

REQUEST FOR PROPOSALS

FEASIBILITY STUDY FOR THE

ETHEKWINI SMART METERING PROJECT

Submission Deadline: **4:00 PM**
LOCAL (DURBAN) TIME
NOVEMBER 15, 2010

Submission Place: **HEAD OF ELECTRICITY**
ETHEKWINI MUNICIPALITY
1 JELF TAYLOR CRESCENT
P.O. BOX 147
DURBAN, SOUTH AFRICA 4000

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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\$446,500 to eThekweni Municipality ("Grantee") in accordance with a grant agreement dated September 14, 2010 ("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 eThekweni Smart Metering project ("Project") in South Africa ("Host Country"). The Project would result in the integration of an advanced electricity metering, or smart metering, system into the existing and planned electricity distribution and customer information systems that are managed by eThekweni Electricity ("TE"), the Grantee's electricity distribution company. 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 implementation of 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

Decades of underinvestment in South Africa's electric power infrastructure have left the country with a dangerously low electricity reserve margin. To address this situation, the Government of South Africa ("GoSA") is investing in new power generation capacity, as well as energy efficiency and demand side management programs. Significant new power generation capacity is not expected to come online until 2013, so GoSA is pursuing an aggressive short-term campaign to streamline electricity demand. In particular, GoSA is calling for the installation of 3,800 MW of energy efficient technologies, equipment and processes to reduce electricity demand by 10,000 gigawatt hours by 2012.

One of several demand side management programs that GoSA is encouraging to increase energy efficiency in South Africa is the adoption of advanced electricity metering, or smart metering, systems. Smart meters provide policy makers, suppliers, and consumers with real-time information about electricity usage. This information enables the use of innovative electricity pricing mechanisms, such as time-of-use tariffs, that encourage consumers to reduce usage during peak demand times. Smart meters offer a number of additional advantages over conventional meters, including load control, power outage notifications, power quality monitoring, and remote meter reading.

To encourage the adoption of smart metering systems, in August 2008 the National Energy Regulator of South Africa ("NERSA") issued a requirement that all electricity distributors in South Africa implement smart metering systems encompassing all customers with monthly consumption of 500 kilowatt hours ("kWh") or more by January 1, 2012. TE and other electricity distributors throughout South Africa are currently in the process of developing strategies to meet this requirement. TE is planning an initial rollout that will target approximately 43,000 customers that consume more than 1,000 kWh per month. This initial rollout will serve as a pilot project for the extension of smart metering to more than 300,000 TE customers that consume between 500 and 1000 kWh per month. TE's smart metering system

will also serve as an example for the implementation of smart metering programs throughout South Africa, as well as other countries in the region.

The Feasibility Study will evaluate the technical, financial, environmental, and other critical aspects of integrating a smart metering system into TE's existing and planned electricity distribution and customer information systems. The feasibility study will also provide recommendations on meter technology, customer education, load controls, and pricing mechanisms and will develop technical specifications for a smart metering system that will enable TE to comply with NERSA's smart metering requirements. Finally, the Feasibility Study will provide recommendations to NERSA to help improve its smart metering regulations based on the Feasibility Study's findings of the viability of NERSA's existing smart metering regulations in eThekweni.

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 implementation of the Project.

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

1.3 PROPOSALS TO BE SUBMITTED

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

The amount for the contract has been established by a USTDA grant of US\$446,500. **The USTDA grant of US\$446,500 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\$446,500 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 eThekwini Smart Metering project.

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\$446,500.

2.6 RESPONSIBILITY FOR COSTS

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

2.7 TAXES

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

2.8 CONFIDENTIALITY

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

2.9 ECONOMY OF PROPOSALS

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

2.10 OFFEROR CERTIFICATIONS

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

2.11 CONDITIONS REQUIRED FOR PARTICIPATION

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

2.12 LANGUAGE OF PROPOSAL

All proposal documents shall be prepared and submitted in English, and only English.

2.13 PROPOSAL SUBMISSION REQUIREMENTS

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

Head of Electricity
eThekweni Municipality
1 Jelf Taylor Crescent
P.O. Box 147
Durban, South Africa 4000

Phone: +24 31 300 1006

Fax: +24 31 311 8744

An Original and eight (8) copies of your proposal must be received at the above address no later than 4:00 PM local (Durban) time on November 15, 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 (90) 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\$446,500, which is a fixed amount.

Offerors shall submit one (1) original and eight (8) copies of the proposal. Proposals received by fax or e-mail 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 ("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: 30 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 smart metering projects: 15 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: 30 points maximum

- Quality of the Offeror's proposed Technical Approach and Work Plan: 25 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: 10 points maximum

- Offeror's experience working in South Africa, sub-Saharan Africa, and/or other similar environments, preferably in the electricity distribution and/or electricity metering sectors: 10 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

Head of Electricity, eThekweni Municipality, 1 Jelf Taylor Crescent, P.O. Box 147
Durban, South Africa 4000, Phone: +24 31 300 1006, Fax: +24 31 311 8744

B—South Africa: Feasibility Study for the eThekweni Smart Metering Project

POC: Nina Patel, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. eThekweni Smart Metering Project. 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 to evaluate the technical, financial, environmental, and other critical aspects of integrating an advanced electricity metering, or smart metering, system into the existing and planned electricity distribution and customer information systems that are managed by eThekweni Electricity (TE), the electricity distribution company for eThekweni Municipality in South Africa.

Decades of underinvestment in South Africa's electric power infrastructure have left the country with a dangerously low electricity reserve margin. To address this situation, the Government of South Africa (GoSA) is investing in new power generation capacity, as well as energy efficiency and demand side management programs.

One of several demand side management programs that GoSA is encouraging is the adoption of advanced electricity metering, or smart metering, systems. In August 2008, the National Energy Regulator of South Africa (NERSA) issued a requirement that all electricity distributors in South Africa implement smart metering systems encompassing all customers with monthly consumption of 500 kilowatt hours (kWh) or more by January 1, 2012. TE and other electricity distributors throughout South Africa are currently in the process of developing strategies to meet this requirement. TE is planning an initial rollout that will target approximately 43,000 customers that consume more than 1,000 kWh per month. This initial rollout will serve as a pilot project for the extension of smart metering to more than 300,000 TE customers that consume between 500 and 1000 kWh per month. TE's smart metering system will also serve as an example for the implementation of smart metering programs throughout South Africa, as well as other countries in the region.

The feasibility study will evaluate the technical, financial, environmental, and other critical aspects of integrating a smart metering system into TE's existing and planned electricity distribution and customer information systems. The feasibility study will also provide recommendations on meter technology, customer education, load controls, and pricing mechanisms and will develop technical specifications for a smart metering system that will enable TE to comply with NERSA's smart metering requirements. Finally, the feasibility study will provide recommendations to NERSA to help improve its smart metering regulations based on the findings of the viability of NERSA's existing smart metering regulations in eThekweni.

The U.S. firm selected will be paid in U.S. dollars from a \$446,500 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, is 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 directly to the Grantee no later than 4:00 PM local (Durban) time on November 15, 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



South Africa: eThekwini Electricity Smart Metering

Executive Summary

This project, to perform a Feasibility Study (FS) to support the deployment of a Smart Metering system for eThekwini Electricity (TE), eThekwini Municipality, was identified during DM discussions in South Africa in May 2010.

On 08 August 2008, Notice No. R. 842, *Compulsory norms and standards for reticulation services*, was issued under the Electricity Regulation Act, 2006 (Act No. 4, 2006). This notice set forth a number of regulations that require electricity licensees to install advanced metering technologies in their area of jurisdiction. Among the standards set forth in this notice was a requirement that each end user or customer with monthly consumption of 500 kWh or more have smart metering by 01 January 2012¹.

During the meeting with Constant Group (CG), TE explained its desire and plan to comply with the regulations and expressed its ongoing vision to continue to provide world class distribution and customer service. CG expressed concern that piecemeal implementation of such a potentially valuable but expensive platform to quickly meet the national requirements might result in foregone benefits, increased costs, decreased customer satisfaction and other impacts. TE shared those concerns, expressed its desire to lead the national implementation effort, and indicated its interest in partnering with USTDA to ensure that projects undertaken to comply with the regulations reflect best practices and lessons learned. It is important to TE that progress is demonstrable so that the regulator will recognize TE's dedication to compliance.

This project is clearly a priority to the project sponsor and host country. The national priority is demonstrated in Government Notice No. R. 842. eThekwini's commitment is demonstrated by the allowances for smart meter implementation included in its budget for the next three years. The project has a strong likelihood of receiving implementation financing.

There is considerable mutual benefit in terms of development for the host country. The project, if implemented, would be a positive contributor to the country's development objectives. TE has indicated that the project is expected to

¹ Notice No. R. 842, *Compulsory norms and standards for reticulation services*, issued 08 August 2010, page 3, Section 2, paragraph (d).



initially deploy smart meter devices to 43,000 customers with monthly consumption greater than or equal to 1,000 kWh. CG estimates that TE has an additional 300,000+ customers with monthly consumption in over 500 kWh.

In addition to improving efficiency of meter reading and servicing and other benefits to the utility, the installation of Smart Meter technology provides the utility with a platform from which to offer innovative pricing, exercise load control, provide and obtain energy usage information and other services. If successful, the project can position eThekweni to lead implementation throughout South Africa.

The typical Smart Meter system at the customer site shall include the new meter and parts of the communication infrastructure (digital, fiberoptic, or wireless). At the Sponsor site(s), the typical Smart Meter system components shall include the communication infrastructure, integration hardware, and a software package. During the project implementation, the older meters will be removed, meter enclosures changed to accommodate new equipment, and the new meters installed. The project has a potential to create significant amount of part-time construction and technical jobs for a period of 3-5 years. In addition, the full-time distribution support staff will require equipment, software, support training on and off-site. Customer service professionals will also require training to explain the new systems to customers and to help them or direct them to staff that can educate customers about the new systems and rate schedules.

U.S. companies have extensive experience and can successfully compete in South Africa. USTDA's involvement in outlining the framework for an early implementation by a strong municipal electric company could provide a mutual advantage for U.S. providers as well as South African utilities, especially if coupled with support of recommendations to improve NERSA's smart metering regulations at the national level.

