day. Please check with your courier and/or mail room before calling USTDA.

Only U.S. firms and individuals may bid on this USTDA financed activity. Interested firms, their subcontractors and employees of all participants must qualify under USTDA's nationality requirements as of the due date for submission of qualifications and proposals and, if selected to carry out the USTDA-financed activity, must continue to meet such requirements throughout the duration of the USTDA-financed activity. All goods and services to be provided by the selected firm shall have their nationality, source and origin in the U.S. or host country. The U.S. firm may use subcontractors from the host country for up to 20 percent of the USTDA grant amount. Details of USTDA's nationality requirements and mandatory contract clauses are also included in the RFP.

Interested U.S. firms should submit their Proposal in English and Russian directly to the Grantee no later than 4:00, on MARCH 28, 2011 at the above address. Evaluation criteria for the Proposal are included in the RFP. Requests for clarification on any aspect of the RFP should be directed to POC Nina Patel, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. Any such request must be received no later than 4:00 MARCH 28, 2011 in order to be honored. Price will not be a factor in contractor selection, and therefore, cost proposals should NOT be submitted. The Grantee reserves the right to reject any and/or all Proposals. The Grantee also reserves the right to contract with the selected firm for subsequent work related to the project. The Grantee is not bound to pay for any costs associated with the preparation and submission of Proposals

ANNEX 2

Project Description

A brief description and rationale for each of the projects, including optimum components, are provided below:

Project 1¹: Projects “Construction of 500 kV line Ekibastuz-Shulbinsk HPP–Ust-Kamenogorsk” and “Construction of 500 kV line Shulbinsk HPP–Aktogay–Taldykorgan–Alma” are designed for power delivery from power plants of the North power zone, including East Kazakhstan Oblast. In particular, within the period 2015-2020 the construction of a 68 MW Bulak hydropower plant (HPP) on the Irtys river is expected. This power plant will be a regulating water reservoir of Shulbinsk HPP (“AES Shulbinsk HPP” LLP) and will enable increasing power delivery of Shulbinsk HPP by 430 MW.

In addition, in compliance with the State program on power industry development up to 2014, modernization of a number of existing large generating capacities is planned in the North power zone, including:

- construction of power unit No. 3 at Ekibastuz GRES-2 (525 MW);
- restoration of power unit No. 8 at Ekibastuz GRES-1 (500 MW);
- restoration of power unit No. 2 of Aksu GRES (325 MW);
- extension of Ust-Kamenogorsk CHPP (80 MW).

Also within 2015-2020, restoration of power units No. 1 (500 MW) and No.2 (500 MW) at Ekibastuz GRES-1 is planned. Implementation of the above projects will enable connecting the North zone with the South zone, and therefore will additionally enhance North-South transit and East zone links with Kazakhstan UPS.

Project #2 : “Construction of 500 kV Interstate Transmission Line Kyrgyzstan-Kazakhstan” will enable performing power deliveries in the Central Asian region. In the Central Asian region, project construction for OHTL-500 kV Datka-Kemin with incoming cross-connection lines at Kambarata HPP and OHTL-500 kV Datka-Khujand are planned for implementation.

The implementation of the specified projects for construction of OHTL Tajikistan-Kyrgyzstan-Kazakhstan will improve conditions and opportunities for electricity export and transit in the Central Asian region.

Project Sponsor’s Capabilities and Commitments

KEGOC is a large organization managing an operation that includes over 23,000 km of high tension transmission lines and substation capacity of over 33.699 MVA. KEGOC has already successfully managed several large investment projects for the expansion of the grid and has successfully worked with large financial institutions including the World Bank and the EBRD.

¹ This composed of the projects #1 and #2 in the original request made to USTDA.

In 1999, the World Bank began disbursement of \$140 million in loans for a \$257 million "Electricity Transmission Rehabilitation Project." The five-year project was managed by KEGOC and includes refurbishment of 26 transmission substations, installation of shunt reactors at nine other substations, replacement of protective relaying and supply and installation of monitoring and control equipment at 63 substations, modernization of the dispatch control system, including supply and installation of SCADA and an Energy Management System (EMS) at the National Dispatch Center and several regional dispatch centers. It also included the reinforcement of the telecommunications system. Institutional development components included a new management information system (MIS) for KEGOC, assistance for corporate restructuring, procurement, and project management, and support for the creation of the country's wholesale spot market. The project ran from 2000 to 2004 and additional financing was provided by the European Bank for Reconstruction and Development (EBRD).

The DM contractor's meetings with KEGOC clearly indicated the commitment of the management and senior officials to completing these high priority projects as soon as possible. It was quite evident from the series of meetings held with KEGOC that they would have to move ahead to complete the projects, albeit on a more delayed schedule, even if assistance from U.S. donors was not forthcoming. Discussions with other donors such as the World Bank and the EBRD also provided clear evidence that the project sponsors had been very responsive and committed in the implementation of past projects of these institutions.

Implementation Financing

The composite cost per kilometer of a transmission line is, by now, fairly standard worldwide. Although the civil works costs may vary by local standards the mechanical and electrical components average an estimated standard cost of roughly 300 to 500 thousand dollars a kilometer including the cost of substations, shunt reactors, the relays and other monitoring and control equipment. By this reckoning the DM estimates that the overall project cost for the combined project for which the USTDA is considering supporting a feasibility study would be of the order of roughly 0,5 billion U.S. dollars. This figure is confirmed by the KEGOC officials.

A project of this scale typically involves financing commitments from several syndicated sources. Discussions with the management of KEGOC as well as the Government seems to indicate that there is a high likelihood that KEGOC and the Government would approach multilateral donor organizations like the World Bank and the European Bank for Reconstruction and Development (EBRD) to provide the anchor financing for a project of this nature. This would then most likely be complemented through additional financing from commercial sources as well as guarantees from organizations such as Overseas Private Investment Corporation (OPIC), the Ex-Im Bank or perhaps Hermes. The Contractor's meetings and discussions with these organizations seem to confirm that there is interest in these organizations to support projects in Kazakhstan. Thus, in preparing the Terms of Reference, the DM has taken into account the types of conditionalities and other requirements that these institutions have for projects such as these.

Foreign Competition and Market Entry Issues

The estimate of U.S. export potential for a project of this nature and scope must take into account the competitive situation in the country. U.S. companies are not averse to competing with international manufacturers of the kind of heavy equipment needed for building transmission lines.

It is the issue of unfair subsidies that foreign competitors might enjoy from their respective Governments which create an uneven playing field for the U.S. supplier. However in order to fully understand the likely competitive scenario it is useful to take a closer look at the types of equipment and materials that are involved and who are the vendors that have a competitive advantage in these areas.

First of all, on the question of competitive procurement practices and policies, because the financing will most likely be provided by multilateral donors such as the World Bank and the EBRD, the project sponsor will need to follow World Bank procurement policies which ensure a fair and even competitive situation. But beyond procurement, one also needs to look at the type of equipment in which U.S. exporters would be most competitive. As far as the civil works are concerned, most of this would be procured locally. The transmission towers, catenary and some of the insulators and grounding are areas where, previously, suppliers from India have been very competitive. It is most likely that U.S. and other Western firms would be vendors of choice for items such as automation, switchgear, telemetering equipment, data gathering equipment, remote terminal units, etc. For these types of equipment in heavy duty use such as transmission, there are now basically just three firms that are ubiquitous suppliers. Two of them are European, Siemens and ABB and the third is American – General Electric. All three of these firms have operations within and outside the United States and it is difficult to predict, even in the case of General Electric, from where the products would be sourced.

Of course, none of these firms make all the items themselves and would need to subcontract some items – an estimate of more than half of what they purvey - from subcontractors both from within and outside the United States. Some of these U.S. subcontractor firms are somewhat unique in their particular product lines and there is a high likelihood that, irrespective of whether the vendor was Siemens, ABB or General Electric, these firms would still get the business. Some examples include: Burns and McDonnell engineering company for communication consoles; Motorola for digital controls; Advanced Control Systems for data logging; telemetering controls; data acquisition systems; and computer aided dispatch systems etc.

U.S. Export Potential

The product items referred to in the previous paragraph, generally make up about 10 to 15 percent of the Capex of a transmission system. Thus the market potential for the types of equipment for which U.S. firms would be competitive would be in the order of \$100-150 million at the very least. If even a third of this equipment is sourced from the U.S. (e.g., by General Electric alone or by all three major firms Siemens, ABB and General Electric), this would translate to a minimum potential of about \$50 million in U.S. exports.

Development Impact

Infrastructure: The HTL, if implemented would help to increase the capacity of the grid and provide service to areas and regions that are presently underserved. Construction of this HTL line will also help to provide the necessary evacuation for renewable energy generation and reduce the need for reliance on fossil fuel based generation. By providing additional capacity it will also allow better balancing of load and optimizing dispatch to reduce losses and increase the efficiency of the system.

Human Capacity Development: While adequate human capacity already exists in Kazakhstan pertaining to the construction maintenance and operation of HTL in the grid system, the additional capacity will help to optimize the performance of the grid. The modern and advanced grid management technologies to be provided under the project, reviewed in the next section, will increase the capability of the engineering and lines staff in running a more optimized transmission and distribution network.

Technology Transfer: The technology used in HTL today is significantly improved compared to the soviet era technologies in the present system. This more advanced grid management and safety features will contribute towards the goal of smarter, safer and environmentally more benign grids. For Kazakhstan much of this would be new technology given the observations of the Contractor during the mission and as such the project would lead to a certain amount of technology transfer with substantial benefits to the utility system.

Productivity Improvements: The additional capacity and the new and improved transmission systems technologies that would accompany the implementation of the HTL, would lead to an improvement in loss performance of the grid as well as improved load balancing and more efficient operations. This would enhance the overall productivity of the system.

Market Oriented Reforms: Increased transmission capacity would accommodate new entries in renewable energy generations that feed into the system. This would help to raise help to generate more competition and enhance the market orientation of the overall system.

Environmental Impact

The terms of reference for the feasibility study includes a preliminary environmental impact review. The impact of high tension lines and the environment are generally known. The effect of the corona on bird life and human habitation as well as the effect on the natural habitat of wild life in the region through which the high tension line passes, will be determined by the environmental impact assessment. In the case of Kazakhstan most of the terrain through which the HTL will pass is sparsely inhabited and depending on the length of the catenary, the impact on the habitat of the wild life is likely to be a minimum.

U.S. Labor Impact

The implementation of the high tension transmission lines as a result of the feasibility study being funded by USTDA is likely to generate U.S. exports in the categories of equipment discussed above and the resulting increases in U.S. employment. It is unlikely that the feasibility study being funded by the USTDA and the resulting implementation of the HTL project would:

- A. Incentivize any company currently located in the U.S. to relocate outside of the U.S. or to incentivize any such firm to reduce employment because U.S. production is being replaced by production outside the U.S.
- B. Violate internationally recognized workers rights.

- C. Directly assist in establishing or expanding production of any commodity for export by any country other than the United States if the commodity is likely to be in surplus on world markets and the time the resulting productive capacity is expected to become operative and if the assistance will cause substantial injury the United States producers of same, similar or competing commodity.

ANNEX 3



**U.S. TRADE AND DEVELOPMENT AGENCY
Arlington, VA 22209-2131**

NATIONALITY, SOURCE, AND ORIGIN REQUIREMENTS

The purpose of USTDA's nationality, source, and origin requirements is to assure the maximum practicable participation of American contractors, technology, equipment and materials in the prefeasibility, feasibility, and implementation stages of a project.

