

REQUEST FOR PROPOSALS

TECHNICAL ASSISTANCE FOR THE NATIONAL ELECTRIC POWER COMPANY

TECHNICAL EVALUATION FOR THE JORDANIAN ELECTRICAL SYSTEM

Submission Deadline: 4:00 PM LOCAL JORDAN TIME
NOVEMBER 10, 2009

Submission Place: Dr. Ahmad Hiyasat
Jordan, Amman, Zahran Str., 275
National Electric Power Company (NEPCO)
Phone: 962-6-5818230

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\$370,000 to the National Electric Power Company (NEPCO, or the "Grantee") in accordance with a grant agreement dated August 9, 2009 (the "Grant Agreement"). The technical assistance (TA) will be used to plan power quality improvements to the transmission network as well as to plan reliability improvements for connecting renewable resources and protecting the system. The TA will identify new generation for the purpose of increasing reliability of the transmission grid, which will provide power to households and protect the system during blackouts and brownouts. In addition, the TA will seek to identify potential improvements in dispatch procedures which will lead to more efficient use of the existing and planned electricity infrastructure.

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 Technical Assistance.

1.1 BACKGROUND SUMMARY

The proposed TA will provide NEPCO with technical assistance on several electrical transmission topics including:

- Quality of Service;
- Protection and Auxiliary Systems;
- Incorporating Renewable Resources into the Planning Process;
- Restoration Plan; and
- Dispatching Procedures.

Improvements in the listed areas are vital to the reliable and safe operation of the Jordanian Energy Grid as well as to the increase of renewable energy resources utilization in the country. While the existing Transmission Master Plan for Jordan covers basic topics including load demand forecasting, system expansion, and capital planning, it lacks substance on the crucial items requested under this study. The optimization of topics included in this TA should lead to more rational resource utilization, eliminating unnecessary redundancies, technological innovation, and building a capability of adding cleaner generation sources to the Jordanian power system.

A background Definitional Mission is provided for reference in Annex 2.

1.2 OBJECTIVE

The proposed assistance will be used to plan power quality improvements to the transmission network as well as to plan reliability improvements of connecting renewable resources and protecting the system. The Project will identify newly required reliability standards, which will

provide power to households and protect the system during blackouts and brownouts. In addition, the improvements in dispatch, will lead to more efficient use of the existing and planned electricity infrastructure. The Terms of Reference (TOR) for this Technical Assistance 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\$370,000. **The USTDA grant of \$US370,000 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\$370,000 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 Technical Evaluation for the Jordanian Electrical System.

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 REPORT

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 Technical Assistance.

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 Technical Assistance.

2.5 PROJECT FUNDING SOURCE

The Technical Assistance will be funded under a grant from USTDA. The total amount of the grant is not to exceed US\$370,000.

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 only English.

2.13 PROPOSAL SUBMISSION REQUIREMENTS

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

Dr. Ahmad Hiyasat
Jordan, Amman, Zahran Str., 275
National Electric Power Company (NEPCO)
Phone: 962-6-5818230

An Original and two (2) copies of your proposal must be received at the above address no later than 4:00 PM local Jordanian time, on November 10, 2009.

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 two (2) 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.

2.16 EFFECTIVE PERIOD OF PROPOSAL

The proposal shall be binding upon the Offeror for NINETY days after the proposal due date, and 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, Technical Assistance 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 be required to (a) provide local transportation, office space and secretarial 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\$370,000, which is a fixed amount.

Offerors shall submit one (1) original and two (2) copies of the proposal. 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 Technical Assistance.
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 commitments which may impact the ability of the Offeror or its subcontractors to complete the Technical Assistance 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 Technical Assistance. 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 Technical Assistance. 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 Technical Assistance.

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 required by the Grantee or other participating agencies and any work space or facilities needed to complete the Technical Assistance.

3.5 EXPERIENCE AND QUALIFICATIONS

Provide a discussion of the Offeror's experience and qualifications that are relevant to the objectives and TOR for the Technical Assistance. 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 each of 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 Technical Assistance as described in this RFP.

Section 4: AWARD CRITERIA

Individual proposals will be initially evaluated by a Procurement Selection 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:

Professional Experience (40%) – Each bidder will propose a project team that is fully qualified to execute the entire study scope of work. The proposed staff should have qualifications and experience in:

- Experience and capability to perform feasibility studies for the proposed scope of work. Experience in the region, preferably in Middle East.
- Demonstration of understanding of all tasks. Proposal efforts should be responsive to requirements outlined in the Scope of Work.
- The proposed staff should have qualifications and experience in engineering, technical analysis, operations planning and modeling, environmental assessments, as well as excellent technical knowledge of transmission lines, substations, and appropriate software and hardware.

Experience with utility clients would be beneficial. Qualified bidder will provide evidence of satisfactorily executing at least two similar projects in the last 10 years. The bidder shall highlight the similarities between the past experience and the proposed project.

International Experience (20%) – Each bidder shall exhibit international experience and capability to perform feasibility studies in the region, with preference given to Jordan. Qualified bidder will provide evidence of satisfactory executing at least one international project of similar nature and complexity in the last 10 years.

Proposed Work Plan (40%) – Each bidder shall demonstrate understanding of all project tasks. Proposal efforts should be responsive to requirements outlined in the Scope of Work and RFP. The proposed Work Plan should be detailed, realistic, and manageable. Clear objectives should be achieved at the end of all tasks.

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

Price will not be a factor in contractor selection.

ANNEX 1

Dr. Ahmad Hiyasat
Jordan, Amman, Zahran Str., 275
National Electric Power Company (NEPCO)
Phone: 962-6-5818230

Technical Evaluation for the Jordanian Electrical System

POC: John Kusnierek, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. Technical Evaluation for the Jordanian Electrical System. The Grantee invites submission of qualifications and proposal data (collectively referred to as the "Proposal") from interested U.S. firms that are qualified on the basis of experience and capability to perform technical assistance on a comprehensive evaluation of the Jordanian electrical transmission lines.