TE has budgeted capital expenditure of R68 million (nominal), \$8.8 million USD for the first phase of implementation. However, it is possible that some of the expenditures may come from other budget categories related to TE's distribution system. CG's estimate for the initial deployment of smart meter devices to 43,000 customers with monthly consumption greater than or equal to 1,000 kWh is about \$12 million. This estimate is fully scalable and would be almost double to over \$30 million for the 3-5 year estimate of 100,000 meters installed and to over \$73 million for 240,000 customers in 5-10 years timeframe. Opportunities for U.S. exports are estimated to be in the 45-85% range, or \$5-10 million level for initial set of 43,000 meters, \$13.5-25.5 million for 100,000 meters, and \$33-62 million for



240,000 meters. Furthermore, TE is recognized as a world class electricity distribution company and a successful partnership will provide a model and help other municipalities plan and justify implementation. Participation of USTDA in facilitating this first implementation through funding of an objective, comprehensive FS will position smart metering for success in South Africa and position U.S. firms to participate in the market.

Constant Group recommends that USTDA provide funding for an FS for this effort. A number of U.S. firms have suitable credentials and are likely to be interested in the proposed project. The FS budget for the project is \$446,500.

Definitional Mission Scope and Approach

USTDA retained the services of Constant Group LLC (CG), an international power and energy sectors consulting firm based in New Jersey with experience in South Africa and energy industry projects, to travel to South Africa to review and evaluate the technical, economic, and financial viability of several potential projects. During the mission, CG conducted expert analyses in the following areas: project technical viability; economic prospects; potential exports of U.S. equipment and services that could be utilized in project implementation; priority of the proposed projects relative to the needs of the host country; potential risks of the proposed projects; foreseeable financeability of the projects; and likely sources of financing.

This CG report to USTDA resulting from the mission includes an analysis of the foregoing issues and provides recommendations on whether USTDA should fund additional efforts to bring the selected project closer to implementation. Recommendations to fund or defer funding of further studies of projects examined during the DM are contained in this report, which also include a budget and Terms of Reference (TOR) for the recommended activities.

CG has evaluated this project based on the USTDA criteria:

- Priority to the project sponsor and host country;
- Likelihood of receiving implementation financing;
- Mutual economic benefit for the host country and the United States
 - Positive developmental impacts
 - U.S. export opportunities; and
- Competition from foreign companies that may receive subsidies and other support from their governments.



Project Background and Description

General

South Africa has a population of 49.32 million². It is located at the tip of Southern Africa, has a territory of 1,219,090 sq km and shares common borders with Botswana, Lesotho, Mozambique, Namibia, Swaziland, and Zimbabwe. South Africa completely surrounds Lesotho and almost completely surrounds Swaziland.

Exhibit 1-1 - Map of South Africa



South Africa's economy has grown rapidly since the end of apartheid in 1994 and it is now one of the most developed economies in sub-Saharan Africa. The country is divided into nine provinces, each with its own provincial parliament and administration. The nine provinces are:

- Western Cape
- Eastern Cape
- Free State
- Gauteng
- KwaZulu-Natal
- Limpopo (formerly Northern Province)
- Mpumalanga

² Statistics South Africa, Statistical release P0302, July 2009.



- North West
- Northern Cape.

eThekweni Municipality is one of the 11 districts of Kwa-Zulu Natal province of South Africa. It was created in 2000 and includes the city of Durban and surrounding towns. The eThekweni Municipality Area consists of 2,297 sq km, of which 36% is rural and 29% is described as peri-urban. The municipal area is diverse demographically; stretching from Umkomaas in the South, including some tribal area in Umbumbulu, to Tongaat in the North, moving inland to Ndwedwe, and ends at Cato Ridge in the West. eThekweni Municipality is the third most populated municipality in the country. It is home to approximately 3.7 million people, 7% of the total South African population. Only 35% of the metropolitan area is predominantly urban; over 60,000 households live in traditional rural style dwellings. The City of Durban is the largest city of KwaZulu-Natal province, and is a chief seaport of South Africa, located on Natal Bay of the Indian Ocean.

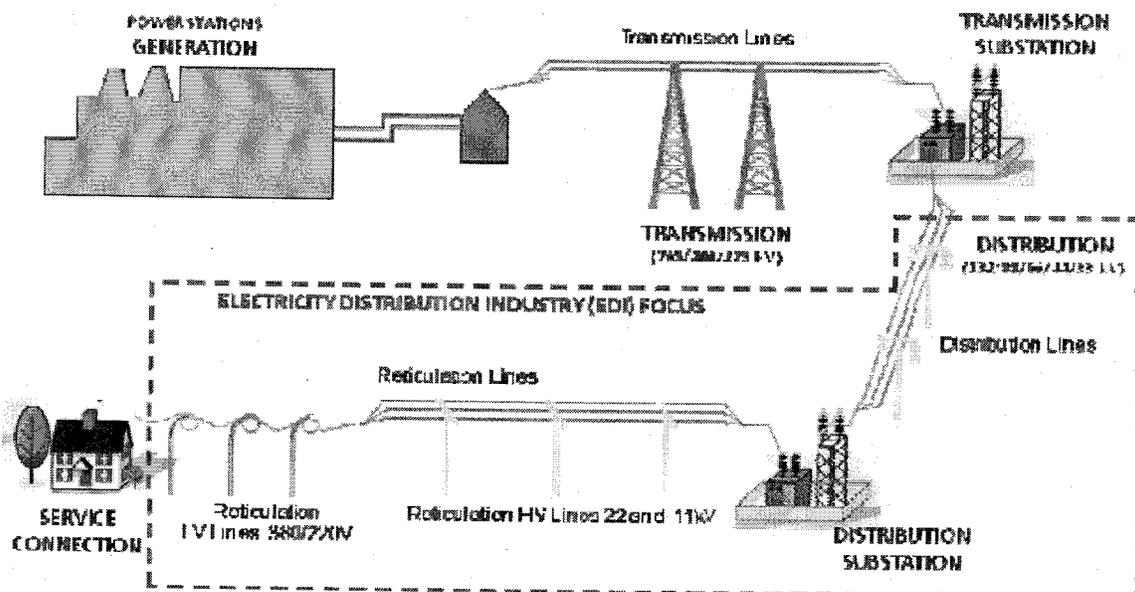
Power Distribution Sector

The electricity industry in South Africa is dominated by Eskom. Eskom generates 95% of the electricity sold in South Africa, and it owns and operates the country's transmission grid, which consists of networks at 765kV, 400kV, and 275kV. South Africa's electric distribution system consists of networks and associated assets operating at voltages at or below 132kV. The Electric Distribution Industry (EDI) consists of Eskom and 187 of South Africa's municipalities licensed by NERSA to distribute and deliver electricity to consumers. Eskom distributes and retails 60% of the electricity sold in South Africa to 40% of South Africa's consumers. The remaining 40% of the electricity sold is purchased from Eskom by the municipal providers and is delivered to 60% of consumers.

Figure 1-2 illustrates the part of the electricity supply system that is the focus of South Africa's EDI.



Exhibit 1-2 - Electricity Distribution Industry Focus



There are significant challenges facing South Africa's EDI. Some of these include:

- Higher loading of aging infrastructure;
- Higher demand for reliable performance;
- Increased duty cycles for aging infrastructure (e.g., load shedding);
- Backlog of maintenance and refurbishment;
- Inconsistent tariff and customer service approaches;
- Staffing and skills shortages.

In May 2007, NERSA released an audit report conducted in 11 electricity distribution utilities in the country. The report showed that the distribution industry's operations were suboptimal, with an infrastructure maintenance backlog of about R7 billion³. It also highlighted skills and staff shortages as a key challenge for the EDI. Exhibit 1-3 presents the additional investment required to overcome the backlog⁴.

³ SA Yearbook 2008/09, Chapter 15, Minerals, Energy and Geology

⁴ Operational Perspective on the Electricity Distribution Industry, Willie De Beers, Chief Operations Officer, EDI Holdings, South Africa, June 2008.



Exhibit 1-3 – EDI Combined Maintenance and Refurbishment Requirement

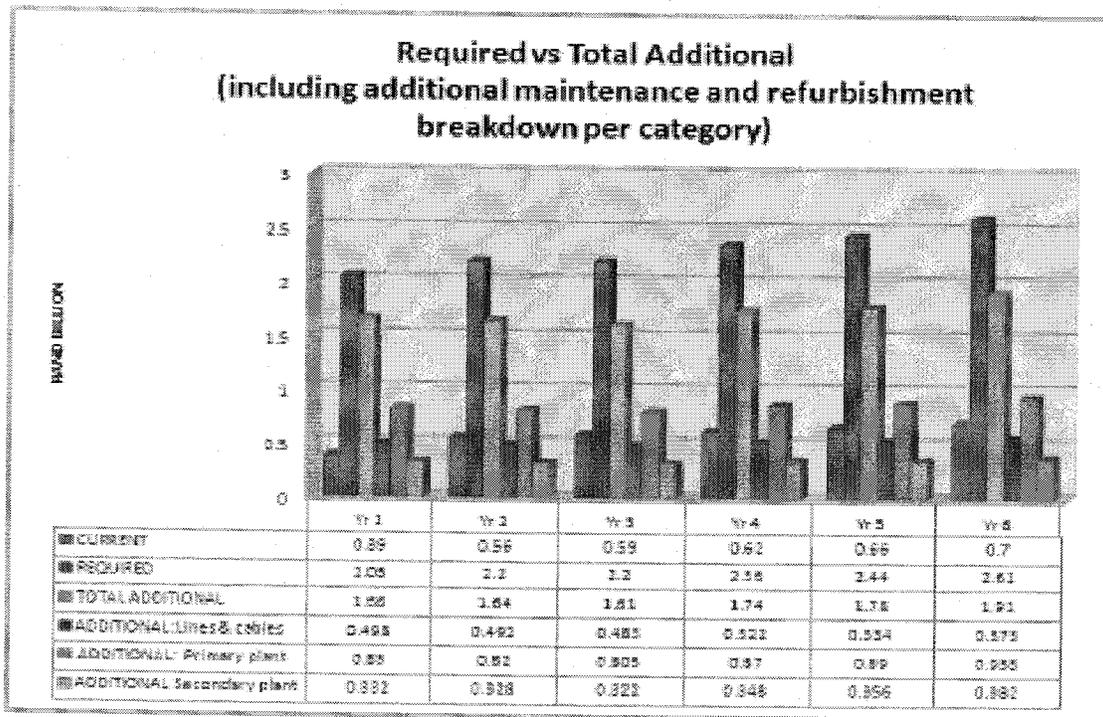


Fig. 2: EDI Combined Maintenance and Refurbishment Requirement.

Between 1 November 2007 and 31 January 2008, Eskom experienced severe energy supply shortages and began shedding load. As a result, non-Eskom electricity distributors were forced to shed load and interrupt customers. The extent of the load shedding disrupted business operations, traffic, industry, mining operations, commerce, hospitals, clinics, schools and other educational institutions, the civil service, domestic households and the daily lives of the South African public. On 24 January 2008, the deterioration was so severe that major mining groups shut down their operations due to safety considerations.