USTDA STANDARD RULE (GRANT AGREEMENT STANDARD LANGUAGE):

Except as USTDA may otherwise agree, each of the following provisions shall apply to the delivery of goods and services funded by USTDA under this Grant Agreement: (a) for professional services, the Contractor must be either a U.S. firm or U.S. individual; (b) the Contractor may use U.S. subcontractors without limitation, but the use of subcontractors from host country may not exceed twenty percent (20%) of the USTDA Grant amount and may only be used for specific services from the Terms of Reference identified in the subcontract; (c) employees of U.S. Contractor or U.S. subcontractor firms responsible for professional services shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the U.S.; (d) goods purchased for implementation of the Study and associated delivery services (e.g., international transportation and insurance) must have their nationality, source and origin in the United States; and (e) goods and services incidental to Study support (e.g., local lodging, food, and transportation) in host country are not subject to the above restrictions. USTDA will make available further details concerning these standards of eligibility upon request.

NATIONALITY:

1) Rule

Except as USTDA may otherwise agree, the Contractor for USTDA funded activities must be either a U.S. firm or a U.S. individual. Prime contractors may utilize U.S.

subcontractors without limitation, but the use of host country subcontractors is limited to 20% of the USTDA grant amount.

2) Application

Accordingly, only a U.S. firm or U.S. individual may submit proposals on USTDA funded activities. Although those proposals may include subcontracting arrangements with host country firms or individuals for up to 20% of the USTDA grant amount, they may not include subcontracts with third country entities. U.S. firms submitting proposals must ensure that the professional services funded by the USTDA grant, to the extent not subcontracted to host country entities, are supplied by employees of the firm or employees of U.S. subcontractor firms who are U.S. individuals.

Interested U.S. firms and consultants who submit proposals must meet USTDA nationality requirements as of the due date for the submission of proposals and, if selected, must continue to meet such requirements throughout the duration of the USTDA-financed activity. These nationality provisions apply to whatever portion of the Terms of Reference is funded with the USTDA grant.

3) Definitions

A "U.S. individual" is (a) a U.S. citizen, or (b) a non-U.S. citizen lawfully admitted for permanent residence in the U.S. (a green card holder).

A "U.S. firm" is a privately owned firm which is incorporated in the U.S., with its principal place of business in the U.S., and which is either (a) more than 50% owned by U.S. individuals, or (b) has been incorporated in the U.S. for more than three (3) years prior to the issuance date of the request for proposals; has performed similar services in the U.S. for that three (3) year period; employs U.S. citizens in more than half of its permanent full-time positions in the U.S.; and has the existing capability in the U.S. to perform the work in question.

A partnership, organized in the U.S. with its principal place of business in the U.S., may also qualify as a "U.S. firm" as would a joint venture organized or incorporated in the United States consisting entirely of U.S. firms and/or U.S. individuals.

A nonprofit organization, such as an educational institution, foundation, or association may also qualify as a "U.S. firm" if it is incorporated in the United States and managed by a governing body, a majority of whose members are U.S. individuals.

SOURCE AND ORIGIN:

1) Rule

In addition to the nationality requirement stated above, any goods (e.g., equipment and materials) and services related to their shipment (e.g., international transportation and insurance) funded under the USTDA Grant Agreement must have their source and origin in the United States, unless USTDA otherwise agrees. However, necessary purchases of goods and project support services which are unavailable from a U.S. source (e.g., local food, housing and transportation) are eligible without specific USTDA approval.

2) Application

Accordingly, the prime contractor must be able to demonstrate that all goods and services purchased in the host country to carry out the Terms of Reference for a USTDA Grant Agreement that were not of U.S. source and origin were unavailable in the United States.

3) Definitions

“Source” means the country from which shipment is made.

“Origin” means the place of production, through manufacturing, assembly or otherwise.

Questions regarding these nationality, source and origin requirements may be addressed to the USTDA Office of General Counsel.

ANNEX 4

GRANT AGREEMENT

This Grant Agreement is entered into between the Government of the United States of America, acting through the U.S. Trade and Development Agency ("USTDA") and the Kazakhstan Electricity Grid Operating Company ("Grantee"). USTDA agrees to provide the Grantee under the terms of this Agreement US\$988,004 ("USTDA Grant") to fund the cost of goods and services required for a feasibility study ("Study") on the proposed Transmission Lines project ("Project") in Kazakhstan ("Host Country").

1. USTDA Funding

The funding to be provided under this Grant Agreement shall be used to fund the costs of a contract between the Grantee and the U.S. firm selected by the Grantee ("Contractor") under which the Contractor will perform the Study ("Contract"). Payment to the Contractor will be made directly by USTDA on behalf of the Grantee with the USTDA Grant funds provided under this Grant Agreement.

2. Terms of Reference

The Terms of Reference for the Study ("Terms of Reference") are attached as Annex I and are hereby made a part of this Grant Agreement. The Study will examine the technical, financial, environmental, and other critical aspects of the proposed Project. The Terms of Reference for the Study shall also be included in the Contract.

3. Standards of Conduct

USTDA and the Grantee recognize the existence of standards of conduct for public officials, and commercial entities, in their respective countries. The parties to this Grant Agreement and the Contractor shall observe these standards, which include not accepting payment of money or anything of value, directly or indirectly, from any person for the purpose of illegally or improperly inducing anyone to take any action favorable to any party in connection with the Study.

4. Grantee Responsibilities

The Grantee shall undertake its best efforts to provide reasonable support for the Contractor, such as local transportation, office space, and secretarial support.

The Grantee shall not be responsible for the payment to the Contractor from the Grantee's own funds for work performed under the Contract in accordance with this Grant Agreement.

5. USTDA as Financier

(A) USTDA Approval of Competitive Selection Procedures

Selection of the U.S. Contractor shall be carried out by the Grantee according to its established procedures for the competitive selection of contractors with advance notice of the procurement published online through *Federal Business Opportunities* (www.fedbizopps.gov). Upon request, the Grantee will submit these contracting procedures and related documents to USTDA for information and/or approval.

(B) USTDA Approval of Contractor Selection

The Grantee shall notify USTDA at the address of record set forth in Article 17 below upon selection of the Contractor to perform the Study. Upon approval of this selection by USTDA, the Grantee and the Contractor shall then enter into a contract for performance of the Study. The Grantee shall notify in writing the U.S. firms that submitted unsuccessful proposals to perform the Study that they were not selected.

(C) USTDA Approval of Contract Between Grantee and Contractor

The Grantee and the Contractor shall enter into a contract for performance of the Study. This contract, and any amendments thereto, including assignments and changes in the Terms of Reference, must be approved by USTDA in writing. To expedite this approval, the Grantee (or the Contractor on the Grantee's behalf) shall transmit to USTDA, at the address set forth in Article 17 below, a photocopy of an English language version of the signed contract or a final negotiated draft version of the contract.

(D) USTDA Not a Party to the Contract

It is understood by the parties that USTDA has reserved certain rights such as, but not limited to, the right to approve the terms of the contract and any amendments thereto, including assignments, the selection of all contractors, the Terms of Reference, the Final Report, and any and all documents related to any contract funded under the Grant Agreement. The parties hereto further understand and agree that USTDA, in reserving any or all of the foregoing approval rights, has acted solely as a financing entity to assure the proper use of United States Government funds, and that any decision by USTDA to exercise or refrain from exercising these approval rights shall be made as a financier in the course of funding the Study and shall not be construed as making USTDA a party to the contract. The parties hereto understand and agree that USTDA may, from time to time, exercise the foregoing approval rights, or discuss matters related to these rights and the Project with the parties to the contract or any subcontract, jointly or separately, without thereby incurring any responsibility or liability to such parties. Any approval or failure to approve by USTDA shall not bar the Grantee or USTDA from asserting any right they might have against the

Contractor, or relieve the Contractor of any liability which the Contractor might otherwise have to the Grantee or USTDA.

(E) Grant Agreement Controlling

Regardless of USTDA approval, the rights and obligations of any party to the contract or subcontract thereunder must be consistent with this Grant Agreement. In the event of any inconsistency between the Grant Agreement and any contract or subcontract funded by the Grant Agreement, the Grant Agreement shall be controlling.

6. Disbursement Procedures

(A) USTDA Approval of Contract Required

USTDA will make disbursements of Grant funds directly to the Contractor only after USTDA approves the Grantee's contract with the Contractor.

(B) Contractor Invoice Requirements

The Grantee should request disbursement of funds by USTDA to the Contractor for performance of the Study by submitting invoices in accordance with the procedures set forth in the USTDA Mandatory Clauses in Annex II.

7. Effective Date

The effective date of this Grant Agreement ("Effective Date") shall be the date of signature by both parties or, if the parties sign on different dates, the date of the last signature.

8. Study Schedule

(A) Study Completion Date

The completion date for the Study, which is June 30, 2012, is the date by which the parties estimate that the Study will have been completed.

(B) Time Limitation on Disbursement of USTDA Grant Funds

Except as USTDA may otherwise agree, (a) no USTDA funds may be disbursed under this Grant Agreement for goods and services which are provided prior to the Effective Date of the Grant Agreement; and (b) all funds made available under the Grant Agreement must be disbursed within four (4) years from the Effective Date of the Grant Agreement.

9. USTDA Mandatory Clauses

All contracts funded under this Grant Agreement shall include the USTDA mandatory clauses set forth in Annex II to this Grant Agreement. All subcontracts funded or partially funded with USTDA Grant funds shall include the USTDA mandatory clauses, except for clauses B(1), G, H, I, and J.

10. Use of U.S. Carriers

(A) Air

Transportation by air of persons or property funded under the Grant Agreement shall be on U.S. flag carriers in accordance with the Fly America Act, 49 U.S.C. 40118, to the extent service by such carriers is available, as provided under applicable U.S. Government regulations.

(B) Marine

Transportation by sea of property funded under the Grant Agreement shall be on U.S. carriers in accordance with U.S. cargo preference law.

11. Nationality, Source and Origin

Except as USTDA may otherwise agree, the following provisions shall govern the delivery of goods and services funded by USTDA under the Grant Agreement: (a) for professional services, the Contractor must be either a U.S. firm or U.S. individual; (b) the Contractor may use U.S. subcontractors without limitation, but the use of subcontractors from Host Country may not exceed twenty percent (20%) of the USTDA Grant amount and may only be used for specific services from the Terms of Reference identified in the subcontract; (c) employees of U.S. Contractor or U.S. subcontractor firms responsible for professional services shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the U.S.; (d) goods purchased for performance of the Study and associated delivery services (e.g., international transportation and insurance) must have their nationality, source and origin in the United States; and (e) goods and services incidental to Study support (e.g., local lodging, food, and transportation) in Host Country are not subject to the above restrictions. USTDA will make available further details concerning these provisions upon request.

12. Taxes

USTDA funds provided under the Grant Agreement shall not be used to pay any taxes, tariffs, duties, fees or other levies imposed under laws in effect in Host Country. Neither the Grantee nor the Contractor will seek reimbursement from USTDA for such taxes, tariffs, duties, fees or other levies.

13. Cooperation Between Parties and Follow-Up

The parties will cooperate to assure that the purposes of the Grant Agreement are accomplished. For five (5) years following receipt by USTDA of the Final Report (as defined in Clause I of Annex II), the Grantee agrees to respond to any reasonable inquiries from USTDA about the status of the Project.

14. Implementation Letters

To assist the Grantee in the implementation of the Study, USTDA may, from time to time, issue implementation letters that will provide additional information about matters covered by the Grant Agreement. The parties may also use jointly agreed upon implementation letters to confirm and record their mutual understanding of matters covered by the Grant Agreement.

15. Recordkeeping and Audit

The Grantee agrees to maintain books, records, and other documents relating to the Study and the Grant Agreement adequate to demonstrate implementation of its responsibilities under the Grant Agreement, including the selection of contractors, receipt and approval of contract deliverables, and approval or disapproval of contractor invoices for payment by USTDA. Such books, records, and other documents shall be separately maintained for three (3) years after the date of the final disbursement by USTDA. The Grantee shall afford USTDA or its authorized representatives the opportunity at reasonable times to review books, records, and other documents relating to the Study and the Grant Agreement.

