

**REQUEST FOR PROPOSALS**

**TECHNICAL ASSISTANCE FOR**

**SOLAR POWERED COMMUNICATIONS TOWERS**

Submission Deadline: **4:00 p.m.**

**LOCAL TIME**

**April 2, 2010**

Submission Place: William Saad  
Managing Director  
IHS (Nigeria) Plc.  
19 Bishop Aboyade Cole Street  
P.M.B. 80167, Victoria Island  
Lagos, Nigeria

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Email: [william@ihsnigeria.com](mailto:william@ihsnigeria.com)

PROPOSALS SHALL BE SUBMITTED ELECTRONICALLY AND RECEIVED PRIOR TO THE TIME AND DATE SPECIFIED ABOVE. PROPOSALS RECEIVED AFTER SAID TIME AND DATE WILL NOT BE ACCEPTED OR CONSIDERED.

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## **Section 1: INTRODUCTION**

The U.S. Trade and Development Agency (USTDA) has provided a grant in the amount of US \$162,000 to IHS (Nigeria) Plc. ("Grantee") in accordance with a grant agreement dated February 1, 2010 ("Grant Agreement"). The Grant Agreement will fund the cost of Technical Assistance to assist the Grantee in drafting performance specifications for solar power solutions for communications tower sites in Nigeria ("Host Country") and the identification of appropriate U.S. solar power and energy efficient solutions. The Grant Agreement is attached at Annex 4 for reference. The Grantee is soliciting technical proposals from qualified U.S. firms to provide expert consulting services to perform the Technical Assistance.

### **1.1 BACKGROUND SUMMARY**

The Grantee is a publicly traded Nigerian company that serves as a neutral third-party infrastructure manager, making it possible for competing telecommunications operators to collocate their equipment, a practice which translates into significant cost savings. The Grantee constructs communications towers, buys existing towers, leases tower space to clients, and manages tower sites on clients' behalf.

In order to guarantee their customers adequate, uninterrupted power, the Grantee powers all of its sites with diesel generators. Sites must be refueled on a weekly basis, which accounts for over 50% of the Grantee's operating costs. This dependence also exposes the Grantee to market fluctuations in the price of diesel fuel, making cost management and financial forecasting extremely difficult.

To mitigate the vulnerability and high costs associated with diesel generation, the Grantee is interested in deploying solar power and other alternative energy solutions at its tower sites. This Technical Assistance is intended to assist the Grantee in evaluating energy alternatives, developing performance specifications for its tower sites, and arranging a technical visit to the United States for the Grantee to meet with U.S. companies offering renewable energy solutions. The Grantee hopes to use this opportunity to attract a U.S. company to establish a pilot demonstration at one of its tower sites in Nigeria in order to verify the proposed solutions' technical viability and cost savings in the Grantee's operating environment, and to develop an implementation plan for scaling up the solution to a larger number of the Grantee's tower sites.

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

### **1.2 OBJECTIVE**

The objective of this Technical Assistance is to assist the Grantee in evaluating renewable energy alternatives, developing performance specifications for proposed renewable energy solutions for the Grantee's tower sites, and arranging a technical visit to the United States for the Grantee to meet with U.S. companies offering renewable energy solutions.

The Terms of Reference (TOR) for this Technical Assistance are attached as Annex 5.

### **1.3 PROPOSALS TO BE SUBMITTED**

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

The amount for the contract has been established by a USTDA grant of US \$162,000. **The USTDA grant of US \$162,000 is a fixed amount. Accordingly, COST will not be a factor in the evaluation and therefore, cost proposals should not be submitted.** Upon detailed evaluation of technical proposals, the Grantee shall select one firm for contract negotiations.

### **1.4 CONTRACT FUNDED BY USTDA**

In accordance with the terms and conditions of the Grant Agreement, USTDA has provided a grant in the amount of US \$162,000 to the Grantee. The funding provided under the Grant Agreement shall be used to fund the costs of the contract between the Grantee and the U.S. firm selected by the Grantee to perform the TOR. The contract must include certain USTDA Mandatory Contract Clauses relating to nationality, taxes, payment, reporting, and other matters. The USTDA nationality requirements and the USTDA Mandatory Contract Clauses are attached at Annexes 3 and 4, respectively, for reference.

## **Section 2: INSTRUCTIONS TO OFFERORS**

### **2.1 PROJECT TITLE**

The project is called Solar Powered Communications Towers.

### **2.2 DEFINITIONS**

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

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

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

### **2.3 DEFINITIONAL MISSION REPORT**

USTDA sponsored a Definitional Mission to address technical, financial, sociopolitical, environmental and other aspects of the proposed project. A copy of the report is attached at

Annex 2 for background information only. Please note that the TOR referenced in the report are included in this RFP as Annex 5.

#### **2.4 EXAMINATION OF DOCUMENTS**

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

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

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

#### **2.5 PROJECT FUNDING SOURCE**

The Technical Assistance will be funded under a grant from USTDA. The total amount of the grant is not to exceed US \$162,000.