The Jordanian National Electric Power Company (NEPCO) is a state-owned monopoly responsible for the management, operation and development of the country's high voltage transmission network and load dispatching. Jordan's basic plan for the future of its electric utility system involves having NEPCO maintain ownership of transmission assets, but relying on the private sector for most of the new power generation and privatizing existing generation assets.

The technical assistance (TA) will be used to plan power quality improvements to the transmission network as well as to plan reliability improvements for connecting renewable resources and protecting the system. The TA will identify new generation for the purpose of increasing reliability of the transmission grid, which will provide power to households and protect the system during blackouts and brownouts. In addition, the TA will seek to identify potential improvements in dispatch procedures which will lead to more efficient use of the existing and planned electricity infrastructure.

The proposed TA will provide the National Electricity Company of Jordan (NEPCO, or the "Grantee") with technical assistance on several electrical transmission topics including:

- Quality of Service;
- Protection and Auxiliary Systems;
- Incorporating Renewable Resources into the Planning Process;
- Restoration Plan; and
- Dispatching Procedures.

Improvements in the listed areas are vital to the reliable and safe operation of the Jordanian Energy Grid as well as to the increase of renewable energy resources utilization in the country. While the existing Transmission Master Plan for Jordan covers basic topics including load demand forecasting, system expansion, and capital planning, it lacks substance on the crucial items requested under this study. The optimization of topics included in this TA should lead to more rational resource utilization, eliminating unnecessary redundancies, technological innovation, and building a capability of adding cleaner generation sources to the Jordanian power system.

The U.S. firm selected will be paid in U.S. dollars from a \$370,000 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/desk study 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 directly to the Grantee by November 10, 2009 at the above address. Evaluation criteria for the Proposal are included in the RFP. 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

CONSTANT GROUP LLC

115 Stelling Avenue

Maywood, NJ 07607

Phone: (201) 982-0940, Fax: (201) 843-3077

www.constgr.com

Desk Study: Jordan – Comprehensive Technical Evaluation for the Jordanian Electrical System Project

Project Number TDA-PO2009210008

FINAL REPORT

July 2009



This report was funded by the U.S. Trade and Development Agency (USTDA), a foreign assistance 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 and policies of USTDA.

Mailing and Delivery Address: 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901
Phone: 703-875-4357 • **Fax:** 703-875-4009 • **Web site:** www.tda.gov • **email:** info@tda.gov



The U.S. Trade and Development Agency

The U.S. Trade and Development Agency (USTDA) advances economic development and U.S. commercial interests in developing and middle income countries. The agency funds various forms of technical assistance, feasibility studies, training, orientation visits and business workshops that support the development of a modern infrastructure and a fair and open trading environment.

USTDA's strategic use of foreign assistance funds to support sound investment policy and decision-making in host countries creates an enabling environment for trade, investment and sustainable economic development.

Operating at the nexus of foreign policy and commerce, USTDA is uniquely positioned to work with U.S. firms and host countries in achieving the agency's trade and development goals. In carrying out its mission, USTDA gives emphasis to economic sectors that may benefit from U.S. exports of goods and services.

Mailing and Delivery Address: 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901
Phone: 703-875-4357 • **Fax:** 703-875-4009 • **Web site:** www.tda.gov • **email:** info@tda.gov

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ATTACHMENT 1 – COMMUNICATIONS WITH NEPCO	



1. Executive Summary

The U.S. Trade and Development Agency (USTDA) awarded Constant Group LLC ("CG" or "Consultant") a contract for a Desk Study (DS) to evaluate "Comprehensive Technical Evaluation for the Jordanian Electrical System Project" proposed by the National Electric Power Company (NEPCO) of Jordan.

USTDA has provided CG with a set of documents including Draft Terms of Reference (TOR) for the project as well as some summaries from National Master Plan. The objective of the proposed study is to provide advise on the items that are have limited representation in the Energy Master Plan, but are vital to its implementation and the security and reliability of NEPCO's grid.

After careful review of the provided documents, CG has compiled a detailed list of questions. NEPCO answers are provided in Attachments 1 and 2.

CG also contacted several U.S. manufacturers and confirmed in principal their interest in project implementation as well as their ability to supply to Jordan.

CG recommends USTDA to fund the proposed project based on the scope of work developed by CG and NEPCO.

The Overall positive recommendation given by CG is primarily based on the following specific considerations:

- Project meets national and local government development priority for the host country;
- Project has adequate U.S. export potential;
- Project will likely be financed;
- Project has some foreign competitive element that is to be addressed by the USTDA funding of the study; and
- The project sponsor is willing to allow U.S. companies to compete for contracts during project implementation.

CG's summary recommendations are as follows:

- The original Scope of Work seemed to be missing several vital tasks that needed to be explicitly included or elaborated upon. CG recommendations were provided and accepted by NEPCO;



- The CG proposed project budget of \$370,000 seems adequate for the Scope of Work with the proposed revisions;

Detailed conclusions are provided in body of this report.

2. Project Description

The technical assistance (TA) will be used to plan power quality improvements to the transmission network as well as to plan reliability improvements for connecting renewable resources and protecting the system. The TA will identify newly required reliability generation, which will provide power to households and protect the system during blackouts and brownouts. In addition, the TA will seek to identify potential improvements in dispatch procedures which will lead to more efficient use of the existing and planned electricity infrastructure.

The proposed Project will provide the National Electricity Company of Jordan (NEPCO) with technical assistance on several electrical transmission topics including:

- Quality of Service;
- Protection and Auxiliary Systems;
- Incorporating Renewable Resources into the Planning Process;
- Restoration Plan; and
- Dispatching Procedures.

Improvements in the listed areas are vital to the reliable and safe operation of the Jordanian Energy Grid as well as to the increase of renewable energy resources utilization in the country. While the existing Transmission Master Plan for Jordan covers basic topics including load demand forecasting, system expansion, and capital planning, it lacks substance on the crucial items requested under this study. The optimization of topics included in this TA should lead to more rational resource utilization, eliminating unnecessary redundancies, technological innovation, and building a capability of adding cleaner generation sources to the Jordanian power system.

