

**REQUEST FOR PROPOSALS**

**FEASIBILITY STUDY FOR THE**

**LUANDA ELECTRICITY DISTRIBUTION MODERNIZATION**

Submission Deadline: **4:00 PM**

**LOCAL (LUANDA) TIME**

**NOVEMBER 1, 2010**

Submission Place:

**MINISTRY OF ENERGY AND WATER  
RUA CÓNEGO MANUEL DAS NEVES, N.º 234  
LUANDA, ANGOLA**

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**SEALED PROPOSALS SHALL BE CLEARLY MARKED AND RECEIVED PRIOR TO THE  
TIME AND DATE SPECIFIED ABOVE. PROPOSALS RECEIVED AFTER SAID TIME  
AND DATE WILL NOT BE ACCEPTED OR CONSIDERED.**

## REQUEST FOR PROPOSALS

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## **Section 1: INTRODUCTION**

The U.S. Trade and Development Agency ("USTDA") has provided a grant in the amount of US\$855,000 to the Ministry of Energy and Water of the Republic of Angola (the "Grantee") in accordance with a grant agreement dated August 2, 2010 (the "Grant Agreement") to fund the cost of goods and services required for a feasibility study ("Feasibility Study") to evaluate the technical, financial, environmental, and other critical aspects of the proposed Luanda Electricity Distribution Modernization project ("Project") in Angola ("Host Country"). The primary objective of the Feasibility Study is to provide the Grantee with analyses and recommendations that will support the Grantee's decision making with regard to the utilization of advanced information technology ("IT"), automation, and management systems to improve the efficiency and reliability of the electricity distribution network that is owned and operated by Empresa de Distribuição de Electricidade ("EDEL"), the state-owned company responsible for electricity distribution in the provinces of Luanda and Bengo. Another objective of the Feasibility Study is to improve the Grantee's technical and managerial capacity to implement and sustain the Project.

The Grant Agreement is attached at Annex 4 for reference. The Grantee is soliciting technical proposals from qualified U.S. firms to provide expert consulting services to perform the Feasibility Study.

### **1.1 BACKGROUND SUMMARY**

Adequate access to reliable electricity is essential to economic development. Currently, approximately 20-30% of Angola's population has access to electricity and an estimated 70% of Angolan businesses rely on backup diesel generators to compensate for chronic power outages. To improve the accessibility and reliability of electricity in Angola, the Government of Angola is making significant investments in electricity generation, transmission, and distribution infrastructure.

EDEL is responsible for electricity distribution in the provinces of Luanda and Bengo, where approximately 75% of all electricity in Angola is consumed. Technical and non-technical losses in EDEL's electricity distribution network are currently estimated at 15% and 25%, respectively. These losses significantly reduce the effective capacity of Angola's electricity generation infrastructure and contribute to chronic power outages.

EDEL is planning to utilize advanced IT, automation, and management systems to improve the efficiency and reliability of its electricity distribution network. Over the past few years, EDEL has taken significant steps to improve and expand its electricity distribution network. EDEL has significantly improved data collection, undertaken several studies, implemented a supervisory control and data acquisition system, mapped its electricity distribution network using geographic information systems, and is currently implementing a pre-paid metering pilot program.

The Feasibility Study will evaluate the technical, financial, environmental, and other critical aspects of integrating IT, automation, and management systems into EDEL's electricity distribution network. The Feasibility Study will also include technical and managerial training

for EDEL staff; define the long-term training requirements necessary for EDEL to operate and maintain a modern electricity distribution system; and produce detailed specifications and draft tender documents for at least two new IT, automation, and/or management systems.

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

## **1.2 OBJECTIVE**

The primary objective of the Feasibility Study is to provide the Grantee with analyses and recommendations that will support the Grantee's decision making with regard to the utilization of advanced IT, automation, and management systems to improve the efficiency and reliability of EDEL's electricity distribution network. Another objective of the Feasibility Study is to improve the Grantee's technical and managerial capacity to implement and sustain the Project.

The Terms of Reference ("TOR") for the Feasibility Study are attached as Annex 5.

## **1.3 PROPOSALS TO BE SUBMITTED**

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

The amount for the contract has been established by a USTDA grant of US\$855,000. **The USTDA grant of US\$855,000 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\$855,000 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 the Luanda Electricity Distribution Modernization.

### **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 Feasibility Study.

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

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

### **2.5 PROJECT FUNDING SOURCE**

The Feasibility Study will be funded under a grant from USTDA. The total amount of the grant is not to exceed US\$855,000.

## **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 Portuguese.

## **2.13 PROPOSAL SUBMISSION REQUIREMENTS**

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

Ministry of Energy and Water  
Rua Cónego Manuel das Neves, N.º 234  
Luanda, Angola

Phone: +244 222 430 576 /602 /227

Fax: +244 222 430 107

**An Original and eight (8) copies of your proposal must be received at the above address no later than 4:00 PM local (Luanda) time on November 1, 2010.**

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

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

## **2.14 PACKAGING**

The original and each copy of the proposal must be sealed to ensure confidentiality of the information. The proposals should be individually wrapped and sealed, and labeled for content including "original" or "copy number x"; the original and eight (8) 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, feasibility study and/or other services similar to those required in the TOR, as applicable.

## **2.19 RIGHT TO REJECT PROPOSALS**

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

## **2.20 PRIME CONTRACTOR RESPONSIBILITY**

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

## **2.21 AWARD**

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

## **2.22 COMPLETE SERVICES**

The successful Offeror shall 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\$855,000, which is a fixed amount.

Offerors shall submit one (1) original and eight (8) 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 requested in sections 3.2.5 and 3.2.6 below must be provided for each subcontractor.

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

### **3.2.2 Offeror's Authorized Negotiator**

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

### **3.2.3 Negotiation Prerequisites**

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

### 3.2.4 Offeror's Representations

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

1. Offeror is a corporation [*insert applicable type of entity if not a corporation*] duly organized, validly existing and in good standing under the laws of the State of \_\_\_\_\_. The Offeror has all the requisite corporate power and authority to conduct its business as presently conducted, to submit this proposal, and if selected, to execute and deliver a contract to the Grantee for the performance of the Feasibility Study. The Offeror is not debarred, suspended, or to the best of its knowledge or belief, proposed for debarment, or ineligible for the award of contracts by any federal or state governmental agency or authority.
2. 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 \_\_\_\_\_. The Offeror commits to notify USTDA and the Grantee if they become aware of any change in their status in the state in which they are incorporated. USTDA retains the right to request an updated certificate of good standing.
3. 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.
4. 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 3 above.
5. 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.
6. 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.

### **3.2.5 Subcontractor Profile**

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).

### **3.2.6 Subcontractor's Representations**

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

1. Subcontractor 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 subcontractor has all the requisite corporate power and authority to conduct its business as presently conducted, to participate in this proposal, and if the Offeror is selected, to execute and deliver a subcontract to the Offeror for the performance of the Feasibility Study and to perform the Feasibility Study. The subcontractor 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.
2. Neither the subcontractor 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 subcontractor, 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 subcontractor. The subcontractor, 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 subcontractor 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 subcontractor has not had filed against it an involuntary petition under any bankruptcy, insolvency or similar law.

The selected subcontractor shall notify the Offeror, Grantee and USTDA if any of the representations included in this proposal are no longer true and correct at the time of the Offeror's entry into a contract with the Grantee.

### **3.3 ORGANIZATIONAL STRUCTURE, MANAGEMENT, AND KEY PERSONNEL**

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

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

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

### **3.4 TECHNICAL APPROACH AND WORK PLAN**

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

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

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

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

As many as possible but not more than six (6) relevant and verifiable project references must be provided for 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 Feasibility Study 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:

##### **Organizational Structure, Management, and Key Personnel: 25 points maximum**

- Quality of the Offeror's proposed organizational structure and management plan for the Feasibility Study: 5 points
- Experience and expertise of the Offeror's proposed Project Manager in designing and supervising electricity distribution modernization projects: 10 points
- Experience and expertise of other key personnel (including subcontractors) in fulfilling the various functions required for the Feasibility Study: 10 points

##### **Technical Approach and Work Plan: 25 points maximum**

- Quality of the Offeror's proposed Technical Approach and Work Plan: 20 points
- Quality of the Offeror's proposed schedule for carrying out the Feasibility Study: 5 points

##### **Offeror's Experience and Qualifications: 30 points maximum**

- Offeror's experience and qualifications in performing similar feasibility studies or other closely related work: 25 points
- Offeror's experience working with public sector electricity distribution companies: 5 points

##### **Country/Regional Experience and Language Capabilities: 10 points maximum**

- Offeror's experience working in Angola, sub-Saharan Africa, and/or other similar environments: 5 points
- Offeror's Portuguese language capabilities and plan for meeting the Portuguese language requirements in the TOR: 5 points

##### **Training Experience, Qualifications, and Plan: 10 points maximum**

- Offeror's experience and qualifications in providing high quality technical and managerial training on electricity distribution IT, automation, and management systems: 5 points
- Offeror's plan for meeting the training requirements in the TOR: 5 points

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

Price will not be a factor in contractor selection.

**ANNEX 1**

Ministry of Energy and Water, Rua Cónego Manuel das Neves, N.º 234, Luanda, Angola,  
Phone: +244 222 430 576 /602./227, Fax: +244 222 430 107

B—Angola: Feasibility Study for the Luanda Electricity Distribution Modernization

POC: Nina Patel, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. Luanda Electricity Distribution Modernization. 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 develop a feasibility study that will evaluate the technical, financial, environmental, and other critical aspects of modernizing the electricity distribution network in Luanda, Angola.

Adequate access to reliable electricity is essential to economic development. Currently, approximately 20-30% of Angola's population has access to electricity and an estimated 70% of Angolan businesses rely on backup diesel generators to compensate for chronic power outages. To improve the accessibility and reliability of electricity in Angola, the Government of Angola is making significant investments in electricity generation, transmission, and distribution infrastructure.

Empresa de Distribuição de Electricidade (EDEL) is responsible for electricity distribution in the provinces of Luanda and Bengo, where approximately 75% of all electricity in Angola is consumed. Technical and non-technical losses in EDEL's electricity distribution network are currently estimated at 15% and 25%, respectively. These losses significantly reduce the effective capacity of Angola's electricity generation infrastructure and contribute to chronic power outages.

EDEL is planning to utilize advanced information technology (IT), automation, and management systems to improve the efficiency and reliability of its electricity distribution network. Over the past few years, EDEL has taken significant steps to improve and expand its electricity distribution network. EDEL has significantly improved data collection, undertaken several studies, implemented a supervisory control and data acquisition system, mapped its electricity distribution network using geographic information systems, and is currently implementing a pre-paid metering pilot program.

The feasibility study will evaluate the technical, financial, environmental, and other critical aspects of integrating IT, automation, and management systems into EDEL's electricity distribution network. The feasibility study will also include technical and managerial training for EDEL staff; define the long-term training requirements necessary for EDEL to operate and maintain a modern electricity distribution system; and produce detailed specifications and draft tender documents for at least two new IT, automation, and/or management systems.

The U.S. firm selected will be paid in U.S. dollars from a US\$855,000 grant to the Grantee from the U.S. Trade and Development Agency (USTDA).

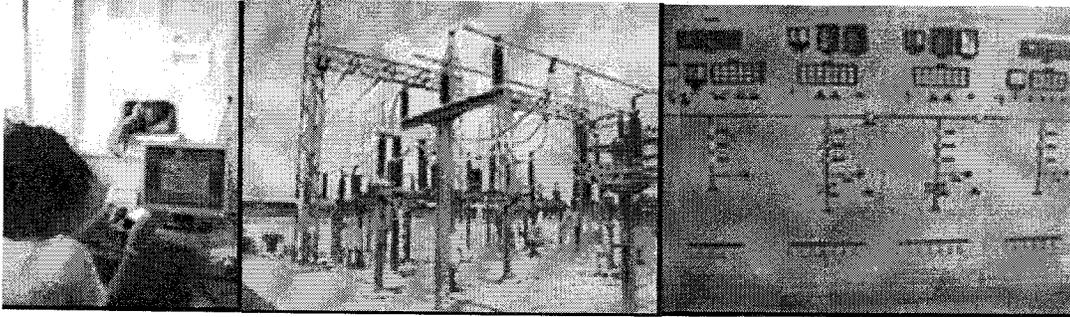
A detailed Request for Proposals (RFP), which includes requirements for the Proposal, the Terms of Reference, and a background definitional mission report are available from USTDA, at 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901. To request the RFP in PDF format, please go to: <https://www.ustda.gov/businessopps/rfpform.asp>. Requests for a mailed hardcopy version of the RFP may also be faxed to the IRC, USTDA at 703-875-4009. In the fax, please include your firm's name, contact person, address, and telephone number. Some firms have found that RFP materials sent by U.S. mail do not reach them in time for preparation of an adequate response. Firms that want USTDA to use an overnight delivery service should include the name of the delivery service and your firm's account number in the request for the RFP. Firms that want to send a courier to USTDA to retrieve the RFP should allow one hour after faxing the request to USTDA before scheduling a pick-up. Please note that no telephone requests for the RFP will be honored. Please check your internal fax verification receipt. Because of the large number of RFP requests, USTDA cannot respond to requests for fax verification. Requests for RFPs received before 4:00 PM will be mailed the same day. Requests received after 4:00 PM will be mailed the following day. Please check with your courier and/or mail room before calling USTDA.

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

Interested U.S. firms should submit their Proposal in English and Portuguese directly to the Grantee by 4:00 PM local (Luanda) time, on November 1, 2010, 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**

## 1 – EDEL DISTRIBUTION MODERNIZATION PROJECT



### A. Executive Summary.

The objective of this Energy and Power Sector Definitional Mission to Angola (DM) was to examine the Country's electric power sector and to identify and recommend to the US Trade and Development Agency promising investment prospects and appropriate technical assistance or training opportunities that would contribute to the Country's ongoing efforts to promote economic development and alleviate poverty. Through its work on the DM, the DM Team has identified and defined a USTDA Technical Assistance program for the EDEL Distribution Modernization Project (Project) with the Ministry of Energy and Water and Empresa Distribuidor de Electricidade (EDEL).

EDEL is Angola's state owned company responsible for distribution to greater Luanda, where 20-30% of the Country's population consumes about 75% of the power. EDEL is currently implementing a large and fast-paced expansion of its distribution infrastructure. In order to maximize the efficiency and effectiveness of its current and planned infrastructure and systems, EDEL plans to incorporate and integrate new and existing IT, automation and management systems and technologies. Specific priorities include: an expansion of the SCADA system; expansion of substation automation system; expansion and integration of a GIS AM/FM (Geographic Information System Automated Mapping/Facilities Management) system; rollout of a pre-paid metering pilot project; and upgrading and/or integration of its billing, metering, and collection, customer information, accounting and financial management, complaint management, and other IT systems. Future modernization components may include the following: Outage Management System (OMS), Distribution Management System (DMS), Trouble Call System, Automated Meter Reading (AMR) for low-tension customers, and/or Enterprise Resource Planning (ERP).