#### **2.6 RESPONSIBILITY FOR COSTS**

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

#### **2.7 TAXES**

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

#### **2.8 CONFIDENTIALITY**

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

## **2.9 ECONOMY OF PROPOSALS**

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

## **2.10 OFFEROR CERTIFICATIONS**

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

## **2.11 CONDITIONS REQUIRED FOR PARTICIPATION**

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

## **2.12 LANGUAGE OF PROPOSAL**

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

## **2.13 PROPOSAL SUBMISSION REQUIREMENTS**

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

William Saad  
Managing Director  
IHS (Nigeria) Plc.  
19 Bishop Aboyade Cole Street  
P.M.B. 80167, Victoria Island  
Lagos, Nigeria

Phone: +234 12 800 790  
Email: [william@ihsnigeria.com](mailto:william@ihsnigeria.com)

**Proposals shall be submitted electronically and must be received at the e-mail address above address no later than 4:00 p.m. , local time, on April 2, 2010.**

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 disqualified. The Grantee will promptly notify any Offeror if its proposal was received late. Offerors shall retain proof of timely submission of proposals.

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

#### **2.14 IDENTIFICATION OF PROPOSALS**

Proposals shall be submitted as e-mail attachments. The subject line and body of the e-mail shall clearly indicate that proposals are attached. Neither USTDA nor the Grantee will be responsible for premature opening of proposals not properly identified.

#### **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, Technical Assistance and/or other services similar to those required in the TOR, as applicable.

#### **2.19 RIGHT TO REJECT PROPOSALS**

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

#### **2.20 PRIME CONTRACTOR RESPONSIBILITY**

Offerors have the option of subcontracting parts of the services they propose. The Offeror's proposal must include a description of any anticipated subcontracting arrangements,

including the name, address, and qualifications of any subcontractors. USTDA nationality provisions apply to the use of subcontractors and are set forth in detail in Annex 3. The successful Offeror shall cause appropriate provisions of its contract, including all of the applicable USTDA Mandatory Contract Clauses, to be inserted in any subcontract funded or partially funded by USTDA grant funds.

## **2.21 AWARD**

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

## **2.22 COMPLETE SERVICES**

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

## **2.23 INVOICING AND PAYMENT**

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

### **Section 3: PROPOSAL FORMAT AND CONTENT**

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

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

The proposal shall consist of a technical proposal only. A cost proposal is NOT required because the amount for the contract has been established by a USTDA grant of US \$162,000, which is a fixed amount.

Offerors shall submit proposals electronically.

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

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

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

### **3.2.3 Negotiation Prerequisites**

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

### **3.2.4 Offeror's Representations**

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

1. Offeror is a corporation *[insert applicable type of entity if not a corporation]* duly organized, validly existing and in good standing under the laws of the State of \_\_\_\_\_. The Offeror has all the requisite corporate power and authority to conduct its business as presently conducted, to submit this proposal, and if selected, to execute and deliver a contract to the Grantee for the performance of the Technical Assistance. The Offeror is not debarred, suspended, or to the best of its knowledge or belief, proposed for debarment, or ineligible for the award of contracts by any federal or state governmental agency or authority.
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 2 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 Technical Assistance and to perform the Technical Assistance. 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 Technical Assistance. Identify the Project Manager who will be the individual responsible for this project. The Project Manager shall have the responsibility and authority to act on behalf of the Offeror in all matters related to the Technical Assistance.

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

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

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

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

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

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

### **3.5 EXPERIENCE AND QUALIFICATIONS**

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

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

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

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

#### **Section 4: AWARD CRITERIA**

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

1) Contractor's Expertise and Relevant Experience (30 Points)

Contractor's demonstrated professional experience in the ICT and renewable energy sectors with specific reference to providing engineering, business, and project finance technical assistance to successful telecommunications infrastructure projects; demonstrated experience in developing successful project financing packages for large-scale infrastructure projects, preferably in the telecommunications sector; multi-disciplinary telecommunications and renewable energy sector experience bridging engineering, alternative energy provision, business implementation, and project finance. Contractor shall provide detailed resumes outlining the qualifications and experience of the proposed personnel.

2) Contractor's Work Plan and Approach (30 Points)

Contractor's proposed work plan and approach to the planning, organization, and implementation of technical assistance to the Grantee, and in particular how the Contractor would apply its competencies to evaluating and recommending power optimization and renewable energy power generation technologies, vendors and strategies. Demonstration and

understanding of, and responsiveness to, program objectives and soundness of approach. Overall innovative nature of proposed activities and approach to measure, monitor, and evaluate performance and impact. Soundness of approach and methodology.

(4) Past Performance (25 Points)

The quality of the Contractor's past performance will be used to assess the credibility of the Contractor's proposal for performance of the work specified in this solicitation including whether the Contractor has consistently provided customers and clients with quality services on time and has demonstrated success in achieving results in the areas described in the program description.

(5) Knowledge of Nigeria and sub-Saharan Africa (15 Points)

Contractor's experience in, and knowledge, of Nigeria and its specific relevance to the work that will be required under this Contract.

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

Price will not be a factor in contractor selection.

William Saad; Managing Director; IHS (Nigeria) Plc.; 19 Bishop Aboyade Cole Street; P.M.B. 80167, Victoria Island; Lagos, Nigeria; Phone: +234 12 800 790; Email: [william@ihsnigeria.com](mailto:william@ihsnigeria.com)

Nigeria: Solar Powered Communications Towers Technical Assistance

POC: Nina Patel, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. The Grantee, IHS (Nigeria) Plc., 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 for the Solar Powered Communications Towers Technical Assistance Project.