3. Project Sponsor's Capabilities and Commitment

In 1994 the Government of Jordan decided to restructure Jordan Electricity Authority (JEA). In 1996 a new Electricity Law No. 10 was issued that formally converted JEA to the National Electric Power Company within the concept of



sector restructuring and taking into consideration Independent Power Production (IPP) and Build-Own-Operate (BOO) models.

On January 1999, the Government decided to restructure the National Electric Power Company and split it into three operating companies: Central Electricity Generation Company (CEGCO) for Generation; Electricity Distribution Company (EDCO) for distribution in the areas outside the concessions of Jordan Electric Power Company (JEPCO) and Irbid District Electricity Company (IDECO); and National Electric Power Company (NEPCO) for the management, operation and development of the high voltage transmission network, and load dispatching. NEPCO is also responsible for Jordan's interconnections with the neighboring countries.

The new NEPCO remains a state-owned monopoly responsible for transmission and load dispatching operations. Currently, NEPCO is operating as a single buyer of all electricity produced by CEGCO, and the private power generating plants under Power Purchase Agreements (PPAs).

NEPCO's primary activities include:

- Planning, Construction, Development, Operation & Maintenance of the Electrical Transmission Grids;
- Managing the National Grid and the Process of Transmitting the Electric Power inside Jordan and to the Neighboring Countries;
- Purchase Energy from Various Sources and Sell this energy;
- Import and Export of the Electric Power;
- To permit the licensed companies to generate electric power to utilize the transmission network; and
- Purchase of natural gas from the seller and supplying it to the power generation companies.

NEPCO has been successfully updating its transmission system by replacing old and adding new high voltage (HV) power lines and building new substations (S/S). The following sample activities were performed by NEPCO recently:

Transmission Network:

- 2 km Alsarow Spur 132 kV over head transmission line (OHTL);
- 5 km Aldalil Spur 132kV OHTL;
- 25 km Aqaba Industrial Estate Spur 132 kV;
- 27 km Samra - Amman North 400 kV OHTL; and



- 60 km Subeihi - Waqqas 132 kV OHTL.

Substations:

- Extension of ABDOUN 132/33 kV S/S;
- AQABA (A2) 132/33 kV S/S;
- Establishment of SALT 132/33 kV S/S;
- Extension of Samra S/S 400 kV Part A;
- Jordan university 132/33 kV S/S;
- Extension of AMMAN NORTH 400/132/33 kV S/S; and
- SAMRA 400 kV S/S.

Projects above were either implemented by NEPCO staff or NEPCO staff managed the project and provided EPC supervision of domestic and foreign contractors. NEPCO has significant experience in transmission electric projects, including engineering and design, implementation, technical support, and EPC supervision.

4. Implementation Financing

NEPCO can fund projects by either utilizing own operating budget or by borrowing money with the state guarantee. NEPCO has a track record of utilizing both funding mechanisms. Smaller projects, which can be considered operational improvements, such as replacement of equipment or minor system modifications are generally funded internally.

The Consultant is of the opinion that NEPCO will be able to fund most of the recommendations resulting from this study.

5. U.S. Export Potential

CG foresees improvements being made to the transmission system in the areas of quality of service, protection and auxiliary systems, incorporating renewable resources into the planning process, restoration plan, and dispatching procedures.

U.S. manufacturers are considered competitive in these areas. Major equipment types with some U.S. manufacturers may include:

- Circuit Breakers – Belyea, GE;
- Bus Systems – Phoenix Electric Group, GE, Houston Wire and Cable;
- Fire Detection – Tyco, American Fire Technologies, Chemetron;



- Relays – Cooper Power Systems, Basler Electric, Ogden, Schweitzer Engineering Lab, Siemens Power USA, Woodward;
- Switches – Cooper Power Systems, Ametek, Delta M, Caterpillar, Cummins Power, GE, WA Benjamin, Siemens Power USA;
- Various Controls – Hoffman, Indeeco, Tyco, Winsted Corp, Emerson, Honeywell, Hardey Instruments.

The Consultant contacted several equipment manufacturers to verify their ability to provide equipment to Jordan. Both Cooper Power Systems and Cummins Power mentioned previous limited sales to Jordan. A few manufacturers mentioned their equipment being available in the Middle East via a network of local and international distributors and wholesalers. Of all companies contacted only Caterpillar has corporate office in Jordan that sells switchgears for power applications in the Region.

In addition to equipment suppliers, U.S. engineering companies may be interested in EPC or task design contracts. Services suppliers can potentially include:

- ABB T&D USA;
- Black and Veatch;
- MWH;
- Sargent and Lundy;
- PB Power;
- Burns and Roe Enterprises, Inc.;
- Shaw Stone and Webster; and
- URS Washington Group.

NEPCO has historically contracted U.S. services from PB Power and from ABB T&D USA.

While it is difficult to estimate the potential procurement resulting from this project, the overall Transmission Master Plan estimates expenditures of over JD 25 million (\$35 million) per year during next five years for the transmission system improvements. Issues covered under this study generally overlap significantly with the proposed expenditures and will most likely be financed.

While funding maybe available, NEPCO purchasing record is of serious concern in terms of potential for U.S. sourcing. NEPCO identified to CG that it purchases most of the equipment from European or local manufacturers. It also stated that some of the purchased equipment is from the U.S. or contains U.S. manufactured parts. This statement can not be independently verified.



The only significant procurement of U.S. equipment the Consultant is aware of was the major control center equipment from Bailey Controls (now ABB) that NEPCO procured in the 1990-s.

Based on NEPCO's historical procurement records and availability of U.S. manufactured equipment in the region, CG estimates probability of 10-15% of any major equipment and services being procured from the U.S. Probability of hiring U.S. engineer or designer is significantly higher. This can potentially result in the procurement of \$3-5 million per year.

6. Foreign Competition and Market Entry Issues

Foreign companies have been very active in Jordan. Other major foreign competitors that have experience in the Jordanian energy market include:

- Alcatel Kabel Norges (Norway);
- Itochu (Japan);
- Berndorf (Austria);
- Nikia Cables (Finland);
- STFA (Turkey); and
- Reyrolle (UK).