Infrastructure in Luanda developed for 500,000 people now supports, by some estimates, over 4 million. Huge informal settlements have developed throughout greater Luanda where basic infrastructure and services are sometimes entirely absent. Electric power distribution is one of the basic needs in these areas in order to improve the health and economic well-being of the people. The Project has the potential to have significant impacts on several areas of development, including Infrastructure, Human Capacity Building and Technology Transfer and Productivity Improvement. The Project, if fully implemented, is also expected to significantly impact the level of revenues accruing to EDEL and the Government of Angola, allowing EDEL to make more

investments in infrastructure improvements and modernization projects and further improving the quality, reliability and access to power within its service area.

Based on our analysis, the total cost of the Project could reach \$24.25 million with a realistic US export potential of \$18 million. US exporters of goods and services are world leaders and internationally competitive in the supply of electricity distribution IT, automation, and management systems. Several leading US companies have already developed strategic relationships in Angola's energy and power sector, including GE and Bechtel. However, foreign competition will be high from Brazilian, South African, Portuguese and other European firms.

There is minimal expected negative impact on the environment from the proposed Project. In fact, the use of advanced IT, automation, and management systems would ensure efficient network management, significantly reducing technical losses (thus reducing emissions required to serve any given amount of load) and improving reliability (thus reducing the use of backup generators with very high emission levels).

This DM is an important component of the efforts of the US-Angola Strategic Partnership Dialogue's Energy Cooperation Working Group (EWG) to help Angola develop a robust electric power sector. The DM Team believes that the proposed EDEL Distribution Modernization Project will be well received by the EWG due to the important developmental impacts of the Project. The Ministry of Energy and Water, which is the lead agency for Angola's electric sector, would be the Grantee for the USTDA TA and has already expressed its support for the Project. Based on our review and analysis of the Project and the strong potential developmental impacts and US exports that could result from full implementation, the DM Team recommends funding of the proposed TA with a budget of \$855,000.

## **B. Project Description**

The objective of the Definitional Mission to Angola was to examine the Country's Energy and Power Sector and to recommend to the US Trade and Development Agency (USTDA) promising investment projects and appropriate technical assistance opportunities that would alleviate the Country's struggle to repair the destruction of its energy and power sector through decades of continuous warfare and to expand and modernize the system to make it more efficient and accessible.

Empresa Distribuidor de Electricidade (EDEL) is responsible for distributing power throughout greater Luanda, which includes the province of Luanda and parts of the province of Bengo. EDEL is currently deploying a distribution system modernization and expansion program to improve the quality and reliability of electric power supply; expand access throughout its designated service area; reduce technical and non-technical losses within the system; increase the efficiency and effectiveness of its commercial operations; and optimize the application of all available resources to improve the economic and financial viability of the company. In addition to a significant and rapid infrastructure buildout being undertaken by EDEL, the company is planning for the incorporation and integration of new and existing IT, automation and management systems and technologies in order to maximize the efficiency and effectiveness of its current and planned infrastructure. EDEL has requested Technical Assistance (TA) for the EDEL Distribution Modernization Project.

The Project was declared a high-priority by the Ministry of Energy and Water, which is the lead agency for Angola's electric sector. That Ministry will also be the Grantee for the proposed

USTDA funded TA. Details of the Project were discussed in three meetings under the leadership of Eng. João da Gama in the Planning Division of EDEL. Mr. Joao Baptista Borges, Secretary of State for Electricity, has approved the Project in principle, pending successful finalization.

### **Sector Background**

At the moment, there are two electric power distribution companies in Angola. EDEL is in charge of power distribution in and around Luanda. Its coverage has recently been extended to include the entire territory of the two Provinces of Luanda and Bengo, but the actual transfer has not yet begun. Electric power distribution in the rest of the Country is the responsibility of the Empresa Nacional de Electricidade, ENE, which is also in charge of generation and transmission throughout Angola. While there are a number of small, off-grid distribution systems operated by municipalities or private operators in remote areas of the Country, ENE is preparing to bring these systems under its control. Future privatization of individual power distribution networks in Angola was mentioned as a distinct possibility.

There is recognition among Government and Company (ENE and EDEL) officials that the Country's distribution systems need to be expanded and modernized. At present, only 30% of the Angolan population (less than 20% according to some sources) has access to electric power. There is reasonable access along the coast, but it is at unacceptable levels in the Provinces of Lunda North and South, Moxico, Cuando Cubango, Cunene and others in the interior. Luanda and its suburbs account for 20-30% of the Country's population, yet the area absorbs 75% of the nation's electricity.

To raise accessibility to electric power, the Government is seeking solutions that make economic sense. Apart from the need to expand power generation to the areas in need through conventional means (i.e., large hydro and thermal generation, expansion of the transmission system) as well as alternative means (micro and mini-hydro, solar, and wind), the Government recognizes that improvement of the current distribution systems has to be one of the highest priorities.

According to EDEL Officials, non-technical losses (e.g. theft) is a major problem, estimated at about 25%. Technical losses within EDEL's distribution system are estimated at about 15%. Evaluating and reducing these losses is a priority. Collection rates are currently running around 80% of billed sales. Industrial and commercial consumers do generally pay their bills. Theft occurs almost exclusively in the residential sector. Many residential consumers have no meters, as the law does not require them. EDEL believes that stealing of electric power is in part due to the slowness of getting legitimate connections. A program to outsource billing and collection for residential, low-tension customers has been successful, increasing collection rates in these areas from 15-20% to 70-80%.

Luanda is within the Northern Grid, which has by far the largest existing and potential hydropower generation capacity and within which the Soyo gas fired power plant (~400 MW) would be built. While there were different opinions about whether current capacity is sufficient to meet demand within the Northern Grid, the growth in demand, increasing in part due to the expansion of EDEL's distribution grid, will certainly require additional capacity. However, with a 200 MW thermal power plant coming on line outside of Luanda and the proposed 4000 MW of capacity being developed on the Middle Kwanza, available power should not be a major constraint on EDEL's operations in the near future.

The fundamental challenge that EDEL faces regarding its commercial operations is that the tariff that it charges customers does not allow it to recover capital and operational costs for its distribution service. According to a 2006 International Energy Agency report on the sector, titled "Angola: Toward an Energy Strategy" the average cost for supply of power, which sources its electricity from ENE, was about 11 cents per kilowatt hour (kwh), while EDEL's average tariff was about 4 cents per kwh. The situation appears to be about the same today. This is clearly not sustainable, and this was confirmed by EDEL's senior management. The current (2010) tariff table is shown below.

#### EDEL Electricity Distribution Tariffs by Customer Type

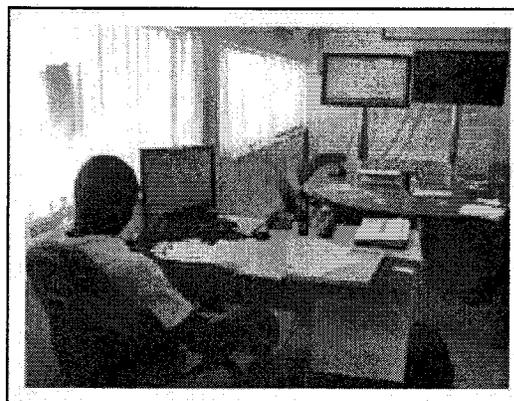
Customer Type	Tariff Angolan Kwanzas per kwh	Tariff US cents/kwh (95Kz/USD)
Low Tension Residential	Kz. 3.35	3.5 cents
Low Tension Social Tariff	Kz. 1.156	1.2 cents
Low Tension Special	Kz. 4.40	4.6 cents
Low Tension Industrial	Kz. 4.40	4.6 cents
Low Tension Services	Kz. 4.40	4.6 cents
Low Tension Public Lighting	Kz. 2.46	2.6 cents

#### Project Location

Luanda is a province of Angola and Luanda is the capital of the province and the Country. Municipalities in Luanda Province include Cacucaco, Viana, Cazenga, Ingombota, Kilamba Kiaxe, Maianga, Rangel, Samba and Sambizanga. Bengo province has an area of 33,016 square kilometers, and its current population is approximately 450,000. The province is bordered by the provinces of Zaire to the North, Uige to the Northeast, Cuanza Norte to the East, and Cuanza Sul to the South. It has two western coastal stretches along the Atlantic Ocean, and forms an enclave around the province of Luanda. Estimates of the population for greater Luanda range from 2.7 to 4.7 million, with a total estimated population in Angola of 15 to 17 million.

#### Project Background

EDEL is currently going through some organizational changes that will allow it to become more decentralized and responsive to customer needs. These changes were being discussed by senior management during the definitional mission travel and further details are not currently available. The proposed changes appeared to be in response to changes in the energy sector which were being implemented in anticipation of a draft Energy Security Law awaiting approval by the Council of Ministers.



EDEL dispatch center with SCADA system in foreground and manual (map with pushpins) system in background

EDEL is currently implementing a large and fast-paced expansion of its distribution infrastructure. It has nearly doubled the number of substations (60kv to 15kv) over the past few years and has plans to increase the number of substations within the system from 11 currently in operation to 20 within the next two years.

EDEL has undertaken several studies of the infrastructure expansion, the most comprehensive and recent being the Plano Director da Rede de Distribuição Eléctrica de Luanda, performed by EDP, a Portuguese engineering consulting firm.



Pre-paid meter center operation in Luanda

EDEL has implemented a SCADA (Supervisory Control and Data Acquisition) system with the Spanish company Elecnor that is designed to provide real time data on 7 of its 11 substations. The SCADA system is currently only operating for 3 of the substations and has some degree of substation automation functionality at 2 substations. The reason for failure of the system for the other 4 substations is not known.

EDEL currently has automated meter reading for all of its mid-tension (15 kv) customers using a Telecontage (ISA Sensing-Spain) system. There are no immediate plans for telemetering for low-tension customers.

Through a USAID funded program for Angola, AED and EDEL have completed GIS-based electricity network maps and community maps for the municipality of Kilamba Kiaxi. The structured database includes EDEL clients, land parcels, electric poles, electric cables, house connections, and meters. Through extensive data collection, AED and EDEL also documented the precise location of all power transformers and substations throughout EDEL's service territory. The survey counted and mapped the 618 private transformers, 693 EDEL transformers, and 10 substations in Luanda. Before the mapping, little was known about the number of transformers and their location, particularly those that are privately owned. This was the first time in nearly 20 years that EDEL and the municipality had up-to-date maps of these areas. Both EDEL and the municipal government purchased their own GIS software licenses, however it is not clear how and/or whether they are continuing to use the AED-provided training to gain accurate information about their customers and communities through the system. EDEL has indicated that the system is not functioning, but it is not clear whether they have been maintaining and updating the data or if the system has the full functionality which was anticipated at time of delivery. ([http://www.aed.org/Publications/upload/Powerin\\_g\\_and\\_Empowering\\_Dev.pdf](http://www.aed.org/Publications/upload/Powerin_g_and_Empowering_Dev.pdf)).



GIS enabled map of electricity network

EDEL is currently running a pre-paid meter pilot program. 3,000 meters are in place and plans call for the expansion to 41,000 meters. The pilot program has proven technically and commercially successful and plans for full implementation are underway. The commercial advantages of pre-payment are obvious, but an additional advantage is that customers tend to rationalize their energy consumption, lowering overall demand on the system and increasing reliability. A South African company has the contract for

installation of meters and management of the system. The DM Team visited one of the payment centers for pre-paid meters.

### **Project Requirements and Proposed Technical Approach**

EDEL's goals and objectives are to improve the quality and the reliability of electric power supply; expand access throughout its designated service area; reduce technical and non-technical losses within the system; increase the efficiency and effectiveness of its commercial operations; and optimize the application of all available resources to improve the economic and financial viability of the company.

In order to maximize the efficiency and effectiveness of its current and planned infrastructure and systems, EDEL plans to incorporate and integrate new and existing IT, automation and management systems and technologies. Specific priorities include: an expansion of the SCADA system; expansion of substation automation system; expansion and integration of a GIS AM/FM (Geographic Information System Automated Mapping/Facilities Management) system; rollout of a pre-paid metering pilot project; and upgrading and/or integration of its billing, metering and collection, customer information, accounting and financial management, complaint management, and other IT systems. Future modernization components may include the following: Outage Management System (OMS), Distribution Management System (DMS), Trouble Call System, Automated Meter Reading (AMR) for low-tension customers, and/or Enterprise Resource Planning (ERP).

These systems will, when implemented, greatly enhance EDEL's delivery operations. They will provide accurate power system network information and analysis tools to support various

**Supervisory Control and Data Acquisition (SCADA) Systems** manage remote terminal unit communications, collect electric system data from the field through a series of front-end processors, initiate alarms to the operations personnel, and issue control commands to the field as directed by the applications in the control center system. A SCADA system typically consists of a host or master computer, one or more field data-gathering and control centers, and a collection of standard and/or custom software used to monitor and control remote field data elements. SCADA systems can collect data (i.e. voltage), send control signals (i.e. throw a circuit breaker), as well as receive status input as feedback to the control operation (i.e. the circuit breaker was activated).

**Geographic Information Systems (GIS AM/FM)** store and map detailed information about the physical characteristics of a distribution system (AM--which stands for automated mapping, and FM--which stands for facilities management, functions are normally included in the GIS package). They will be among the most integrated applications at the utility: most business processes (e.g., the electric system model for system planning, inventory systems, asset accounting, and the outage management systems) can ultimately be coordinated/integrated with the GIS. There is currently limited application of GIS at EDEL with minimal integration with the rest of the distribution systems.

**Distribution Management Systems (DMS)** are an associated set of algorithms that processes and analyzes the data provided by the SCADA system. Typical applications include topology processors, state estimators, on-line three-phase unbalanced power flow analyses, contingency analyses, study mode analyses, switch order management, short-circuit analyses, volt/VAR management, and loss analyses. Several applications, including on-line power flow, require digital models reflecting connectivity, impedance, equipment, load distribution, and system topology and geographic coordinates. The underlying data is to a large extent provided by GIS systems.

**Outage Management Systems (OMS)** identify, and provide a distribution utility the capability to automatically and/or remotely resolve tripped circuit breakers and other outages, and to generate and report critical system information. They also permit the utility to be aware of and react to outage situation and monitor restoration status independent of (and before receiving) customer complaints. An OMS typically works in conjunction with a "trouble call" system. OMS capabilities include accurate time stamping of outages, restoration timing, crew tracking, predictive maintenance based on recorded outage causes, creation of call-back lists, and reports for management and regulators.

**Trouble Call Systems** automatically receive and respond to customer outage reports, and process the data in a way that provides a utility with such precise information about the extent of the outages that the exact devices/lines that caused the outages can normally be identified, repair crews dispatched appropriately, and repairs completed expeditiously.

engineering tasks ranging from planning and design through operations and maintenance, and accordingly will provide substantial time and cost savings and quality improvement in the performance of all of these tasks. Accurate information will also facilitate accurate investment decisions and optimization of network design that will result in more efficient investment for power system network construction.