In 2008, NERSA conducted a review of the national supply shortage and made a number of decisions and recommendations. Acceleration of plans for restructuring and plans to implement innovative tariff structures were among those recommendations. In July 2008, NERSA promulgated Regulation No. 773, which requires that licensees install smart meters for customers with monthly consumption greater than or equal to 1,000 kWh. In August, Regulation No. 842 lowered the threshold to 500 kWh.



eThekweni Electricity and Smart Metering

TE, previously known as the Durban Metro Electricity, and currently also referred to as RED 5, is the licensed electricity distributor of eThekweni Municipality. TE operates under the Electricity Regulation Act of 2006. Its policies are determined by the eThekweni Municipal Government and NERSA.

TE purchased just over 11,000 GWh of electricity from Eskom at 275,000 volts for sale to its customers in 2008. TE is responsible for all aspects of managing, operating and maintaining the distribution system that transforms and redistributes this power to its customers.

Currently, TE serves an area of some 2,000 sq km and supplies electricity to more than 630,000 customers, ranging from the large sophisticated customer supplied at 132,000 volts, to the rural and peri-urban informal communities supplied at 230 volts. TE's distribution system consists of 100 major substations (33 kV and above) and some 1,800 distribution substations. The transmission and distribution network spans from 275 kV to 11 kV.

In 2008, TE delivered electricity to more than 632,000 customers. Approximately 30% of the energy was consumed by residential customers and the remaining 70% to business customers. More than 260,000 customers are reportedly connected to prepayment meters, 16 customers are classified as strategic customers and 14 as major customers.

High level customer statistics for 2008 are tabulated in the following table.

Exhibit 1-4 – Customer Base Statistics⁵

Customer Group	# of Cust	Annual Consumption (kWh)	Avg. Monthly Consumption (kWh/Cust.)
Bus. & Gen.	44,261	2,203,077,556	4,148
Private Res.	323,389	3,013,288,241	776
Other	4	37,605,719	783,452
Bulk	746	5,221,414,480	583,268
Prepay	263,712	687,805,495	217
Total	632,112	11,163,191,491	1,472

*2008 numbers adjusted to registered meters on database⁶

Because of major developments in the KZN, the demand for electricity in the municipality continues to grow requiring TE to add a large number of new customers. This places higher demands on the network, system, and customer service infrastructure.

Organizationally, TE is one of the units within the City Administration of eThekweni Municipality situated in Durban. In 2008, TE had a total work force of approximately 1,700 employees, which is considerably less than its peak work force that exceeded 2,700 employees at the end of the 1990s. In addition to the decline in the *number* of staff members, scarcity of required skills has also significantly affected TE, with a number of skilled staff leaving and an inability to attract new staff. The utility has taken steps to increase its ability to attract and retain staff, including the payment of scarce skills allowances to those categories of staff that were found, through market research, to be possessing scarce skills. There is a considerable shortage of personnel at every level within the organization and employee morale is generally low. Despite these challenges, TE has an impressive record in terms of system losses prevention and collections. Its total (technical and non-technical) losses are around 5.2 percent and its collections exceed 98 percent. This performance to these metrics places TE among some of the best distribution utilities in the world.

The operations of TE and the other distributors must conform to specific regulations and standards promulgated by NERSA. Specifically, TE must comply with NERSA's regulations with respect to "quality of service" – NRS 047-

⁵ From eThekweni web site:

<http://www.durban.gov.za/durban/services/electricity/statistics/Customer%20Base%20Statistics.Page%2054.pdf>

⁶ Ibid.



1 and NRS 047-2. In addition, NRS 048 and its various subparts provide for specific standards and requirements for “quality of supply” that are also applicable to TE’s operations.

In terms of quality and reliability of service, however, TE realized that it needed improvement. To that end, in 2007, TE selected CORE International to conduct a Distribution System Integration Study. This study, which was funded by USTDA, was completed at the end of 2008. It was, in part, aimed at improving outage management, and, in fact, produced as a deliverable a set of technical specifications and tender for an OMS system for eThekweni electricity. Where appropriate the results of that study should be considered in this proposed effort.

On 08 August 2008, Notice No. R. 842, *Compulsory norms and standards for reticulation services*, was issued under the Electricity Regulation Act, 2006 (Act No. 4, 2006). This notice set forth a number of regulations that require electricity licensees to install advanced metering technologies in their area of jurisdiction. Among the standards set forth in this notice was a requirement that each end user or customer with monthly consumption of 500 kWh or more have smart metering by 01 January 2012.

“2. (d) An end user or customer with a monthly consumption of 500kWh and above must have smart metering system and be on time of use tariff not later than 01 January 2012”⁷

Smart metering is defined in this notice as follows:

““smart metering system” means an electricity meter that allows for -
(a) measurement of energy consumed on a time interval basis,
(b) two-way communication between the customer/end-user and the licensee,
(c) storage of time interval data and transfer it remotely to the licensee, and
(d) remote load management.”⁸

In September of 2008, edition 1 of NRS049, “Advanced Metering Infrastructure (AMI) for Residential and Commercial Customers”, was published to the NR Specifications web site <http://www.nrs.eskom.co.za/specifications.asp>. The

⁷ Notice No. R. 842, *Compulsory norms and standards for reticulation services*, issued 08 August 2010, page 3, Section 2, paragraph (d).

⁸ Notice No. R. 842, *Compulsory norms and standards for reticulation services*, issued 08 August 2010, page 2, Section 1. Definitions.



specification set forth the requirements for domestic Automated Metering Infrastructure (AMI) equipment as required by Notice No. 842.

Proposed Project

This project, to perform an FS to support the deployment of a smart metering system for eThekwini Electricity, eThekwini Municipality, was identified during discussions on site in May 2010.

eThekwini, in response to Government Notice No. R. 842, "Compulsory norms and standards for reticulation services", issued 08 August 2008 and described in Section 3.3, has developed a Request for Proposals seeking a turnkey AMI technology application that can be customized to meet the needs of the eThekwini Municipality.

During the meeting on in May 2010, TE explained its intention and plan to comply with the regulations and expressed its ongoing vision to continue to provide world class distribution and customer service. Constant Group expressed concern that piecemeal implementation of this potentially valuable but expensive platform in response to the national requirements might result in:

- foregone benefits and features;
- mismatches between objectives and expectations and realized benefits
- increased costs and inefficiencies;
- decreased customer satisfaction; and
- other impacts, including additional work load on strained resources.

CG indicated that integration of the proposed smart metering system with TE's existing and planned distribution and customer information systems, examination of the lessons learned by others, particularly with respect to the interrelationships between meter technology, customer education, availability of load controls, and pricing products are all critical to successful implementation.

TE shares these concerns and expressed their desire to lead a successful first smart metering implementation in South Africa. TE indicated its interest in partnering with USTDA to ensure that projects undertaken to comply with the regulations reflect best practices and lessons learned. In doing so, it is important to TE that progress is demonstrable so that the regulator will recognize TE's dedication to compliance.



As currently reflected in TE's plans, the project would initially install Smart Meter devices in 43,000 households that consume more than 1,000 kWh per month⁹.

Regulatory Environment

Since July 2006, the former National Electricity Regulator (NER) as set out in the Energy Regulator Act, 2004 has been responsible not only for the electricity sector but also for all piped and grid-linked energy sources, i.e. also for oil and gas, and was renamed as the National Energy Regulator of South Africa (NERSA). The managing board is appointed by the DME but it operates independently. The core task of NERSA is to issue licenses for electricity transmission, distribution and generation and to monitor and authorize tariffs. The authority is financed by a levy that has to be paid by the power producers and which can be passed on to all power consumers as a cost factor.

NERSA regulates tariff schedules and promulgates regulations. An objective FS will be valuable to NERSA as its efforts to improve the stability, reliability, and quality of service throughout the country.

Development Impact

- (a) Infrastructure: The project, if implemented, would be a positive contributor to the country's development objectives as embodied in Government Regulation No. 842. The project is expected to initially deploy smart meter devices to 43,000 households that consume more than 1,000 kWh per month. Full project implementation is expected to deploy smart meter devices to over 300,000 customers with monthly consumption in over 500 kWh

In addition to improving efficiency of meter reading and servicing and other benefits to the utility, the deployment of smart meter technology provides the utility with a platform from which to offer innovative pricing, exercise load control, provide and obtain energy usage information and other services. If successful, the project can position eThekweni to lead implementation throughout South Africa.

The FS will ensure that the necessary care is taken to match technology and complexity to end users and to ensure that best practices in terms of

⁹ Smart Metering DRAFT RFP, Section 2, prepared in March 2010, but not issued.



customer education and assistance infrastructure are integrated into deployment. It will also be important to realistically set expectations in terms of demand response and to avoid possible customer bill shock that may result from implementation of time of use or dynamic pricing without facilitating load control either automatically or via direct customer action.

- (b) Market-Oriented Reform: This effort will result in a well planned deployment approach for TE's smart metering systems. The resulting project could be replicated throughout South Africa. The proposed FS will also provide NERSA with more knowledge of the smart metering subjects and outline needs for additional metering regulations and implementation incentives.
- (c) Human Capacity Building: The project has a potential to create significant amount of part-time construction and technical jobs for next 3-5 years. In addition, the full-time distribution support staff will require equipment and software support training on and off-site. Customer service professionals will also require training to explain the new systems to customers and to help them or direct them to staff that can educate customers about the new systems and rate schedules.
- (d) Technology Transfer and Productivity Enhancement: While the technology for TE's smart metering system has not yet been selected, it will be new and innovative as compared to existing systems. U.S. companies have extensive experience and the ability to transfer that knowledge to South Africa.

Project Sponsor's Commitment

eThekwini is committed to meeting the requirements of Government Notice No. 842 and NRS 049. The commitment is demonstrated in the development of a Draft RFP for a turnkey smart metering system. It is further demonstrated in eThekwini Municipality's Draft Medium Term Budget Report for 2010/2011 To 2012/2013 and eThekwini Electricity's Capital Budget, which has \$8.5 million allocated for this project through 2013.

Based on CG's investigations, we believe that the sponsor is fully committed and qualified to implement the project.



Implementation Financing

The initial deployment of smart meters (for 43,000 customers) will be funded through TE's 2011-13 allocated budget item of \$8.5 million. This investment represents just over 2% of TE's planned capital budget 2011 through 2013.