The Grantee is a publicly traded Nigerian company that serves as a neutral third-party infrastructure manager, making it possible for competing telecommunications operators to collocate their equipment, a practice which translates into significant cost savings. The Grantee constructs communications towers, buys existing towers, leases tower space to clients, and manages tower sites on clients' behalf.

In order to guarantee their customers adequate, uninterrupted power, the Grantee powers all of its sites with diesel generators. Sites must be refueled on a weekly basis, which accounts for over 50% of the Grantee's operating costs. This dependence also exposes the Grantee to market fluctuations in the price of diesel fuel, making cost management and financial forecasting extremely difficult.

To mitigate the vulnerability and high costs associated with diesel generation, the Grantee is interested in deploying solar power and other alternative energy solutions at its tower sites. This Technical Assistance is intended to assist the Grantee in evaluating energy alternatives, developing performance specifications for its tower sites, and arranging a technical visit to the United States for the Grantee to meet with U.S. companies offering renewable energy solutions. The Grantee hopes to use this opportunity to attract a U.S. company to establish a pilot demonstration at one of its tower sites in Nigeria in order to verify the proposed solutions' technical viability and cost savings in the Grantee's operating environment, and to develop an implementation plan for scaling up the solution to a larger number of the Grantee's tower sites.

The U.S. firm selected will be paid in U.S. dollars from a \$162,000 grant to the Grantee from the U.S. Trade and Development Agency (USTDA).

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

<https://www.ustda.gov/USTDA/FedBizOpps/RFP/rfpform.asp>. Requests for a mailed hardcopy version of the RFP may also be faxed to the IRC, USTDA at 703-875-4009. In the fax, please include your firm's name, contact person, address, and telephone number. Some firms have found that RFP materials sent by U.S. mail do not reach them in time

for preparation of an adequate response. Firms that want USTDA to use an overnight delivery service should include the name of the delivery service and your firm's account number in the request for the RFP. Firms that want to send a courier to USTDA to retrieve the RFP should allow one hour after faxing the request to USTDA before scheduling a pick-up. Please note that no telephone requests for the RFP will be honored. Please check your internal fax verification receipt. Because of the large number of RFP requests, USTDA cannot respond to requests for fax verification. Requests for RFPs received before 4:00 PM will be mailed the same day. Requests received after 4:00 PM will be mailed the following day. Please check with your courier and/or mail room before calling USTDA.

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

Interested U.S. firms should submit their Proposal electronically, in English directly to the Grantee by **4:00 p.m. local time on April 2, 2010** at the above e-mail 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.

## PROJECT RECOMMENDATION

# Solar Cell Towers: I H S Power Optimization and Infrastructure Sharing

## Executive Summary

Explosive growth in mobile communications in Nigeria has resulted in rapid expansion of proprietary, high capacity telecommunications infrastructure. The rapid rate of change in the market made it necessary for these firms to have reliable high capacity infrastructure to be the foundation on which they expanded services. Strong distrust among firms and of the capacity of Government to regulate effectively led mobile operators and other communications firms to build their own infrastructure rather than risk potentially being blocked access by a separate infrastructure provider. In many respects the cellular companies could not afford *not* to invest in their own critical infrastructure for expanding services and capturing share in a rapidly expanding market.

Today the market is different. Market growth continues to be dramatic, but average revenue per user (ARPU) is shrinking. The crisis in the global capital markets has shrunk the available capital in the country and resulted in reduced demand for oil and gas, and as a result the economy has slowed. In these economic conditions telecommunications firms are seeking ways to continue to show strong profitability. The trend of telecommunications operators investing in proprietary backbone infrastructure appears to slowing, and the sector may soon see a wave of infrastructure consolidation.

New models for infrastructure sharing have emerged and are rapidly gaining momentum. The economic logic of this development is strong; duplication of large capital projects creates economic inefficiency. Mobile operators who are interested in consolidating their gains need to focus on increasing ARPU rather than operating backbone infrastructure. With reliable infrastructure sharing options available to them, operators expanding to rural areas can do so for less outlay and focus on capturing customers. Third party infrastructure operators would be able to provide these firms the reliability and cost control they need so they can focus on their core business. As a result, many Nigerian telecommunications firms are reportedly looking into some form of infrastructure sharing. These economic trends are reinforced by strong guidance from the national telecommunications regulator the Nigerian Communications Commission, who created a class of license for telecommunications infrastructure providers and has issued strong guidance to operators about sharing both tower and critical backbone infrastructure.

IHS is a publicly traded Nigerian firm whose core business revolves around construction, ownership and operation of telecommunications towers for the array of communications firms in the Nigerian market. The firm specializes in turnkey telecom infrastructure deployment, telecom infrastructure management, telecom infrastructure sharing and licensing (collocation). IHS manages around 2,000 cellular sites in Nigeria, Ghana, Sudan, and Tanzania. To date they have

built approximately 1,500 sites, for their own management or as turnkey infrastructure for telecommunications operators. IHS has access to significant local capital and reports a staggering 600% increase in turnover in just 3 years. This rapid growth shows direct exposure to the dramatic growth in mobile communications, and also demonstrates power of infrastructure sharing as a business model.