7. Developmental Impact

Infrastructure -- The proposed Project will be used to plan power quality improvements to the transmission network as well as to plan reliability improvements of connecting renewable resources and protecting the system. The Project will identify newly required reliability generation (including blackstart¹ units), which will provide power to households and protect the system during blackouts and brownouts. In addition, the improvements in dispatch procedures, will lead to more efficient use of the existing and planned infrastructure.

Human Capacity Building -- The proposed project may lead to new job creation impact as well. The construction of new renewable resources will require new construction jobs to be created together with permanent new Operations and Maintenance jobs.

¹ Blackstart generation (typically gas turbines) is used by system operators to initiate system flows following a blackout.



Other - Assuming new renewable resources will be incorporated into the NEPCO system, significant savings in CO2 emissions are expected at approximate ratio of 0.9 tons per year for every MW installed.

The proposed project can be considered an electrification project. The remote location of newly interconnected resources will strengthen the electricity grid and reduce transmission losses. It will also provide more power to be distributed in the area where more electrification is desired.

8. Impact on the Environment

The project is expected to have a positive effect on the environment. Currently, large thermal plants are considered to be major sources of air pollution in Jordan. Due to the nature of the technology, the proposed new renewable generation has no emissions. Significant savings in CO2 emissions are expected at approximate ratio of 0.9 tons per year for every MW installed.

Security and stability improvements in the transmission grid will also lead to the more optimized dispatch of existing generation providing environmental benefits.

9. Impact on U.S. Labor

Positive impacts are expected as result in the event U.S. exporters succeed in obtaining contracts for equipment and services if the project goes forward. No adverse impact is expected from the execution of the proposed project. Its significant export potential would assure the bulk of the production of major goods in the U.S. and their export to host country. No significant permanent new job creation detrimental to US labor is expected outside of U.S.

10. Qualifications

Owner

NEPCO has a proven capability in developing new and maintaining existing transmission assets. The company has been the monopolistic developer of all new transmission lines and substations in Jordan. NEPCO has worked closely



with international development agencies and foreign contractors in the past and is capable of managing a project of this size and detail.

U.S. Contractor

In the event that USTDA provides grant funds for technical assistance, the selection of a contractor to perform the study should be based on the follows:

Professional Experience (40%) – Each bidder will propose a project team that is fully qualified to execute the entire study scope of work. The proposed staff should have qualifications and experience in:

- Experience and capability to perform feasibility studies for the proposed scope of work. Experience in the region, preferably in Middle East.
- Demonstration of understanding of all tasks. Proposal efforts should be responsive to requirements outlined in the Scope of Work.
- The proposed staff should have qualifications and experience in engineering, technical analysis, operations planning and modeling, environmental assessments, as well as excellent technical knowledge of transmission lines, substations, and appropriate software and hardware.

Experience with utility clients would be beneficial. Qualified bidder will provide evidence of satisfactorily executing at least two similar projects in the last 10 years. The bidder shall highlight the similarities between the past experience and the proposed project.

International Experience (30%) – Each bidder shall exhibit international experience and capability to perform feasibility studies in the region, with preference given to Jordan. Qualified bidder will provide evidence of satisfactory executing at least one international project of similar nature and complexity in the last 10 years.

Proposed Work Plan (30%) – Each bidder shall demonstrate understanding of all project tasks. Proposal efforts should be responsive to requirements outlined in the Scope of Work and RFP. The proposed Work Plan should be detailed, realistic, and manageable. Clear objectives should be achieved at the end of all tasks.

11. Justification



The project will help to add generating capacity to the Jordanian grid in a time of urgent need and will do so by utilizing renewable energy. It will also assist Jordanian transmission operator in making system more stable and reliable.

The project offers U.S. export potential and would likely be financed. The Owner is willing to allow U.S. companies to compete for contracts during project implementation. Overall, the proposed project fits the profile for USDA support for promotion of market participation and U.S. firms export promotion.

12. Terms of Reference

13. Budget

Sections 12 and 13 have been removed. Please see the terms of reference included as Annex 5.

14. Recommendations

CG proposes USDA to fund this project with the \$370,000 grant. Following are the major reasons:

- The proposed project bridges a gap between traditional transmission planning areas and specialty areas that are normally overlooked but crucial for transmission system security and stability;
- The proposed project includes activities of incorporating renewable energy into the grid. The incorporation of such sources is innovative to NEPCO and should be reviewed in detail;
- The proposed project scope is clearly identified by NEPCO as a priority for the stability of their operations;
- The implementation component of the proposed project will likely be financed either from internal budgets or external loans because it is a part of the National Energy Master Plan;
- The U.S. vendors will be allowed to bid on the implementation of the project and have a good chance of success.

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 TA 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 TA 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

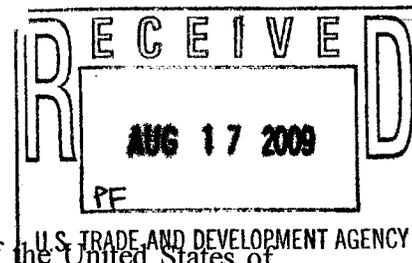
"Source" means the country from which shipment is made.

"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 Hashemite Kingdom of Jordan, acting through the Jordanian Ministry of Planning and International Cooperation, acting through the Jordanian National Electric Power Company (NEPCO) ("Grantee"). USTDA agrees to provide the Grantee under the terms of this Agreement US\$370,000 ("USTDA Grant") to fund the cost of goods and services required for a technical assistance ("TA") on the proposed Technical Evaluation for the Jordanian Electrical System ("Project") in Jordan ("Host Country").

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

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.