Further implementation of smart meters can be funded from a variety of sources, including:

- Further budget funding beyond 2013;
- Multilateral and bilateral funding;
- Commercial funding.

eThekweni is a financially sound municipality, generating surpluses in its income in each of the three previous years. The municipality's financial statements are presented in Exhibits 1-5 and 1-6.

Exhibit 1-5 – Summary Statement of Financial Position as at 30 June (R'000)

	2009	2008	2007
NET ASSETS AND LIABILITIES			
NET ASSETS	18,373,488	15,809,681	10,084,246
LIABILITIES			
Non-Current Liabilities	7,511,254	6,488,879	5,823,673
Current Liabilities	7,083,605	6,158,261	6,091,134
Total Liabilities	14,594,859	12,647,140	11,914,807
Total Net Assets and Liabilities	32,968,347	28,456,821	21,999,053
ASSETS			
Non-Current Assets	24,690,770	19,452,091	13,320,866
Current Assets	8,277,577	9,004,730	8,678,187
Total Assets	32,968,347	28,456,821	21,999,053



Exhibit 1-6 - Summary Statement of Financial Performance (R'000)

	2009	2008	2007
REVENUE			
Revenue	14,538,800	13,788,244	10,682,801
Other Income	2,494,779	1,442,529	1,209,550
Total Revenue	17,033,579	15,230,773	11,892,351
EXPENDITURE			
Total Expenditure	14,489,373	11,237,654	10,874,374
Operating Surplus	2,544,206	3,993,119	1,017,977
Share of Operating Income from JV	19,601	63,794	111,825
Surplus for the Year	2,563,807	4,056,913	1,129,802

eThekweni Municipality maintained a credit rating of "AA" for long-term loans and "A1+" for short-term loans from 2004 through 2008. In 2009, South African local governments' long-term industry risk ceiling debt ratings slipped from AA to AA-, according to the Global Credit Rating Company (GCR). The rating service explained that the municipalities' use of reserves to supplement capital budgets in advance of World Cup 2010 reduced liquidity and that gearing ratios are expected to increase as service delivery backlogs are reduced following World Cup 2010. Despite the downgrade to AA-, still an attractive rating, eThekweni Municipality remains among the top rated municipalities in the country and, coupled with its strong history, it should still attract favorable financing.

eThekweni has a strong history of successful external financing. At the end of June 2009, the municipality had more than R6Bn of external loans with DBSA, Nedbank Ltd, and AFD Calyon.

Multilateral and bilateral funding agencies are very active in South Africa. Recent examples of loans in the power sector include:

- European Investment Bank - Loan Facility to finance 765 kV transmission lines (2009);
- Japan Investment Cooperation Agency - Loan Facility to finance energy efficiency (2010);
- WB/IBRD/CTF - Loan Facility to finance the 4800 MW Medupi Power Plant (2009);
- African Development Bank - Loan Facility to finance the 4800 MW Medupi Power Plant (2009);



- Agence Française de Développement - Loan Facility to finance the Sere Wind Power Plant (as a restructuring of an earlier loan facility) & a credit facility through commercial banks in South Africa to finance renewable energy and energy efficiency projects;
- Euler Hermes Kreditversicherungs-AG - Loan Facility Coverage to the Boiler Contract of the 4800 MW Medupi Power Plant (2009); and
- KfW Bankengruppe - Loan Facility Export Risk Cover for the Turbine Contract of the 4800 MW Medupi Power Plant (2009).

U.S. Export Potential

The proposed smart metering project targets the installation of metering equipment to as many of TE's customers as possible, with first stage of installation of about 43,000 customers. Given varying customer abilities to pay for such equipment, the government's willingness to subsidize the project, technological implementation abilities, and other factors, CG estimates that the initial smart meter penetration over the first 3-5 years of 15% is conservative based on recent worldwide experience. This results in about 100,000 meters. Longer-term implementation (in 5-10 years) target can be estimated at 60-70% of customers who use more than 500 kWh per month, resulting in the implementation of over 240,000 meters.

Therefore, the overall estimated project cost (without contingency) for initial set of installations (46,000 meters) is about \$14 million. This estimate is fully scalable and would be almost double to over \$30 million for the 3-5 year estimate of 100,000 meters installed and to over \$73 million for 240,000 customers in 5-10 years timeframe. U.S. exports could be at the \$6-12 million (45-85%) level for initial set of 46,000 meters and at \$33-62 million for 240,000 customers. Exhibit 1-3 shows the approximate breakdown of major equipment costs and the potential share of U.S. exports.

The probabilities are used to assess U.S. companies' competitiveness in the scope of supply.

Exhibit 1-3 - Sample Project Budget Estimate and Share of U.S. Exports (for initial set of 46,000 meters)



Major Equipment/Services	Approximate Total Cost	U.S. Exports (U.S. Competitiveness)	
		Low Probability	High Probability
Hardware and Instalaltion	13.1	5.2	11.4
- Smart Meters (46,000)	9.2	(Good) 4.6	(Excellent) 9.2
- System for data collection and integration	1.1	(Good) 0.6	(Excellent) 1.1
- Communications reinforcements	2.2	(Poor) -	(Good) 1.1
- Waste Disposal	0.6	(Poor) -	(Poor) -
Engineering and Design	1.1	(Excellent) 1.1	(Excellent) 1.1
Total Value (w/o Contingency)	14.2	6.3	12.5

Source: CG Estimate

Exhibit 1-4 lists a number of U.S. firms that have suitable credentials for the proposed project follow-up procurement.

Exhibit 1-4 - U.S. Equipment and Services Suppliers

<u>Smart Meters:</u>	<u>Software:</u>	<u>Hardware:</u>
<ul style="list-style-type: none"> ▪ Itron ▪ GE ▪ Echelon 	<ul style="list-style-type: none"> ▪ IBM ▪ Silver Spring Networks ▪ Sensus Metering Systems ▪ eMeter ▪ GridPoint ▪ Comverge ▪ EnerNOC ▪ Echelon 	<ul style="list-style-type: none"> ▪ IBM ▪ SmartSynch ▪ CISCO ▪ Sensus Metering Systems ▪ Comverge ▪ Trilliant ▪ Tendril

Source: CG

It should be noted that Itron and GE claim to own over 50% of the smart meter market worldwide.

Concerning the electrical equipment (including controls, automation, auxiliary systems, communications, and balance of plant), the overall U.S. exports in this category were over \$323 million in 2009 as shown in Exhibit 1-5. While this equipment list does not explicitly list meters (closest proxy will be 8535-8537 categories), it shows that U.S. manufacturers are successfully supplying



significant amount of industrial equipment to South Africa. Therefore, no real barriers exist for other types of equipment supply.

Exhibit 1-5 - U.S. Mechanical and Electrical Equipment Exports to SA (\$M)

Item	2005	2006	2007	2008	2009
8402--STEAM ETC GENERATING BOILERS NESOI; SUP W BOILERS	0	0	0	0	3
8406--STEAM TURBINES & OTHER VAPOR TURBINES; PARTS	1	1	1	3	4
8408--COMPRESSION-IGNITION INTERNAL COMB PISTON ENGINES	9	14	36	43	18
8411--TURBOJETS; TURBOPROPELLERS & OTH GAS TURBINES; PTS	9	15	6	8	9
8414--AIR OR VAC PUMPS; COMPR & FANS; HOODS & FANS; PTS	14	23	26	26	18
8416--FURNACE BURNERS; MECHANICAL STOKERS ETC; PARTS	1	1	1	2	2
8482--BALL OR ROLLER BEARINGS AND PARTS	22	24	27	30	23
8483--TRANSMISSION SHAFTS; BEARINGS; GEARS ETC; PARTS	19	17	20	35	29
8501--ELECTRIC MOTORS AND GENERATORS (NO SETS)	10	12	21	22	19
8502--ELECTRIC GENERATING SETS AND ROTARY CONVERTERS	6	3	4	19	19
8503--PARTS OF ELECTRIC MOTORS; GENERATORS & SETS	3	10	2	16	38
8504--ELEC TRANS; STATIC CONV & INDUCT; ADP PWR SUPP; PT	11	20	20	31	31
8511--ELECTRIC IGNITION ETC EQUIP; GENERATORS; PARTS	2	3	6	6	5
8535--ELECTRICAL APPARATUS FOR SWITCHING ETC; OV 1000 V	6	5	6	23	13
8536--ELECTRICAL APPARATUS FOR SWITCHING ETC; NOV 1000 V	13	18	18	22	17
8537--BOARDS; PANELS ETC ELEC SWITCH AND N/C APPAR ETC.	6	9	11	11	26
8544--INSULATED WIRE; CABLE ETC; OPT SHEATH FIB CABLES	5	7	7	51	46
8546--ELECTRICAL INSULATORS OF ANY MATERIAL	3	3	4	3	1
Total	139	185	218	351	323

Source: Department of Commerce, 2010

Itron, a major supplier of smart meters and data infrastructure, confirmed its interest in major projects in the Africa Region and South Africa in particular. Currently, Itron is holding a lead in worldwide smart meter sales. Recent major equipment deliveries included U.S. (over 1 million meters sold in 2009), France (300,000 meters), UK, and India. Itron has 3 million prepayment meters under services contract in South Africa. It also provides the data management and vending infrastructure for Eskom.

General Electric, another major manufacturer of smart meters and smart meter integrated solutions, indicated its familiarity with various municipalities in SA to roll out the smart meter program. The company has confirmed its interest and capabilities. Currently, GE smart meters are manufactured at a number of manufacturing facilities around the world with the major one being in the U.S. GE has confirmed its ability to supply meters from the U.S. However, the final decision on sourcing will depend on the standards selected, volume, timing, facilities workload, and financing arrangements. GE has significant recent experience in providing its smart meters to major utilities in the U.S., China, Germany, India, Korea, New Zealand, and Sweden.

Emeter, a software company providing Meter Data Management software to the utility industry has confirmed its interest in the proposed project. The company



currently provides software on Smart metering projects in North America, Scandinavia, Germany and Australia. Its R&D and production facilities are based in the U.S.

Gridpoint, another U.S. company, provides a software and services to integrate smart meter systems and provide real time data analytics so that smart meter data can be leveraged for intelligence both to the utility back office and to the consumer. The company confirmed their interest in the proposed project.

South Africa has over 8 million customers. Based on the Eskom data, there are over 3.2 million prepaid meters installed in South Africa (2.4 million by Eskom and remaining 0.8 million by municipalities). Local SA company Conlog is the dominant player in the prepaid meters market. The company is majority owned by Schneider Electric, a multi-national electric equipment conglomerate headquartered in France. Other local players include Meter Mate, Corstor, and Genus Power.