### **Regulatory Framework**

As noted above, the current regulatory framework for electricity distribution, and resulting tariff rates, does not allow for EDEL to be a commercially viable entity. The Energy Security Bill now under consideration by the Government of Angola is addressing this issue and the regulator, IRSE, is currently working to develop recommendations for a revised tariff schedule. However, for the foreseeable future, the most likely scenario is that EDEL capital and operational expenses will continue to be heavily subsidized by the Government of Angola. While the prospects for implementation of the proposed Distribution Modernization Project would likely be improved through reform in the regulatory framework, the commitment of the Government of Angola to improving electricity distribution is strong and the Project should move forward in the current environment.

The DM team was informed that the proposed reforms will likely allow for private sector participation in the ownership and operation of distribution systems. However, there was no indication that such participation will occur in the near term with EDEL. One prospect for EDEL, which has been used in other developing economies including Tanzania, would be the use of a management contract with an international firm to manage EDEL's operations. As mentioned above private sector participation has taken place within EDEL for billing and collection services as well as for pre-paid metering.

### **Business Climate**

In its 2009 index, global corruption watchdog Transparency International ranked Angola among the 18 most graft-ridden countries, placing it even below Zimbabwe and the Democratic Republic of Congo in Africa. While this is a difficult environment in which to do business, it should be weighed against the significant opportunities presented by the rapid expansion of the electric power sector. US companies are already active and successful in the upstream oil and gas industry and a number of companies are already engaged in the electric power and downstream oil and gas sectors, including GE, Bechtel and KBR.

### **Economic Fundamentals**

Current technical and non-technical losses within EDEL's distribution system are estimated at 30-40%, made up of about 15% technical losses and 25% non-technical losses. Implementation of the proposed IT, automation, and management systems are expected to significantly decrease the losses within the system. If a 15% decrease in overall losses were achieved through the modernization program, with approximate incoming power to the EDEL distribution system of 2 billion kilowatt hours (kwh) per year and the average tariff of about 3.5 cents per kwh, the total potential commercial gains would be \$12 million per year in additional revenues. With 80% collection rates, the expected actual additional revenues would be approximately \$9.6 million per year. This is a significant financial gain that can be used to justify the investments required for the modernization program.

It is also important to look at the prospective economic gains from the perspective of avoided cost of additional installed generation capacity. Even a 5% decrease in technical losses, given that EDEL uses about 75% of the estimated 1000MW of installed operational capacity in Angola, translates into 37.5MW of generation capacity. Assuming a relatively low estimated construction cost of \$1.5 million per MW of additional capacity (based on a mix of thermal and hydropower), the avoided capital cost would be about \$56.25 million. Significant savings would also be derived from avoided operational costs of required generation capacity.

There will also be significant economic gains to the economy of greater Luanda through increased quality, reliability and availability of power. The multiplier effects of increased electricity consumption are significant. An additional benefit is that power from EDEL's distribution system should begin to replace diesel power generators used by residential and commercial customers. The expense of operating this equipment is significantly higher (well over 20 US cents per kwh) than the cost of EDEL delivered power, even with proposed tariff increases.

### **C. Project Sponsor's Capabilities and Commitment.**

As described above, EDEL has already taken significant steps in its efforts to expand and modernize its distribution system. In addition to a number of detailed planning studies commissioned by EDEL, it has already implemented some SCADA, GIS, substation automation, pre-paid metering, automated meter reading, and other IT and management systems.

EDEL came to the Definitional Mission Team requesting that we work to develop a USTDA funded Technical Assistance program that would develop a detailed plan for modernizing its system. The company worked closely with the team and organized a site visit tour of several components of the system, including an automated substation at Golfe, a pre-paid metering payment center, and its dispatch center.

The Ministry of Energy and Water has developed an impressive seven-year electric-sector development plan (Programa de Desenvolvimento do Sector de Energia 2008-2013) that confirms that the government has produced a realistic roadmap and is fully committed to resolve the Country's electricity sector challenges. As to the Government's expressed commitment to the EDEL Distribution Modernization Project, that is a question that we put directly to State Secretary Borges at our debrief meeting on April 8, and he emphatically stated that his Government is in full support.

### **D. Implementation Financing.**

Angola is emerging as a significant producer of oil, which is currently selling at top prices in world markets. It is not so much that the Government of Angola has limited resources, rather the enormity of the reconstruction requirements dwarfs even the national budgets of a middle income oil producer. After 27 years of civil war, and many years of a war of liberation before that, the electric power sector is only one of many sectors of the economy that require complete rebuilding.

EDEL has been making investments of approximately \$35 million per year for the past three years (see chart below). These funds have been predominantly comprised of external funds coming from Government budgetary allocations, which in turn come from government revenues and external lines of credit, including from China, Brazil, and Portugal. The DM team considers

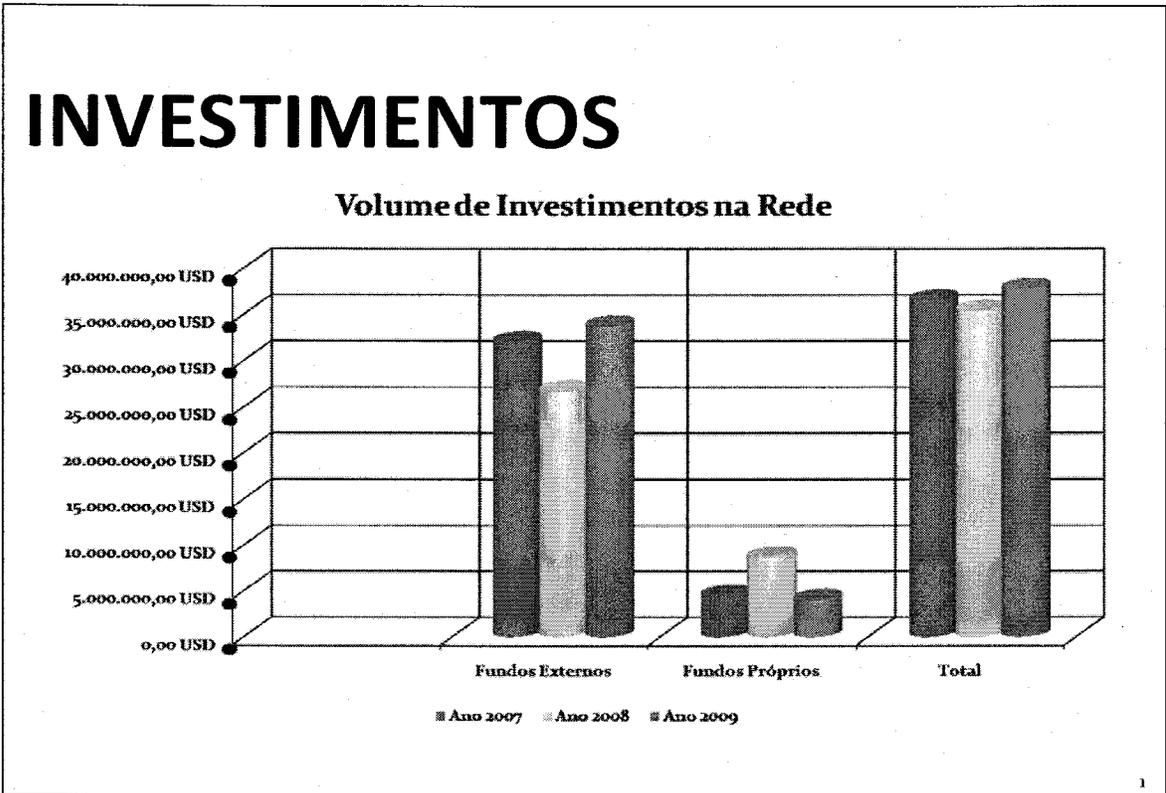
it realistic to expect that EDEL could invest the estimated \$16.5 million for Project implementation over the next five years, especially when considering the potentially significant returns on investment and improvements in the quality and reliability of power.

Checking with Mr. Benjamin Todd, Business Development Officer at the US Ex-Im Bank, confirms that short-term loans, up to 7 years, would be available to US companies to cover or support public sector transactions which commit the full faith and credit of the government.

Various multilateral funding sources may be available to support funding requirements. The African Development Bank and the World Bank come to mind as important multilateral sources for outside funding. Due to its gains in GNP per capita, Angola is graduating from International Development Association (IDA) to International Bank for Reconstruction and Development (IBRD) financing status within the World Bank.

Developing countries whose per capita GNP exceeds \$1,305 may borrow from the IBRD. These loans carry an interest rate slightly above the market rate at which the Bank itself borrows and must generally be repaid within 12-15 years. The IDA, on the other hand, lends only to governments of very poor developing nations whose per capita GNP is below \$1,305 and in practice IDA loans go to countries with annual per capita incomes below \$865. IDA loans are interest free and have a maturity of 35 or 40 years.

Less attractive from a USTDA perspective is the prospect of EDEL utilizing bilateral lines of credit from China, Brazil, Portugal or other countries being used to finance construction, as the procurement for these is largely tied to the lending countries' exporters. However, the nature of the Project requires highly specialized technologies, equipment and services and these lines of



credit will better serve the Government of Angola for less specialized procurements. Furthermore, EDEL and the Ministry clearly understand the USTDA interest in allowing US suppliers to bid on procurement for these projects and are actively pursuing US companies to enter the power sector market in Angola.

### E. US Export Potential

Angola does not at the moment have the means to manufacture the IT and automation systems required for implementation of the Distribution Modernization Project. Consulting, engineering, and integration services are also limited in Angola. Accordingly, nearly all of the required technologies, equipment and services will have to be imported from abroad, with the exception of local labor. The total cost breakdown for major components with likelihood of US exports and estimated realistic US exports is below. They are based on similar investments of recent date made in South Africa and India. Due to the fact that there is a high degree of variability in the manner in which various components may be implemented (i.e. the level of automation within an Outage Management System) costs could vary widely. Based on our analysis, total Project cost could easily reach \$24.25 million with a realistic US export potential of \$18 million.

Project Component	Implementation Cost	Likelihood of US Exports	Realistic US Export Potential
SCADA System Expansion	\$3.0 million	High	\$2.25 million
Substation Automation (17 substations)	\$3.0 million	High	\$2.25 million
GIS AM/FM	\$2.5 million	High	\$1.5 million
Outage Management System (OMS)	\$8.5 million	High	\$7.5 million
IT Systems and Distribution Automation Integration Services	\$2.5 million	Medium	\$1.5 million
Trouble Call System	\$0.75 million	High	\$0.5 million
Enterprise Resource Planning (ERP)	\$1.0 million	High	\$0.5 million
Distribution Management System	\$3.0 million	High	\$2.0 million
<b>TOTAL</b>	<b>\$24.25 million</b>		<b>\$18.0 million</b>

As seen in the table above, US exports of goods and services are very competitive internationally in all of the major components of the Project with the likelihood of US exports ranked "High" for all but one of them. The table below shows US and foreign companies that could compete for procurements resulting from implementation of the Project. We have spoken with several

potential US suppliers of goods and services, including IBM, GE, Bechtel, KEMA, CORE International, and Honeywell. All of the companies are interested in the opportunities presented by the Project. GE and Bechtel are already well established in Angola, including in the energy and power sector.

Equipment Category	Potential US Firms	Foreign Competitors
<b>SCADA and Substation Automation</b>	<ul style="list-style-type: none"> <li>▪ SUN Microsystems</li> <li>▪ Siemens (US)</li> <li>▪ Campbell Scientific, Inc.</li> <li>▪ GE</li> <li>▪ Rockwell Automation</li> <li>▪ Johnson Controls</li> </ul>	<ul style="list-style-type: none"> <li>▪ Catapult Software (New Zealand)</li> <li>▪ Citect (Australia)</li> <li>▪ Wallingford Software (England)</li> <li>▪ Control Microsystems (Canada)</li> <li>▪ AlterSys, Inc. (Canada)</li> <li>▪ Alsthom (France)</li> <li>▪ Vatech (U.K.)</li> </ul>
<b>GIS AM/FM</b>	<ul style="list-style-type: none"> <li>▪ GE</li> <li>▪ ESRI</li> <li>▪ ValueCAD</li> <li>▪ Intergraph</li> </ul>	<ul style="list-style-type: none"> <li>▪ Alsthom (France)</li> </ul>
<b>Outage Management System</b>	<ul style="list-style-type: none"> <li>▪ ABB (US)</li> <li>▪ Oracle</li> <li>▪ GE</li> <li>▪ Telvent</li> </ul>	<ul style="list-style-type: none"> <li>▪ ABB (Switzerland)</li> <li>▪ Siemens (Germany)</li> <li>▪ LeT Sys (Ireland)</li> </ul>
<b>IT Systems and IT Integration Services</b>	<ul style="list-style-type: none"> <li>▪ Deloitte Consulting, LLP</li> <li>▪ Micon Consulting</li> <li>▪ IBM Solutions</li> <li>▪ SAIC</li> <li>▪ Oracle</li> <li>▪ KEMA</li> </ul>	<ul style="list-style-type: none"> <li>▪ Axon Global (UK)</li> <li>▪ Parsons Brinckerhoff Ltd (UK)</li> <li>▪ ABB (Switzerland)</li> <li>▪ Siemens (Germany)</li> <li>▪ Acumen Pty Ltd South Africa</li> <li>▪ Schneider (France)</li> <li>▪ Fuji Electric Information Systems (Japan)</li> </ul>
<b>Trouble Call System</b>	<ul style="list-style-type: none"> <li>▪ Cisco</li> <li>▪ Microsoft</li> <li>▪ IBM</li> </ul>	<ul style="list-style-type: none"> <li>▪ ABB (Switzerland)</li> <li>▪ Siemens (Germany)</li> </ul>
<b>Enterprise Resource Planning (ERP)</b>	<ul style="list-style-type: none"> <li>▪ Ciber</li> <li>▪ Oracle</li> </ul>	
<b>Data Management and Analysis</b>	<ul style="list-style-type: none"> <li>▪ Itron</li> <li>▪ Red Planet Consulting</li> <li>▪ Alliance Data Corporation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fuji Electric Information Systems (Japan)</li> </ul>
<b>Distribution Consulting and Advisory Services</b>	<ul style="list-style-type: none"> <li>▪ CGI Utility Solutions</li> <li>▪ CORE International</li> <li>▪ Bechtel</li> <li>▪ KEMA</li> <li>▪ DCSI</li> <li>▪ Xtensible Solutions</li> <li>▪ Global Enterprise Managers</li> <li>▪ Utility Integration Solutions (UISOL)</li> <li>▪ AESI Acumen Engineering Solutions</li> </ul>	<ul style="list-style-type: none"> <li>▪ Dessau-Soprin International (Canada)</li> <li>▪ Connell Wagner Pty Ltd (Australia)</li> <li>▪ NEWJEC Inc. (Japan)</li> <li>▪ Powertech IST (South Africa)</li> <li>▪ SNC Lavalin (Canada)</li> </ul>

- Electric Utility Consultants, Inc.
- Power System Engineers (PSE)
- Burns & McDonnell

#### **F. Foreign Competition and Market Entry Issues.**

As seen in the table above, there is a large number of non-US suppliers of technologies, equipment, and services that could be procured through the Project. European companies, mainly from France (Alstom), Switzerland (ABB), Germany (Siemens) and Great Britain are active in the region. Brazilian and Portuguese companies are especially active in Angola due to the common language and historical ties. South African firms have a history of selling power sector goods and services in the region and may take part in any procurement tenders. A likely scenario would be a Brazilian, Portuguese, or South African engineering consulting firm taking a lead role to package solutions bringing in US technology, equipment and service companies, which are international leaders in the sector. Chinese firms, which are heavily engaged in the power sector in Angola and throughout Africa, may compete for opportunities in Project implementation, however they will be at a distinct disadvantage due to the highly specialized nature of the systems to be deployed.