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 TA. Upon approval of this selection by USTDA, the Grantee and the Contractor shall then enter into a contract for performance of the TA. The Grantee shall notify in writing the U.S. firms that submitted unsuccessful proposals to perform the TA 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 TA. 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 TA 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 TA 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. TA Schedule

(A) TA Completion Date

The completion date for the TA, which is April 30, 2010, is the date by which the parties estimate that the TA 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 TA 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 TA 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 TA, 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 TA 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 TA 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 General Manager of NEPCO. 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: Dr. Ahmad Hiyasat
P.O. Box 2310
Amman Jordan 11181

Phone: 962-6-5818230

Fax: 962-6-5818336

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.: 11 9/10 1001

Activity No.: 2009-21024B

Reservation No.: 2009210034

Grant No.: GH 2009210009

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 TA, 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 TA, 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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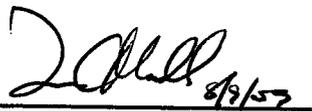
IN WITNESS WHEREOF, the Government of the United States of America and the Hashemite Kingdom of Jordan, each acting through its duly authorized representative, have caused this Agreement to be signed in the English language in their names and delivered as of the day and year written below. In the event 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: 08/09/09

Witnessed:

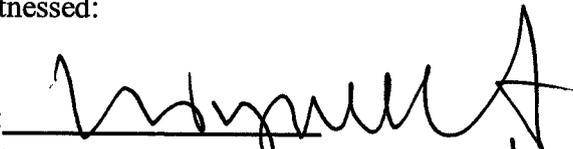
By:  8/9/09

For the Hashemite Kingdom of Jordan

By: 

Date: Aug 9, 2009

Witnessed:

By: 
Dr. A. Hiyasat

Annex I -- Terms of Reference

Annex II -- USTDA Mandatory Clauses

Annex I

Terms of Reference

Project Description

The technical assistance (TA) will be used to plan power quality improvements to the transmission network as well as to plan reliability improvements for connecting renewable resources and protecting the system. The TA will identify new generation for the purpose of increasing reliability of the transmission grid, which will provide power to households and protect the system during blackouts and brownouts. In addition, the TA will seek to identify potential improvements in dispatch procedures which will lead to more efficient use of the existing and planned electricity infrastructure.

The proposed TA will provide the National Electricity Company of Jordan (NEPCO, or the "Grantee") with technical assistance on several electrical transmission topics including:

- Quality of Service;
- Protection and Auxiliary Systems;
- Incorporating Renewable Resources into the Planning Process;
- Restoration Plan; and
- Dispatching Procedures.

Improvements in the listed areas are vital to the reliable and safe operation of the Jordanian Energy Grid as well as to the increase of renewable energy resources utilization in the country. While the existing Transmission Master Plan for Jordan covers basic topics including load demand forecasting, system expansion, and capital planning, it lacks substance on the crucial items requested under this study. The optimization of topics included in this TA should lead to more rational resource utilization, eliminating unnecessary redundancies, technological innovation, and building a capability of adding cleaner generation sources to the Jordanian power system.

The following details the tasks to be undertaken in completion of this study.

Task 1 - Data Collection

The Contactor shall review available information as it relates to NEPCO past and current electrical system studies as well as to actual NEPCO operational statistics from past five (5) years. The Contractor shall concentrate on the available analysis as it relates to system load flows, system stability and reliability, general operational history, system design criteria, and development plans. The Contractor shall rely on NEPCO for the facilitation of this information.

The Contractor shall review the following documents, at a minimum:

- Actual system data for the past 5 years, including major fault data, interruptions data, system flows, and imports/exports;
- 2009 System Master Plan (and previous edition if 2009 is not fully completed);
- USTDA funded “Feasibility Study for the Jordan Reactive Power Compensation and Transmission Loss Reduction Project;”
- Existing interconnection agreements, wheeling charges agreements, and tariff schemes;
- Existing system one line-diagrams and current load flow studies; and
- NEPCO Transmission Grid Code.

NEPCO shall provide the Contractor with the data and documents described above. A copy of the USTDA funded feasibility study for the Jordan Reactive Power Compensation and Transmission Loss Reduction is also available from USTDA. Deliverable: Contractor shall deliver to the Grantee a report describing its analysis of the information gathered in Task 1.

Task 2 – Inception Meeting with NEPCO

Upon the review of the information provided under Task 1, the Contractor team will travel to Jordan to participate in 3-day coordination meeting with NEPCO. The purpose of the meeting will be to discuss the methodology and work plan for performing Tasks 2- 6 based on any discoveries in Task 1.

Deliverable: Contractor shall provide to the Grantee a work plan that identifies the coordination efforts between the Contractor and the Grantee for the duration of the project and incorporates any plans developed in the inception meeting.

Task 3 - Quality of Service Assessment

The Contractor shall evaluate problems or issues affecting the quality of the current (I) or voltage (V). The Contractor shall concentrate its attention on the following quality of service aspects: voltage dips/sags, voltage regulation, flickers, harmonic, current unbalance. The Contractor will identify major problems with quality of service and reliability in the network and will provide recommendations on technical solutions for the improvements recommended as a result of the information gathered in this task. While providing an analysis of the current quality of service issues, the Contractor will take into account all future transmission system expansion and enhancements as well as future generation interconnection as described in the system Master Plan.

Deliverable: Contractor shall deliver a report of the work performed in Task 3 and recommend to the Grantee the best solutions for the quality of service pitfalls that exist in the Jordanian transmission system as well as provide solutions to improve efficiency.

Task 4 - Protection and Auxiliary Systems Review

The Contractor shall provide a review and analysis of the performance of the protection and auxiliary systems. The Contractor shall provide recommendations on:

- Criteria for the selection of protection schemes (e.g. use of primary and secondary protection, protection overreach, etc.);
- Criteria for protection coordination and evaluation of performance according to historical records;
- Criteria for the selection of substations auxiliary systems in the network according to its importance; and
- Standardization of protection schemes and auxiliary systems.

The Contractor shall take into account all work performed on this and other related subjects, including the USTDA funded Feasibility Study for the Jordan Reactive Power Compensation and Transmission Loss Reduction Project and the NEPCO System Master Plan.

Deliverable: Contractor shall deliver to the Grantee a report of the work performed in Task 4 and include a list of recommendations on how to optimize and protect the auxiliary systems.

Task 5 – Generation and Transmission Expansion Planning Criteria Review

The Contractor shall review the criteria and tools employed by NEPCO for Generation and Transmission planning, including contingency analysis, reliability criteria, deployment of reactive sources and margins to voltage collapse, as related to generation energy sources interconnection, with emphasis on the renewable sources interconnection.