Foreign Competition

The strongest competition is likely to come from European firms, in particular from France, Germany, and Switzerland. Following are the major international providers of smart meters and smart meter support systems:

- ABB, Germany ;
- Siemens, Germany ;
- Landis+Gyr, Switzerland;
- Sagem, France; and
- Elster Group, Germany.

These companies have an extensive track record of supplying smart meters and smart meter solutions to EU member countries and customers in Southeast Asia. It should be noted that South Africa currently does not have a significant number of residential smart meters, except for some small pilot projects. CG is aware of only few activities related to residential smart meters. Eskom has initiated a pilot project for advanced metering infrastructure in 2008. The initial deployment was limited to 400 meters with overall objective of reaching 120,000 meters. Neighboring Botswana's pilot has proved successful with 466 smart meters installed in Gaborone, paving the way for a national roll-out to four major towns. The objective of this program is to save 40 MW of peak load by remotely disconnecting residential customers.



Environmental Impact

The project is expected to have a positive effect on the environment. Currently, metering infrastructure is only used for billing.

Among the anticipated positive impacts are the following:

- Air emission reductions due to less meter reading;
- Ability to implement time-of-use tariffs leads to more efficient power generation;
- Ability to implement time-of-use tariffs leads to more efficient water consumption;
- Training on environmental issues will be provided to locals;
- Life quality improvement for local communities due to new income; and
- Social commitment regarding education, health and production of goods.

Potential negative impacts include the following:

- Potential environmental issues with old meter removal;
- Old meter disposal;
- Sound pollution during construction; and
- Equipment transit during construction.

Impact on U.S. Labor

There is no possibility of negative impacts on U.S. employment due to this project. The project would provide planning guidance for the electric smart metering system and not products that could be imported into the U.S. On the other hand, positive impacts will result in the event U.S. exporters succeed in obtaining contracts to provide equipment and services when the project goes forward, and could conceivably serve as a catalyst for further projects in the region.

No adverse impact is expected from the execution of the proposed project. Its significant export potential would assure the bulk of the production of major goods in the U.S. and their export to the host country. No significant permanent new job creation impacting U.S. jobs is expected outside the U.S.



Justification

The proposed smart metering study would have multiple positive impacts on the country, on eThekweni Municipality and eThekweni Electricity. Clearly, it will help TE by providing an integrated approach and a carefully thought out plan for meeting its regulatory requirements. The objective, comprehensive study will include cost-benefit analyses, evaluation of alternative approaches for deployment, and careful examination of Lessons Learned and unintended consequences experienced by utilities around the world. This work will help TE take advantage of the platform afforded by installation of advanced metering and to avoid some of the costs of the failure to plan, coordinate, and integrate IT solutions. Some of these costs including the following:

- Limited solutions that require further investment,
- Lack of business process integration,
- Inefficient use of resources,
- Absence of a standard,
- High maintenance costs, and
- Eventual abandonment of the system

It will also provide a roadmap for use in planning by NERSA, Eskom, and other municipalities who must act quickly to comply with the new regulations.

The project undoubtedly will become a high profile undertaking and would provide the U.S. consultant high visibility and considerable good will to the U.S. government. It would have the potential of creating a favorable environment for downstream opportunities to U.S. firms for implementation of such projects in the future.

USTDA's support would therefore provide an important impetus to the application of the technology in South Africa and would open up trade opportunities in an area in which U.S. has a technological lead. The U.S. companies are considered very competitive in areas of smart meters, communication packaging, and control software and hardware. Some of the most sophisticated smart meter EPC integration companies are also based in the U.S.



Proposed FS Schedule and Budget

The proposed project implementation schedule is presented in Exhibit 1-6 below. The duration of the total effort is estimated at 7 months with most tasks being accomplished sequentially.

Exhibit 1-6 – Project Schedule

No.	Task Name	Duration (days)	Months							
			1	2	3	4	5	6	7	
1	Analysis of Available Information	25	█							
2	Legal, Regulatory, and Institutional Review	5		█						
3	Smart Metering Overview	15		█						
4	Develop Compliance Plan	30		█	█					
5	Smart Meter Integration	10			█					
6	Estimate the Cost of the Compliance Plan	15				█				
7	Perform Financial Analysis of the "Compliance" scenario	10					█			
8	Smart Meter System Specification	10						█		
9	Financing Mechanism Analysis	10							█	
10	Environmental and Social/Development Impact Assessment	10								█
11	Draft Final and Final Report Preparation and Presentation	15								█

The recommended FS budget is provided below in Exhibit 1-7. A detailed breakdown by task and discipline is provided for labor. Average U.S. rates for the industry were used. The budget also breaks down other necessary expenses, such as travel, miscellaneous, insurance, fees, etc. The total budget for the FS is \$446,500.



Exhibit 1-7 – FS Budget

DIRECT LABOR COSTS:

TOR Task	TOR Task Name	Contractor Labor			
		Total Person Days	x Daily Rate*	= TOTAL COST	
1	Analysis of Available Information	Project Manager	5 \$	1,442.00 \$	7,210.00 \$
		Finance/Econ. Specialist(s)	5 \$	1,442.00 \$	7,210.00 \$
		Various Engineer(s)	15 \$	962.00 \$	14,430.00 \$
		Environmental Specialist(s)	5 \$	962.00 \$	4,810.00 \$
		TOTALS	30		\$ 33,660.00
2	Legal, Regulatory, and Institutional Review	Project Manager	2 \$	1,442.00 \$	2,884.00 \$
		Legal Advisor(s)	5 \$	1,923.00 \$	9,615.00 \$
		Regulatory and Institutional Advisor(s)	5 \$	1,442.00 \$	7,210.00 \$
		TOTALS	12		\$ 19,709.00
3	Smart Metering Overview	Project Manager	5 \$	1,442.00 \$	7,210.00 \$
		Finance/Econ. Specialist(s)	5 \$	1,442.00 \$	7,210.00 \$
		Various Engineer(s)	15 \$	962.00 \$	14,430.00 \$
		Cost Estimator	5 \$	817.00 \$	4,085.00 \$
		TOTALS	30		\$ 32,935.00
4	Develop Compliance Plan	Project Manager	15 \$	1,442.00 \$	21,630.00 \$
		Finance/Econ. Specialist(s)	15 \$	1,442.00 \$	21,630.00 \$
		Various Engineer(s)	35 \$	962.00 \$	33,670.00 \$
		Environmental Specialist(s)	7 \$	962.00 \$	6,734.00 \$
		Cost Estimator	7 \$	817.00 \$	5,719.00 \$
		TOTALS	79		\$ 89,383.00
5	Smart Meter Integration	Project Manager	2 \$	1,442.00 \$	2,884.00 \$
		Finance/Econ. Specialist(s)	5 \$	1,442.00 \$	7,210.00 \$
		Various Engineer(s)	10 \$	962.00 \$	9,620.00 \$
		Cost Estimator	5 \$	817.00 \$	4,085.00 \$
		TOTALS	22		\$ 23,799.00
6	Estimate the Cost of the Compliance Plan	Project Manager	2 \$	1,442.00 \$	2,884.00 \$
		Finance/Econ. Specialist(s)	3 \$	1,442.00 \$	4,326.00 \$
		Various Engineer(s)	7 \$	962.00 \$	6,734.00 \$
		Cost Estimator	15 \$	817.00 \$	12,255.00 \$
		TOTALS	27		\$ 26,199.00
7	Perform Financial Analysis of the "Compliance" scenario	Project Manager	5 \$	1,442.00 \$	7,210.00 \$
		Finance/Econ. Specialist(s)	8 \$	1,442.00 \$	11,536.00 \$
		Various Engineer(s)	5 \$	962.00 \$	4,810.00 \$
		Modeling Specialist(s)	5 \$	962.00 \$	4,810.00 \$
		Cost Estimator	2 \$	817.00 \$	1,634.00 \$
		TOTALS	25		\$ 30,000.00
8	Smart Meter System Specification	Project Manager	5 \$	1,442.00 \$	7,210.00 \$
		Various Engineer(s)	15 \$	962.00 \$	14,430.00 \$
		Finance/Econ. Specialist(s)	3 \$	1,442.00 \$	4,326.00 \$
		TOTALS	23		\$ 25,966.00
9	Financing Mechanism Analysis	Project Manager	2 \$	1,442.00 \$	2,884.00 \$
		Finance/Econ. Specialist(s)	7 \$	1,442.00 \$	10,094.00 \$
		Modeling Specialist(s)	2 \$	962.00 \$	1,924.00 \$
		Legal Advisor(s)	3 \$	1,923.00 \$	5,769.00 \$
		TOTALS	14		\$ 20,671.00
10	Environmental and Social/Development Impact Assessment	Project Manager	2 \$	1,442.00 \$	2,884.00 \$
		Finance/Econ. Specialist(s)	2 \$	1,442.00 \$	2,884.00 \$
		Environmental Specialist(s)	10 \$	962.00 \$	9,620.00 \$
		Institutional Advisor	3 \$	1,442.00 \$	4,326.00 \$
		Cost Estimator	2 \$	817.00 \$	1,634.00 \$
		TOTALS	19		\$ 21,348.00



Exhibit 1-7 - FS Budget (Continued)

11	Draft Final and Final Report Preparation and Presentation	Project Manager	5	\$ 1,442.00	\$ 7,210.00
		Finance/Econ. Specialist(s)	3	\$ 1,442.00	\$ 4,326.00
		Modeling Specialist(s)	2	\$ 962.00	\$ 1,924.00
		Various Engineer(s)	7	\$ 962.00	\$ 6,734.00
		Environmental Specialist(s)	3	\$ 962.00	\$ 2,886.00
		Cost Estimator	3	\$ 817.00	\$ 2,451.00
		TOTALS	23		\$ 25,531.00
		TOTAL CONTRACTOR LABOR	304.00		349,201.00

TOR Task	TOR Task Name		Non-Employee Labor		
			Total Person Days x	Daily Rate**	= TOTAL COST
1	Analysis of Available Information	Local Specialists	40	\$ 250.00	\$ 10,000.00
2	Legal, Regulatory, and Institutional	Local Specialists	10	\$ 600.00	\$ 6,000.00
3	Smart Metering Overview	Local Specialists	10	\$ 250.00	\$ 2,500.00
4	Develop Compliance Plan	Local Specialists	35	\$ 250.00	\$ 8,750.00
5	Smart Meter Integration	Local Specialists	25	\$ 250.00	\$ 6,250.00
6	Estimate the Cost of the Compliance Plan	Local Specialists	5	\$ 250.00	\$ 1,250.00
7	Perform Financial Analysis of the "Compliance" scenario	Local Specialists	5	\$ 400.00	\$ 2,000.00
8	Smart Meter System Specification	Local Specialists	25	\$ 250.00	\$ 6,250.00
9	Financing Mechanism Analysis	Local Specialists	5	\$ 400.00	\$ 2,000.00
10	Environmental and Social/Development Impact Assessment	Local Specialists	15	\$ 250.00	\$ 3,750.00
11	Draft Final and Final Report Preparation and Presentation	Local Specialists	5	\$ 250.00	\$ 1,250.00
		TOTAL HOST COUNTRY LABOR	180.00		\$ 50,000.00
	TOTAL DIRECT LABOR COSTS				\$ 399,201.00