#### **G. Developmental Impact.**

The proposed Project would have significant developmental impacts if fully implemented, including the following:

**Infrastructure** – Angola is presently going through an infrastructure evolution of impressive speed and proportion. The Country is rapidly expanding and modernizing its entire electric sector, including the generation, transmission and distribution of power. The expansion and modernization of EDEL's distribution system is a critical part of this initiative. The modernization of the distribution system will allow for:

- faster and more efficient expansion of the system through GIS AM/FM planning tools;
- less frequent and reduced time of outages through SCADA, substation automation, OMS and/or DMS;
- reduced technical losses in the system through improved monitoring and more efficient management using through SCADA, substation automation, OMS and/or DMS;
- increased efficiency and effectiveness of EDEL's commercial operations through improved metering, billing, and collection systems, therefore bringing more revenues into the system to cover capital and operating costs of the system.

The availability of electric power will stimulate commercial, industrial and agricultural development. It will make commercial activities more efficient and it will open up industrial opportunities. In short it will spur economic activity and, by doing all this and much more, it will bring economic growth and improve the quality of life in greater Luanda.

**Human Capacity Building** – Implementation of the proposed Project will require considerable training in new technologies. Training is typically provided as part of a procurement package for new systems. In addition, the proposed Technical Assistance will recommend a long-term training program for EDEL, which, if implemented, would provide significant training to EDEL staff required to manage, build out and modernize the distribution system.

**Technology Transfer and Productivity Improvement** – The Project will introduce a wide range of IT and automation technologies not currently used at EDEL. The use of those technologies is expected to dramatically improve productivity of EDEL staff to manage the distribution system. Automation typically reduces the amount of manpower per unit of production. As an example, the use of a SCADA system with substation automation currently in use has decreased the manpower requirements from 5-6 persons to 1 person per substation, thus increasing productivity by at least 500%. Skilled personnel are an exceptionally scarce resource in Angola so the redeployment of such personnel to other tasks within the EDEL system would prove very beneficial. Significant decreases cost of production per kwh would also be achieved through the Project.

**Other Developmental Impacts: Government Revenues:** One of the most important developmental impacts of an invigorated and expanded electric distribution system sector and the resulting stimulation of economic activity everywhere will be the expected increase in state and local government revenues. That will stimulate further development of the infrastructure of the region, giving way to better roads, transportation systems, street lights, and general government, including social services.

**Alternatives:** While a number of advanced technologies and systems will be evaluated during the Study, the use of basic management systems can have equally dramatic results on improving the delivery of power. Management systems (e.g. work flow management systems) are one example and even outage management and trouble call systems can be improved through procedural and administrative changes without the use of advanced technologies. These will be considered in the overall requirements analysis. The integration of IT and other systems within EDEL will come at a cost but will be maximizing existing technologies and systems and may not require the procurement of significant new systems.

#### **H. Impact on the Environment.**

There is minimal expected negative impact on the environment from the proposed project. Based on its negligible impact on the environment, we recommend that the TOR include a preliminary environmental impact assessment in line with USTDA's basic requirements.

The benefits for the environment in this Project more than outweigh the negative impacts. The use of advanced IT, automation, and management systems would ensure efficient network management, significantly reducing technical losses (thus reducing emissions required to serve any given amount of load) and improving reliability (thus reducing the use of backup generators with very high emission levels).

#### **I. Impact on US Labor.**

Based upon our review, we found that the Project does not provide: (a) any financial incentive to a business enterprise currently located in the United States for the purpose of inducing such an enterprise to relocate outside the United States if such incentive or inducement is likely to reduce the number of employees of such business enterprise in the United States because United States production is being replaced by such enterprise outside the United States; (b) assistance for any project or activity that contributes to the violation of internationally recognized workers rights; or (c) direct assistance for establishing or expanding production of any commodity for export by

any Country other than the United States, if the commodity is likely to be in surplus on world markets at the time the resulting productive capacity is expected to become operative and if the assistance will cause substantial injury to United States producers of the same, similar, or competing commodity.

This Project will assist EDEL to modernize its delivery of electric power, which will be locally consumed in greater Luanda. Therefore the Project is not expected to have any negative impact on US industry or reduce employment in the US. Positive impacts on US labor in the form of US exports and jobs in the electric power industry are expected if the Project is implemented.

#### **J. US Contractor Qualifications and Award Criteria.**

**Contractor Qualifications** – This is a highly technical Project in the field of electric power distribution. The three key technical people are the Project Manager, the Senior Electric Power Engineer, and the IT Specialist. Other important team members are the Senior Financial Specialist and the Senior Economist. The qualifications of these experts and others are listed below:

**Project Manager** - Experience must include significant work at the executive level with an electric utility company, or an engineering consulting firm specializing in power distribution, or both. He/she must be familiar with advanced IT, automation, and management systems used in the modernization of distribution systems. The Project Manager is the Team Leader with single-point responsibility for the overall success of the mission. He/she must have a track record in managing complex industrial/legal projects of similar content and size in foreign countries.

**The Senior Electrical Engineer** - Experience must include significant work for an electric utility company, for an engineering consulting firm specializing in power distribution, or both, including the design and construction of power distribution systems. He/she must be familiar with advanced IT, automation, and management systems used in the modernization of distribution systems.

**The IT Specialist** Experience must include significant work in information technology as applied to power distribution. The work experience must have been acquired through an electric utility company or an engineering consulting firm specializing in electric power distribution, or both. He/she must be familiar with advanced IT, automation, and management systems used in the modernization of distribution systems.

**The Senior Finance Specialist** - Experience must include considerable work in the design and use of financial modeling programs as applied to power distribution. He/she will be responsible for the financial analysis described in the terms of reference.

**The Senior Economist** - Experience must include considerable work in economic and analyses as applied to power distribution. He/she will be responsible for the economic and cost-benefit analyses described in the terms of reference.

The remaining Team Members should have Bachelor's degrees and three years of experience.

Depending on the initial evaluation of the requirements, there may be a need to utilize specialists in particular power distribution systems (i.e. SCADA/substation automation, GIS AM/FM, OMS, DMS).

[REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]

[REDACTED]

- [REDACTED]

**K. Justification.**

There is probably no greater engine for economic development than ready access to electricity. The Government of Angola is acutely aware of this and is trying its best to increase access to the network from its present 20-30 percent to more acceptable standards. It has spent considerable time, effort and money to achieve this goal. Among largely self-financed rehabilitation and expansion projects, the Government, through EDEL, has implemented innovative approaches to modernize its distribution system in Luanda, which consumes 75% of the available load. These include the use of GIS, pre-paid metering, outsourcing to private companies of billing and collections, a SCADA/substation automation system, and a number of IT systems for the management and operations of the company.

EDEL has commissioned a planning study for the upgrade and expansion of the physical infrastructure within the distribution system. What it requires now is Technical Assistance for the modernization of the system using advanced IT, automation and management technologies and systems. In addition to studies undertaken by EDEL, the Ministry of Energy and Water has developed an impressive seven-year electric-sector development plan (Programa de Desenvolvimento do Sector de Energia 2008-2013) that confirms that the government is committed to addressing challenges in the sector and has produced a realistic roadmap to achieve its goals.

Angola is one of the fastest growing economies in Africa and is bolstered by rapidly growing oil revenues. However, it suffers from decades of civil war which destroyed much of the Country's infrastructure and created grossly imbalanced demographics as the population in Luanda, one of the few safe havens during the conflict, grew exponentially. Infrastructure in Luanda developed for 500,000 people now supports, by some estimates, a population of over 4 million. Huge informal settlements have developed throughout greater Luanda where basic infrastructure and services are sometimes entirely absent. Electric power distribution is one of the basic needs in these areas in order to improve the health and economic well-being of the people.

Finally, this Definitional Mission is an important component of the efforts of the US-Angola Strategic Partnership Dialogue's Energy Cooperation Working Group (EWG) to help Angola develop a robust electric power sector. The DM team believes that the proposed EDEL Distribution Modernization Project will be well received by the EWG due to the important developmental impacts of the Project.

[REDACTED]

[REDACTED]

[REDACTED]

**M. Study Budget**

Below is the proposed task completion schedule:

**Task Completion Schedule**

Months	1	2	3	4	5	6
Task 1	■	■	■	■	■	■
Task 2	■	■	□	□	□	□
Task 3	□	■	■	□	□	□
Task 4	□	■	■	□	□	□
Task 5	□	■	■	□	□	□
Task 6	□	■	■	□	□	□
Task 7	□	□	□	■	■	□
Task 8	□	□	□	■	■	□
Task 9	□	□	□	■	■	□
Task 10	□	□	□	□	□	■

The recommended budget for the Technical Assistance is \$855,000. The constructed budget includes a Project Manager/Electrical Engineer, Senior Electrical Engineer, IT Specialist, Senior Finance Specialist, Senior Economist, Training Program Manager, Environmental Specialist, Electrical Engineer (Host Country), Report Editor, and Research Analyst. Local labor accounts for only about 9% of the total budget. Depending on the availability of local expertise in this sector, which we expect will be difficult to secure, the budget for local labor may increase up to 20%. Other direct costs, at about 26% of the total budget, include 9 person trips to Angola and a total of 171 person days in Angola.

# ANGOLA ENERGY AND POWER SECTOR DEFINITIONAL MISSION - EDEL DISTRIBUTION MODERNIZATION TECHNICAL ASSISTANCE

TASK DESCRIPTIONS		LABOR IN PERSON DAYS										TOTAL DAYS	LABOR COST	TRIPS	Total Trip Days	
TASK	DISCIPLINE	Project Manager Electrical Engineer	Senior Electrical Engineer	IT Specialist	Senior Finance Specialist	Senior Economist	Training Program Manager	Environ. Specialist	Electrical Engineer (Host Country)	Report Editor	Research Analyst	TOTAL DAYS	LABOR COST	TRIPS	Total Trip Days	
1	Provide technical and managerial level training and workshops	10.0	10.0	10.0	0.0	0.0	30.0	0.0	0.0	0.0	10.0	70.0	\$68,000	1	15	
2	Document Review, Kickoff Meeting, Stakeholder Consultations, and Workshop	15.0	15.0	15.0	0.0	0.0	0.0	0.0	15.0	0.0	15.0	75.0	\$75,000	3	63	
3	Review and assess EDEL current distribution system and ongoing and planned modernization and expansion plans	15.0	15.0	15.0	5.0	5.0	0.0	0.0	15.0	0.0	15.0	85.0	\$86,000			
4	Develop a 10-year Distribution System Modernization Masterplan	20.0	20.0	15.0	20.0	15.0	0.0	15.0	0.0	0.0	15.0	120.0	\$126,500			
5	Evaluate Developmental Impacts	2.0	2.0	0.0	0.0	5.0	0.0	0.0	2.0	0.0	0.0	11.0	\$11,200			
6	Evaluate Environmental Impacts	2.0	2.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	19.0	\$18,000			
7	Develop Integration Strategy, Implementation Plan and Strategic Roadmap for Proposed Investments	15.0	15.0	20.0	5.0	5.0	0.0	0.0	5.0	0.0	10.0	75.0	\$82,500	3	63	
8	Prepare Procurement Related Documents and Specifications	15.0	15.0	10.0	0.0	0.0	0.0	0.0	15.0	0.0	10.0	65.0	\$65,500			
9	U.S. Sources of Supply	5.0	5.0	5.0	0.0	0.0	0.0	0.0	5.0	0.0	5.0	25.0	\$25,000			
10	Prepare Final Report	5.0	5.0	5.0	3.0	3.0	5.0	1.0	15.0	30.0	20.0	92.0	\$74,100	2	30	
LABOR IN PERSON DAYS		104.0	104.0	95.0	33.0	33.0	35.0	17.0	92.0	30.0	100.0	527.0	\$531,800			
LABOR INCLUDING OVERHEAD & GENERAL ADMINISTRATIVE																
DAILY RATE:		\$1,300	\$1,200	\$1,200	\$1,200	\$1,000	\$800	\$1,000	\$600	\$700	\$700	\$700	\$700	\$55,200	9	171
TOTAL LABOR:		\$135,200	\$124,800	\$114,000	\$39,600	\$33,000	\$28,000	\$11,000	\$55,200	\$21,000	\$70,000	\$531,800	\$55,200	\$55,200	8.7%	

### OTHER DIRECT COSTS (ODCS)

Category	Average Fully Loaded Daily Rate	Person Days	Cost Extension	Totals
Report Translation	\$400	40		\$50,400
Local Logistics and Coordination	\$300	75		\$18,000
Interpretation				\$22,500
<b>TOTAL OUTSIDE CONSULTANTS:</b>				<b>\$88,900</b>

Category	Number	Unit	Cost/Unit	Totals
Outside Consultants	9	R/T	\$3,500	\$88,900
Roundtrip Airfare, Incl. Airport Taxi	171	Per-Diem	\$5,671	\$956,671
Car Rental with Driver (No Taxes)	50	Days	\$200	\$10,000
Misc. Incl. Tel. Fax, Visas, Insur, Vaccination			\$3,125	\$3,125
Printing and Printing Report			4,000	4,000
<b>TOTAL ODCS</b>				<b>\$223,200</b>
<b>TOTAL US LABOR</b>				<b>\$631,800</b>
<b>TOTAL PROJECT COST</b>				<b>\$855,000</b>

Translation Services	
Rate Per Word	\$0.18
Words	280,000
Cost	\$50,400.00

### NOTES

█ indicates travel during task

Additional days have been added to travel in order to accommodate training throughout TA

## **N. Recommendations**

The proposed EDEL Distribution Modernization Project meets all of USTDA's funding criteria. It provides an opportunity for direct US exports of \$18 million, has the potential to significantly impact economic development and the health and well-being of the population of greater Luanda area, and is supportive of Government of Angola policies to improve access to electric power. By increasing the efficiency of the distribution system and reducing the need for diesel-fueled back-up generators, it could also make a measurable contribution to decreasing environmental impacts of the Country's electric power sector. The Ministry of Energy and Water, which is the lead agency for Angola's electric sector, has demonstrated full support for the Project and USTDA funding and would be the Grantee for the USTDA Technical Assistance if funded. Based on our review and analysis of the Project the DM Team recommends funding of the proposed TA with a budget of \$855,000.

**ANNEX 3**



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

**NATIONALITY, SOURCE, AND ORIGIN REQUIREMENTS**

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

**USTDA STANDARD RULE (GRANT AGREEMENT STANDARD LANGUAGE):**

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

**NATIONALITY:**

1) Rule

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

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

## 2) Application

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

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

## 3) Definitions

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

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

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

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

**SOURCE AND ORIGIN:**

1) Rule

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

2) Application

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

3) Definitions

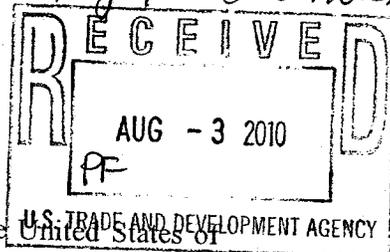
“Source” means the country from which shipment is made.