IHS's dramatic growth has been achieved despite high operational expenses for the towers they deploy or operate. The primary costs are the result of poor availability and quality of national electricity generation, transmission, and distribution infrastructure. To be able to ensure the kind of quality and certain availability of electric current demanded by their clients, IHS must install diesel generators that run 24/7. Diesel fuel alone can easily account for over half of the operational expenses per site. Dependence on diesel also makes cost management an additional challenge, as this key input is subject to strong variations in market price.

Solar power and other alternative power solutions are maturing quickly. The energy efficiency and transmission range of cellular base station communications equipment also continues to improve rapidly. These improvements in both energy production and consumption at cellular sites present an opportunity to identify and scale up new power-optimized shared infrastructure solutions that could reduce key telecommunications costs and make rural service provision more profitable.

IHS has been studying these developments closely and would like USTDA technical assistance in choosing, piloting, proving, and scaling energy optimization solutions for its towers in Nigeria. The balance of capital outlay versus ongoing operating expense over time for alternative energy solutions is starting to look attractive, and communications engineering continues to evolve, but IHS will need to pilot and prove a model integrating these technologies for themselves before they can integrate them into scalable plans. A successful pilot could dramatically reduce operating expenses per site, provide a solid basis for predicting costs well into the future, create new opportunities for expanding rural cellular services, and model a large scale transition to environmentally friendly 'green' energy.

U.S. firms have provided some of the key innovations and global leadership in maturing these technologies and could have a special role to play in IHS's infrastructure expansion strategies, as well as in modeling alternative energy approaches for other firms in the country. This particular study could create an export opportunity of \$100,000-\$120,000 or more of U.S. technologies per site, which could be integrated into some 500 new sites IHS is currently planning in Nigeria and for which they have ready capital. Potential export of U.S. goods and services for the activity, as a result, could be valued at \$50,000,000 or more.

## Project Description

IHS Nigeria PLC is a publicly traded Nigerian firm specializing providing telecommunications towers as turnkey infrastructure deployment contracts, management of existing towers, or building and operating its own towers and leasing capacity to telecommunications firms. IHS Nigeria has experienced staggering growth in annual turnover in recent years, despite very high operating expenses for its cellular sites due to having to invest in autonomous power generation solutions for every site. Currently the company runs diesel generators continuously at the sites it manages, and the related expenses for fuel and maintenance account for at least half of the total expenses for operating each site.

Alternative power generation technologies are rapidly reaching sufficient maturity to be able meet the energy needs of cellular telecommunications towers in some environments. Some notable pilots and large scale implementations have begun to demonstrate the potential of these technologies, in particular:

- Orange has reportedly deployed 100 solar-powered cellular communications towers in Senegal;<sup>1</sup>
- The Australian Telecoms Company deployed over 329 solar powered sites between 2006-2008;
- Ericsson has reportedly deployed more than 200 solar powered base stations in Morocco, Mexico, Ethiopia and other countries;
- Helix Wind, a U.S. provider of high-efficiency vertical wind generators, has announced a new pilot studying wind power generation for cellular towers in Nigeria<sup>2</sup>;
- In May 2007, Motorola deployed a pilot wind and solar powered GSM site in partnership with MTC Namibia, and is optimizing radio and power supply solutions to enable greater rural coverage in Africa.<sup>3</sup>

The deployments show how solar has begun to show viable size efficiency, usable life, and price for addressing the needs of communications tower sites in some conditions. In parallel, the energy efficiency and range of GSM and CDMA cellular base station communications equipment also continues to improve rapidly. These improvements in both energy production and consumption at cellular sites present an opportunity to identify and scale new infrastructure sharing solutions that could reduce key telecommunications costs and make rural service provision more profitable.

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<sup>1</sup> *Groupe Sonatel: Resultats au 30 Juin 2009*, [www.sonatel.sn](http://www.sonatel.sn)

<sup>2</sup> <http://www.engadgetmobile.com/2009/10/01/helix-wind-launching-wind-powered-cellphone-tower-trials-in-us-a/>

<sup>3</sup> The company has branded this integrated set of rural cellular solutions *Motorola Reach*.

IHS requests USTDA technical assistance in piloting, proving, and potentially scaling up use of energy optimization solutions in its currently planned (and financed) build-out of 500 cellular communications towers across the territory of Nigeria. IHS is particularly interested U.S. solar suppliers, as these have helped drive innovations and improvements in solar technology and tend to operate at the highest technical standards, characteristics that should directly impact useable life of the infrastructure and long-term profitability of cellular sites.

## Legal and Regulatory Framework

IHS is a licensed infrastructure provider serving telecommunications companies in 32 states of the Federal Republic of Nigeria. In addition, the telecommunications regulatory authority the Nigerian Communications Commission (NCC) recently issued strong guidance to operators that they find ways to share infrastructure, particularly cellular towers in crowded urban centers or in very rural environments where recovering capital costs on proprietary infrastructure investment can be challenging. IHS is currently applying to the NCC for a grant from the Universal Service Fund for deploying rural cellular base stations to be shared by multiple operators as a strategy for improving the profitability of rural telecommunications services.