OTHER DIRECT COSTS:

Purchased Services/Contracts***

Tasks
N/A

TOTAL COST

Travel

	Trips	Trip Cost	Total Cost
International Air Travel	10	\$ 1,500.00	\$ 15,000.00
In Country Air Travel	10	\$ 500.00	\$ 5,000.00
Ground Transportation	10	\$ 250.00	\$ 2,500.00
	Trip Days	Per Diem Rate	
Per Diem	50	\$ 334.00	\$ 16,700.00
Other (local travel, etc.)			\$ 2,000.00
Other			
Reproduction and Binding			\$ 1,500.00
Courier Services			\$ 500.00
Communication			\$ 1,299.00
Insurance			\$ 2,800.00
TOTAL OTHER DIRECT COSTS			\$ 47,299.00
TOTAL COSTS (DIRECT LABOR COSTS + OTHER DIRECT COSTS)			\$ 446,500.00
Total U.S. Company Cost Share			
PROPOSED USTDA GRANT			\$ 446,500.00

* Primary Contractor (Employee) Labor Costs = Salary + Overhead + Benefits (No Fee or Profit)

** Non-Employee Labor Cost = Salary + Overhead + Benefits + Reasonable Fee or Profit

*** Purchased Services/Contracts may include engineering drawings, lab work, surveys, translation, etc. which would not be included in Non-Employee Labor C

ANNEX 3



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

NATIONALITY, SOURCE, AND ORIGIN REQUIREMENTS

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

USTDA STANDARD RULE (GRANT AGREEMENT STANDARD LANGUAGE):

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

NATIONALITY:

1) Rule

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

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

2) Application

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

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

3) Definitions

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

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

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

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

SOURCE AND ORIGIN:

1) Rule

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

2) Application

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

3) Definitions

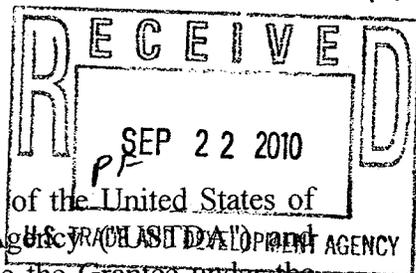
“Source” means the country from which shipment is made.

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

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

ANNEX 4

GRANT AGREEMENT



This Grant Agreement is entered into between the Government of the United States of America, acting through the U.S. Trade and Development Agency (USTDA), and eThekwin Municipality ("Grantee"). USTDA agrees to provide the Grantee under the terms of this Agreement US\$446,500 ("USTDA Grant") to fund the cost of goods and services required for a feasibility study ("Study") on the proposed eThekwin Smart Metering project ("Project") in South Africa ("Host Country").

PM
MD
LB
JJ
MB
SS
RY

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.

LZ
PP
JW

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). Upon request, the Grantee will submit these contracting procedures and related documents to USTDA for information. USTDA may use such information in determining whether to approve the Contractor selected to perform the Study.

(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 September 1, 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 Head of Electricity. 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: Head of Electricity
eThekweni Municipality
1 Jelf Taylor Crescent
P.O. Box 147
Durban, South Africa 4000

Phone: +24 31 300 1006
Fax: +24 31 311 8744

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

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

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

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

Appropriation No.: 1110/111001
Activity No.: 2010-11034A
Reservation No.: 2010110042
Grant No.: GH2010110014

18. Termination Clause

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

19. Non-waiver of Rights and Remedies

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

20. U.S. Technology and Equipment

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

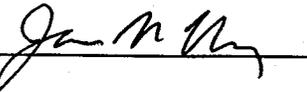
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IN WITNESS WHEREOF, the Government of the United States of America and eThekwini Municipality, each acting through its duly authorized representative, have caused this Agreement to be signed in the English language in their names and delivered as of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

For the Government of the United States of America

By: 
Date: 14 September 2010

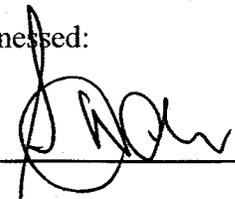
Witnessed:

By: 

For eThekwini Municipality

By: 
Date: 14 SEPTEMBER 2010

Witnessed:

By: 

Annex I -- Terms of Reference

Annex II -- USTDA Mandatory Clauses

Annex I

Terms of Reference

eThekwini Municipality (“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 eThekwini Smart Metering project (“Project”) in South Africa (“Host Country”). The Project would result in the integration of an advanced electricity metering, or smart metering, system with the existing and planned electricity distribution and customer information systems that are managed by eThekwini Electricity (“TE”), the Grantee’s electricity distribution company. 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 implementation of the Project.

Note: 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, Onsite Assessments, Kickoff Meeting, and Work Plan

Sub-Task 1.1: Document Review – The Grantee shall provide the Contractor with all available information related to the Project, including:

- TE’s current and projected electricity purchase and electricity sales tariffs;
- Host Country laws, regulations, standards, and institutions that would impact Project implementation, including:
 - R. 842 Electricity Regulation Act (412006): Electricity regulations for compulsory norms and standards for reticulation services; and
 - National Standard NRS049: “Advanced Metering and Infrastructure for Residential and Commercial Customers;”
- Statistics and forecasts on electricity consumers and electricity consumption in eThekwini;
- The latest version of the Grantee’s Integrated Development Plan;
- Existing studies, analyses, implementation plans, and other available information on the implementation of a smart metering system in eThekwini; and
- Existing studies, analyses, implementation plans, and other available information on TE’s existing and planned electricity distribution and customer information systems.

The Contractor shall review all of the information provided by the Grantee.

Sub-Task 1.2: Onsite Assessments – The Contractor shall conduct onsite assessments of TE’s existing electricity distribution and customer information systems.

Based on the results of the document review and the onsite assessments, 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 1.3: Kickoff Meeting and 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: Legal, Regulatory, Standards, and Institutional Analysis – The Contractor shall conduct a preliminary analysis of the anticipated impact of Host Country laws, regulations, standards, and institutions on Project implementation. Throughout the course of the Study, the Contractor shall continue to monitor any changes in laws, regulations, standards, and institutions that impact Project implementation. The Contractor shall take these regulations, laws, standards, and institutions into account while carrying out Tasks 3 – 14 below.

Task 2 Deliverable: The Contractor shall provide the Grantee with a preliminary analysis of the anticipated impact of Host Country laws, regulations, standards, and institutions on Project implementation.

Task 3: Smart Metering Overview – The Contractor shall evaluate the performance requirements of state-of-the-art, international best practice smart metering systems and develop a report that describes the findings of this evaluation (“Smart Metering Overview”). At a minimum, the Smart Metering Overview shall include:

- Overview of smart metering technologies available;
- Technical solutions employed in smart meter introduction;
- Installation incentives;
- Financing mechanisms available to customers and electricity distribution companies;
- Lessons learned in terms of the realization of key benefits on factors such as:
 - Planning, objectives, and stakeholder involvement;
 - Metering technologies implemented;
 - Electric end-use inventory;
 - Policies regarding dynamic pricing (mandatory versus voluntary);
 - Cost recovery options and solutions;
 - Customer interface hardware/software;
 - Electricity distribution company information technology systems and communications networks;
 - Readiness of customer service representatives and processes;
 - Employee training (for equipment and systems support, as well as customer service in terms of price and billing impacts);
- Use of smart meters for data collection and advanced tariff setting;
- Non-traditional benefits evaluation (cross-sector, environmental, etc.); and
- Implementation timetables.

The Contractor shall conduct a workshop with the Grantee and other relevant stakeholders to present the finding of the Smart Metering Overview (“Smart Metering Overview Workshop”). The Smart Metering Overview Workshop shall be held 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, such as the National Energy Regulator of South Africa (“NERSA”), the Association of Municipal Electricity Undertakings, and other Host County government and community representatives, to participate in the Smart Metering Overview Workshop. The Smart Metering Overview Workshop shall be one full day or two half-days in duration. For planning purposes, the Contractor shall assume that approximately thirty people will participate in the Smart Metering Overview Workshop.

For the Smart Metering Overview Workshop, the Contractor shall: coordinate with the Grantee on appropriate workshop content; provide all workshop participants with an agenda, reference materials, and other handouts or presentation materials, as needed; conduct the workshop; and maintain workshop records, including the agenda, 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 3 Deliverables: The Contractor shall provide the Grantee with the Smart Metering Overview. The Contractor shall also provide the Grantee with a copy of all records for the Smart Metering Overview Workshop, including the agenda, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop.

Task 4: Compliance Plan – Based on the results of Tasks 1 – 3, the Contractor shall develop a strategy for implementing the Project in compliance with all relevant Host Country laws, regulations, and standards (“Compliance Plan”). In addition to relevant Host Country laws, regulations, and standards, the Compliance Plan shall take into account:

- International best practices for the introduction and sustainability of smart metering systems;
- Grantee’s objectives for the Project;
- Availability and anticipated costs of various technologies;
- Applicability of technologies to local conditions;
- Availability of financial and human resources for installing, operating, and maintaining the smart metering system;
- Direct and indirect benefits of Project implementation;
- Forecasts of smart metering penetration rates in eThekweni; and
- Anticipated uses and outcomes of the smart metering system.

The Compliance Plan shall include:

- A preliminary design of the proposed smart metering system, including lists of required equipment, technologies, and services;
- All the steps the Grantee will need to take subsequent to the Study’s completion and prior to Project implementation, 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;
 - Licensing, permitting, and other relevant legal and regulatory requirements;
 - Financial arrangements;
 - Procurements of goods and services;
 - Systems integration;
 - Operations and maintenance; and
 - Short- and long-term training requirements.
- A recommended schedule for Project implementation, including recommendations for phasing, milestones, and prioritization of investments; and
- An assessment of how the implementation of the Project will impact TE’s operations.