16. Representation of Parties

For all purposes relevant to the Grant Agreement, the Government of the United States of America will be represented by the U. S. Ambassador to Host Country or USTDA and Grantee will be represented by the Managing Director. The parties hereto may, by written notice, designate additional representatives for all purposes under the Grant Agreement.

17. Addresses of Record for Parties

Any notice, request, document, or other communication submitted by either party to the other under the Grant Agreement shall be in writing or through a wire or electronic medium which produces a tangible record of the transmission, such as a telegram, cable or facsimile, and will be deemed duly given or sent when delivered to such party at the following:

To: Mr. Vladimir G. Ossochenko
Managing Director for National Power Grid Development
Kazakhstan Electricity Grid Operating Company
Joint Stock Company
37, Beibitshilik St., Saryarka District
Astana 01000, Republic of Kazakhstan

Phone: (7172) 31 95 22
Fax: (7172) 97 04 55
Email: ossochenko@kegoc.kz

To: U.S. Trade and Development Agency
1000 Wilson Boulevard, Suite 1600
Arlington, Virginia 22209-3901
USA

Phone: (703) 875-4357
Fax: (703) 875-4009

All such communications shall be in English, unless the parties otherwise agree in writing. In addition, the Grantee shall provide the Commercial Section of the U.S. Embassy in Host Country with a copy of each communication sent to USTDA.

Any communication relating to this Grant Agreement shall include the following fiscal data:

Appropriation No.: 119/101001
Activity No.: 2010-81029A
Reservation No.: 2010810034
Grant No.: GH2010810011

Appropriation No.: 11X/1001
Activity No.: 2010-81029A
Reservation No.: 2010810034
Grant No.: GH2010810011

18. Termination Clause

Either party may terminate the Grant Agreement by giving the other party thirty (30) days advance written notice. The termination of the Grant Agreement will end any obligations of the parties to provide financial or other resources for the Study, except for payments which they are committed to make pursuant to noncancellable commitments entered into with third parties prior to the written notice of termination.

19. Non-waiver of Rights and Remedies

No delay in exercising any right or remedy accruing to either party in connection with the Grant Agreement shall be construed as a waiver of such right or remedy.

20. U.S. Technology and Equipment

By funding this Study, USTDA seeks to promote the project objectives of the Host Country through the use of U.S. technology, goods, and services. In recognition of this purpose, the Grantee agrees that it will allow U.S. suppliers to compete in the procurement of technology, goods and services needed for Project implementation.

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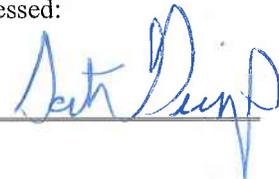
IN WITNESS WHEREOF, the Government of the United States of America and the **Kazakhstan Electricity Grid Operating Company**, each acting through its duly authorized representative, have caused this Agreement to be signed in the English language in their names and delivered as of the day and year written below. In the event that this Grant Agreement is signed in more than one language, the English language version shall govern.

**For the Government of the
United States of America**

By: 

Date: September 20
2010

Witnessed:

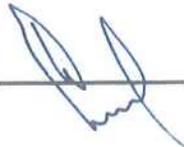
By: 

**For the Kazakhstan Electricity Grid
Operating Company**

By: 

Date: 

Witnessed:

By: 

Annex I -- Terms of Reference

Annex II -- USTDA Mandatory Clauses

Annex I

Terms of Reference

Purpose and Objective

The objective of the Project is to: enable reduction of investments in power generation to maintain the reserve for peak demand, improve operational efficiency, promote economic regional power trade and cooperation, and provide a more reliable supply of electricity from an interconnected network. The Project is envisaged to comprise an investment component that will strengthen the interconnecting transmission lines between Kazakhstan and neighboring Central Asian Republics, and also strengthen interconnection within the country.

The objective of the Study is to carry out technical and economic studies (transmission system analysis, cost estimation, economical and financial analysis and environmental impact assessment) and the conceptual design of the following two specific network expansion projects:

Project Components

1) Construction of 500 kV Interstate Transmission Line Kyrgyzstan – Kazakhstan (“Transmission Line #1”).

a) Transmission Line Components:

- (1) Construction of 500 kilovolt (kV) Overhead High Voltage Transmission Line (OHTL) Kemin-Almaty (200 km);
- (2) Extension of 500 kV substation (SS).

b) **Location:** North of Kyrgyzstan, South-East of Kazakhstan (Almaty Oblast).

2) Construction of 500 kV line Shulbinsk HPP – Aktogai–Taldykorgan–Almaty (“Transmission Line #2”).

a) Transmission Line Components

- (1) Construction of 500 kV OHTL Shulbinsk HPP-Aktogai (420 km);
- (2) Construction of 500 kV OHTL Aktogai –Taldykorgan (250 km);
- (3) Construction of 500 kV OHTL Taldykorgan-Alma (250 km);
- (4) Construction of 500 kV Aktogai SS (2x501 MVA);
- (5) Construction of 500 kV Taldykorgan SS (2x501 MVA);
- (6) Extension (including construction) of Alma SS and Shulbinsk HPP SS to include 500kV.

b) **Location:** This Transmission Line is designed for power delivery from power plants of the North power zone, including the East Kazakhstan Oblast to southern Kazakhstan.

For this Study all work under the Terms of Reference shall be done for Transmission Line #1 and Transmission Line #2, unless otherwise specified.

The Study shall be implemented in accordance with relevant Kazakhstan regulations, including the following:

- “Requirements for Elaboration and Expertise of Feasibility Study of Budget Investment Projects”, approved by Order No.30 of Acting Minister of Economy and Budget Planning of the Republic of Kazakhstan dated 2 March 2009;
- “Requirements for Elaboration and Expertise of Feasibility Study for the Concession Project that requires Co-financing from the Republic or Local Budget”, approved by Order No.30 of Acting Minister of Economy and Budget Planning of the Republic of Kazakhstan dated 2 March 2009;
- "Rules for Elaboration, Coordination, Approval and Content of Feasibility Studies for Construction" (SP RK 1.02-21-2007) put into effect by Order No.163 dated 29.05.2007 and Order No.206 dated 21.07.2007 of the Committee for Construction and Housing and Public Utilities of the Ministry of Industry and Trade of the Republic of Kazakhstan;
- “Regulation on the Procedure of Elaboration, Coordination, Approval and Content of Design Documents for Construction” (SP RK 1.02-21-2007) put into effect by Order No.284 of the Committee for Construction and Housing and Public Utilities of the Ministry of Industry and Trade of the Republic of Kazakhstan dated 08.08.2007.

The Grantee shall provide the documents listed above in Russian (and also in English only if the Grantee already has an English translation of the document). The Grantee shall work with the Contractor to identify the relevant portions of the above documents and other Kazakhstan laws and regulations related to transmission line projects.

Task 1 – Kick-off Meeting and Data Gathering.

The Contractor shall visit Kazakhstan to meet with the Grantee, and other organizations in Kazakhstan as needed, with the help and facilitation of the Grantee, and obtain available initial data including legislative requirements and requirements of internal documents of investment financing organizations.

The Contractor shall also establish communication with the power sector Task Managers of the World Bank, the European Bank for Reconstruction and Development (EBRD), and the Asian Development Bank (ADB).

The Grantee shall be responsible for forming a Steering Committee, composed of three representatives from the Grantee's organization appointed by the Grantee. The purpose of the Steering Committee will be to coordinate the Study, provide feedback to the Contractor's work, and take a pro-active role in assisting the Contractor's activities. The Grantee shall oversee the Steering Committee and be responsible for inputs into the Study.

The Contractor shall review laws of the Republic Kazakhstan, permitting requirements, local building requirements and ordinance constraints that need to be taken into account before the Project can be implemented.

Deliverable: The Contractor shall provide a brief report (pre-inception) in Russian and English, which will include a review of the meetings with the Grantee and the various stakeholders mentioned above, a detailed work plan and timetable (for the Study), including the duties and responsibilities of the Steering Committee. The report shall include an analysis and evaluation of legal and law issues relating to the Project with recommendations on activities required to be performed by the Grantee. This report will also list any issues that need to be resolved and any information that still needs to be provided by the Grantee at this stage of the project.

Task 2 -- Technical Evaluation.

The Contractor shall perform a Technical Evaluation of the Project that shall include all of the work listed below. In carrying out the Technical Evaluation, the Contractor shall ensure that electrical equipment, emergency automation, relay protection and communication equipment shall meet the requirements set forth in the Kazakhstan Electricity Transmission Rehabilitation Projects document (which shall be provided by the Grantee) and shall stipulate the requirements for design with relation to seismic activity in the area of the transmission lines.

2.1. The Contractor shall perform an analysis and assessment of the existing state of the Southern zone of the Unified Power System (UPS) of Kazakhstan and the National Power Grid (NPG) of Kyrgyzstan. This analysis and assessment shall include the following:

- 2.1.1 Energy and power balances;
- 2.1.2 Electric networks power flow analysis as described below;

The Contractor shall perform a power flow and security (stability) analysis for both transmission lines for the following conditions:

	Base Year	Base Year +5yrs	Base Year +10yrs	Base Year +15yrs
Dry hydrology				
Wet Hydrology				
Sensitivity Analyses				
Reliability Analysis				
Stability Analysis				
Conclusion				

2.2 The Contractor shall develop an outlook for the planned development of the Southern zone of the Unified Power System (UPS) of Kazakhstan and NPG of Kyrgyzstan up to 2015 for each year and a forecast up to 2030. The forecast shall include the following:

2.2.1 Forecast of energy and power balances up to 2030, including with the projected commissioning of Kambarata Hydropower Plants (HPP) #1 & #2 in the Kyrgyz Republic and implementation of the Central Asia and South Asia Regional Electricity Market (CASAREM) project that would involve a 500kV transmission line from Central Asia to South Asia.

2.2.2 Electricity balance forecasts performed for two scenarios of macroeconomic development of Kazakhstan and Kyrgyzstan, one with an optimistic forecast and one with a pessimistic forecast.

2.3 The Contractor shall develop 500 kV transmission line construction alternatives for Transmission Line #1, the Kemin-Almaty transmission line. There shall be three alternatives based on the following three alternate connection points to the existing Kazakhstan electricity grid and one alternate for the crossing of the Kazakhstan and Kyrgyzstan border:

2.3.1 Analysis and evaluation of OHTL-500 kV Kemin SS - Almaty SS construction variant with development of key concept designs on Almaty SS extension and upgrading.

2.3.2. Analysis and evaluation of OHTL-500 kV Kemin SS – Alma SS construction variant with development of key concept designs on Alma SS extension and upgrading.

2.3.3 Analysis and evaluation of OHTL-500 kV Kemin SS - Shu SS construction variant with development of key concept designs on Shu SS extension and upgrading.

2.3.4 Consideration of OHTL-500 kV Kazakhstan – Kyrgyzstan construction alternative variant.

2.4 The Contractor shall develop alternatives for the construction of Transmission Line #2, the 500 kV line Shulbinsk HPP – Aktogai–Taldykorgan–Almaty Line. The construction alternatives shall be developed for each segment of the line or substation. These segments or substations are as follows:

2.4.1 Alternative analysis of Construction of 500 kV OHTL Shulbinsk HPP-Aktogai (420 km);

2.4.2 Alternative analysis of Construction of 500 kV OHTL Aktogai – Taldykorgan (250 km);

2.4.3 Alternative analysis of Construction of 500 kV OHTL Taldykorgan-Alma (250 km);

2.4.4 Alternative analysis of Construction of 500 kV Aktogai SS (2x501 MVA);

2.4.5 Alternative analysis of Construction of 500 kV Taldykorgan SS (2x501 MVA);

2.4.6 Alternative analysis of Extension of Alma SS and Shulbinsk HPP SS to include 500 kV.

2.5 The Contractor shall perform electrical network calculations for all construction variants. These network calculations shall include the following:

2.5.1 For transmission lines provide calculation of electrical regimes for winter maximum and summer minimum of loads based on perspective commissioning into Kazakhstan UPS under another projects within the period of 500 kV OHTL Kazakhstan – Kyrgyzstan construction completion.