## Economic Fundamentals

One Nigerian provider of solar solutions to telecommunications firms<sup>4</sup> affirms that that a choice of the right products and approach should result in similar capital expenditure (CAPEX) as conventional cellular sites. Estimates from other solar providers, however, show significantly higher outlay for solar power generation. In either case, the key driver of profitability per site should be savings in operating expenses (OPEX) over the useable life of the alternative power equipment. It may be reasonable to assume that a single backup generator (which may charge the battery bank at the site if solar power is not sufficient) would also be installed, and would operate up to 30% of the time conventional generators would be run per site. The usable life of that single generator might reasonably increase threefold, up to six years or longer, while reportedly it is not uncommon for a single generator at a conventional site to last only two years. Solar solutions may be expected to have a useable life of over ten years, with a fraction of the maintenance costs of diesel generators.

The difference in OPEX per cellular site would differ dramatically over a ten-year period<sup>5</sup>:

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<sup>4</sup> Cubits Solutions

<sup>5</sup> With thanks to Cubits Solutions for local cost data.

<b>Yearly Operating Expenses Conventional Cellular Site</b>				
<b>item</b>	<b>number</b>	<b>cost (N)</b>	<b>total (N)</b>	<b>est. total (\$)</b>
Replacement Generators (.5 per year X 2)	1	1,600,000	1600000	10667
Diesel (3 liters/hour * 12 hours/day*2 generators*365 days)	26280	90	2365200	15768
Monthly generator maintenance, per site, 12 months	12	45,000	540,000	3600
			total yearly	4505200
				30035
<b>Ten Year Total Operating Expenses Conventional Cellular Site</b>			<b>45052000</b>	<b>300347</b>

<b>Yearly Operating Expenses Solar Cellular Site</b>				
<b>item</b>	<b>number</b>	<b>cost (N)</b>	<b>total (N)</b>	<b>est. total (\$)</b>
Replacement Generators (.3 per year x 1)	0.33	1,600,000	528000	3520
Diesel (3 liters/hour*12 hours/day*1 generator*246 days)	8856	90	797040	5314
Monthly maintenance , per site, 12 months	12	13500	162000	1080
			total yearly	1487040
				9914
<b>Ten Year Operating Expenses Solar Cellular Site</b>			<b>14870400</b>	<b>99136</b>

This rough analysis would seem to indicate that a scalable solar power solution could significantly impact the profitability of cellular sites. This could be one aspect of a power optimization package that could include new power-optimized, long-range base stations as well as other power solutions such as a wind turbine. A central issue to address will be the high capital costs of deploying enough alternative power generation capacity to run the sites reliably. This should be achieved through making the right choices on an entire package including base station radios, hut design, and climate control—reducing the load to save on the CAPEX related of power generation. A pilot project would be an opportunity for IHS engineers and a USTDA consulting team to develop a scalable solution integrating these elements, and to examine these in light of other factors that would significantly affect its effectiveness compared to alternative approaches (e.g. efficiency improvements and innovations over time in solar technology, potential volatility in prices of oil and gas, the extremely high cost of capital in Nigeria).

Considering the trends in the telecommunications sector as a whole (dramatic growth, strong economic and regulatory incentives for infrastructure sharing for the foreseeable future), scalable energy optimization solutions seem to indicate an extremely strong market opportunity that USTDA can help IHS to pursue.

## Project Sponsor's Capabilities and Commitment

IHS Nigeria is a publicly traded company with both strong organic growth and solid access to local financing. They adhere to international standards for implementation and business processes, which in 2008 earned them ISO 9001 certification from the International Standards Organization. They observe international accounting standards for financial reporting, and have retained a global accounting firm of reference (Price Waterhouse Coopers) as their auditor.

IHS must maintain strong engineering capacity in-house to design and deploy telecommunications infrastructure solutions to the highest standards; it is central to their business as they count multinational telecommunications firms of reference among their clients (who themselves have engineering capacity and observe the highest standards).

IHS Nigeria's CEO affirms the company's commitment to examining the opportunity of scalable energy optimization solutions for base stations, recognizing the significant contributions the right solution could make to profitability for the company. Collaboration with USTDA in particular is interesting because U.S. firms are demonstrating technology leadership in this area and financing products of the US Export-Import Bank (EXIM) bank are well-suited to helping craft a scalable strategy involving U.S. vendors. As a continued demonstration of interest and commitment, IHS has shared with the Definitional Mission contractor their in-house model for determining Capital and Operating expenses and Breakeven for conventional cellular sites.

There is no doubt of IHS Nigeria's commitment to testing the viability of energy optimization solutions and scaling them up quickly if they prove to be attractive. As a private firm they seek to move quickly, so one concern might be the speed of implementation from the U.S. Government side of the partnership if it is approved.