The Contractor shall present the Compliance Plan to the Grantee and gather input from the Grantee regarding the Compliance Plan. If necessary, the Contractor shall further revise the Compliance Plan based on Grantee input. The Contractor shall obtain Grantee approval for the Compliance Plan.

Task 4: Deliverable: The Contractor shall provide the Grantee with a copy of the Compliance Plan, as approved by the Grantee.

Task 5: Smart Meter Integration – The Contractor shall develop a strategy for integrating the Project into TE’s existing and planned electricity distribution and customer information systems (“Integration Strategy”).

The Integration Strategy shall be aimed at eliminating redundant data capture processes and improving TE’s operations by facilitating interactions between databases and departments within TE, as well as interactions between TE and other stakeholders such as the Grantee, NERSA, and TE’s customers. The Integration Strategy shall include:

- An assessment of all technical (including system interface and information exchange) requirements for integrating the Project into TE’s existing and planned electricity distribution and customer information systems;
- Step-by-step recommendations for carrying out the Integration Strategy;
- Cost estimates for implementing the Integration Strategy, including costs of required upgrades to existing systems;
- Clear descriptions of the changes that would occur in TE’s electricity distribution network as a result of the Integration Strategy; and
- Justifications for the investment requirements of the Integration Strategy based on a cost-benefit analysis.

The Integration Strategy shall also include an assessment of the benefits and challenges of integrating smart meters provided by multiple suppliers. This assessment shall include a cost benefit analysis for single supplier versus multiplier supplier smart metering systems.

Task 5 Deliverable: The Contractor shall provide the Grantee with the Integration Strategy.

Task 6: Economic Analysis – The Contractor shall conduct an economic analysis for the Project. The Contractor shall estimate the capital and operating costs of the Project over a ten year period. The Contractor shall also estimate the cost savings and increased revenues that would accrue to the Grantee as a result of the Project. The Contractor shall estimate revenues from the sale of electricity based on TE’s statutory power-purchase and power-sales tariffs, as well as forecasts on electricity consumers and electricity consumption in eThekweni.

The economic analysis shall include a determination of the indirect costs and benefits that would accrue to the Grantee as a result of the Project. For example, the economic analysis shall include the estimated costs of upgrading TE's existing electricity distribution and customer information systems required for integration, as well as estimated savings that would accrue to the Grantee as a result of avoided capital investments and operations and maintenance costs from increased systems efficiencies. The economic analysis shall also include a determination of the costs and benefits, if any, that would accrue to other stakeholders, such as Eskom and TE's customers.

Task 6 Deliverable: The Contractor shall provide the Grantee with an economic analysis for the Project.

Task 7: Financial Analysis – The Contractor shall conduct a financial analysis for the Project. The financial analysis shall include a set of profitability indicators, including net present value, internal rate of return, return on investment, and payback period. The Contractor shall conduct a sensitivity analysis of the profitability indicators based on different assumptions for key Project variables, such as electricity tariffs, sales volumes, capital and operating cost estimates, and interest rates and investment requirements.

Task 7 Deliverable: The Contractor shall provide the Grantee with a financial analysis for the Project.

Task 8: Smart Meter System Specifications – The Contractor shall develop detailed specifications for implementation of the Project. At a minimum, the following requirements shall be represented:

- Automated meter reading;
- Accuracy and timeliness of data collection;
- Ability to collect data for introduction of various advanced tariffs, such as time-of-use and interruptible tariffs;
- Integration of smart meters into TE's existing and planned electricity distribution and customer information systems;
- Active and reactive energy control and distribution loss reduction;
- Combating electricity theft;
- Customer load control;
- Customer-side electrical safety, such as overload protection, overheating, and electrical shock;
- Customer options, including electricity budgeting; and
- Energy efficiency measures.

The specifications shall comply with Host Country standards for smart metering systems.

Task 8 Deliverables: The Contractor shall provide the Grantee with detailed specifications for implementation of the Project.

Task 9: Financing Mechanism Analysis – The Contractor shall provide a detailed analysis of various potential financing mechanisms for Project implementation, such as: full customer expense; partially or fully subsidized installation; and special purpose funds designed to ease the burden of required expenditures, etc. The Contractor shall also analyze various potential sources of external financing for Project implementation, such as: Government of South Africa budgetary resources; bilateral lending agencies such as the Export-Import Bank of the United States; multilateral lending agencies such as the World Bank and the Africa Development Bank; and private sector source of financing, such as commercial loans and supplier credits.

Based on these analyses, the Contractor shall provide the Grantee with recommendations for the financial structure and sources of financing for Project implementation.

Task 9 Deliverable: The Contractor shall provide the Grantee with a financing mechanism analysis for the Project.

Task 10: Preliminary Environmental and Social Impact Assessment – The Contractor shall conduct preliminary environmental and social impact assessments of the Project 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 Project; 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 Project to comply with local environmental and social requirements and those of multilateral lending agencies such as the World Bank.

Task 10 Deliverables: The Contractor shall provide the Grantee with preliminary environmental and social impact assessments for the Project.

Task 11: Development Impact Analysis – The Contractor shall conduct a development impact assessment of the Project. The purpose of the development impact assessment is to provide the Project's decision makers and interested parties with a broader view of the Project's potential effects on South Africa. The development impact assessment shall identify the anticipated impacts of the Project in the following categories:

- (1) **Infrastructure:** The Contractor shall identify the anticipated infrastructure impacts of the Project, giving a brief synopsis and concrete examples of infrastructure impacts. Examples of infrastructure impacts related to implementation of the Project may include the installation of smart meters, as well as associated communication infrastructure and other related hardware

and software systems. The Contractor shall provide specific information about the anticipated infrastructure impacts of the Project, such as the anticipated number smart meters to be installed, details regarding anticipated improvements in TE's communication infrastructure and other related hardware and software systems, and the impact of the Project on TE's existing and planned electricity distribution and customer information systems.

- (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 Project. 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 Project. 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 Project. The Contractor shall also identify anticipated efficiencies that would be gained as a result of the Project. Examples of efficiencies related to implementation of the Project 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, standards, 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 Project, such as improved financial revenue flows to the Grantee and other stakeholders, improvements in South Africa's energy security, reduced emissions of greenhouse gases and other harmful pollutants, positive spin-off effects on other economic sectors, etc.

Task 11 Deliverable: The Contractor shall provide the Grantee with a development impact assessment for the Project.

Task 12: U.S. Sources of Supply – The Contractor shall compile a comprehensive list of potential U.S. sources of supply available for the Project. U.S. sources of supply shall include U.S. providers of all the different categories of goods and services required for implementation of the Project. For each U.S. source of supply identified, the Contractor shall include: company name, point of contact, address, telephone, fax, e-mail, and relevant good(s) and/or service(s) provided.

Task 12 Deliverable: The Contractor shall provide the Grantee with a comprehensive list of potential U.S. sources of supply available for the Project.

Task 13: Regulatory Recommendations – Based on the results of Tasks 1 – 12, the Contractor shall develop recommendations to improve existing Host Country laws, regulations, standards, and institutions that would impact Project implementation. The Contractor’s recommended improvements to the Host Country’s legal and regulatory framework for the implementation of smart metering projects shall focus on: streamlining the planning process; reducing costs and maximizing benefits; strengthening technical specifications; and ensuring transparency and competition.

The Contractor shall also develop recommendations for improvements in the Host Country’s existing laws, regulations, standards, and institutions that would be enabled by the implementation of smart meter projects, such as time-of-use tariffs, etc.

Task 13 Deliverable: The Contractor shall provide to the Grantee and to NERSA a report detailing and justifying the Contractor’s recommended improvements to the Host Country’s laws, regulations, standards, and institutions related to the implementation of smart metering projects.

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 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 eThekweni Municipality ("Client"), dated _____ ("Grant Agreement"). The Client has selected _____ ("Contractor") to perform the feasibility study ("Study") for the eThekweni Smart Metering project ("Project") in South Africa ("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 September 1, 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.: 2010-11034A
Reservation No.: 2010110042
Grant No.: GH2010110014

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

eThekwini Municipality (“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 eThekwini Smart Metering project (“Project”) in South Africa (“Host Country”). The Project would result in the integration of an advanced electricity metering, or smart metering, system with the existing and planned electricity distribution and customer information systems that are managed by eThekwini Electricity (“TE”), the Grantee’s electricity distribution company. 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 implementation of the Project.

Note: 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, Onsite Assessments, Kickoff Meeting, and Work Plan

Sub-Task 1.1: Document Review – The Grantee shall provide the Contractor with all available information related to the Project, including:

- TE’s current and projected electricity purchase and electricity sales tariffs;
- Host Country laws, regulations, standards, and institutions that would impact Project implementation, including:
 - R. 842 Electricity Regulation Act (412006): Electricity regulations for compulsory norms and standards for reticulation services; and
 - National Standard NRS049: “Advanced Metering and Infrastructure for Residential and Commercial Customers;”
- Statistics and forecasts on electricity consumers and electricity consumption in eThekwini;
- The latest version of the Grantee’s Integrated Development Plan;
- Existing studies, analyses, implementation plans, and other available information on the implementation of a smart metering system in eThekwini; and
- Existing studies, analyses, implementation plans, and other available information on TE’s existing and planned electricity distribution and customer information systems.

The Contractor shall review all of the information provided by the Grantee.

Sub-Task 1.2: Onsite Assessments – The Contractor shall conduct onsite assessments of TE’s existing electricity distribution and customer information systems.

Based on the results of the document review and the onsite assessments, 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 1.3: Kickoff Meeting and 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: Legal, Regulatory, Standards, and Institutional Analysis – The Contractor shall conduct a preliminary analysis of the anticipated impact of Host Country laws, regulations, standards, and institutions on Project implementation. Throughout the course of the Study, the Contractor shall continue to monitor any changes in laws, regulations, standards, and institutions that impact Project implementation. The Contractor shall take these regulations, laws, standards, and institutions into account while carrying out Tasks 3 – 14 below.

Task 2 Deliverable: The Contractor shall provide the Grantee with a preliminary analysis of the anticipated impact of Host Country laws, regulations, standards, and institutions on Project implementation.

Task 3: Smart Metering Overview – The Contractor shall evaluate the performance requirements of state-of-the-art, international best practice smart metering systems and develop a report that describes the findings of this evaluation (“Smart Metering Overview”). At a minimum, the Smart Metering Overview shall include:

- Overview of smart metering technologies available;
- Technical solutions employed in smart meter introduction;
- Installation incentives;
- Financing mechanisms available to customers and electricity distribution companies;
- Lessons learned in terms of the realization of key benefits on factors such as:
 - Planning, objectives, and stakeholder involvement;
 - Metering technologies implemented;
 - Electric end-use inventory;
 - Policies regarding dynamic pricing (mandatory versus voluntary);
 - Cost recovery options and solutions;
 - Customer interface hardware/software;
 - Electricity distribution company information technology systems and communications networks;
 - Readiness of customer service representatives and processes;
 - Employee training (for equipment and systems support, as well as customer service in terms of price and billing impacts);
- Use of smart meters for data collection and advanced tariff setting;
- Non-traditional benefits evaluation (cross-sector, environmental, etc.); and
- Implementation timetables.