2.5.2 Make calculations of steady-state and transient stability to determine the maximum allowable and emergency acceptable electricity flows in normal and maintenance diagrams taking into consideration the available volumes of emergency automation (EA) along the North-South transit and at connection points with Integrated Power System of Central Asia (IPS of CA). The Contractor shall make a determination of the required EA volumes. In this subtask (2.5) the Contractor shall consider the following Kazakhstan UPS operation regimes with IPS of CA: parallel work with CA, separate work with CA, separate work at the boundary points, as well as parallel work of Kazakhstan with Kyrgyz power system and separate work with the Uzbekistan power system.

The Contractor shall take into account (while doing these calculations) the values of allowable power surges from Central Asia to the Republic of Kazakhstan set at up to 500 MW and from the Republic of Kazakhstan to Central Asia set at up to 300 MW.

2.5.3 Calculation of short circuits.

2.5.4 Calculation of OHTL energization under no-live load in a summer minimum loads regime, as well as defining the possibility of the line energization under allowable voltage difference between SS buses and dead ends of OHTL.

2.5.5 Definition of long-term "bottlenecks" in the diagram and making proposals on their elimination.

2.5.6 Calculation of electricity losses.

2.6 The Contractor shall develop a justification for the use, type, power and layout diagrams for flexible alternate current transmission systems (FACTS) devices in view of possible maintenance in summer period of two reactors at least along the North-South transit and keeping allowable voltage levels under emergency outage of the third reactor.

The Contractor shall evaluate voltage deviations allowability along the North-South transit under sharp changes of power flows, caused by Central Asia power surges, considering the shunt reactor (ShR) maintenance regimes in the 500 kV network.

2.7 The Contractor shall make the following analyses for the overhead transmission lines and substations:

2.7.1 Calculation and selection of OHTL structures and substation equipment based on climatic zonal maps with once in 25 years regularity in accordance with current Electrical Installations Code (PUE) taking into account wind loads, icing frequency and degree, thunderstorm frequency and force, seismic environment and other acts of nature;

2.7.2 Justification from the technological and economic points of view concerning selection of elements and OHTL components, and tower material and type, considering operational characteristics and the energy-saving effect. This justification shall be confirmed using calculations for, at least, two variants of OHTL design. The justification shall consider a compact design line with reduced phase-to-phase distance and increased transmission capacity as one of the variants;

2.7.3 Calculation of lightning, switching, and ferro-resonance over-voltage value as well as the development of protection devices for such occurrences;

2.7.4 Selection and justification of insulation type for the OHTL to be designed;

2.7.5 Recommendations concerning vibration and conductors and ground wires galloping protection;

2.7.6 Recommended arrangement of fiber optic communication lines (channels) (FOCL). Feasibility comparison of the performance of FOCL design variants (optical ground wire; optical cable embedded in OHTL phase conductor; optical self-supporting conductor; optical cable attached or wrapped around the OHTL phase conductor; optical cable attached or wrapped around the OHTL ground wire; separate cable or overhead FOCL, etc.), including but not limited to calculation of electricity losses under each of five variants of FOCL design and OHTL of conventional design. All conclusions shall be justified with calculations;

2.7.7 Justification of conductor and ground wire type and section selection. Review of technological and economical advisability of using up-to-date conductor types (ACCR, AERO-Z, GTACSR and others) based on operational characteristics and the energy-saving effect in comparison to conventional conductor types with justification by relevant calculations;

2.7.8 Performance of desktop development of OHTL routing variants and submission of preliminary approval of the route by local executive authorities, authorized state authorities and other entities and persons concerned;

2.7.9 Investigation of a scale-model route and furnishing the investigation results to Grantee; and,

2.7.10 Consideration of variants concerning goods transportation from dispatch stations.

2.8 The Contractor shall develop the key principles of emergency automation (EA) arrangement. These principles shall include the following:

2.8.1 Definition of key principles of emergency automation (EA) arrangement along Kazakhstan North-South transit and at the connection points of Southern Zone of Kazakhstan UPS with Central Asia IPS (instability prevention automation, automatics for elimination of asynchronous operation, automatic voltage reduction limitation, automatic arc welding) for the accepted variant of OHTL-500 kV Kazakhstan-Kyrgyzstan energization under parallel and separate operation of Kazakhstan UPS with Central Asia IPS, as well as under parallel operation of Kazakhstan with Kyrgyz power system and separate operation with Uzbek power system; and

2.8.2 Development of structural diagrams of emergency control for computer controlled information complex of automatic action adjustment, the YuKGRES SS, and automatic action adjustment. The diagrams shall also be developed for the Almaty SS, including under parallel and separate operation of Kazakhstan UPS with Central Asia IPS and under parallel operation of Kazakhstan with Kyrgyz Republic power system and separate operation with the Uzbekistan power system.

2.9 The Contractor shall develop the key principles of relay protection and line automation (RP&A) arrangement.

2.10 The Contractor shall develop the key principles of commercial metering system (CMS) devices arrangement. The key principals shall include the following requirement:

2.10.1. Metering shall comply with the requirements of "Grid Code of the Republic of Kazakhstan".

2.11 The Contractor shall develop the key principles of telecommunication and control devices arrangement which provide:

2.11.1 Channels for CMS data transmission from Kemin SS via main and reserve channels into central data base of System Operator of Electricity Wholesale Market (SO of WEM) (Dispatch station of National Dispatch Centre (DS of NDC of SO, Astana));

2.11.2 Channels for transmission of Supervisory Control and Data Acquisition (SCADA) system data via main and reserve communication channels to the Regional dispatch centre (RDC) of Almatinskiye Interregional Electric Networks (MES) branch (Almaty);

2.11.3 Dispatch communication channels at the direction Kemin SS – Almatinskiye MES RDC via main and reserve channels; and,

2.11.4 Channels for PRA and EA signals transmission and channels for acquisition and transmission system with regard to pre-emergency information of EA via main and reserve channels.

2.12 The Contractor shall develop a justification with calculations of work scope relating to SS extension and upgrading for all variants (Almaty, Alma, Shu, Aktogai, and Taldykorgan) with new equipment type and characteristics specified.

Deliverable: Based on the results of the technical analysis in Task 2, the Contractor shall prepare and submit for the Grantee's approval a report in Russian and English that shall include comprehensive information under all sub-items of Task 2.

Task 3. Financial and Economic Evaluation.

The Contractor shall perform a financial and economic evaluation of both transmission lines in the Project. The financial and economic evaluations shall be prepared in compliance with the requirements for the content, procedure and period of financial feasibility study development, including compliance with selection procedure for national budget investments assuming the state equity interest in the capital of legal entities and approved by Order No. 34 of the Acting Minister of Economy and Budget Planning of RK dated 03.03.2009. The financial and economic evaluation shall include the following:

- 3.1 Analysis and evaluation of economic expediency, determination and validation of objectives and tasks of 500 kV OHTL Kazakhstan-Kyrgyzstan construction prepared separately for Kazakhstan and Kyrgyzstan sides. Also, an analysis and evaluation of economic expediency, determination and validation of objectives and tasks of 500 kV OHTL line Shulbinsk HPP – Aktogai–Taldykorgan–Almaty;
- 3.2 Evaluation of commercial risks, the main risk factors, expected rate and nature of changes and projected risk mitigation actions;
- 3.3 Evaluation of economic indicators of OHTL construction using cost-benefit analysis;
- 3.4 In the evaluation the Contractor shall include investment return analysis including multi-optional Net Present Value (NPV), Internal Rate of Return (IRR), Profitability Index (PI), and ordinary and discounted periods of project payback period, as well as a sensitivity analysis.

The following scenarios shall be provided in the economic and financial analysis within the cost structure of the transmission line:

- 100% borrowed financing (commercial and governmental loans);
- financing mix including loan and co-financing (from the national budget, received as equity injection in KEGOC's capital) with 70/30 and 50/50 ratios, and the financial model shall provide for (as may be required) change of the specified loan/co-financing ratio, automatically recalculating the financial outcome calculations (e.g. NPV, IRR);
- financing of the project from the National Budget through co-financing of the concession project;
- using the Grantee's own funds for financing; and
- (For Transmission Line #1 only, the scenario of a shared ownership between Kazakhstan and Kyrgyzstan of the project shall be considered).

For each alternative involving the borrowed financing, the debt service expenses shall be stated separately, which shall not be included in the cost of constructed project. In addition, the Contractor shall make an estimate with regard to impact of each specified scenario on the dynamics of KEGOC transmission, dispatching and electricity generation/consumption balancing tariffs.

3.5 For both transmission lines, estimated cost shall be calculated in prices that are discounted to 2001 base year constant dollars and current prices for the main components of the project: construction of new 500 kV OHTL; extension and upgrading of the existing SS; provision with the required amount of protective relaying and emergency automation devices; provision with dispatch and process control devices; provision with the required number of towers, reinforced concrete foundations, line insulation and line-suspension accessories; provision of the required amount of wires and ground wires. The cost estimate of Transmission Line #1 only shall be calculated separately for construction facilities in the territory of the Republic of Kazakhstan and the Republic of Kyrgyzstan.

3.6 Estimated cost for recovery of agricultural and other losses due to land withdrawal for OHTL construction and SS extension.

3.7 Assessment of the Project electric power transmission capacity by types and by value.

3.8 Determination of the estimated personnel needed to perform line and substation maintenance and repair, as well as the estimated personnel needed for construction and erection works within the construction period.

3.9 Analysis and evaluation of the projected social and economic effect for the Republic of Kazakhstan and Kyrgyz Republic.

3.10 Analysis of electricity generation and sales market in the Southern Kazakhstan, East-Kazakhstan and Almaty oblasts, Central Asia countries at present and forecasting to at least 2030.

3.11 A proposed electricity transmission sales program for Kazakhstan and Kyrgyzstan.

3.12 Analysis of the electricity sales structure, including with participation of power suppliers.

Deliverable: Based on the results of the work performed in Task 3, the Contractor shall prepare and submit to the Grantee for approval, a report including information for all sub-items of the specified items. The report in Russian and English shall include the sensitivity analyses for key components of the economic analysis. The financial and economic model shall be submitted in electronic format (tables) together with

methodology, algorithms and justification for the assumptions made.

Task 4. Preliminary Environmental Impact Assessment.

Both transmission lines should be designed to have the least possible effect on the daily lives of those people directly affected by the route of both lines. However, there are some potential environmental impacts. Some of the impacts, notably the electromagnetic phenomena, are due to the very nature of the line itself. Others, on the other hand, depend on the position of the installation in the environment – for example visual impact of a line in the landscape according to the vegetation or proximity to urban population.

The Contractor shall conduct a preliminary environmental and developmental impact assessment for both transmission lines, and shall determine the following potential environmental effects of the Project:

- Land disturbance and changes on tower sites, switchyards and anywhere that the corridor must be cleared of trees;
- Risk of electro-mechanically induced illnesses by the HV line being routed too close to residences, schools or working places; or the requested clearances in the HV substations not being respected.
- Negative impact on the existing vegetation of the right-of-way;
- Negative impact on the existing fauna of the right-of-way;
- Negative impact on the existing biological and water resources;
- Risk of electrocution of large birds (principally eagles and migratory birds) that bridge the insulators;
- Risk to large waterfowl (geese and swans) of collision with wires, if they pass over a wetland or lake;
- Potential erosion and stream sedimentation caused by new road construction; and,
- Incremental environmental problems associated with the power export/import via both lines by the Grantee.