## Implementation Financing

The Definitional Mission contractor approached the task of identifying worthy projects by consulting with Nigerian banks about worthy telecommunications infrastructure companies. IHS Nigeria was specifically and enthusiastically recommended by their primary banking relationship Bank PHB. Bank PHB is among the three largest Nigerian banks in terms of total capitalization (approximately \$ 2 Billion). IHS reports that they currently have an approximately \$ 70 Million line of credit with Bank PHB. According to IHS financial reports they have reinvested much of their dramatic (almost 600%) growth in turnover into infrastructure deployment to expand their business. As a result, the firm's strong organic growth should be one viable option for funding further infrastructure expansion if needed.

Significant financing blockages do however exist for the company. Bank PHB and other Nigerian banks habitually charge over 20% interest on commercial or retail loans, and even with the strong banking relationship IHS enjoys this places limits on their ability to invest or scale as

they would like. Any financing options that limit dependence on high interest loans are of great interest to the company, such as refinancing existing debt through new partnerships with other banks, project financing from other sources, or vendor financing deals on key equipment. Some U.S. vendors have suggested IHS look into the financing products available from the U.S. Export Import Bank. Another financing issue the company faces is transactional, though still significant: the Central Bank of Nigeria must approve all funds transfers outside of Nigeria of a value superior to \$10,000, and requires that the funds be placed on deposit with the CBN for a period of 4-6 weeks. As a result any major transactions with outside vendors have built-in delays and opportunity cost for the capital involved. Banking relationships or vendor financing deals outside of the country could alleviate significant transaction costs for the firm.

## US Export Potential

Alternative power generation for cellular sites could be expected to include key equipment such as:

- Photovoltaic collectors (panels),
- Inverters,
- Charge controllers,
- Deep Cycle batteries,
- Solar Air Conditioners,
- Solar flood lights
- Wind turbines

IHS notes that a single GSM site consumes roughly 84,000 Watts in a 24 hour period. One solar vendor<sup>6</sup> recommended deploying 96,600 Watts generation capacity (recommending a 15% margin to account for any loss or inefficiencies). The wholesale prices of required equipment (panels, charge controllers, batteries, inverters) could come to roughly \$120,000. The solar panels are the most expensive cost component: roughly \$80,000 wholesale per site. A solar solution scaled up to 500 sites could therefore create the following opportunities for potential procurement of U.S. goods and services:

IHS Power Optimization and Infrastructure Sharing				
Potential Export of U.S. Goods and Services				
Product or Services	Potential Procurement (\$)	Estimated U.S. Origin (%)	Total Est. US Export Potential (\$)	Potential U.S. Providers
Solar Panels	\$40,000,000	100%	\$40,000,000	Sharp Electronics, Solar World, Deka Solar
batteries	\$15,000,000	100%	\$15,000,000	East Penn Battery
inverters	\$250,000	100%	\$250,000	Outback Power
Charge Controllers	500,000	65%	\$325,000.00	Morningstar
Solar Air Conditioners, solar floodlights	\$500,000	65%	\$260,000.00	Atlantis Solar
Wind Turbines	?	?	?	GE Energy, Helix Wind
Consulting services African Energy	\$300,000	100%	\$300,000.00	various (e.g. African Energy)
TOTAL POTENTIAL PROCUREMENT			TOTAL U.S. EXPORT POTENTIAL	
\$56,550,000			\$56,135,000.00	

## Foreign Competition and Market Entry Issues

U.S. firms providing alternative energy technologies enjoy a strong reputation, earned through helping drive innovations in the field and observing strict technical standards. In performance and reliability terms these U.S. products are very competitive with European products, and generally regarded as superior to Chinese products.<sup>7</sup> IHS would prefer to buy European or U.S. alternative energy products, as this should provide greater predictability of performance (and thus cost) over the long term.

Access to U.S. solar products, however, can be limited. The main causes of this poor access are aggressive market entry by (primarily Chinese) competitors who also tend to have attractive vendor financing packages. These vendors have succeeded in dramatically increasing the availability of their products, and decreasing the speed and cost of transactions.

This project will be able to overcome these obstacles. The primary reason for this is that the project sponsor already has a strong interest in U.S. products and ready (though expensive) capital to procure them when needed. It is in the interest of the sponsor as well as U.S. vendors to find strategies to make importation of U.S. renewable energy products easier. The U.S. Export-Import Bank, for example, includes loan guarantees on vendor financing deals among its products. IHS has already met a key requirement for being an EXIM partner: having a recognized and reputable external auditor of their financial reports.

There are no licensing barriers to use of solar technologies in Nigeria.

## Developmental Impact

### **Infrastructure Improvements**

Throughout meetings with various public and private actors in the Nigerian telecommunications sector there was repeated reference to the strong hold that importers of diesel fuel and generators have on the Nigerian economy. The interests of these importers were characterized not only as a result but possibly as a root cause of the poor generation capacity, quality and availability of the national power utility network. A narrow set of economic incentives may be working against a larger national interest, and unnecessarily reinforcing economic inefficiencies at a national level. Solar powered telecommunications infrastructure may begin to demonstrate another model for the sector, and potentially for the larger economy as well.

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<sup>7</sup> Morningstar Sales Engineer Russell Borum reports that it is not uncommon—even in China—for projects to specify only U.S. or European origin on solar power generation equipment.