The Contractor shall develop criteria for the integration of renewables, and wind generation in particular, into the generation and transmission expansion planning. The contractor shall focus on the inconsistent nature of renewable energy generation and recommend ways in which the Grantee may remediate this issue through supplemental generation. Analysis should include research on the effect of harmonics on the grid.

Based on the developed criteria, the Contractor shall provide recommendations on the improvement of the planning effort to accommodate the introduction of more renewable resource into the system.

Deliverable: Contractor shall deliver to the Grantee a report detailing the review of the planning criteria for interconnecting generation resources, including renewable energy resources, and recommendations for expansion planning.

Task 6 - Restoration Plan Review

The Contractor shall review and analyze NEPCO's existing protocols as related to power restoration procedures. The Contractor shall place emphasis on location and capacity of black start sources, location of power loads to bring units to its maximum stress load, and formation of cranking paths.

As a result of this task, the Contractor shall provide recommendations to increase the robustness of the current system restoration procedures and shall propose any other relevant improvements. These recommendations shall include an analysis of the current system and propose future system configuration with planned generation (including renewable) and transmission.

Deliverable: Contractor shall deliver to the Grantee a report of the work performed on Task 6, which includes a restoration plan and a plan detailing how to incorporate new generation and transmission into the current system restoration procedures.

Task 7 - Dispatching Procedures Review

While traditional generation dispatch procedures are handled well by NEPCO, there is a need to review them due to significant expansion of the system as well as due to introduction of new types of renewable resources. The Contractor shall review existing procedures as related to: calculation of system reserves, primary / secondary frequency response, Automatic Generation Control, and economic dispatch.

As result of this task, the Contractor shall provide recommendations for the improvement of the current dispatching procedures, including improvements that will accommodate planned system expansion.

Deliverable: Contractor shall deliver to the Grantee a report of the work performed in Task 7, including the review of dispatching procedures, and recommendations on the dispatch optimizations, taking into account planned system expansion.

Task 8 – Cost Estimate Preparation

The Contractor shall evaluate the cost of the proposed power quality and reliability improvement recommendations resulting from the previous tasks for:

- Quality of Service;

- Protection and Auxiliary Systems;
- Incorporating Renewable Resources into the Planning Process;
- Restoration Plan; and
- Dispatching Procedures.

Cost estimate shall break down equipment and services requirements for the recommended improvements. The Contractor shall identify those goods and services that may be procured domestically and those that may be procured internationally. The Contractor shall identify prospective U.S. sources of supply for both equipment and services, including name, address, and other relevant contact information for such U.S. sources of supply.

Deliverable: Contractor shall deliver a cost estimate for the recommended upgrades to the Grantee, breaking down the equipment and service requirements separately.

Task 9 – Economic Analysis

The Contractor shall evaluate the economic aspects of the proposed recommendations for:

- Quality of Service;
- Protection and Auxiliary Systems;
- Incorporating Renewable Resources into the Planning Process;
- Restoration Plan; and
- Dispatching Procedures.

For capital projects needed to support the recommendations, the Contractor shall estimate impact to customers and basic project economic parameters, such as IRR, NPV, and payback period.

The Contractor shall conduct an economic sensitivity analysis reflecting possible variations in interest rates, equipment costs, etc.

Deliverable: Utilizing information determined in Task 8, contractor shall submit to the Grantee a base case economic analysis of the recommended capital investments, including economic sensitivity analysis. The document shall incorporate all of the elements in this task 9.

Task 10 - Preliminary Environmental and Social/Development Impact Assessment

The Contractor shall provide preliminary environmental impact assessment (EIA) of the Project. If international funding will be sought for the implementation of the recommendations, the preliminary EIA will conform to the general criteria of

such funding agency (such as the Islamic Development Bank, The World Bank, etc.).

The Contractor shall also provide a report on the potential social and development impact of the Project in the host country. In the report, the contractor shall focus on what the economic development outcomes will be if the project is implemented according to the TA recommendations. While specific focus should be paid to the immediate impact of the Project, the Contractor shall include, where appropriate, any additional developmental benefits of the Project, including spin-off and demonstration effects. The analysis of potential benefits of the TA should be as concrete and detailed as possible. The social and development Impact factors are intended to provide the Project's decision-makers and interested parties with a broader view of the potential effects on the Host Country. The contractor shall provide estimates of the Project's potential benefits in the following areas:

- **Infrastructure:** a statement on the infrastructure impact giving a brief synopsis (e.g., new installed capacity built, additional power generated in GWh/year).
- **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, number of people that will be needed to process construction materials, as well as the number of people who will receive training and a brief description of the training program.
- **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. savings in generation costs or lower production costs per KWh).
- **Other:** any other developmental benefits to the Project, including spin-off or demonstration effects.

Deliverable: Contractor shall provide to the Grantee the preliminary environmental impact assessment and development/social impact assessment as developed under Task 10.

Task 11 - Legal, Regulatory, and Institutional Review

The Contractor shall review the existing Energy Law, permitting requirements, local building requirements, and other constraints that may need to be taken into account before the recommendations for Tasks 3-7 can be implemented. Any potential barriers to fair and open competition and to U.S. suppliers' ability to compete in the procurement of technology, goods, and services needed for Project implementation should be clearly identified and conveyed to the Grantee.

Deliverable: Contractor shall provide a report on the legal, regulatory and institutional review, incorporating all of the elements on this Task 11.

Task 12 - Financing Options Review

Contractor shall conduct a financing options review for the implementation of its recommendation taking into account local, regional and international financial sources including: multilateral financing, private investors and government investment, etc. If the Grantee will be seeking financing for the recommended upgrades, the Contractor shall obtain level of interest statements from financial institutions for the proposed project investments. The Contractor shall:

- Determine if the government's own allocated financial resources and external financial arrangements are sufficient to cover the cost of the recommended upgrades, including ongoing running costs.
- Consider the availability of equity and debt financing as well as the views of potential public and private financing organizations, such as the Islamic Development Bank, World Bank, relevant regional multilateral development bank(s), Ex-Im Bank, OPIC and donor funds, public private partnership and other sources, as appropriate.

Deliverable: Contractor shall provide to the Grantee a report incorporating all the elements of this Task 11.