These potential impacts are generic; they may not occur on the routes to be recommended. However, if the analysis determines that they are likely, the Contractor shall recommend appropriate mitigation measures.

The Contractor shall review the major lending agencies' (EBRD, World Bank, ADB, EIB and others) environmental requirements based on the following three Categories:

Category A: "Diverse and significant potential environmental impact requiring an environmental assessment".

Category B: "Significant potential impact which can be readily identified and quantified and, for which, remedial, measures can be prescribed without much difficulty".

Category C: “Insignificant potential impact not requiring environmental assessment”.

Depending on relevance and applicability, the Contractor shall identify specific measures both protective and mitigating that are needed, estimate the related costs of these measures, and include them in the cost of the Project.

Deliverable: The Contractor shall provide a preliminary environmental impact assessment report in Russian and English, including preventative protective and remedial measures recommended. The report shall be developed consistent with “Instruction for Environmental Impact Assessment of Projected Business or Other Activities in Pre-Plan, Plan, Pre-Project and Project Documents, approved by Order No. 204-п of the Minister of Environment dated 28 June 2007.”

Task 5. Host Country Development Impacts.

The Contractor shall also provide a report on the developmental impacts of the Project in Kazakhstan. While specific attention should be paid to the immediate impact of the Project, the Contractor shall include, where appropriate, any additional developmental benefits of the Project, including bulk power market development in the Central Asia region and seasonal power transaction with the neighboring countries, particularly hydro power capacity transfer to Kazakhstan from Kyrgyzstan. The analysis of potential benefits of the Study should be as concrete and detailed as possible. The Contractor shall provide estimates of the Project's potential benefits in the following areas:

- Incremental and decremental power costs saving due to both transmission lines;
- Infrastructure: A statement on the infrastructure impact giving a brief synopsis (e.g., new capacity built, number of new power plants are planned based on these lines).
- Market-Oriented Reform: A description of any regulations, laws, or institutional changes that are recommended and the effect they would have if implemented.
- Human Capacity Building: A description of the number and type of positions that would be needed to construct and operate the Project. The Contractor shall also describe the job alternatives needed for the job classes that may be reduced as well as retraining needs for staff.
- Technology Transfer and Productivity Enhancement: A description of any advanced technologies that will be implemented as a result of the Project. A description of any efficiency that will be gained (e.g. productivity gains, savings in transmission costs or lower production costs).
- Other: any other developmental benefits to the Project, including generation projects planned future which will require transmission capacity of these lines.

Deliverable: The Contractor shall provide a developmental impact assessment report in Russian and English.

Task 6. Final Report

The Contractor shall prepare a detailed implementation plan, which divides the Project into logical stages and phases. For each phase and stage the implementation plan shall indicate the activities required, the responsibilities of the various groups and organizations for delivering the activities, the deliverables (so that these may be tracked) and a timetable as to when the activities take place and the deliverables will be met. The Contractor shall include the detailed implementation plan in the Final Report.

The Contractor shall also prepare a report in Russian and English in the form of a "technical feasibility study" in accordance with the relevant regulations of the Republic of Kazakhstan and present its findings to the Grantee. The Contractor shall support the Grantee in receiving positive approval of the "technical feasibility study" report from the State Experts of the Republic of Kazakhstan (State Experts) and other Republic of Kazakhstan governmental bodies and shall support the Grantee in answering questions related to the "technical feasibility study" report from the State Experts or other Kazakhstan governmental bodies for a period of six months after submission of the "technical feasibility study" report.

The Contractor shall prepare and deliver to the Grantee a substantive and comprehensive draft Final Report of all work performed under these Terms of Reference in accordance with the requirements of Clause I of Annex II of the Grant Agreement (USTDA's Mandatory Contract Clauses). Only after the Grantee has provided comments and approved the revisions of the draft Final Report, the Contractor shall prepare and submit the Final Report to the Grantee and to USTDA in accordance with the requirements of Clause I of Annex II of the Grant Agreement (USTDA's Mandatory Contract Clauses). The Final Report shall include all deliverables and documents that have been provided to the Grantee. The Final Report shall incorporate all of the findings, recommendations, and conclusions of the Study and shall incorporate all other documents and/or reports provided pursuant to the Tasks of this Terms of Reference. It is the Contractor's responsibility to identify prospective U.S. Sources of Supply in the Final Report to be submitted to USTDA and the Grantee in accordance with Clause I of Annex II of the Grant Agreement. The U.S. Suppliers list shall identify the capabilities, addresses, and principal points of contact for each of the suppliers.

Notes:

- (1) The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.
- (2) The Contractor and the Grantee shall be careful to ensure that the public version of the Final Report contains no security or confidential information.

- (3) The Grantee and USTDA shall have an irrevocable, worldwide, royalty-free, non-exclusive right to use and distribute the Final Report and all work product that is developed under these Terms of Reference.

Annex II

USTDA Mandatory Contract Clauses

A. USTDA Mandatory Clauses Controlling

The parties to this contract acknowledge that this contract is funded in whole or in part by the U.S. Trade and Development Agency ("USTDA") under the Grant Agreement between the Government of the United States of America acting through USTDA and the Kazakhstan Electricity Grid Operating Company ("Client"), dated _____ ("Grant Agreement"). The Client has selected _____ ("Contractor") to perform the feasibility study ("Study") for the Transmission Lines project ("Project") in Kazakhstan ("Host Country"). Notwithstanding any other provisions of this contract, the following USTDA mandatory contract clauses shall govern. All subcontracts entered into by Contractor funded or partially funded with USTDA Grant funds shall include these USTDA mandatory contract clauses, except for clauses B(1), G, H, I, and J. In addition, in the event of any inconsistency between the Grant Agreement and any contract or subcontract thereunder, the Grant Agreement shall be controlling.

B. USTDA as Financier

(1) USTDA Approval of Contract

All contracts funded under the Grant Agreement, and any amendments thereto, including assignments and changes in the Terms of Reference, must be approved by USTDA in writing in order to be effective with respect to the expenditure of USTDA Grant funds. USTDA will not authorize the disbursement of USTDA Grant funds until the contract has been formally approved by USTDA or until the contract conforms to modifications required by USTDA during the contract review process.

(2) USTDA Not a Party to the Contract

It is understood by the parties that USTDA has reserved certain rights such as, but not limited to, the right to approve the terms of this contract and amendments thereto, including assignments, the selection of all contractors, the Terms of Reference, the Final Report, and any and all documents related to any contract funded under the Grant Agreement. The parties hereto further understand and agree that USTDA, in reserving any or all of the foregoing approval rights, has acted solely as a financing entity to assure the proper use of United States Government funds, and that any decision by USTDA to exercise or refrain from exercising these approval rights shall be made as a financier in the course of financing the Study and shall not be construed as making USTDA a party to the contract. The parties hereto understand and agree that USTDA may, from time to time, exercise the foregoing approval rights, or discuss matters related to these rights and the Project with the parties to the contract or any subcontract, jointly or separately, without thereby incurring any responsibility or liability to such parties. Any approval or failure to approve by USTDA shall not

bar the Client or USTDA from asserting any right they might have against the Contractor, or relieve the Contractor of any liability which the Contractor might otherwise have to the Client or USTDA.

C. Nationality, Source and Origin

Except as USTDA may otherwise agree, the following provisions shall govern the delivery of goods and services funded by USTDA under the Grant Agreement: (a) for professional services, the Contractor must be either a U.S. firm or U.S. individual; (b) the Contractor may use U.S. subcontractors without limitation, but the use of subcontractors from Host Country may not exceed twenty percent (20%) of the USTDA Grant amount and may only be used for specific services from the Terms of Reference identified in the subcontract; (c) employees of U.S. Contractor or U.S. subcontractor firms responsible for professional services shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the U.S.; (d) goods purchased for performance of the Study and associated delivery services (e.g., international transportation and insurance) must have their nationality, source and origin in the United States; and (e) goods and services incidental to Study support (e.g., local lodging, food, and transportation) in Host Country are not subject to the above restrictions. USTDA will make available further details concerning these provisions upon request.

D. Recordkeeping and Audit

The Contractor and subcontractors funded under the Grant Agreement shall maintain, in accordance with generally accepted accounting procedures, books, records, and other documents, sufficient to reflect properly all transactions under or in connection with the contract. These books, records, and other documents shall clearly identify and track the use and expenditure of USTDA funds, separately from other funding sources. Such books, records, and documents shall be maintained during the contract term and for a period of three (3) years after final disbursement by USTDA. The Contractor and subcontractors shall afford USTDA, or its authorized representatives, the opportunity at reasonable times for inspection and audit of such books, records, and other documentation.

E. U.S. Carriers

(1) Air

Transportation by air of persons or property funded under the Grant Agreement shall be on U.S. flag carriers in accordance with the Fly America Act, 49 U.S.C. 40118, to the extent service by such carriers is available, as provided under applicable U.S. Government regulations.

(2) Marine

Transportation by sea of property funded under the Grant Agreement shall be on U.S. carriers in accordance with U.S. cargo preference law.

F. Workman's Compensation Insurance

The Contractor shall provide adequate Workman's Compensation Insurance coverage for work performed under this Contract.

G. Reporting Requirements

The Contractor shall advise USTDA by letter as to the status of the Project on March 1st annually for a period of two (2) years after completion of the Study. In addition, if at any time the Contractor receives follow-on work from the Client, the Contractor shall so notify USTDA and designate the Contractor's contact point including name, telephone, and fax number. Since this information may be made publicly available by USTDA, any information which is confidential shall be designated as such by the Contractor and provided separately to USTDA. USTDA will maintain the confidentiality of such information in accordance with applicable law.

H. Disbursement Procedures

(1) USTDA Approval of Contract

Disbursement of Grant funds will be made only after USTDA approval of this contract. To make this review in a timely fashion, USTDA must receive from either the Client or the Contractor a photocopy of an English language version of a signed contract or a final negotiated draft version to the attention of the General Counsel's office at USTDA's address listed in Clause M below.

(2) Payment Schedule Requirements

A payment schedule for disbursement of Grant funds to the Contractor shall be included in this Contract. Such payment schedule must conform to the following USTDA requirements: (1) up to twenty percent (20%) of the total USTDA Grant amount may be used as a mobilization payment; (2) all other payments, with the exception of the final payment, shall be based upon contract performance milestones; and (3) the final payment may be no less than fifteen percent (15%) of the total USTDA Grant amount, payable upon receipt by USTDA of an approved Final Report in accordance with the specifications and quantities set forth in Clause I below. Invoicing procedures for all payments are described below.

(3) Contractor Invoice Requirements

USTDA will make all disbursements of USTDA Grant funds directly to the Contractor. The Contractor must provide USTDA with an ACH Vendor Enrollment Form (available from USTDA) with the first invoice. The Client shall request disbursement of funds by USTDA to the Contractor for performance of the contract by submitting the following to USTDA:

(a) Contractor's Invoice

The Contractor's invoice shall include reference to an item listed in the Contract payment schedule, the requested payment amount, and an appropriate certification by the Contractor, as follows:

(i) For a mobilization payment (if any):

"As a condition for this mobilization payment, the Contractor certifies that it will perform all work in accordance with the terms of its Contract with the Client. To the extent that the Contractor does not comply with the terms and conditions of the Contract, including the USTDA mandatory provisions contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

(ii) For contract performance milestone payments:

"The Contractor has performed the work described in this invoice in accordance with the terms of its contract with the Client and is entitled to payment thereunder. To the extent the Contractor has not complied with the terms and conditions of the Contract, including the USTDA mandatory provisions contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

(iii) For final payment:

"The Contractor has performed the work described in this invoice in accordance with the terms of its contract with the Client and is entitled to payment thereunder. Specifically, the Contractor has submitted the Final Report to the Client, as required by the Contract, and received the Client's approval of the Final Report. To the extent the Contractor has not complied with the terms and conditions of the Contract, including the USTDA mandatory provisions contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

(b) Client's Approval of the Contractor's Invoice

(i) The invoice for a mobilization payment must be approved in writing by the Client.