## Economic Growth

More profitable infrastructure sharing models, taken to national scale, could have an impact on expanding rural access to telecommunications services, because it would more effectively and profitably divide the capital costs of deploying this infrastructure to make for viable economic models in increasingly rural or underserved areas. Increased access to ICT services has a demonstrated impact on the profitability of firms<sup>8</sup> (and as a result on economic growth):

	<b>Firms without ICT</b>	<b>Firms with ICT</b>
<b>Sales growth</b>	0.4%	3.8%
<b>Profitability</b>	4.2%	9.3%

## Impact on the Environment

The project is expected to have positive environmental impact. Solar power provides clean energy generation. There should be a significant and measurable reduction in CO2 emissions resulting from a transition to shared cellular sites running almost entirely on clean energy. Other effects such as oil pollution would reasonably be expected to be reduced. Such a project with strong economic logic could also have a strong demonstration effect for the sector and for the country as a whole. This ICT sector could model the potential of renewable energies on a national scale, particularly during periods of high price volatility in oil and gas.

## Impact on U.S. Labor

U.S. firms are taking a leading global role in the renewable energy sector. As with other leading edge technologies (e.g. Information Technologies) the 'high value' inputs into these products such as research & development, or Intellectual Property are made in the U.S. Renewable energy technologies, however, have a higher percentage of U.S. manufacturing than IT technologies. Where IT firms may estimate about 60%-70% U.S. content and origin of their

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<sup>8</sup> Source: *Information and Communications for Development 2006*. 2006 The International Bank for Reconstruction and Development / The World Bank. Washington, DC: USA. 2006.

products even when manufacturing takes place in Asia,<sup>9</sup> many renewable energy firms still manufacture in whole or in part in the U.S. It is possible to pursue a project featuring globally competitive technologies with total U.S. content surpassing 90%. As a result of this project U.S. vendors could have a key role in 'greening' the fastest-growing telecommunications market in sub-Saharan Africa. A very high percentage of the potential tens of millions of dollars worth of exports generated would go towards creating or funding jobs in the U.S.

The proposed technical assistance to IHS Nigeria is in accordance with U.S. appropriations legislation for Foreign Operations, Export Financing and Related Programs. In particular the proposed technical assistance will not:

- create any financial incentive to a business enterprise currently located in the United States for the purpose of inducing such an enterprise to relocate outside of the United States;
- violate any internationally recognized workers rights; or
- expand production of any commodity for export by any country other than the United States.

## Qualifications of Key Personnel

The Contractor team should be comprised of four members, a Telecommunications Business Implementation Specialist, a Telecommunications Engineer, an Electrical Engineer, and a Project Finance Specialist.

### **Telecommunications Business Implementation Specialist**

The Telecommunications Business Implementation Specialist will take the lead in working with IHS to integrate data and lessons learned from the power optimization pilot into a scale-up strategy for implementing power optimization and alternative power generation solutions across the maximum number of IHS sites. This analysis will be done in support of and in the context of the IHS corporate infrastructure sharing strategy.

The Business Implementation Specialist should hold a graduate degree in a relevant discipline (e.g. business, economics, telecommunications engineering) and should have a minimum of 10 years' multi-disciplinary experience in the telecommunications sector, with at least five years' experience developing (as reflected in successful business or corporate venture plans) and implementing (as demonstrated in completed projects) large scale telecommunications business initiatives that contain a strong infrastructure component. Some relevant experiences would be: planning and implementing large-scale mobile telephony or wireless broadband rollout projects,

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<sup>9</sup> With thanks to Ben Leo, Cisco Systems

designing and implementing tower sharing or fiber-optic broadband projects in a telecommunications business setting. The Business Implementation Specialist shall demonstrate strong knowledge of the economic drivers of the mobile communications business, particularly in sub-Saharan Africa.

The Business Implementation Specialist shall demonstrate the multidisciplinary knowledge required to integrate business strategy, economic logic, project planning and execution, and financial considerations into a compelling scale-up strategy that will form part of the package presented to potential sources of project financing.

### **Renewable Energy Specialist**

The Renewable Energy Specialist will take the lead technical role in assisting IHS as they evaluate renewable energy solutions (particularly solar and wind) that may power GSM, CDMA and potentially WiMAX base stations. The engineer will specifically look at ways to match generation capacity to the load or consumption of base stations while considering capital expense and usable life of equipment in the Nigerian context. This analysis will be done in support of and in the context of the IHS corporate infrastructure sharing strategy.

The Renewable Energy Specialist should hold a Bachelor's degree or graduate degree in Engineering, and should have a minimum of 10 years' experience in the power generation sector, preferably with renewable energy. The Renewable Energy Specialist shall have at least five years' experience developing and executing renewable energy projects, including budgets cost estimates, and implementation plans, preferably for telecommunications infrastructure. The Renewable Energy Specialist will have extensive knowledge of commercial applications of renewable energy solutions, particularly solar and wind, preferably in sub-Saharan Africa. The Renewable Energy Specialist will demonstrate knowledge and understanding of the key factors contributing to successful implementation of alternative energy solutions for mobile communications towers.

### **Telecommunications Engineer**

The Telecommunications Engineer will take the lead technical role in assisting IHS as they develop power optimization strategies and evaluate power optimization solutions provided by GSM, CDMA (and potentially WiMAX) vendors. The engineer will specifically look at ways to reduce the load or consumption of cellular base stations as well as help determine the most efficient number of base stations required for serving rural areas. This analysis will be done in support of and in the context of the IHS corporate infrastructure sharing strategy.