The Contractor shall conduct a workshop with the Grantee and other relevant stakeholders to present the finding of the Smart Metering Overview (“Smart Metering Overview Workshop”). The Smart Metering Overview Workshop shall be held 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, such as the National Energy Regulator of South Africa (“NERSA”), the Association of Municipal Electricity Undertakings, and other Host County government and community representatives, to participate in the Smart Metering Overview Workshop. The Smart Metering Overview Workshop shall be one full day or two half-days in duration. For planning purposes, the Contractor shall assume that approximately thirty people will participate in the Smart Metering Overview Workshop.

For the Smart Metering Overview Workshop, the Contractor shall: coordinate with the Grantee on appropriate workshop content; provide all workshop participants with an agenda, reference materials, and other handouts or presentation materials, as needed; conduct the workshop; and maintain workshop records, including the agenda, 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 3 Deliverables: The Contractor shall provide the Grantee with the Smart Metering Overview. The Contractor shall also provide the Grantee with a copy of all records for the Smart Metering Overview Workshop, including the agenda, reference materials, any handouts or presentation materials, a list of all workshop participants, and a description of the workshop.

Task 4: Compliance Plan – Based on the results of Tasks 1 – 3, the Contractor shall develop a strategy for implementing the Project in compliance with all relevant Host Country laws, regulations, and standards (“Compliance Plan”). In addition to relevant Host Country laws, regulations, and standards, the Compliance Plan shall take into account:

- International best practices for the introduction and sustainability of smart metering systems;
- Grantee’s objectives for the Project;
- Availability and anticipated costs of various technologies;
- Applicability of technologies to local conditions;
- Availability of financial and human resources for installing, operating, and maintaining the smart metering system;
- Direct and indirect benefits of Project implementation;
- Forecasts of smart metering penetration rates in eThekweni; and
- Anticipated uses and outcomes of the smart metering system.

The Compliance Plan shall include:

- A preliminary design of the proposed smart metering system, including lists of required equipment, technologies, and services;
- All the steps the Grantee will need to take subsequent to the Study’s completion and prior to Project implementation, 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;
 - Licensing, permitting, and other relevant legal and regulatory requirements;
 - Financial arrangements;
 - Procurements of goods and services;
 - Systems integration;
 - Operations and maintenance; and
 - Short- and long-term training requirements.
- A recommended schedule for Project implementation, including recommendations for phasing, milestones, and prioritization of investments; and
- An assessment of how the implementation of the Project will impact TE’s operations.

The Contractor shall present the Compliance Plan to the Grantee and gather input from the Grantee regarding the Compliance Plan. If necessary, the Contractor shall further revise the Compliance Plan based on Grantee input. The Contractor shall obtain Grantee approval for the Compliance Plan.

Task 4: Deliverable: The Contractor shall provide the Grantee with a copy of the Compliance Plan, as approved by the Grantee.

Task 5: Smart Meter Integration – The Contractor shall develop a strategy for integrating the Project into TE's existing and planned electricity distribution and customer information systems ("Integration Strategy").

The Integration Strategy shall be aimed at eliminating redundant data capture processes and improving TE's operations by facilitating interactions between databases and departments within TE, as well as interactions between TE and other stakeholders such as the Grantee, NERSA, and TE's customers. The Integration Strategy shall include:

- An assessment of all technical (including system interface and information exchange) requirements for integrating the Project into TE's existing and planned electricity distribution and customer information systems;
- Step-by-step recommendations for carrying out the Integration Strategy;
- Cost estimates for implementing the Integration Strategy, including costs of required upgrades to existing systems;
- Clear descriptions of the changes that would occur in TE's electricity distribution network as a result of the Integration Strategy; and
- Justifications for the investment requirements of the Integration Strategy based on a cost-benefit analysis.

The Integration Strategy shall also include an assessment of the benefits and challenges of integrating smart meters provided by multiple suppliers. This assessment shall include a cost benefit analysis for single supplier versus multiplier supplier smart metering systems.

Task 5 Deliverable: The Contractor shall provide the Grantee with the Integration Strategy.

Task 6: Economic Analysis – The Contractor shall conduct an economic analysis for the Project. The Contractor shall estimate the capital and operating costs of the Project over a ten year period. The Contractor shall also estimate the cost savings and increased revenues that would accrue to the Grantee as a result of the Project. The Contractor shall estimate revenues from the sale of electricity based on TE's statutory power-purchase and power-sales tariffs, as well as forecasts on electricity consumers and electricity consumption in eThekweni.

The economic analysis shall include a determination of the indirect costs and benefits that would accrue to the Grantee as a result of the Project. For example, the economic analysis shall include the estimated costs of upgrading TE's existing electricity distribution and customer information systems required for integration, as well as estimated savings that would accrue to the Grantee as a result of avoided capital investments and operations and maintenance costs from increased systems efficiencies. The economic analysis shall also include a determination of the costs and benefits, if any, that would accrue to other stakeholders, such as Eskom and TE's customers.

Task 6 Deliverable: The Contractor shall provide the Grantee with an economic analysis for the Project.

Task 7: Financial Analysis – The Contractor shall conduct a financial analysis for the Project. The financial analysis shall include a set of profitability indicators, including net present value, internal rate of return, return on investment, and payback period. The Contractor shall conduct a sensitivity analysis of the profitability indicators based on different assumptions for key Project variables, such as electricity tariffs, sales volumes, capital and operating cost estimates, and interest rates and investment requirements.

Task 7 Deliverable: The Contractor shall provide the Grantee with a financial analysis for the Project.

Task 8: Smart Meter System Specifications – The Contractor shall develop detailed specifications for implementation of the Project. At a minimum, the following requirements shall be represented:

- Automated meter reading;
- Accuracy and timeliness of data collection;
- Ability to collect data for introduction of various advanced tariffs, such as time-of-use and interruptible tariffs;
- Integration of smart meters into TE's existing and planned electricity distribution and customer information systems;
- Active and reactive energy control and distribution loss reduction;
- Combating electricity theft;
- Customer load control;
- Customer-side electrical safety, such as overload protection, overheating, and electrical shock;
- Customer options, including electricity budgeting; and
- Energy efficiency measures.

The specifications shall comply with Host Country standards for smart metering systems.

Task 8 Deliverables: The Contractor shall provide the Grantee with detailed specifications for implementation of the Project.

Task 9: Financing Mechanism Analysis – The Contractor shall provide a detailed analysis of various potential financing mechanisms for Project implementation, such as: full customer expense; partially or fully subsidized installation; and special purpose funds designed to ease the burden of required expenditures, etc. The Contractor shall also analyze various potential sources of external financing for Project implementation, such as: Government of South Africa budgetary resources; bilateral lending agencies such as the Export-Import Bank of the United States; multilateral lending agencies such as the World Bank and the Africa Development Bank; and private sector source of financing, such as commercial loans and supplier credits.

Based on these analyses, the Contractor shall provide the Grantee with recommendations for the financial structure and sources of financing for Project implementation.

Task 9 Deliverable: The Contractor shall provide the Grantee with a financing mechanism analysis for the Project.

Task 10: Preliminary Environmental and Social Impact Assessment – The Contractor shall conduct preliminary environmental and social impact assessments of the Project 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 Project; 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 Project to comply with local environmental and social requirements and those of multilateral lending agencies such as the World Bank.

Task 10 Deliverables: The Contractor shall provide the Grantee with preliminary environmental and social impact assessments for the Project.

Task 11: Development Impact Analysis – The Contractor shall conduct a development impact assessment of the Project. The purpose of the development impact assessment is to provide the Project's decision makers and interested parties with a broader view of the Project's potential effects on South Africa. The development impact assessment shall identify the anticipated impacts of the Project in the following categories:

- (1) **Infrastructure:** The Contractor shall identify the anticipated infrastructure impacts of the Project, giving a brief synopsis and concrete examples of infrastructure impacts. Examples of infrastructure impacts related to implementation of the Project may include the installation of smart meters, as well as associated communication infrastructure and other related hardware

- and software systems. The Contractor shall provide specific information about the anticipated infrastructure impacts of the Project, such as the anticipated number smart meters to be installed, details regarding anticipated improvements in TE's communication infrastructure and other related hardware and software systems, and the impact of the Project on TE's existing and planned electricity distribution and customer information systems.
- (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 Project. 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 Project. 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 Project. The Contractor shall also identify anticipated efficiencies that would be gained as a result of the Project. Examples of efficiencies related to implementation of the Project 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, standards, 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 Project, such as improved financial revenue flows to the Grantee and other stakeholders, improvements in South Africa's energy security, reduced emissions of greenhouse gases and other harmful pollutants, positive spin-off effects on other economic sectors, etc.

Task 11 Deliverable: The Contractor shall provide the Grantee with a development impact assessment for the Project.

Task 12: U.S. Sources of Supply – The Contractor shall compile a comprehensive list of potential U.S. sources of supply available for the Project. U.S. sources of supply shall include U.S. providers of all the different categories of goods and services required for implementation of the Project. For each U.S. source of supply identified, the Contractor shall include: company name, point of contact, address, telephone, fax, e-mail, and relevant good(s) and/or service(s) provided.

Task 12 Deliverable: The Contractor shall provide the Grantee with a comprehensive list of potential U.S. sources of supply available for the Project.

Task 13: Regulatory Recommendations – Based on the results of Tasks 1 – 12, the Contractor shall develop recommendations to improve existing Host Country laws, regulations, standards, and institutions that would impact Project implementation. The Contractor's recommended improvements to the Host Country's legal and regulatory framework for the implementation of smart metering projects shall focus on: streamlining the planning process; reducing costs and maximizing benefits; strengthening technical specifications; and ensuring transparency and competition.

The Contractor shall also develop recommendations for improvements in the Host Country's existing laws, regulations, standards, and institutions that would be enabled by the implementation of smart meter projects, such as time-of-use tariffs, etc.

Task 13 Deliverable: The Contractor shall provide to the Grantee and to NERSA a report detailing and justifying the Contractor's recommended improvements to the Host Country's laws, regulations, standards, and institutions related to the implementation of smart metering projects.

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 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: _____