(ii) For contract performance milestone payments, the following certification by the Client must be provided on the invoice or separately:

"The services for which disbursement is requested by the Contractor have been performed satisfactorily, in accordance with applicable Contract provisions and the terms and conditions of the USTDA Grant Agreement."

(iii) For final payment, the following certification by the Client must be provided on the invoice or separately:

"The services for which disbursement is requested by the Contractor have been performed satisfactorily, in accordance with applicable Contract provisions and terms and conditions of the USTDA Grant Agreement. The Final Report submitted by the Contractor has been reviewed and approved by the Client. "

(c) USTDA Address for Disbursement Requests

Requests for disbursement shall be submitted by courier or mail to the attention of the Finance Department at USTDA's address listed in Clause M below.

(4) Termination

In the event that the Contract is terminated prior to completion, the Contractor will be eligible, subject to USTDA approval, for reasonable and documented costs which have been incurred in performing the Terms of Reference prior to termination, as well as reasonable wind down expenses. Reimbursement for such costs shall not exceed the total amount of undisbursed Grant funds. Likewise, in the event of such termination, USTDA is entitled to receive from the Contractor all USTDA Grant funds previously disbursed to the Contractor (including but not limited to mobilization payments) which exceed the reasonable and documented costs incurred in performing the Terms of Reference prior to termination.

I. USTDA Final Report

(1) Definition

"Final Report" shall mean the Final Report described in the attached Annex I Terms of Reference or, if no such "Final Report" is described therein, "Final Report" shall mean a substantive and comprehensive report of work performed in accordance with the attached Annex I Terms of Reference, including any documents delivered to the Client.

(2) Final Report Submission Requirements

The Contractor shall provide the following to USTDA:

(a) One (1) complete version of the Final Report for USTDA's records. This version shall have been approved by the Client in writing and must be in the English language. It is the responsibility of the Contractor to ensure that confidential information, if any, contained in this version be clearly marked. USTDA will maintain the confidentiality of such information in accordance with applicable law.

and

(b) One (1) copy of the Final Report suitable for public distribution ("Public Version"). The Public Version shall have been approved by the Client in writing and must be in the English language. As this version will be available for public distribution, it must not contain any confidential information. If the report in (a) above contains no confidential information, it may be used as the Public Version. In any event, the Public Version must be informative and contain sufficient Project detail to be useful to prospective equipment and service providers.

and

(c) Two (2) CD-ROMs, each containing a complete copy of the Public Version of the Final Report. The electronic files on the CD-ROMs shall be submitted in a commonly accessible read-only format. As these CD-ROMs will be available for public distribution, they must not contain any confidential information. It is the responsibility of the Contractor to ensure that no confidential information is contained on the CD-ROMs.

The Contractor shall also provide one (1) copy of the Public Version of the Final Report to the Foreign Commercial Service Officer or the Economic Section of the U.S. Embassy in Host Country for informational purposes.

(3) Final Report Presentation

All Final Reports submitted to USTDA must be paginated and include the following:

(a) The front cover of every Final Report shall contain the name of the Client, the name of the Contractor who prepared the report, a report title, USTDA's logo, USTDA's mailing and delivery addresses. If the complete version of the Final Report contains confidential information, the Contractor shall be responsible for labeling the front cover of that version of the Final Report with the term "Confidential Version." The Contractor shall be responsible for labeling the front cover of the Public Version of the Final Report with the term "Public Version." The front cover of every Final Report shall also contain the following disclaimer:

"This report was funded by the U.S. Trade and Development Agency (USTDA), an agency of the U. S. Government. The opinions, findings, conclusions or recommendations expressed in this document are those of the author(s) and do not necessarily represent the official position or policies of

USTDA. USTDA makes no representation about, nor does it accept responsibility for, the accuracy or completeness of the information contained in this report."

(b) The inside front cover of every Final Report shall contain USTDA's logo, USTDA's mailing and delivery addresses, and USTDA's mission statement. Camera-ready copy of USTDA Final Report specifications will be available from USTDA upon request.

(c) The Contractor shall affix to the front of the CD-ROM a label identifying the Host Country, USTDA Activity Number, the name of the Client, the name of the Contractor who prepared the report, a report title, and the following language:

"The Contractor certifies that this CD-ROM contains the Public Version of the Final Report and that all contents are suitable for public distribution."

(d) The Contractor and any subcontractors that perform work pursuant to the Grant Agreement must be clearly identified in the Final Report. Business name, point of contact, address, telephone and fax numbers shall be included for Contractor and each subcontractor.

(e) The Final Report, while aiming at optimum specifications and characteristics for the Project, shall identify the availability of prospective U.S. sources of supply. Business name, point of contact, address, telephone and fax numbers shall be included for each commercial source.

(f) The Final Report shall be accompanied by a letter or other notation by the Client which states that the Client approves the Final Report. A certification by the Client to this effect provided on or with the invoice for final payment will meet this requirement.

J. Modifications

All changes, modifications, assignments or amendments to this contract, including the appendices, shall be made only by written agreement by the parties hereto, subject to written USTDA approval.

K. Study Schedule

(1) Study Completion Date

The completion date for the Study, which is June 30, 2012, is the date by which the parties estimate that the Study will have been completed.

(2) Time Limitation on Disbursement of USTDA Grant Funds

Except as USTDA may otherwise agree, (a) no USTDA funds may be disbursed under this contract for goods and services which are provided prior to the Effective Date of the Grant Agreement; and (b) all funds made available under the Grant Agreement must be disbursed within four (4) years from the Effective Date of the Grant Agreement.

L. Business Practices

The Contractor agrees not to pay, promise to pay, or authorize the payment of any money or anything of value, directly or indirectly, to any person (whether a governmental official or private individual) for the purpose of illegally or improperly inducing anyone to take any action favorable to any party in connection with the Study. The Client agrees not to receive any such payment. The Contractor and the Client agree that each will require that any agent or representative hired to represent them in connection with the Study will comply with this paragraph and all laws which apply to activities and obligations of each party under this Contract, including but not limited to those laws and obligations dealing with improper payments as described above.

M. USTDA Address and Fiscal Data

Any communication with USTDA regarding this Contract shall be sent to the following address and include the fiscal data listed below:

U.S. Trade and Development Agency
1000 Wilson Boulevard, Suite 1600
Arlington, Virginia 22209-3901
USA

Phone: (703) 875-4357
Fax: (703) 875-4009

Fiscal Data:
Appropriation No.: 119/101001
Activity No.: 2010-81029A
Reservation No.: 2010810034
Grant No.: GH2010810011

Appropriation No.: 11X/1001
Activity No.: 2010-81029A
Reservation No.: 2010810034
Grant No.: GH2010810011

N. Definitions

All capitalized terms not otherwise defined herein shall have the meaning set forth in the Grant Agreement.

O. Taxes

USTDA funds provided under the Grant Agreement shall not be used to pay any taxes, tariffs, duties, fees or other levies imposed under laws in effect in Host Country. Neither the Client nor the Contractor will seek reimbursement from USTDA for such taxes, tariffs, duties, fees or other levies.

ANNEX 5

Annex I

Terms of Reference

Purpose and Objective

The objective of the Project is to: enable reduction of investments in power generation to maintain the reserve for peak demand, improve operational efficiency, promote economic regional power trade and cooperation, and provide a more reliable supply of electricity from an interconnected network. The Project is envisaged to comprise an investment component that will strengthen the interconnecting transmission lines between Kazakhstan and neighboring Central Asian Republics, and also strengthen interconnection within the country.

The objective of the Study is to carry out technical and economic studies (transmission system analysis, cost estimation, economical and financial analysis and environmental impact assessment) and the conceptual design of the following two specific network expansion projects:

Project Components

1) Construction of 500 kV Interstate Transmission Line Kyrgyzstan – Kazakhstan (“Transmission Line #1”).

a) Transmission Line Components:

- (1) Construction of 500 kilovolt (kV) Overhead High Voltage Transmission Line (OHTL) Kemin-Almaty (200 km);
- (2) Extension of 500 kV substation (SS).

b) **Location:** North of Kyrgyzstan, South-East of Kazakhstan (Almaty Oblast).

2) Construction of 500 kV line Shulbinsk HPP – Aktogai–Taldykorgan–Almaty (“Transmission Line #2”).

a) Transmission Line Components

- (1) Construction of 500 kV OHTL Shulbinsk HPP-Aktogai (420 km);
- (2) Construction of 500 kV OHTL Aktogai –Taldykorgan (250 km);
- (3) Construction of 500 kV OHTL Taldykorgan-Alma (250 km);
- (4) Construction of 500 kV Aktogai SS (2x501 MVA);
- (5) Construction of 500 kV Taldykorgan SS (2x501 MVA);
- (6) Extension (including construction) of Alma SS and Shulbinsk HPP SS to include 500kV.

b) **Location:** This Transmission Line is designed for power delivery from power plants of the North power zone, including the East Kazakhstan Oblast to southern Kazakhstan.

For this Study all work under the Terms of Reference shall be done for Transmission Line #1 and Transmission Line #2, unless otherwise specified.

The Study shall be implemented in accordance with relevant Kazakhstan regulations, including the following:

- “Requirements for Elaboration and Expertise of Feasibility Study of Budget Investment Projects”, approved by Order No.30 of Acting Minister of Economy and Budget Planning of the Republic of Kazakhstan dated 2 March 2009;
- “Requirements for Elaboration and Expertise of Feasibility Study for the Concession Project that requires Co-financing from the Republic or Local Budget”, approved by Order No.30 of Acting Minister of Economy and Budget Planning of the Republic of Kazakhstan dated 2 March 2009;
- "Rules for Elaboration, Coordination, Approval and Content of Feasibility Studies for Construction" (SP RK 1.02-21-2007) put into effect by Order No.163 dated 29.05.2007 and Order No.206 dated 21.07.2007 of the Committee for Construction and Housing and Public Utilities of the Ministry of Industry and Trade of the Republic of Kazakhstan;
- “Regulation on the Procedure of Elaboration, Coordination, Approval and Content of Design Documents for Construction” (SP RK 1.02-21-2007) put into effect by Order No.284 of the Committee for Construction and Housing and Public Utilities of the Ministry of Industry and Trade of the Republic of Kazakhstan dated 08.08.2007.

The Grantee shall provide the documents listed above in Russian (and also in English only if the Grantee already has an English translation of the document). The Grantee shall work with the Contractor to identify the relevant portions of the above documents and other Kazakhstan laws and regulations related to transmission line projects.

Task 1 – Kick-off Meeting and Data Gathering.

The Contractor shall visit Kazakhstan to meet with the Grantee, and other organizations in Kazakhstan as needed, with the help and facilitation of the Grantee, and obtain available initial data including legislative requirements and requirements of internal documents of investment financing organizations.

The Contractor shall also establish communication with the power sector Task Managers of the World Bank, the European Bank for Reconstruction and Development (EBRD), and the Asian Development Bank (ADB).

The Grantee shall be responsible for forming a Steering Committee, composed of three representatives from the Grantee's organization appointed by the Grantee. The purpose of the Steering Committee will be to coordinate the Study, provide feedback to the Contractor's work, and take a pro-active role in assisting the Contractor's activities. The Grantee shall oversee the Steering Committee and be responsible for inputs into the Study.