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

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

**ANNEX 4**

Angola 2010-11032A



### GRANT AGREEMENT

This Grant Agreement is entered into between the Government of the United States of America, acting through the U.S. Trade and Development Agency ("USTDA") and the Ministry of Energy and Water of the Republic of Angola ("Grantee"). USTDA agrees to provide the Grantee under the terms of this Agreement US\$855,000 ("USTDA Grant") to fund the cost of goods and services required for a feasibility study ("Study") on the proposed Luanda Electricity Distribution Modernization project ("Project") in Angola ("Host Country").

PM  
MD  
LB LZ  
JT PD  
MB JW  
PD  
RC  
RA

#### 1. USTDA Funding

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

#### 2. Terms of Reference

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

#### 3. Standards of Conduct

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

#### 4. Grantee Responsibilities

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

## **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](http://www.fedbizopps.gov)). Upon request, the Grantee will submit these contracting procedures and related documents to USTDA for information and/or approval.

### **(B) USTDA Approval of Contractor Selection**

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

### **(C) USTDA Approval of Contract Between Grantee and Contractor**

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

### **(D) USTDA Not a Party to the Contract**

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

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

**(E) Grant Agreement Controlling**

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

**6. Disbursement Procedures**

**(A) USTDA Approval of Contract Required**

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

**(B) Contractor Invoice Requirements**

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

**7. Effective Date**

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

**8. Study Schedule**

**(A) Study Completion Date**

The completion date for the Study, which is July 15, 2011, is the date by which the parties estimate that the Study will have been completed.

**(B) Time Limitation on Disbursement of USTDA Grant Funds**

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

## **9. USTDA Mandatory Clauses**

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

## **10. Use of U.S. Carriers**

### **(A) Air**

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

### **(B) Marine**

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

## **11. Nationality, Source and Origin**

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

## **12. Taxes**

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

### **13. Cooperation Between Parties and Follow-Up**

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

### **14. Implementation Letters**

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

### **15. Recordkeeping and Audit**

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

### **16. Representation of Parties**

For all purposes relevant to the Grant Agreement, the Government of the United States of America will be represented by the U. S. Ambassador to Host Country or USTDA and Grantee will be represented by the Secretary of State for Energy. 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: Ministry of Energy and Water  
Rau Cónego Manuel das Neves, N.º 2324  
Luanda, Angola

Phone: +244 222 393 681  
Fax: +244 222 393 684

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

Phone: +1 703 875 4357  
Fax: +1 703 875 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.: 1110/111001  
Activity No.: 2010-11032A  
Reservation No.: 2010110039  
Grant No.: GH2010110013

#### **18. Termination Clause**

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

#### **19. Non-waiver of Rights and Remedies**

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

## **20. U.S. Technology and Equipment**

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

**[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK]**

IN WITNESS WHEREOF, the Government of the United States of America and the Ministry of Energy and Water of the Republic of Angola, each acting through its duly authorized representative, have caused this Agreement to be signed in the English and Portuguese languages in their names and delivered as of the day and year written below. The English language version of this Grant Agreement shall govern.

For the Government of the  
United States of America

For the Ministry of Energy and Water of  
the Republic of Angola

By: *Thomas J. [Signature]*

By: *Heria Adelaide [Signature]*

Date: *August 2, 2010*

Date: *2 Agosto 2010*

Annex I -- Terms of Reference

Annex II -- USTDA Mandatory Clauses

## Annex I

### Terms of Reference

The Ministry of Energy and Water of the Republic of Angola ("Grantee") has requested funding from the U.S. Trade and Development Agency ("USTDA") for a feasibility study ("Study") to evaluate the technical, financial, environmental, and other critical aspects of the proposed Luanda Electricity Distribution Modernization project ("Project"). If implemented, the Project would improve the efficiency and reliability of the electricity distribution network that is owned and operated by Empresa de Distribuição de Electricidade ("EDEL"), the state-owned company responsible for electricity distribution in the provinces of Luanda and Bengo. The primary objective of the Study is to provide the Grantee with analyses and recommendations that will support the Grantee's decision making with regard to the implementation of the Project, which will be accomplished by the implementation of certain Proposed Improvements (as such term is defined below in Sub-Task 3.2) to EDEL's electricity distribution network through the utilization of advanced information technology ("IT"), automation, and management systems. Another objective of the Study is to improve the Grantee's technical and managerial capacity to implement and sustain the Project.

**Note:** The Contractor shall provide the Grantee with English and Portuguese language versions of all written documents, including all training materials, prepared pursuant to these Terms of Reference. All meetings and workshops between the Contractor and the Grantee pursuant to these Terms of Reference shall be conducted in Portuguese unless otherwise agreed to by the Grantee. Prior to the start of the Contractor's work effort, the Grantee shall identify a Point of Contact ("POC") for the Study. The POC shall assist the Contractor in arranging all meetings and workshops pursuant to these Terms of Reference.

#### **Task 1: Document Review, Kickoff Meeting, Stakeholder Consultations, Work Plan**

**Sub-Task 1.1: Document Review** – The Grantee shall provide the Contractor with all available information and studies, including the master plan that Energias de Portugal carried out in 2008, related to EDEL's electricity distribution network, such as the type and state of equipment and technologies used, structure, operation, management, operating guidelines, and modernization and expansion plans. The Contractor shall review all of the information provided by the Grantee. Based on the results of the document review, the Contractor shall revise the Contractor's work plan for the Study ("Work Plan"). Prior to the kickoff meeting, the Contractor shall provide the Grantee with the revised Work Plan.

**Sub-Task 1.2: Kickoff Meeting, Stakeholder Consultations, Work Plan** – The Contractor shall conduct a kickoff meeting with the Grantee at the Grantee's facilities or at another appropriate venue agreed upon by the Contractor and the Grantee, such venue to be provided at the Grantee's cost. The Grantee shall identify appropriate personnel and other relevant stakeholders to participate in the kickoff meeting.

During the kickoff meeting, the Contractor shall: introduce the Contractor's Study team; review the tasks to be performed under these Terms of Reference; review the Work Plan; and gather input from the Grantee regarding the Grantee's goals for the Study, salient issues surrounding the Grantee's plans for the Project, and Grantee requests for changes in the Work Plan, if any.

For the kickoff meeting, the Contractor shall: coordinate with the Grantee on appropriate meeting content; prepare an agenda, handouts, and presentation materials, as needed, for all meeting attendees; conduct the meeting and facilitate discussion; draft a report of the meeting and distribute the meeting report to meeting attendees and other relevant stakeholders identified by the Grantee; and maintain meeting records, including the agenda, any handouts and presentation materials, a list of all meeting participants, and the meeting report.

If necessary, the Contractor shall further revise the Work Plan based on Grantee input. The Contractor shall obtain Grantee approval for the final Work Plan.

**Task 1 Deliverables:** The Contractor shall provide the Grantee with a copy of the final Work Plan, as approved by the Grantee. The Contractor shall provide the Grantee with a copy of all kickoff meeting records, including the agenda, any handouts and presentation materials, a list of all meeting participants, and the meeting report.

**Task 2: Review of Related Regulatory Issues, EDEL's Existing Electricity Distribution Network, and EDEL's Modernization and Expansion Plans**

**Sub-Task 2.1: Review of Related Regulatory Issues** – The Contractor shall review existing regulations, laws, and institutions that impact EDEL's operations. The Contractor shall document the findings of the Contractor's review of related regulatory issues and compile the findings in a report. Throughout the course of the Study, the Contractor shall continue to monitor any changes in regulations, laws, and institutions that impact EDEL's operations. The Contractor shall take these regulations, laws, and institutions into account while carrying out Tasks 2.2 - 14 below.

**Sub-Task 2.2: Review of EDEL's Existing Electricity Distribution Network** – The Contractor shall review EDEL's existing electricity distribution network. In addition to the information and studies reviewed pursuant to Task 1, the Contractor shall review any additional information and studies the Contractor is able to obtain related to EDEL's existing electricity distribution network. The Contractor shall conduct meetings with Grantee and EDEL personnel, as identified by the Grantee, to obtain information about EDEL's existing electricity distribution network. The Contractor shall also conduct meetings with personnel from Empresa Nacional de Electricidade ("ENE"), the state-owned company responsible for electricity generation and transmission in Angola, to obtain information about linkages between EDEL's electricity distribution network and ENE's electricity transmission network. Finally, the Contractor shall conduct onsite

inspections of EDEL's electricity distribution infrastructure and IT, automation, and management systems, review EDEL's currently available electricity distribution data and EDEL's existing databases, and identify any redundant data capture processes.

The Contractor shall document the findings of the Contractor's review of EDEL's existing electricity distribution network and compile the findings in a report on the current state of EDEL's electricity distribution network. Throughout the course of the Study, the Contractor shall continue to monitor any changes in EDEL's electricity distribution network.

**Sub-Task 2.3: Review of EDEL's Modernization and Expansion Plans** – The Contractor shall review EDEL's plans for modernizing and expanding EDEL's electricity distribution network. In addition to the information and studies reviewed pursuant to Task 1, the Contractor shall review any additional information and studies the Contractor is able to obtain related to EDEL's modernization and expansion plans. The Contractor shall also conduct meetings with Grantee and EDEL personnel, as identified by the Grantee, to obtain information about EDEL's modernization and expansion plans.

The Contractor shall document the findings of the Contractor's review of EDEL's modernization and expansion plans and compile the findings in a report. Throughout the course of the Study, the Contractor shall continue to monitor any changes in EDEL plans for modernizing and expanding EDEL's electricity distribution network.

**Task 2 Deliverables:** The Contractor shall provide the Grantee with reports documenting the findings of the Contractor's review of related regulatory issues, EDEL's existing electricity distribution network, and EDEL's modernization and expansion plans.

**Task 3: Master Plan** – The Contractor shall develop a ten-year master plan for the modernization and expansion of EDEL's electricity distribution network using advanced IT, automation, and management systems ("Master Plan").

**Sub-Task 3.1: Forecast** – The Contractor shall develop a ten-year forecast for Key Parameters (as such term is defined below) of EDEL's electricity distribution network ("Forecast"). The Forecast shall include low, medium, and high scenarios for: electricity supply and demand; electrical load and load factor; number and size of customers; and area and density ("Key Parameters").

**Sub-Task 3.2: Performance Requirements** – As a baseline for the Master Plan, the Contractor shall evaluate the performance requirements of state-of-the-art, fully automated electricity distribution networks with Key Parameters of similar magnitude to those in the Forecast developed pursuant to Sub-Task 3.1. The Contractor shall compare these requirements to the performance of EDEL's existing electricity distribution network and develop a list of proposed IT, automation, and management system improvements needed for EDEL to achieve the performance requirements of state-of-the-art, fully

automated electricity distribution networks with Key Parameters of similar magnitude ("Proposed Improvements").

At a minimum, the Contractor shall consider the following IT, automation, and management systems when developing the list of Proposed Improvements:

- Supervisory control and data acquisition;
- Geographic information;
- Substation automation;
- Asset management;
- Distribution management;
- Outage management;
- Customer information, complaint management, billing, and metering and collection;
- Accounting and financial management; and
- Any other IT, automation, and management systems identified by the Grantee.

**Sub-Task 3.3: Technical Assessment of Proposed Improvements** – The Contractor shall conduct a technical assessment of the Proposed Improvements. The technical assessment shall include basic descriptions and minimum performance requirements for each of the Proposed Improvements.

**Sub-Task 3.4: Integration of Proposed Improvements** – The Contractor shall develop a preliminary strategy for integrating the Proposed Improvements into EDEL's electricity distribution network, including the integration of EDEL's existing IT, automation, and management systems. The preliminary strategy for integrating the Proposed Improvements into EDEL's electricity distribution network shall be aimed at eliminating redundant data capture processes and improving EDEL's operations by facilitating interactions between databases and departments within EDEL, as well as interactions between EDEL and other stakeholders such as the Grantee, ENE, and EDEL's customers.

**Sub-Task 3.5: Economic, Cost-Benefit, and Financial Analyses of Proposed Improvements** – The Contractor shall conduct economic and cost-benefit analyses of the Proposed Improvements. The Contractor shall estimate the capital and operating costs of the Proposed Improvements over the duration of the Master Plan. The Contractor shall also estimate the cost savings and increased revenues that would accrue to both EDEL and other stakeholders, such as ENE, the Grantee, and EDEL's customers. For example, the Contractor shall estimate the cost savings that would accrue to EDEL as a result of decreased losses in EDEL's electricity distribution network, as well as the cost savings that would accrue to ENE as a result of deferred investment in new electricity generation capacity due to increased efficiency in EDEL's electricity distribution network. The Contractor shall estimate revenues from the sale of electricity based on EDEL's statutory power-purchase and power-sales tariffs.

The Contractor shall also conduct economic and cost-benefit analyses of alternative methods of improving the performance of EDEL's electricity distribution network, such as workflow process improvements.

The Contractor shall conduct a financial analysis and calculate the internal rate of return ("IRR") and return on investment ("ROI") of the Proposed Improvements. The Contractor shall conduct a sensitivity analysis of the IRR and ROI based on different assumptions for key variables that affect the IRR and ROI, such as revenues from electricity tariffs, cost estimates, and investment requirements. The Contractor shall select at least three target IRR and ROI levels and determine the cost-recovery tariffs and/or subsidies required to achieve each. Based on these calculations, the Contractor shall provide the Grantee with recommendations for an appropriate tariff and/or subsidy structure to support the implementation of the Proposed Improvements.

The Contractor shall evaluate potential sources of financing for the Proposed Improvements such as: Government of Angola budgetary resources; bilateral lending agencies such as the Export-Import Bank of the United States and the Overseas Private Investment Corporation; multilateral lending agencies such as the World Bank; and private sector financing mechanisms such as commercial loans, supplier credits, and other relevant sources of private sector financing. The Contractor shall also evaluate different options for the financial structure of the Proposed Improvements such as different debt and equity ratios and options for private sector participation. Based on these evaluations, the Contractor shall provide the Grantee with recommendations for sources of financing and the financial structure of the Proposed Improvements.

**Sub-Task 3.6: Implementation of the Proposed Improvements** – The Contractor shall develop a schedule for the implementation the Proposed Improvements over the duration of the Master Plan. The schedule for the implementation the Proposed Improvements shall include phasing, milestones, and prioritization for the Proposed Improvements.

The Contractor shall present the Master Plan, including documentation of all work performed and analyses completed pursuant to Task 3, to the Grantee and other relevant stakeholders, as identified by the Grantee, and gather input from the Grantee regarding the Master Plan.

**Task 3 Deliverables:** The Contractor shall provide the Grantee with the Master Plan, including documentation of all work performed and analyses completed pursuant to Task 3.