Task 13 – Draft Final and Final Report Preparation and Presentation

The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive final report of all work performed under these Terms of Reference (“Final Report”). The Final Report shall be organized according to the above tasks, and shall include all deliverables and documents that have been provided to the Grantee. The Final Report shall be prepared in accordance with Clause I of Annex II of the Grant Agreement. In addition to the delivery requirements contained in clause I of Annex II of the Grant Agreement, the Contractor shall provide the Grantee with six copies of the final report on CD-ROM in English.

The Contractor will participate in 3-day meetings discussing the finding of the Draft Report in Jordan prior to the finalization of the report and formal Grantee review of the final report.

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 Hashemite Kingdom of Jordan, acting through the Jordanian Ministry of Planning and International Cooperation, acting through the Jordanian National Electric Power Company (NEPCO) ("Client"), dated _____ ("Grant Agreement"). The Client has selected _____ ("Contractor") to perform the technical assistance ("TA") for the Technical Evaluation for the Jordanian Electrical System project ("Project") in Jordan ("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 TA 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 TA 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 TA 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 TA. 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. TA Schedule

(1) TA Completion Date

The completion date for the TA, which is April 30 2010, is the date by which the parties estimate that the TA 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 TA. 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 TA 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.: 11 9/10 1001
Activity No.: 2009-21024B
Reservation No.: 2009210034
Grant No.: GH 2009210009

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

Terms of Reference

Project Description

The technical assistance (TA) will be used to plan power quality improvements to the transmission network as well as to plan reliability improvements for connecting renewable resources and protecting the system. The TA will identify new generation for the purpose of increasing reliability of the transmission grid, which will provide power to households and protect the system during blackouts and brownouts. In addition, the TA will seek to identify potential improvements in dispatch procedures which will lead to more efficient use of the existing and planned electricity infrastructure.

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- Incorporating Renewable Resources into the Planning Process;
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Improvements in the listed areas are vital to the reliable and safe operation of the Jordanian Energy Grid as well as to the increase of renewable energy resources utilization in the country. While the existing Transmission Master Plan for Jordan covers basic topics including load demand forecasting, system expansion, and capital planning, it lacks substance on the crucial items requested under this study. The optimization of topics included in this TA should lead to more rational resource utilization, eliminating unnecessary redundancies, technological innovation, and building a capability of adding cleaner generation sources to the Jordanian power system.

The following details the tasks to be undertaken in completion of this study.

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The Contractor shall review the following documents, at a minimum:

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- Existing system one line-diagrams and current load flow studies; and
- NEPCO Transmission Grid Code.

NEPCO shall provide the Contractor with the data and documents described above. A copy of the USTDA funded feasibility study for the Jordan Reactive Power Compensation and Transmission Loss Reduction is also available from USTDA. Deliverable: Contractor shall deliver to the Grantee a report describing its analysis of the information gathered in Task 1.

Task 2 – Inception Meeting with NEPCO

Upon the review of the information provided under Task 1, the Contractor team will travel to Jordan to participate in 3-day coordination meeting with NEPCO. The purpose of the meeting will be to discuss the methodology and work plan for performing Tasks 2-6 based on any discoveries in Task 1.

Deliverable: Contractor shall provide to the Grantee a work plan that identifies the coordination efforts between the Contractor and the Grantee for the duration of the project and incorporates any plans developed in the inception meeting.

Task 3 - Quality of Service Assessment

The Contractor shall evaluate problems or issues affecting the quality of the current (I) or voltage (V). The Contractor shall concentrate its attention on the following quality of service aspects: voltage dips/sags, voltage regulation, flickers, harmonic, current unbalance. The Contractor will identify major problems with quality of service and reliability in the network and will provide recommendations on technical solutions for the improvements recommended as a result of the information gathered in this task. While providing an analysis of the current quality of service issues, the Contractor will take into account all future transmission system expansion and enhancements as well as future generation interconnection as described in the system Master Plan.

Deliverable: Contractor shall deliver a report of the work performed in Task 3 and recommend to the Grantee the best solutions for the quality of service pitfalls that exist in the Jordanian transmission system as well as provide solutions to improve efficiency.

Task 4 - Protection and Auxiliary Systems Review

The Contractor shall provide a review and analysis of the performance of the protection and auxiliary systems. The Contractor shall provide recommendations on:

- Criteria for the selection of protection schemes (e.g. use of primary and secondary protection, protection overreach, etc.);
- Criteria for protection coordination and evaluation of performance according to historical records;
- Criteria for the selection of substations auxiliary systems in the network according to its importance; and
- Standardization of protection schemes and auxiliary systems.

The Contractor shall take into account all work performed on this and other related subjects, including the USTDA funded Feasibility Study for the Jordan Reactive Power Compensation and Transmission Loss Reduction Project and the NEPCO System Master Plan.

Deliverable: Contractor shall deliver to the Grantee a report of the work performed in Task 4 and include a list of recommendations on how to optimize and protect the auxiliary systems.

Task 5 – Generation and Transmission Expansion Planning Criteria Review

The Contractor shall review the criteria and tools employed by NEPCO for Generation and Transmission planning, including contingency analysis, reliability criteria, deployment of reactive sources and margins to voltage collapse, as related to generation energy sources interconnection, with emphasis on the renewable sources interconnection.

The Contractor shall develop criteria for the integration of renewables, and wind generation in particular, into the generation and transmission expansion planning. The contractor shall focus on the inconsistent nature of renewable energy generation and recommend ways in which the Grantee may remediate this issue through supplemental generation. Analysis should include research on the effect of harmonics on the grid.

Based on the developed criteria, the Contractor shall provide recommendations on the improvement of the planning effort to accommodate the introduction of more renewable resource into the system.

Deliverable: Contractor shall deliver to the Grantee a report detailing the review of the planning criteria for interconnecting generation resources, including renewable energy resources, and recommendations for expansion planning.

Task 6 - Restoration Plan Review

The Contractor shall review and analyze NEPCO's existing protocols as related to power restoration procedures. The Contractor shall place emphasis on location and capacity of black start sources, location of power loads to bring units to its maximum stress load, and formation of cranking paths.