The Contractor shall review laws of the Republic Kazakhstan, permitting requirements, local building requirements and ordinance constraints that need to be taken into account before the Project can be implemented.

Deliverable: The Contractor shall provide a brief report (pre-inception) in Russian and English, which will include a review of the meetings with the Grantee and the various stakeholders mentioned above, a detailed work plan and timetable (for the Study), including the duties and responsibilities of the Steering Committee. The report shall include an analysis and evaluation of legal and law issues relating to the Project with recommendations on activities required to be performed by the Grantee. This report will also list any issues that need to be resolved and any information that still needs to be provided by the Grantee at this stage of the project.

Task 2 -- Technical Evaluation.

The Contractor shall perform a Technical Evaluation of the Project that shall include all of the work listed below. In carrying out the Technical Evaluation, the Contractor shall ensure that electrical equipment, emergency automation, relay protection and communication equipment shall meet the requirements set forth in the Kazakhstan Electricity Transmission Rehabilitation Projects document (which shall be provided by the Grantee) and shall stipulate the requirements for design with relation to seismic activity in the area of the transmission lines.

2.1. The Contractor shall perform an analysis and assessment of the existing state of the Southern zone of the Unified Power System (UPS) of Kazakhstan and the National Power Grid (NPG) of Kyrgyzstan. This analysis and assessment shall include the following:

- 2.1.1 Energy and power balances;
- 2.1.2 Electric networks power flow analysis as described below;

The Contractor shall perform a power flow and security (stability) analysis for both transmission lines for the following conditions:

	Base Year	Base Year +5yrs	Base Year +10yrs	Base Year +15yrs
Dry hydrology				
Wet Hydrology				
Sensitivity Analyses				
Reliability Analysis				
Stability Analysis				
Conclusion				

2.2 The Contractor shall develop an outlook for the planned development of the Southern zone of the Unified Power System (UPS) of Kazakhstan and NPG of Kyrgyzstan up to 2015 for each year and a forecast up to 2030. The forecast shall include the following:

2.2.1 Forecast of energy and power balances up to 2030, including with the projected commissioning of Kambarata Hydropower Plants (HPP) #1 & #2 in the Kyrgyz Republic and implementation of the Central Asia and South Asia Regional Electricity Market (CASAREM) project that would involve a 500kV transmission line from Central Asia to South Asia.

2.2.2 Electricity balance forecasts performed for two scenarios of macroeconomic development of Kazakhstan and Kyrgyzstan, one with an optimistic forecast and one with a pessimistic forecast.

2.3 The Contractor shall develop 500 kV transmission line construction alternatives for Transmission Line #1, the Kemin-Almaty transmission line. There shall be three alternatives based on the following three alternate connection points to the existing Kazakhstan electricity grid and one alternate for the crossing of the Kazakhstan and Kyrgyzstan border:

2.3.1 Analysis and evaluation of OHTL-500 kV Kemin SS - Almaty SS construction variant with development of key concept designs on Almaty SS extension and upgrading.

2.3.2. Analysis and evaluation of OHTL-500 kV Kemin SS – Alma SS construction variant with development of key concept designs on Alma SS extension and upgrading.

2.3.3 Analysis and evaluation of OHTL-500 kV Kemin SS - Shu SS construction variant with development of key concept designs on Shu SS extension and upgrading.

2.3.4 Consideration of OHTL-500 kV Kazakhstan – Kyrgyzstan construction alternative variant.

2.4 The Contractor shall develop alternatives for the construction of Transmission Line #2, the 500 kV line Shulbinsk HPP – Aktogai–Taldykorgan–Almaty Line. The construction alternatives shall be developed for each segment of the line or substation. These segments or substations are as follows:

2.4.1 Alternative analysis of Construction of 500 kV OHTL Shulbinsk HPP-Aktogai (420 km);

2.4.2 Alternative analysis of Construction of 500 kV OHTL Aktogai – Taldykorgan (250 km);

2.4.3 Alternative analysis of Construction of 500 kV OHTL Taldykorgan-Alma (250 km);

2.4.4 Alternative analysis of Construction of 500 kV Aktogai SS (2x501 MVA);

2.4.5 Alternative analysis of Construction of 500 kV Taldykorgan SS (2x501 MVA);

2.4.6 Alternative analysis of Extension of Alma SS and Shulbinsk HPP SS to include 500 kV.

2.5 The Contractor shall perform electrical network calculations for all construction variants. These network calculations shall include the following:

2.5.1 For transmission lines provide calculation of electrical regimes for winter maximum and summer minimum of loads based on perspective commissioning into Kazakhstan UPS under another projects within the period of 500 kV OHTL Kazakhstan – Kyrgyzstan construction completion.

2.5.2 Make calculations of steady-state and transient stability to determine the maximum allowable and emergency acceptable electricity flows in normal and maintenance diagrams taking into consideration the available volumes of emergency automation (EA) along the North-South transit and at connection points with Integrated Power System of Central Asia (IPS of CA). The Contractor shall make a determination of the required EA volumes. In this subtask (2.5) the Contractor shall consider the following Kazakhstan UPS operation regimes with IPS of CA: parallel work with CA, separate work with CA, separate work at the boundary points, as well as parallel work of Kazakhstan with Kyrgyz power system and separate work with the Uzbekistan power system.

The Contractor shall take into account (while doing these calculations) the values of allowable power surges from Central Asia to the Republic of Kazakhstan set at up to 500 MW and from the Republic of Kazakhstan to Central Asia set at up to 300 MW.

2.5.3 Calculation of short circuits.

2.5.4 Calculation of OHTL energization under no-live load in a summer minimum loads regime, as well as defining the possibility of the line energization under allowable voltage difference between SS buses and dead ends of OHTL.

2.5.5 Definition of long-term "bottlenecks" in the diagram and making proposals on their elimination.

2.5.6 Calculation of electricity losses.

2.6 The Contractor shall develop a justification for the use, type, power and layout diagrams for flexible alternate current transmission systems (FACTS) devices in view of possible maintenance in summer period of two reactors at least along the North-South transit and keeping allowable voltage levels under emergency outage of the third reactor.

The Contractor shall evaluate voltage deviations allowability along the North-South transit under sharp changes of power flows, caused by Central Asia power surges, considering the shunt reactor (ShR) maintenance regimes in the 500 kV network.

2.7 The Contractor shall make the following analyses for the overhead transmission lines and substations:

2.7.1 Calculation and selection of OHTL structures and substation equipment based on climatic zonal maps with once in 25 years regularity in accordance with current Electrical Installations Code (PUE) taking into account wind loads, icing frequency and degree, thunderstorm frequency and force, seismic environment and other acts of nature;

2.7.2 Justification from the technological and economic points of view concerning selection of elements and OHTL components, and tower material and type, considering operational characteristics and the energy-saving effect. This justification shall be confirmed using calculations for, at least, two variants of OHTL design. The justification shall consider a compact design line with reduced phase-to-phase distance and increased transmission capacity as one of the variants;

2.7.3 Calculation of lightning, switching, and ferro-resonance over-voltage value as well as the development of protection devices for such occurrences;

2.7.4 Selection and justification of insulation type for the OHTL to be designed;

2.7.5 Recommendations concerning vibration and conductors and ground wires galloping protection;

2.7.6 Recommended arrangement of fiber optic communication lines (channels) (FOCL). Feasibility comparison of the performance of FOCL design variants (optical ground wire; optical cable embedded in OHTL phase conductor; optical self-supporting conductor; optical cable attached or wrapped around the OHTL phase conductor; optical cable attached or wrapped around the OHTL ground wire; separate cable or overhead FOCL, etc.), including but not limited to calculation of electricity losses under each of five variants of FOCL design and OHTL of conventional design. All conclusions shall be justified with calculations;

2.7.7 Justification of conductor and ground wire type and section selection. Review of technological and economical advisability of using up-to-date conductor types (ACCR, AERO-Z, GTACSR and others) based on operational characteristics and the energy-saving effect in comparison to conventional conductor types with justification by relevant calculations;

2.7.8 Performance of desktop development of OHTL routing variants and submission of preliminary approval of the route by local executive authorities, authorized state authorities and other entities and persons concerned;

2.7.9 Investigation of a scale-model route and furnishing the investigation results to Grantee; and,

2.7.10 Consideration of variants concerning goods transportation from dispatch stations.

2.8 The Contractor shall develop the key principles of emergency automation (EA) arrangement. These principles shall include the following:

2.8.1 Definition of key principles of emergency automation (EA) arrangement along Kazakhstan North-South transit and at the connection points of Southern Zone of Kazakhstan UPS with Central Asia IPS (instability prevention automation, automatics for elimination of asynchronous operation, automatic voltage reduction limitation, automatic arc welding) for the accepted variant of OHTL-500 kV Kazakhstan-Kyrgyzstan energization under parallel and separate operation of Kazakhstan UPS with Central Asia IPS, as well as under parallel operation of Kazakhstan with Kyrgyz power system and separate operation with Uzbek power system; and

2.8.2 Development of structural diagrams of emergency control for computer controlled information complex of automatic action adjustment, the YuKGRES SS, and automatic action adjustment. The diagrams shall also be developed for the Almaty SS, including under parallel and separate operation of Kazakhstan UPS with Central Asia IPS and under parallel operation of Kazakhstan with Kyrgyz Republic power system and separate operation with the Uzbekistan power system.

2.9 The Contractor shall develop the key principles of relay protection and line automation (RP&A) arrangement.

2.10 The Contractor shall develop the key principles of commercial metering system (CMS) devices arrangement. The key principals shall include the following requirement:

2.10.1. Metering shall comply with the requirements of "Grid Code of the Republic of Kazakhstan".

2.11 The Contractor shall develop the key principles of telecommunication and control devices arrangement which provide:

2.11.1 Channels for CMS data transmission from Kemin SS via main and reserve channels into central data base of System Operator of Electricity Wholesale Market (SO of WEM) (Dispatch station of National Dispatch Centre (DS of NDC of SO, Astana));

2.11.2 Channels for transmission of Supervisory Control and Data Acquisition (SCADA) system data via main and reserve communication channels to the Regional dispatch centre (RDC) of Almatinskiye Interregional Electric Networks (MES) branch (Almaty);

2.11.3 Dispatch communication channels at the direction Kemin SS – Almatinskiye MES RDC via main and reserve channels; and,

2.11.4 Channels for PRA and EA signals transmission and channels for acquisition and transmission system with regard to pre-emergency information of EA via main and reserve channels.

2.12 The Contractor shall develop a justification with calculations of work scope relating to SS extension and upgrading for all variants (Almaty, Alma, Shu, Aktogai, and Taldykorgan) with new equipment type and characteristics specified.

Deliverable: Based on the results of the technical analysis in Task 2, the Contractor shall prepare and submit for the Grantee's approval a report in Russian and English that shall include comprehensive information under all sub-items of Task 2.

Task 3. Financial and Economic Evaluation.

The Contractor shall perform a financial and economic evaluation of both transmission lines in the Project. The financial and economic evaluations shall be prepared in compliance with the requirements for the content, procedure and period of financial feasibility study development, including compliance with selection procedure for national budget investments assuming the state equity interest in the capital of legal entities and approved by Order No. 34 of the Acting Minister of Economy and Budget Planning of RK dated 03.03.2009. The financial and economic evaluation shall include the following:

- 3.1 Analysis and evaluation of economic expediency, determination and validation of objectives and tasks of 500 kV OHTL Kazakhstan-Kyrgyzstan construction prepared separately for Kazakhstan and Kyrgyzstan sides. Also, an analysis and evaluation of economic expediency, determination and validation of objectives and tasks of 500 kV OHTL line Shulbinsk HPP – Aktogai–Taldykorgan–Almaty;
- 3.2 Evaluation of commercial risks, the main risk factors, expected rate and nature of changes and projected risk mitigation actions;
- 3.3 Evaluation of economic indicators of OHTL construction using cost-benefit analysis;
- 3.4 In the evaluation the Contractor shall include investment return analysis including multi-optional Net Present Value (NPV), Internal Rate of Return (IRR), Profitability Index (PI), and ordinary and discounted periods of project payback period, as well as a sensitivity analysis.