**Task 4: Technical Training Workshop #1** – The Contractor shall conduct a technical training workshop ("Technical Training Workshop #1") with the Grantee at the Grantee's facilities or at another appropriate venue agreed upon by the Contractor and the Grantee, such venue to be provided at the Grantee's cost. Technical Training Workshop #1 shall focus on technical aspects of electricity distribution IT, automation, and management systems. Specific topic areas to be covered in Technical Training Workshop #1 shall be agreed upon by the Contractor and the Grantee. Technical Training Workshop #1 shall be three to five days in duration. For planning purposes, the Contractor shall assume that approximately thirty Grantee personnel will participate in Technical Training Workshop

#1. The Grantee shall identify appropriate personnel to participate in Technical Training Workshop #1, including Grantee personnel with responsibilities in various technical aspects of electricity distribution.

For Technical Training Workshop #1, the Contractor shall: coordinate with the Grantee on appropriate workshop content; provide all workshop participants with an agenda, workbooks, reference materials, and other handouts or presentation materials, as needed; conduct the workshop; and maintain workshop records, including the agenda, workbooks, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop, for inclusion in the Final Report.

**Task 4 Deliverables:** The Contractor shall provide the Grantee with a copy of all records for Technical Training Workshop #1, including the agenda, workbooks, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop.

**Task 5: Managerial Training Workshop #1** – The Contractor shall conduct a managerial training workshop (“Managerial Training Workshop #1”) with the Grantee at the Grantee’s facilities or at another appropriate venue agreed upon by the Contractor and the Grantee, such venue to be provided at the Grantee’s cost. Managerial Training Workshop #1 shall focus on managerial aspects of electricity distribution IT, automation, and management systems. Specific topic areas to be covered in Managerial Training Workshop #1 shall be agreed upon by the Contractor and the Grantee. Managerial Training Workshop #1 shall be two to three days in duration. For planning purposes, the Contractor shall assume that approximately ten Grantee personnel will participate in Managerial Training Workshop #1. The Grantee shall identify appropriate personnel to participate in Managerial Training Workshop #1, including Grantee personnel with responsibilities in various managerial aspects of electricity distribution.

For Managerial Training Workshop #1, the Contractor shall: coordinate with the Grantee on appropriate workshop content; provide all workshop participants with an agenda, workbooks, reference materials, and other handouts or presentation materials, as needed; conduct the workshop; and maintain workshop records, including the agenda, workbooks, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop, for inclusion in the Final Report.

**Task 5 Deliverables:** The Contractor shall provide the Grantee with a copy of all records for Managerial Training Workshop #1, including the agenda, workbooks, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop.

**Task 6: Development Impact Assessment**

The Contractor shall conduct a development impact assessment of the Proposed Improvements. The purpose of the development impact assessment is to provide the Project's decision makers and interested parties with a broader view of the Proposed Improvements' potential effects on Angola. The development impact assessment shall identify the anticipated impacts of the Proposed Improvements in the following categories:

- (1) Infrastructure: The Contractor shall identify the anticipated infrastructure impacts of the Proposed Improvements, giving a brief synopsis and concrete examples of infrastructure impacts. Examples of infrastructure impacts related to implementation of the Proposed Improvements may include the modernization and expansion of electricity distribution IT, automation, and management systems that would increase the efficiency and reliability of EDEL's electricity distribution network. The Contractor shall provide specific information about the anticipated infrastructure impacts of the Proposed Improvements, such as anticipated increases in electrical load, customers, distribution lines, and substations and anticipated decreases in technical and non-technical losses, that the Proposed Improvements would support.
- (2) Human Capacity Building: The Contractor shall identify the anticipated number and types of local jobs that would be created or retained as a result of the Proposed Improvements. The Contractor shall also identify the number of local people who would receive training and the types of training programs required to implement and sustain the Proposed Improvements. The Contractor shall not include training performed under these Terms of Reference in the development impact assessment.
- (3) Technology Transfer and Productivity Enhancement: The Contractor shall identify the anticipated advanced technologies that would be utilized for the Proposed Improvements. The Contractor shall also identify anticipated efficiencies that would be gained as a result of the Proposed Improvements. Examples of efficiencies related to implementation of the Proposed Improvements may include higher output per resource use, lower costs or other common measures of efficiency used in the electricity distribution industry.
- (4) Market Oriented Reforms: The Contractor shall provide a description of any regulations, laws, or institutional changes that are recommended pursuant to these Terms of Reference and the effect they would have if implemented.
- (5) Other: The Contractor shall identify any other anticipated development impacts or benefits that would result from the Proposed Improvements, such as improved financial revenue flows to EDEL and other stakeholders, such as ENE, the Grantee, and EDEL's customers, positive spin-off effects on other economic sectors, increased good governance and transparency, etc.

**Task 6 Deliverables:** The Contractor shall provide the Grantee with a development impact assessment of the Proposed Improvements.

**Task 7: Preliminary Environmental and Social Impact Assessments** – The Contractor shall conduct preliminary environmental and social impact assessments of the Proposed Improvements with reference to local requirements and those of multilateral lending agencies such as the World Bank. The preliminary environmental and social impact assessments shall: identify anticipated environmental and social impacts, both positive and negative, associated with the Proposed Improvements; provide recommendations for maximizing positive environmental and social impacts and minimizing negative environmental and social impacts; and identify the steps that the Grantee will need to take subsequent to the Study's completion and prior to implementation of the Proposed Improvements to comply with local environmental and social requirements and those of multilateral lending agencies such as the World Bank.

**Task 7 Deliverables:** The Contractor shall provide the Grantee with preliminary environmental and social impact assessments of the Proposed Improvements.

**Task 8: Assessment of Long Term Training Requirements** – The Contractor shall assess the Grantee's existing capacity in various managerial and technical aspects of electricity distribution. Based on this assessment, the Contractor shall provide the Grantee with recommendations for long-term training programs that will strengthen the Grantee's capacity to implement and sustain the Proposed Improvements. The Contractor shall estimate the costs of the recommended long-term training programs and provide the Grantee with recommendations for financing the recommended long-term training programs.

**Task 8 Deliverables:** The Contractor shall provide the Grantee with an assessment of long-term training requirements that will strengthen the Grantee's capacity to implement and sustain the Proposed Improvements, including documentation of all work performed and analyses completed pursuant to Task 8.

**Task 9: Develop Integration Strategy and Implementation Plan for Priority Investments**

**Sub-Task 9.1: Priority Investments** – Based on the results of Tasks 1-8, the Contractor shall develop a list of at least five priority investments in IT, automation, and management systems for EDEL's electricity distribution network over a ten-year period ("Priority Investments"). The Contractor shall present the list of Priority Investments to the Grantee and other relevant stakeholders, as identified by the Grantee, and gather input from the Grantee regarding the list of Priority Investments. If necessary, the Contractor shall revise the list of Priority Investments based on Grantee input. The Contractor shall obtain Grantee approval for the final list of Priority Investments.

**Sub-Task 9.2: Integration Strategy** – The Contractor shall develop a detailed strategy for integrating the Priority Investments into EDEL's electricity distribution network

("Integration Strategy"). The Integration Strategy shall be aimed at eliminating redundant data capture processes and improving EDEL's operations by facilitating interactions between databases and departments within EDEL, as well as interactions between EDEL and other stakeholders such as the Grantee, ENE, and EDEL's customers.

The Integration Strategy shall include:

- An assessment of all technical (including system interface and information exchange), economic, financial, and other critical requirements for integrating the Priority Investments into EDEL's electricity distribution network;
- Step-by-step recommendations for carrying out the Integration Strategy;
- Clear descriptions of the changes that would occur in EDEL's electricity distribution network as a result of the Integration Strategy; and
- Justifications for the investment requirements of the Integration Strategy based on cost-benefit analyses.

**Sub-Task 9.3: Implementation Plan** – The Contractor shall develop an implementation plan that identifies all the steps EDEL and the Grantee will need to take subsequent to the Study's completion and prior to implementation of the Priority Investments ("Implementation Plan"), such as:

- Environmental and social impact assessments that comply with local environmental and social requirements and those of multilateral lending agencies such as the World Bank;
- Other regulatory, legal, and institutional requirements;
- Financial arrangements;
- Procurements of goods and services; and
- Long-term training requirements.

The Implementation Plan shall include:

- Descriptions of all the steps EDEL and the Grantee will need to take to implement the Priority Investments;
- A recommended schedule for implementing the Priority Investments, including recommendations for phasing, milestones, and prioritization of the Priority Investments;
- An assessment of how the implementation of the Priority Investments will impact EDEL's operations;
- Recommendations for maximizing the anticipated positive impacts and minimizing the anticipated negative impacts of the Priority Investments;
- Budgetary requirements for each step in the Implementation Plan; and
- Justifications for the investment requirements of the Implementation Plan based on cost-benefit analyses.

**Task 9 Deliverables:** The Contractor shall provide the Grantee with the list of Priority Investments and the Integration Strategy and Implementation Plan for the Priority Investments.

**Task 10: Prepare Procurement Related Documents and Specifications** – The Contractor shall develop descriptions, performance requirements, evaluation criteria, budgets, and terms of reference for each of the Priority Investments. The Contractor shall also develop descriptions, performance requirements, evaluation criteria, budgets, and terms of reference for two training programs that would directly support the Grantee's capacity to implement and sustain the Priority Investments.

The Contractor shall develop detailed specifications and draft tender documents for two of the Priority Investments. The Contractor shall obtain approval from the Grantee for the two Priority Investments selected for detailed specifications and draft tender documents.

**Task 10 Deliverables:** The Contractor shall provide the Grantee with descriptions, performance requirements, evaluation criteria, budgets, and terms of reference for each of the Priority Investments and two training programs that would directly support the Grantee's capacity to implement and sustain the Priority Investments, as well as detailed specifications and draft tender documents for two of the Priority Investments.

**Task 11: Identification of U.S. Sources of Supply** – The Contractor shall conduct an assessment of available U.S. sources of supply for the Priority Investments. U.S. sources of supply shall include U.S. providers of all the different categories of goods and services required for implementation of the Priority Investments. For each source identified, the Contractor shall include: company name, point of contact, address, telephone, fax, e-mail, and relevant goods and services provided. The Contractor shall contact at least twenty-five potential U.S. equipment, technology, and service providers of goods and services required for implementation of the Priority Investments and compile a list of those companies that express interest in participating in the Project.

**Task 11 Deliverables:** The Contractor shall provide the Grantee with an assessment of available U.S. sources of supply for the Priority Investments.

**Task 12: Technical Training Workshop #2** – The Contractor shall conduct a technical training workshop ("Technical Training Workshop #2") with the Grantee at the Grantee's facilities or at another appropriate venue agreed upon by the Contractor and the Grantee, such venue to be provided at the Grantee's cost. Technical Training Workshop #2 shall focus on technical aspects of electricity distribution IT, automation, and management systems. Specific topic areas covered in Technical Training Workshop #2 shall be different from the specific topic areas covered in Technical Training Workshop #1, but may build upon and/or complement the specific topic areas covered in Technical Training Workshop #1. Specific topic areas to be covered in Technical Training Workshop #2 shall be agreed upon by the Contractor and the Grantee. Technical Training Workshop #2 shall be three to five days in duration. For planning purposes, the Contractor shall assume that approximately thirty Grantee personnel will participate in Technical Training Workshop #2. The Grantee shall identify appropriate personnel to participate in

Technical Training Workshop #2, including Grantee personnel with responsibilities in various technical aspects of electricity distribution.

For Technical Training Workshop #2, the Contractor shall: coordinate with the Grantee on appropriate workshop content; provide all workshop participants with an agenda, workbooks, reference materials, and other handouts or presentation materials, as needed; conduct the workshop; and maintain workshop records, including the agenda, workbooks, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop, for inclusion in the Final Report.

**Task 12 Deliverables:** The Contractor shall provide the Grantee with a copy of all records for Technical Training Workshop #2, including the agenda, workbooks, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop.

**Task 13 Managerial Training Workshop #2** – The Contractor shall conduct a managerial training workshop (“Managerial Training Workshop #2”) with the Grantee at the Grantee’s facilities or at another appropriate venue agreed upon by the Contractor and the Grantee, such venue to be provided at the Grantee’s cost. Managerial Training Workshop #2 shall focus on managerial aspects of electricity distribution IT, automation, and management systems. Specific topic areas covered in Managerial Training Workshop #2 shall be different from the specific topic areas covered in Managerial Training Workshop #1, but may build upon and/or complement the specific topic areas covered in Managerial Training Workshop #1. Specific topic areas to be covered in Managerial Training Workshop #2 shall be agreed upon by the Contractor and the Grantee. Managerial Training Workshop #2 shall be two to three days in duration. For planning purposes, the Contractor shall assume that approximately ten Grantee personnel will participate in Managerial Training Workshop #2. The Grantee shall identify appropriate personnel to participate in Managerial Training Workshop #2, including Grantee personnel with responsibilities in various managerial aspects of electricity distribution.

For Managerial Training Workshop #2, the Contractor shall: coordinate with the Grantee on appropriate workshop content; provide all workshop participants with an agenda, workbooks, reference materials, and other handouts or presentation materials, as needed; conduct the workshop; and maintain workshop records, including the agenda, workbooks, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop, for inclusion in the Final Report.

**Task 13 Deliverables:** The Contractor shall provide the Grantee with a copy of all records for Managerial Training Workshop #2, including the agenda, workbooks, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop.

#### **Task 14: Final Report**

The Contractor shall prepare and deliver to the Grantee a substantive and comprehensive draft final report of all work performed pursuant to these Terms of Reference ("Draft Final Report").

After the Grantee has reviewed the Draft Final Report, the Contractor shall conduct a final report meeting with the Grantee at the Grantee's facilities or at another appropriate venue agreed upon by the Contractor and the Grantee, such venue to be provided at the Grantee's cost. The Grantee shall identify appropriate personnel and other relevant stakeholders to participate in the final report meeting.

During the final report meeting, the Contractor shall: review all work performed under these Terms of Reference; present the findings and recommendations from the Draft Final Report; and gather feedback from the Grantee on the Draft Final Report and Grantee requests for changes to the Draft Final Report, if any.

For the final report meeting, the Contractor shall: coordinate with the Grantee on appropriate meeting content; prepare an agenda, handouts, and presentation materials, as needed, for all meeting attendees; conduct the meeting and facilitate discussion; draft a report of the meeting and distribute the meeting report to meeting attendees and other relevant parties; and maintain meeting records, including the agenda, any handouts and presentation materials, a list of all meeting participants, and the meeting report, for inclusion in the Final Report.

Once the Contractor has incorporated the Grantee's requests for changes into the Draft Final Report, 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, training materials, 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.

#### **Notes:**

- (1) The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.**
- (2) The Contractor and the Grantee shall be careful to ensure that the public version of the Final Report contains no security or confidential information.**
- (3) The Grantee and USTDA shall have an irrevocable, worldwide, royalty-free, non-exclusive right to use and distribute the Final Report and all work product that is developed under these Terms of Reference.**

## Annex II

### USTDA Mandatory Contract Clauses

#### A. USTDA Mandatory Clauses Controlling

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

#### B. USTDA as Financier

##### (1) USTDA Approval of Contract

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

##### (2) USTDA Not a Party to the Contract

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

or liability to such parties. Any approval or failure to approve by USTDA shall not bar the Client or USTDA from asserting any right they might have against the Contractor, or relieve the Contractor of any liability which the Contractor might otherwise have to the Client or USTDA.