As a result of this task, the Contractor shall provide recommendations to increase the robustness of the current system restoration procedures and shall propose any other relevant improvements. These recommendations shall include an analysis of the current system and propose future system configuration with planned generation (including renewable) and transmission.

Deliverable: Contractor shall deliver to the Grantee a report of the work performed on Task 6, which includes a restoration plan and a plan detailing how to incorporate new generation and transmission into the current system restoration procedures.

Task 7 - Dispatching Procedures Review

While traditional generation dispatch procedures are handled well by NEPCO, there is a need to review them due to significant expansion of the system as well as due to introduction of new types of renewable resources. The Contractor shall review existing procedures as related to: calculation of system reserves, primary / secondary frequency response, Automatic Generation Control, and economic dispatch.

As result of this task, the Contractor shall provide recommendations for the improvement of the current dispatching procedures, including improvements that will accommodate planned system expansion.

Deliverable: Contractor shall deliver to the Grantee a report of the work performed in Task 7, including the review of dispatching procedures, and recommendations on the dispatch optimizations, taking into account planned system expansion.

Task 8 – Cost Estimate Preparation

The Contractor shall evaluate the cost of the proposed power quality and reliability improvement recommendations resulting from the previous tasks for:

- Quality of Service;
- Protection and Auxiliary Systems;
- Incorporating Renewable Resources into the Planning Process;
- Restoration Plan; and
- Dispatching Procedures.

Cost estimate shall break down equipment and services requirements for the recommended improvements. The Contractor shall identify those goods and services that may be procured domestically and those that may be procured internationally. The Contractor shall identify prospective U.S. sources of supply for both equipment and services, including name, address, and other relevant contact information for such U.S. sources of supply.

Deliverable: Contractor shall deliver a cost estimate for the recommended upgrades to the Grantee, breaking down the equipment and service requirements separately.

Task 9 – Economic Analysis

The Contractor shall evaluate the economic aspects of the proposed recommendations for:

- Quality of Service;
- Protection and Auxiliary Systems;
- Incorporating Renewable Resources into the Planning Process;
- Restoration Plan; and
- Dispatching Procedures.

For capital projects needed to support the recommendations, the Contractor shall estimate impact to customers and basic project economic parameters, such as IRR, NPV, and payback period.

The Contractor shall conduct an economic sensitivity analysis reflecting possible variations in interest rates, equipment costs, etc.

Deliverable: Utilizing information determined in Task 8, contractor shall submit to the Grantee a base case economic analysis of the recommended capital investments, including economic sensitivity analysis. The document shall incorporate all of the elements in this task 9.

Task 10 - Preliminary Environmental and Social/Development Impact Assessment

The Contractor shall provide preliminary environmental impact assessment (EIA) of the Project. If international funding will be sought for the implementation of the recommendations, the preliminary EIA will conform to the general criteria of such funding agency (such as the Islamic Development Bank, The World Bank, etc.).

The Contractor shall also provide a report on the potential social and development impact of the Project in the host country. In the report, the contractor shall focus on what the economic development outcomes will be if the project is implemented according to the TA recommendations. While specific focus should be paid to the immediate impact of the Project, the Contractor shall include, where appropriate, any additional developmental benefits of the Project, including spin-off and demonstration effects. The analysis of potential benefits of the TA should be as concrete and detailed as possible. The social and development Impact factors are intended to provide the Project's decision-makers and interested parties with a broader view of the potential effects on the Host Country. The contractor shall provide estimates of the Project's potential benefits in the following areas:

- Infrastructure: a statement on the infrastructure impact giving a brief synopsis (e.g., new installed capacity built, additional power generated in GWh/year).

- **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, number of people that will be needed to process construction materials, as well as the number of people who will receive training and a brief description of the training program.
- **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. savings in generation costs or lower production costs per KWh).
- **Other:** any other developmental benefits to the Project, including spin-off or demonstration effects.

Deliverable: Contractor shall provide to the Grantee the preliminary environmental impact assessment and development/social impact assessment as developed under Task 10.

Task 11 - Legal, Regulatory, and Institutional Review

The Contractor shall review the existing Energy Law, permitting requirements, local building requirements, and other constraints that may need to be taken into account before the recommendations for Tasks 3-7 can be implemented. Any potential barriers to fair and open competition and to U.S. suppliers' ability to compete in the procurement of technology, goods, and services needed for Project implementation should be clearly identified and conveyed to the Grantee.

Deliverable: Contractor shall provide a report on the legal, regulatory and institutional review, incorporating all of the elements on this Task 11.

Task 12 - Financing Options Review

Contractor shall conduct a financing options review for the implementation of its recommendation taking into account local, regional and international financial sources including: multilateral financing, private investors and government investment, etc. If the Grantee will be seeking financing for the recommended upgrades, the Contractor shall obtain level of interest statements from financial institutions for the proposed project investments. The Contractor shall:

- Determine if the government's own allocated financial resources and external financial arrangements are sufficient to cover the cost of the recommended upgrades, including ongoing running costs.
- Consider the availability of equity and debt financing as well as the views of potential public and private financing organizations, such as the Islamic Development Bank, World Bank, relevant regional multilateral development bank(s), Ex-Im Bank, OPIC and donor funds, public private partnership and other sources, as appropriate.

Deliverable: Contractor shall provide to the Grantee a report incorporating all the elements of this Task 11.

Task 13 – Draft Final and Final Report Preparation and Presentation

The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive final report of all work performed under these Terms of Reference (“Final Report”). The Final Report shall be organized according to the above tasks, and shall include all deliverables and documents that have been provided to the Grantee. The Final Report shall be prepared in accordance with Clause I of Annex II of the Grant Agreement. In addition to the delivery requirements contained in clause I of Annex II of the Grant Agreement, the Contractor shall provide the Grantee with six copies of the final report on CD-ROM in English.

The Contractor will participate in 3-day meetings discussing the finding of the Draft Report in Jordan prior to the finalization of the report and formal Grantee review of the final report.

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 6

COMPANY INFORMATION

A. 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 Technical Assistance.
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 .

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 Technical Assistance 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 Technical Assistance. 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: _____