The following scenarios shall be provided in the economic and financial analysis within the cost structure of the transmission line:

- 100% borrowed financing (commercial and governmental loans);
- financing mix including loan and co-financing (from the national budget, received as equity injection in KEGOC's capital) with 70/30 and 50/50 ratios, and the financial model shall provide for (as may be required) change of the specified loan/co-financing ratio, automatically recalculating the financial outcome calculations (e.g. NPV, IRR);
- financing of the project from the National Budget through co-financing of the concession project;
- using the Grantee's own funds for financing; and
- (For Transmission Line #1 only, the scenario of a shared ownership between Kazakhstan and Kyrgyzstan of the project shall be considered).

For each alternative involving the borrowed financing, the debt service expenses shall be stated separately, which shall not be included in the cost of constructed project. In addition, the Contractor shall make an estimate with regard to impact of each specified scenario on the dynamics of KEGOC transmission, dispatching and electricity generation/consumption balancing tariffs.

3.5 For both transmission lines, estimated cost shall be calculated in prices that are discounted to 2001 base year constant dollars and current prices for the main components of the project: construction of new 500 kV OHTL; extension and upgrading of the existing SS; provision with the required amount of protective relaying and emergency automation devices; provision with dispatch and process control devices; provision with the required number of towers, reinforced concrete foundations, line insulation and line-suspension accessories; provision of the required amount of wires and ground wires. The cost estimate of Transmission Line #1 only shall be calculated separately for construction facilities in the territory of the Republic of Kazakhstan and the Republic of Kyrgyzstan.

3.6 Estimated cost for recovery of agricultural and other losses due to land withdrawal for OHTL construction and SS extension.

3.7 Assessment of the Project electric power transmission capacity by types and by value.

3.8 Determination of the estimated personnel needed to perform line and substation maintenance and repair, as well as the estimated personnel needed for construction and erection works within the construction period.

3.9 Analysis and evaluation of the projected social and economic effect for the Republic of Kazakhstan and Kyrgyz Republic.

3.10 Analysis of electricity generation and sales market in the Southern Kazakhstan, East-Kazakhstan and Almaty oblasts, Central Asia countries at present and forecasting to at least 2030.

3.11 A proposed electricity transmission sales program for Kazakhstan and Kyrgyzstan.

3.12 Analysis of the electricity sales structure, including with participation of power suppliers.

Deliverable: Based on the results of the work performed in Task 3, the Contractor shall prepare and submit to the Grantee for approval, a report including information for all sub-items of the specified items. The report in Russian and English shall include the sensitivity analyses for key components of the economic analysis. The financial and economic model shall be submitted in electronic format (tables) together with

methodology, algorithms and justification for the assumptions made.

Task 4. Preliminary Environmental Impact Assessment.

Both transmission lines should be designed to have the least possible effect on the daily lives of those people directly affected by the route of both lines. However, there are some potential environmental impacts. Some of the impacts, notably the electromagnetic phenomena, are due to the very nature of the line itself. Others, on the other hand, depend on the position of the installation in the environment – for example visual impact of a line in the landscape according to the vegetation or proximity to urban population.

The Contractor shall conduct a preliminary environmental and developmental impact assessment for both transmission lines, and shall determine the following potential environmental effects of the Project:

- Land disturbance and changes on tower sites, switchyards and anywhere that the corridor must be cleared of trees;
- Risk of electro-mechanically induced illnesses by the HV line being routed too close to residences, schools or working places; or the requested clearances in the HV substations not being respected.
- Negative impact on the existing vegetation of the right-of-way;
- Negative impact on the existing fauna of the right-of-way;
- Negative impact on the existing biological and water resources;
- Risk of electrocution of large birds (principally eagles and migratory birds) that bridge the insulators;
- Risk to large waterfowl (geese and swans) of collision with wires, if they pass over a wetland or lake;
- Potential erosion and stream sedimentation caused by new road construction; and,
- Incremental environmental problems associated with the power export/import via both lines by the Grantee.

These potential impacts are generic; they may not occur on the routes to be recommended. However, if the analysis determines that they are likely, the Contractor shall recommend appropriate mitigation measures.

The Contractor shall review the major lending agencies' (EBRD, World Bank, ADB, EIB and others) environmental requirements based on the following three Categories:

Category A: "Diverse and significant potential environmental impact requiring an environmental assessment".

Category B: "Significant potential impact which can be readily identified and quantified and, for which, remedial, measures can be prescribed without much difficulty".

Category C: “Insignificant potential impact not requiring environmental assessment”.

Depending on relevance and applicability, the Contractor shall identify specific measures both protective and mitigating that are needed, estimate the related costs of these measures, and include them in the cost of the Project.

Deliverable: The Contractor shall provide a preliminary environmental impact assessment report in Russian and English, including preventative protective and remedial measures recommended. The report shall be developed consistent with “Instruction for Environmental Impact Assessment of Projected Business or Other Activities in Pre-Plan, Plan, Pre-Project and Project Documents, approved by Order No. 204-п of the Minister of Environment dated 28 June 2007.”

Task 5. Host Country Development Impacts.

The Contractor shall also provide a report on the developmental impacts of the Project in Kazakhstan. While specific attention should be paid to the immediate impact of the Project, the Contractor shall include, where appropriate, any additional developmental benefits of the Project, including bulk power market development in the Central Asia region and seasonal power transaction with the neighboring countries, particularly hydro power capacity transfer to Kazakhstan from Kyrgyzstan. The analysis of potential benefits of the Study should be as concrete and detailed as possible. The Contractor shall provide estimates of the Project's potential benefits in the following areas:

- Incremental and decremental power costs saving due to both transmission lines;
- Infrastructure: A statement on the infrastructure impact giving a brief synopsis (e.g., new capacity built, number of new power plants are planned based on these lines).
- Market-Oriented Reform: A description of any regulations, laws, or institutional changes that are recommended and the effect they would have if implemented.
- Human Capacity Building: A description of the number and type of positions that would be needed to construct and operate the Project. The Contractor shall also describe the job alternatives needed for the job classes that may be reduced as well as retraining needs for staff.
- Technology Transfer and Productivity Enhancement: A description of any advanced technologies that will be implemented as a result of the Project. A description of any efficiency that will be gained (e.g. productivity gains, savings in transmission costs or lower production costs).
- Other: any other developmental benefits to the Project, including generation projects planned future which will require transmission capacity of these lines.

Deliverable: The Contractor shall provide a developmental impact assessment report in Russian and English.

Task 6. Final Report

The Contractor shall prepare a detailed implementation plan, which divides the Project into logical stages and phases. For each phase and stage the implementation plan shall indicate the activities required, the responsibilities of the various groups and organizations for delivering the activities, the deliverables (so that these may be tracked) and a timetable as to when the activities take place and the deliverables will be met. The Contractor shall include the detailed implementation plan in the Final Report.

The Contractor shall also prepare a report in Russian and English in the form of a "technical feasibility study" in accordance with the relevant regulations of the Republic of Kazakhstan and present its findings to the Grantee. The Contractor shall support the Grantee in receiving positive approval of the "technical feasibility study" report from the State Experts of the Republic of Kazakhstan (State Experts) and other Republic of Kazakhstan governmental bodies and shall support the Grantee in answering questions related to the "technical feasibility study" report from the State Experts or other Kazakhstan governmental bodies for a period of six months after submission of the "technical feasibility study" report.

The Contractor shall prepare and deliver to the Grantee a substantive and comprehensive draft Final Report of all work performed under these Terms of Reference in accordance with the requirements of Clause I of Annex II of the Grant Agreement (USTDA's Mandatory Contract Clauses). Only after the Grantee has provided comments and approved the revisions of the draft Final Report, the Contractor shall prepare and submit the Final Report to the Grantee and to USTDA in accordance with the requirements of Clause I of Annex II of the Grant Agreement (USTDA's Mandatory Contract Clauses). The Final Report shall include all deliverables and documents that have been provided to the Grantee. The Final Report shall incorporate all of the findings, recommendations, and conclusions of the Study and shall incorporate all other documents and/or reports provided pursuant to the Tasks of this Terms of Reference. It is the Contractor's responsibility to identify prospective U.S. Sources of Supply in the Final Report to be submitted to USTDA and the Grantee in accordance with Clause I of Annex II of the Grant Agreement. The U.S. Suppliers list shall identify the capabilities, addresses, and principal points of contact for each of the suppliers.

Notes:

- (1) The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.
- (2) The Contractor and the Grantee shall be careful to ensure that the public version of the Final Report contains no security or confidential information.

- (3) The Grantee and USTDA shall have an irrevocable, worldwide, royalty-free, non-exclusive right to use and distribute the Final Report and all work product that is developed under these Terms of Reference.

7. Project Manager's name, address, telephone number, e-mail address and fax number.

B. Offeror's Authorized Negotiator

Provide name, title, address, telephone number, e-mail address and fax number of the Offeror's authorized negotiator. The person cited shall be empowered to make binding commitments for the Offeror and its subcontractors, if any.

C. Negotiation Prerequisites

1. Discuss any current or anticipated commitments which may impact the ability of the Offeror or its subcontractors to complete the Feasibility Study as proposed and reflect such impact within the project schedule.
2. Identify any specific information which is needed from the Grantee before commencing contract negotiations.

D. Offeror's Representations

Please provide exceptions and/or explanations in the event that any of the following representations cannot be made:

1. Offeror is a corporation [*insert applicable type of entity if not a corporation*] duly organized, validly existing and in good standing under the laws of the State of _____. The Offeror has all the requisite corporate power and authority to conduct its business as presently conducted, to submit this proposal, and if selected, to execute and deliver a contract to the Grantee for the performance of the Feasibility Study. The Offeror is not debarred, suspended, or to the best of its knowledge or belief, proposed for debarment, or ineligible for the award of contracts by any federal or state governmental agency or authority. The Offeror has included, with this

proposal, a certified copy of its Articles of Incorporation, and a certificate of good standing issued within one month of the date of its proposal by the State of _____.

2. Neither the Offeror nor any of its principal officers have, within the three-year period preceding this RFP, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government contract or subcontract; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating federal or state criminal tax laws, or receiving stolen property.
3. Neither the Offeror, nor any of its principal officers, is presently indicted for, or otherwise criminally or civilly charged with, commission of any of the offenses enumerated in paragraph 2 above.
4. There are no federal or state tax liens pending against the assets, property or business of the Offeror. The Offeror, has not, within the three-year period preceding this RFP, been notified of any delinquent federal or state taxes in an amount that exceeds \$3,000 for which the liability remains unsatisfied. Taxes are considered delinquent if (a) the tax liability has been fully determined, with no pending administrative or judicial appeals; and (b) a taxpayer has failed to pay the tax liability when full payment is due and required.
5. The Offeror has not commenced a voluntary case or other proceeding seeking liquidation, reorganization or other relief with respect to itself or its debts under any bankruptcy, insolvency or other similar law. The Offeror has not had filed against it an involuntary petition under any bankruptcy, insolvency or similar law.

The selected Offeror shall notify the Grantee and USTDA if any of the representations included in its proposal are no longer true and correct at the time of its entry into a contract with the Grantee. USTDA retains the right to request an updated certificate of good standing from the selected Offeror.

Signed: _____
(Authorized Representative)

Print Name: _____

Title: _____

Date: _____