### **C. Nationality, Source and Origin**

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

### **D. Recordkeeping and Audit**

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

### **E. U.S. Carriers**

#### **(1) Air**

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

**(2) Marine**

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

**F. Workman's Compensation Insurance**

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

**G. Reporting Requirements**

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

**H. Disbursement Procedures**

**(1) USTDA Approval of Contract**

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

**(2) Payment Schedule Requirements**

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

### **(3) Contractor Invoice Requirements**

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

#### **(a) Contractor's Invoice**

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

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

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

##### **(ii) For contract performance milestone payments:**

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

##### **(iii) For final payment:**

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

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

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

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

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

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

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

**(c) USTDA Address for Disbursement Requests**

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

**(4) Termination**

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

**I. USTDA Final Report**

**(1) Definition**

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

**(2) Final Report Submission Requirements**

The Contractor shall provide the following to USTDA:

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

and

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

and

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

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

### **(3) Final Report Presentation**

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

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

"This report was funded by the U.S. Trade and Development Agency (USTDA), an agency of the U. S. Government. The opinions, findings, conclusions or recommendations expressed in this document are those of the

author(s) and do not necessarily represent the official position or policies of USTDA. USTDA makes no representation about, nor does it accept responsibility for, the accuracy or completeness of the information contained in this report."

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

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

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

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

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

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

#### **J. Modifications**

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

#### **K. Study Schedule**

##### **(1) Study Completion Date**

The completion date for the Study, which is July 15, 2011, is the date by which the parties estimate that the Study will have been completed.

## **(2) Time Limitation on Disbursement of USTDA Grant Funds**

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

## **L. Business Practices**

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

## **M. USTDA Address and Fiscal Data**

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

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

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

### Fiscal Data:

Appropriation No.: 1110/111001  
Activity No.: 2010-11032A  
Reservation No.: 2010110039  
Grant No.: GH2010110013

## **N. Definitions**

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

**O. Taxes**

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

**ANNEX 5**

## Annex I

### Terms of Reference

The Ministry of Energy and Water of the Republic of Angola ("Grantee") has requested funding from the U.S. Trade and Development Agency ("USTDA") for a feasibility study ("Study") to evaluate the technical, financial, environmental, and other critical aspects of the proposed Luanda Electricity Distribution Modernization project ("Project"). If implemented, the Project would improve the efficiency and reliability of the electricity distribution network that is owned and operated by Empresa de Distribuição de Electricidade ("EDEL"), the state-owned company responsible for electricity distribution in the provinces of Luanda and Bengo. The primary objective of the Study is to provide the Grantee with analyses and recommendations that will support the Grantee's decision making with regard to the implementation of the Project, which will be accomplished by the implementation of certain Proposed Improvements (as such term is defined below in Sub-Task 3.2) to EDEL's electricity distribution network through the utilization of advanced information technology ("IT"), automation, and management systems. Another objective of the Study is to improve the Grantee's technical and managerial capacity to implement and sustain the Project.

**Note:** The Contractor shall provide the Grantee with English and Portuguese language versions of all written documents, including all training materials, prepared pursuant to these Terms of Reference. All meetings and workshops between the Contractor and the Grantee pursuant to these Terms of Reference shall be conducted in Portuguese unless otherwise agreed to by the Grantee. Prior to the start of the Contractor's work effort, the Grantee shall identify a Point of Contact ("POC") for the Study. The POC shall assist the Contractor in arranging all meetings and workshops pursuant to these Terms of Reference.

#### **Task 1: Document Review, Kickoff Meeting, Stakeholder Consultations, Work Plan**

**Sub-Task 1.1: Document Review** – The Grantee shall provide the Contractor with all available information and studies, including the master plan that Energias de Portugal carried out in 2008, related to EDEL's electricity distribution network, such as the type and state of equipment and technologies used, structure, operation, management, operating guidelines, and modernization and expansion plans. The Contractor shall review all of the information provided by the Grantee. Based on the results of the document review, the Contractor shall revise the Contractor's work plan for the Study ("Work Plan"). Prior to the kickoff meeting, the Contractor shall provide the Grantee with the revised Work Plan.

**Sub-Task 1.2: Kickoff Meeting, Stakeholder Consultations, Work Plan** – The Contractor shall conduct a kickoff meeting with the Grantee at the Grantee's facilities or at another appropriate venue agreed upon by the Contractor and the Grantee, such venue to be provided at the Grantee's cost. The Grantee shall identify appropriate personnel and other relevant stakeholders to participate in the kickoff meeting.

During the kickoff meeting, the Contractor shall: introduce the Contractor's Study team; review the tasks to be performed under these Terms of Reference; review the Work Plan; and gather input from the Grantee regarding the Grantee's goals for the Study, salient issues surrounding the Grantee's plans for the Project, and Grantee requests for changes in the Work Plan, if any.

For the kickoff meeting, the Contractor shall: coordinate with the Grantee on appropriate meeting content; prepare an agenda, handouts, and presentation materials, as needed, for all meeting attendees; conduct the meeting and facilitate discussion; draft a report of the meeting and distribute the meeting report to meeting attendees and other relevant stakeholders identified by the Grantee; and maintain meeting records, including the agenda, any handouts and presentation materials, a list of all meeting participants, and the meeting report.

If necessary, the Contractor shall further revise the Work Plan based on Grantee input. The Contractor shall obtain Grantee approval for the final Work Plan.

**Task 1 Deliverables:** The Contractor shall provide the Grantee with a copy of the final Work Plan, as approved by the Grantee. The Contractor shall provide the Grantee with a copy of all kickoff meeting records, including the agenda, any handouts and presentation materials, a list of all meeting participants, and the meeting report.

**Task 2: Review of Related Regulatory Issues, EDEL's Existing Electricity Distribution Network, and EDEL's Modernization and Expansion Plans**

**Sub-Task 2.1: Review of Related Regulatory Issues** – The Contractor shall review existing regulations, laws, and institutions that impact EDEL's operations. The Contractor shall document the findings of the Contractor's review of related regulatory issues and compile the findings in a report. Throughout the course of the Study, the Contractor shall continue to monitor any changes in regulations, laws, and institutions that impact EDEL's operations. The Contractor shall take these regulations, laws, and institutions into account while carrying out Tasks 2.2 - 14 below.

**Sub-Task 2.2: Review of EDEL's Existing Electricity Distribution Network** – The Contractor shall review EDEL's existing electricity distribution network. In addition to the information and studies reviewed pursuant to Task 1, the Contractor shall review any additional information and studies the Contractor is able to obtain related to EDEL's existing electricity distribution network. The Contractor shall conduct meetings with Grantee and EDEL personnel, as identified by the Grantee, to obtain information about EDEL's existing electricity distribution network. The Contractor shall also conduct meetings with personnel from Empresa Nacional de Electricidade ("ENE"), the state-owned company responsible for electricity generation and transmission in Angola, to obtain information about linkages between EDEL's electricity distribution network and ENE's electricity transmission network. Finally, the Contractor shall conduct onsite

inspections of EDEL's electricity distribution infrastructure and IT, automation, and management systems, review EDEL's currently available electricity distribution data and EDEL's existing databases, and identify any redundant data capture processes.

The Contractor shall document the findings of the Contractor's review of EDEL's existing electricity distribution network and compile the findings in a report on the current state of EDEL's electricity distribution network. Throughout the course of the Study, the Contractor shall continue to monitor any changes in EDEL's electricity distribution network.

**Sub-Task 2.3: Review of EDEL's Modernization and Expansion Plans** – The Contractor shall review EDEL's plans for modernizing and expanding EDEL's electricity distribution network. In addition to the information and studies reviewed pursuant to Task 1, the Contractor shall review any additional information and studies the Contractor is able to obtain related to EDEL's modernization and expansion plans. The Contractor shall also conduct meetings with Grantee and EDEL personnel, as identified by the Grantee, to obtain information about EDEL's modernization and expansion plans.

The Contractor shall document the findings of the Contractor's review of EDEL's modernization and expansion plans and compile the findings in a report. Throughout the course of the Study, the Contractor shall continue to monitor any changes in EDEL plans for modernizing and expanding EDEL's electricity distribution network.

**Task 2 Deliverables:** The Contractor shall provide the Grantee with reports documenting the findings of the Contractor's review of related regulatory issues, EDEL's existing electricity distribution network, and EDEL's modernization and expansion plans.

**Task 3: Master Plan** – The Contractor shall develop a ten-year master plan for the modernization and expansion of EDEL's electricity distribution network using advanced IT, automation, and management systems ("Master Plan").

**Sub-Task 3.1: Forecast** – The Contractor shall develop a ten-year forecast for Key Parameters (as such term is defined below) of EDEL's electricity distribution network ("Forecast"). The Forecast shall include low, medium, and high scenarios for: electricity supply and demand; electrical load and load factor; number and size of customers; and area and density ("Key Parameters").

**Sub-Task 3.2: Performance Requirements** – As a baseline for the Master Plan, the Contractor shall evaluate the performance requirements of state-of-the-art, fully automated electricity distribution networks with Key Parameters of similar magnitude to those in the Forecast developed pursuant to Sub-Task 3.1. The Contractor shall compare these requirements to the performance of EDEL's existing electricity distribution network and develop a list of proposed IT, automation, and management system improvements needed for EDEL to achieve the performance requirements of state-of-the-art, fully

automated electricity distribution networks with Key Parameters of similar magnitude ("Proposed Improvements").

At a minimum, the Contractor shall consider the following IT, automation, and management systems when developing the list of Proposed Improvements:

- Supervisory control and data acquisition;
- Geographic information;
- Substation automation;
- Asset management;
- Distribution management;
- Outage management;
- Customer information, complaint management, billing, and metering and collection;
- Accounting and financial management; and
- Any other IT, automation, and management systems identified by the Grantee.

**Sub-Task 3.3: Technical Assessment of Proposed Improvements** – The Contractor shall conduct a technical assessment of the Proposed Improvements. The technical assessment shall include basic descriptions and minimum performance requirements for each of the Proposed Improvements.

**Sub-Task 3.4: Integration of Proposed Improvements** – The Contractor shall develop a preliminary strategy for integrating the Proposed Improvements into EDEL's electricity distribution network, including the integration of EDEL's existing IT, automation, and management systems. The preliminary strategy for integrating the Proposed Improvements into EDEL's electricity distribution network shall be aimed at eliminating redundant data capture processes and improving EDEL's operations by facilitating interactions between databases and departments within EDEL, as well as interactions between EDEL and other stakeholders such as the Grantee, ENE, and EDEL's customers.

**Sub-Task 3.5: Economic, Cost-Benefit, and Financial Analyses of Proposed Improvements** – The Contractor shall conduct economic and cost-benefit analyses of the Proposed Improvements. The Contractor shall estimate the capital and operating costs of the Proposed Improvements over the duration of the Master Plan. The Contractor shall also estimate the cost savings and increased revenues that would accrue to both EDEL and other stakeholders, such as ENE, the Grantee, and EDEL's customers. For example, the Contractor shall estimate the cost savings that would accrue to EDEL as a result of decreased losses in EDEL's electricity distribution network, as well as the cost savings that would accrue to ENE as a result of deferred investment in new electricity generation capacity due to increased efficiency in EDEL's electricity distribution network. The Contractor shall estimate revenues from the sale of electricity based on EDEL's statutory power-purchase and power-sales tariffs.

The Contractor shall also conduct economic and cost-benefit analyses of alternative methods of improving the performance of EDEL's electricity distribution network, such as workflow process improvements.

The Contractor shall conduct a financial analysis and calculate the internal rate of return ("IRR") and return on investment ("ROI") of the Proposed Improvements. The Contractor shall conduct a sensitivity analysis of the IRR and ROI based on different assumptions for key variables that affect the IRR and ROI, such as revenues from electricity tariffs, cost estimates, and investment requirements. The Contractor shall select at least three target IRR and ROI levels and determine the cost-recovery tariffs and/or subsidies required to achieve each. Based on these calculations, the Contractor shall provide the Grantee with recommendations for an appropriate tariff and/or subsidy structure to support the implementation of the Proposed Improvements.

The Contractor shall evaluate potential sources of financing for the Proposed Improvements such as: Government of Angola budgetary resources; bilateral lending agencies such as the Export-Import Bank of the United States and the Overseas Private Investment Corporation; multilateral lending agencies such as the World Bank; and private sector financing mechanisms such as commercial loans, supplier credits, and other relevant sources of private sector financing. The Contractor shall also evaluate different options for the financial structure of the Proposed Improvements such as different debt and equity ratios and options for private sector participation. Based on these evaluations, the Contractor shall provide the Grantee with recommendations for sources of financing and the financial structure of the Proposed Improvements.

**Sub-Task 3.6: Implementation of the Proposed Improvements** – The Contractor shall develop a schedule for the implementation the Proposed Improvements over the duration of the Master Plan. The schedule for the implementation the Proposed Improvements shall include phasing, milestones, and prioritization for the Proposed Improvements.

The Contractor shall present the Master Plan, including documentation of all work performed and analyses completed pursuant to Task 3, to the Grantee and other relevant stakeholders, as identified by the Grantee, and gather input from the Grantee regarding the Master Plan.

**Task 3 Deliverables:** The Contractor shall provide the Grantee with the Master Plan, including documentation of all work performed and analyses completed pursuant to Task 3.

**Task 4: Technical Training Workshop #1** – The Contractor shall conduct a technical training workshop ("Technical Training Workshop #1") with the Grantee at the Grantee's facilities or at another appropriate venue agreed upon by the Contractor and the Grantee, such venue to be provided at the Grantee's cost. Technical Training Workshop #1 shall focus on technical aspects of electricity distribution IT, automation, and management systems. Specific topic areas to be covered in Technical Training Workshop #1 shall be agreed upon by the Contractor and the Grantee. Technical Training Workshop #1 shall be three to five days in duration. For planning purposes, the Contractor shall assume that approximately thirty Grantee personnel will participate in Technical Training Workshop

#1. The Grantee shall identify appropriate personnel to participate in Technical Training Workshop #1, including Grantee personnel with responsibilities in various technical aspects of electricity distribution.

For Technical Training Workshop #1, the Contractor shall: coordinate with the Grantee on appropriate workshop content; provide all workshop participants with an agenda, workbooks, reference materials, and other handouts or presentation materials, as needed; conduct the workshop; and maintain workshop records, including the agenda, workbooks, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop, for inclusion in the Final Report.

**Task 4 Deliverables:** The Contractor shall provide the Grantee with a copy of all records for Technical Training Workshop #1, including the agenda, workbooks, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop.

**Task 5: Managerial Training Workshop #1** – The Contractor shall conduct a managerial training workshop (“Managerial Training Workshop #1”) with the Grantee at the Grantee’s facilities or at another appropriate venue agreed upon by the Contractor and the Grantee, such venue to be provided at the Grantee’s cost. Managerial Training Workshop #1 shall focus on managerial aspects of electricity distribution IT, automation, and management systems. Specific topic areas to be covered in Managerial Training Workshop #1 shall be agreed upon by the Contractor and the Grantee. Managerial Training Workshop #1 shall be two to three days in duration. For planning purposes, the Contractor shall assume that approximately ten Grantee personnel will participate in Managerial Training Workshop #1. The Grantee shall identify appropriate personnel to participate in Managerial Training Workshop #1, including Grantee personnel with responsibilities in various managerial aspects of electricity distribution.

For Managerial Training Workshop #1, the Contractor shall: coordinate with the Grantee on appropriate workshop content; provide all workshop participants with an agenda, workbooks, reference materials, and other handouts or presentation materials, as needed; conduct the workshop; and maintain workshop records, including the agenda, workbooks, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop, for inclusion in the Final Report.

**Task 5 Deliverables:** The Contractor shall provide the Grantee with a copy of all records for Managerial Training Workshop #1, including the agenda, workbooks, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop.

**Task 6: Development Impact Assessment**

The Contractor shall conduct a development impact assessment of the Proposed Improvements. The purpose of the development impact assessment is to provide the Project's decision makers and interested parties with a broader view of the Proposed Improvements' potential effects on Angola. The development impact assessment shall identify the anticipated impacts of the Proposed Improvements in the following categories:

- (1) Infrastructure: The Contractor shall identify the anticipated infrastructure impacts of the Proposed Improvements, giving a brief synopsis and concrete examples of infrastructure impacts. Examples of infrastructure impacts related to implementation of the Proposed Improvements may include the modernization and expansion of electricity distribution IT, automation, and management systems that would increase the efficiency and reliability of EDEL's electricity distribution network. The Contractor shall provide specific information about the anticipated infrastructure impacts of the Proposed Improvements, such as anticipated increases in electrical load, customers, distribution lines, and substations and anticipated decreases in technical and non-technical losses, that the Proposed Improvements would support.
- (2) Human Capacity Building: The Contractor shall identify the anticipated number and types of local jobs that would be created or retained as a result of the Proposed Improvements. The Contractor shall also identify the number of local people who would receive training and the types of training programs required to implement and sustain the Proposed Improvements. The Contractor shall not include training performed under these Terms of Reference in the development impact assessment.
- (3) Technology Transfer and Productivity Enhancement: The Contractor shall identify the anticipated advanced technologies that would be utilized for the Proposed Improvements. The Contractor shall also identify anticipated efficiencies that would be gained as a result of the Proposed Improvements. Examples of efficiencies related to implementation of the Proposed Improvements may include higher output per resource use, lower costs or other common measures of efficiency used in the electricity distribution industry.
- (4) Market Oriented Reforms: The Contractor shall provide a description of any regulations, laws, or institutional changes that are recommended pursuant to these Terms of Reference and the effect they would have if implemented.
- (5) Other: The Contractor shall identify any other anticipated development impacts or benefits that would result from the Proposed Improvements, such as improved financial revenue flows to EDEL and other stakeholders, such as ENE, the Grantee, and EDEL's customers, positive spin-off effects on other economic sectors, increased good governance and transparency, etc.

**Task 6 Deliverables:** The Contractor shall provide the Grantee with a development impact assessment of the Proposed Improvements.

**Task 7: Preliminary Environmental and Social Impact Assessments** – The Contractor shall conduct preliminary environmental and social impact assessments of the Proposed Improvements with reference to local requirements and those of multilateral lending agencies such as the World Bank. The preliminary environmental and social impact assessments shall: identify anticipated environmental and social impacts, both positive and negative, associated with the Proposed Improvements; provide recommendations for maximizing positive environmental and social impacts and minimizing negative environmental and social impacts; and identify the steps that the Grantee will need to take subsequent to the Study's completion and prior to implementation of the Proposed Improvements to comply with local environmental and social requirements and those of multilateral lending agencies such as the World Bank.

**Task 7 Deliverables:** The Contractor shall provide the Grantee with preliminary environmental and social impact assessments of the Proposed Improvements.

**Task 8: Assessment of Long Term Training Requirements** – The Contractor shall assess the Grantee's existing capacity in various managerial and technical aspects of electricity distribution. Based on this assessment, the Contractor shall provide the Grantee with recommendations for long-term training programs that will strengthen the Grantee's capacity to implement and sustain the Proposed Improvements. The Contractor shall estimate the costs of the recommended long-term training programs and provide the Grantee with recommendations for financing the recommended long-term training programs.

**Task 8 Deliverables:** The Contractor shall provide the Grantee with an assessment of long-term training requirements that will strengthen the Grantee's capacity to implement and sustain the Proposed Improvements, including documentation of all work performed and analyses completed pursuant to Task 8.

**Task 9: Develop Integration Strategy and Implementation Plan for Priority Investments**

**Sub-Task 9.1: Priority Investments** – Based on the results of Tasks 1-8, the Contractor shall develop a list of at least five priority investments in IT, automation, and management systems for EDEL's electricity distribution network over a ten-year period ("Priority Investments"). The Contractor shall present the list of Priority Investments to the Grantee and other relevant stakeholders, as identified by the Grantee, and gather input from the Grantee regarding the list of Priority Investments. If necessary, the Contractor shall revise the list of Priority Investments based on Grantee input. The Contractor shall obtain Grantee approval for the final list of Priority Investments.

**Sub-Task 9.2: Integration Strategy** – The Contractor shall develop a detailed strategy for integrating the Priority Investments into EDEL's electricity distribution network

("Integration Strategy"). The Integration Strategy shall be aimed at eliminating redundant data capture processes and improving EDEL's operations by facilitating interactions between databases and departments within EDEL, as well as interactions between EDEL and other stakeholders such as the Grantee, ENE, and EDEL's customers.

The Integration Strategy shall include:

- An assessment of all technical (including system interface and information exchange), economic, financial, and other critical requirements for integrating the Priority Investments into EDEL's electricity distribution network;
- Step-by-step recommendations for carrying out the Integration Strategy;
- Clear descriptions of the changes that would occur in EDEL's electricity distribution network as a result of the Integration Strategy; and
- Justifications for the investment requirements of the Integration Strategy based on cost-benefit analyses.

**Sub-Task 9.3: Implementation Plan** – The Contractor shall develop an implementation plan that identifies all the steps EDEL and the Grantee will need to take subsequent to the Study's completion and prior to implementation of the Priority Investments ("Implementation Plan"), such as:

- Environmental and social impact assessments that comply with local environmental and social requirements and those of multilateral lending agencies such as the World Bank;
- Other regulatory, legal, and institutional requirements;
- Financial arrangements;
- Procurements of goods and services; and
- Long-term training requirements.

The Implementation Plan shall include:

- Descriptions of all the steps EDEL and the Grantee will need to take to implement the Priority Investments;
- A recommended schedule for implementing the Priority Investments, including recommendations for phasing, milestones, and prioritization of the Priority Investments;
- An assessment of how the implementation of the Priority Investments will impact EDEL's operations;
- Recommendations for maximizing the anticipated positive impacts and minimizing the anticipated negative impacts of the Priority Investments;
- Budgetary requirements for each step in the Implementation Plan; and
- Justifications for the investment requirements of the Implementation Plan based on cost-benefit analyses.

**Task 9 Deliverables:** The Contractor shall provide the Grantee with the list of Priority Investments and the Integration Strategy and Implementation Plan for the Priority Investments.

**Task 10: Prepare Procurement Related Documents and Specifications** – The Contractor shall develop descriptions, performance requirements, evaluation criteria, budgets, and terms of reference for each of the Priority Investments. The Contractor shall also develop descriptions, performance requirements, evaluation criteria, budgets, and terms of reference for two training programs that would directly support the Grantee's capacity to implement and sustain the Priority Investments.

The Contractor shall develop detailed specifications and draft tender documents for two of the Priority Investments. The Contractor shall obtain approval from the Grantee for the two Priority Investments selected for detailed specifications and draft tender documents.

**Task 10 Deliverables:** The Contractor shall provide the Grantee with descriptions, performance requirements, evaluation criteria, budgets, and terms of reference for each of the Priority Investments and two training programs that would directly support the Grantee's capacity to implement and sustain the Priority Investments, as well as detailed specifications and draft tender documents for two of the Priority Investments.

**Task 11: Identification of U.S. Sources of Supply** – The Contractor shall conduct an assessment of available U.S. sources of supply for the Priority Investments. U.S. sources of supply shall include U.S. providers of all the different categories of goods and services required for implementation of the Priority Investments. For each source identified, the Contractor shall include: company name, point of contact, address, telephone, fax, e-mail, and relevant goods and services provided. The Contractor shall contact at least twenty-five potential U.S. equipment, technology, and service providers of goods and services required for implementation of the Priority Investments and compile a list of those companies that express interest in participating in the Project.

**Task 11 Deliverables:** The Contractor shall provide the Grantee with an assessment of available U.S. sources of supply for the Priority Investments.

**Task 12: Technical Training Workshop #2** – The Contractor shall conduct a technical training workshop ("Technical Training Workshop #2") with the Grantee at the Grantee's facilities or at another appropriate venue agreed upon by the Contractor and the Grantee, such venue to be provided at the Grantee's cost. Technical Training Workshop #2 shall focus on technical aspects of electricity distribution IT, automation, and management systems. Specific topic areas covered in Technical Training Workshop #2 shall be different from the specific topic areas covered in Technical Training Workshop #1, but may build upon and/or complement the specific topic areas covered in Technical Training Workshop #1. Specific topic areas to be covered in Technical Training Workshop #2 shall be agreed upon by the Contractor and the Grantee. Technical Training Workshop #2 shall be three to five days in duration. For planning purposes, the Contractor shall assume that approximately thirty Grantee personnel will participate in Technical Training Workshop #2. The Grantee shall identify appropriate personnel to participate in

Technical Training Workshop #2, including Grantee personnel with responsibilities in various technical aspects of electricity distribution.

For Technical Training Workshop #2, the Contractor shall: coordinate with the Grantee on appropriate workshop content; provide all workshop participants with an agenda, workbooks, reference materials, and other handouts or presentation materials, as needed; conduct the workshop; and maintain workshop records, including the agenda, workbooks, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop, for inclusion in the Final Report.

**Task 12 Deliverables:** The Contractor shall provide the Grantee with a copy of all records for Technical Training Workshop #2, including the agenda, workbooks, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop.

**Task 13 Managerial Training Workshop #2** – The Contractor shall conduct a managerial training workshop (“Managerial Training Workshop #2”) with the Grantee at the Grantee’s facilities or at another appropriate venue agreed upon by the Contractor and the Grantee, such venue to be provided at the Grantee’s cost. Managerial Training Workshop #2 shall focus on managerial aspects of electricity distribution IT, automation, and management systems. Specific topic areas covered in Managerial Training Workshop #2 shall be different from the specific topic areas covered in Managerial Training Workshop #1, but may build upon and/or complement the specific topic areas covered in Managerial Training Workshop #1. Specific topic areas to be covered in Managerial Training Workshop #2 shall be agreed upon by the Contractor and the Grantee. Managerial Training Workshop #2 shall be two to three days in duration. For planning purposes, the Contractor shall assume that approximately ten Grantee personnel will participate in Managerial Training Workshop #2. The Grantee shall identify appropriate personnel to participate in Managerial Training Workshop #2, including Grantee personnel with responsibilities in various managerial aspects of electricity distribution.

For Managerial Training Workshop #2, the Contractor shall: coordinate with the Grantee on appropriate workshop content; provide all workshop participants with an agenda, workbooks, reference materials, and other handouts or presentation materials, as needed; conduct the workshop; and maintain workshop records, including the agenda, workbooks, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop, for inclusion in the Final Report.

**Task 13 Deliverables:** The Contractor shall provide the Grantee with a copy of all records for Managerial Training Workshop #2, including the agenda, workbooks, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop.

#### **Task 14: Final Report**

The Contractor shall prepare and deliver to the Grantee a substantive and comprehensive draft final report of all work performed pursuant to these Terms of Reference ("Draft Final Report").

After the Grantee has reviewed the Draft Final Report, the Contractor shall conduct a final report meeting with the Grantee at the Grantee's facilities or at another appropriate venue agreed upon by the Contractor and the Grantee, such venue to be provided at the Grantee's cost. The Grantee shall identify appropriate personnel and other relevant stakeholders to participate in the final report meeting.

During the final report meeting, the Contractor shall: review all work performed under these Terms of Reference; present the findings and recommendations from the Draft Final Report; and gather feedback from the Grantee on the Draft Final Report and Grantee requests for changes to the Draft Final Report, if any.

For the final report meeting, the Contractor shall: coordinate with the Grantee on appropriate meeting content; prepare an agenda, handouts, and presentation materials, as needed, for all meeting attendees; conduct the meeting and facilitate discussion; draft a report of the meeting and distribute the meeting report to meeting attendees and other relevant parties; and maintain meeting records, including the agenda, any handouts and presentation materials, a list of all meeting participants, and the meeting report, for inclusion in the Final Report.

Once the Contractor has incorporated the Grantee's requests for changes into the Draft Final Report, 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, training materials, 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.

#### **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 Feasibility Study.
6. If Offeror is a subsidiary, indicate if Offeror is a wholly-owned or partially-owned subsidiary. Provide the information requested in items 1 through 5 above for the Offeror's parent(s).
7. Project Manager's name, address, telephone number, e-mail address and fax number.

### B. Offeror's Authorized Negotiator

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

**C. Negotiation Prerequisites**

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

**D. Offeror's Representations**

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

1. Offeror is a corporation [*insert applicable type of entity if not a corporation*] duly organized, validly existing and in good standing under the laws of the State of \_\_\_\_\_. The Offeror has all the requisite corporate power and authority to conduct its business as presently conducted, to submit this proposal, and if selected, to execute and deliver a contract to the Grantee for the performance of the Feasibility Study. The Offeror is not debarred, suspended, or to the best of its knowledge or belief, proposed for debarment, or ineligible for the award of contracts by any federal or state governmental agency or authority.
2. 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 \_\_\_\_\_. The Offeror commits to notify USTDA and the Grantee if they become aware of any change in their status in the state in which they are incorporated. USTDA retains the right to request an updated certificate of good standing.
3. 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.
4. 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 3 above.

5. 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.
6. 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.

Signed: \_\_\_\_\_  
(Authorized Representative)

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**E. Subcontractor Profile**

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).

**F. Subcontractor's Representations**

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

1. Subcontractor 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 subcontractor has all the requisite corporate power and authority to conduct its business as presently conducted, to participate in this proposal, and if the Offeror is selected, to execute and deliver a subcontract to the Offeror for the performance of the Feasibility Study and to perform the Feasibility Study. The subcontractor 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.
2. Neither the subcontractor 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 subcontractor, 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 subcontractor. The subcontractor, 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 subcontractor 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 subcontractor has not had filed against it an involuntary petition under any bankruptcy, insolvency or similar law.

The selected subcontractor shall notify the Offeror, Grantee and USTDA if any of the representations included in this proposal are no longer true and correct at the time of the Offeror's entry into a contract with the Grantee.

Signed: \_\_\_\_\_  
(Authorized Representative)

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_