The Telecommunications Engineer should hold a Bachelor's degree or graduate degree in Engineering, and should have a minimum of 10 years' experience in the telecommunications sector, with at least five years' experience developing and executing implementation plans, budgets and cost estimates for large scale telecommunications infrastructure. Some relevant

experiences would be: planning and implementing large-scale mobile telephony or wireless broadband rollout projects, designing and implementing tower sharing or fiber-optic broadband projects. The Telecommunications Engineer will have top-flight knowledge of wireless platforms (GSM, CDMA, WiMAX and variants) specifically including: power consumption according to daily usage and market development, optimal and reliable usable ranges for these technologies in Nigerian conditions, any maturing innovations in these technologies that could significantly impact the profitability of cellular sites. The Telecommunications Engineer shall demonstrate strong knowledge of the economic drivers of the mobile communications business, particularly in sub-Saharan Africa.

### **Project Finance Specialist**

The Project Finance Specialist will take the lead on integrating data and lessons learned from the pilot, cost implications of the scale-up strategy, and estimates of rate of return of investment in power optimization solutions into a project financing package meeting the requirements of the International Finance Corporation, the Africa Finance Corporation, and Bank PHB. This analysis will be done in support of and in the context of the IHS corporate infrastructure sharing strategy.

The Project Finance Specialist will assist the project team in evaluating power optimization solutions and strategies particularly in terms of cost of capital for their implementation, and will take the lead in identifying strategies to reduce this cost including but not limited to: vendor financing deals, third-party bank relationships, and the products of the U.S. Export-Import Bank. This analysis will be done in support of and in the context of the IHS corporate infrastructure sharing strategy.

The Finance Specialist should hold a graduate degree in a relevant discipline (Business, Finance) and should have a minimum of 5 years' experience developing project finance plans and business plans for infrastructure project financing, preferably in the telecommunications sector. Some relevant experiences would be: developing finance packages for large-scale mobile telephony or fiber optic rollout projects, roads or highways, power transmission or distribution infrastructure, or energy infrastructure such as oil pipelines. The Finance Specialist should have demonstrated knowledge of the requirements of the International Finance Corporation (and by implication the Africa Finance Corporation) and private banks, and international funds such as the Emerging Infrastructure Fund for Africa.

### **Justification**

A technical assistance grant from USTDA would lower dramatically lower the costs and risk of trial of U.S. renewable energy generation technologies, providing key technical assistance on evaluating the most appropriate and scalable U.S. products and assembling a financing package that could well include products of the U.S. Export Import Bank. These interventions are

squarely within USTDA's competencies and mandate, making them an ideal partner for the Project Sponsor to build trade relationships with the U.S. and through U.S. institutions.

U.S. renewable energy vendors include a number of 'best of breed' products that adhere to stringent technological standards and offer competitive price-performance. This project would identify strategies for dealing with the costs of capital as well as transaction costs large Nigerian firms face as they try to source products from U.S. vendors, thus helping facilitate trade relations. A successful pilot and financing package should give USTDA and the Project Sponsor a tangible model for the role U.S. firms and institutions may play in the 'greening' of the Nigerian telecommunications sector



**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.

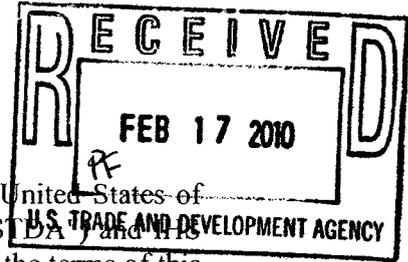
### 3) Definitions

“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.*

## 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 (Nigeria) Plc. ("Grantee"). USTDA agrees to provide the Grantee under the terms of this Agreement US \$162,000 ("USTDA Grant") to fund the cost of goods and services required for Technical Assistance ("TA") on the proposed Solar Powered Communications Towers Project ("Project") in Nigeria ("Host Country").

### 1. USTDA Funding

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

### 2. Terms of Reference

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

### 3. Standards of Conduct

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

### 4. Grantee Responsibilities

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

PDF: NG  
PM  
JJ

CS: LZ  
PD  
MC  
JW

## 5. USTDA as Financier

### (A) USTDA Approval of Competitive Selection Procedures

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

### (B) USTDA Approval of Contractor Selection

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

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

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

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

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

**(E) Grant Agreement Controlling**

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

**6. Disbursement Procedures**

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

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

**(B) Contractor Invoice Requirements**

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

**7. Effective Date**

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

**8. TA Schedule**

**(A) TA Completion Date**

The completion date for the TA, which is February 1, 2012, is the date by which the parties estimate that the TA will have been completed.

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

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

**9. USTDA Mandatory Clauses**

All contracts funded under this Grant Agreement shall include the USTDA mandatory clauses set forth in Annex II to this Grant Agreement. All subcontracts funded or

partially funded with USTDA Grant funds shall include the USTDA mandatory clauses, except for clauses B(1), G, H, I, and J.

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

##### **(A) Air**

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

##### **(B) Marine**

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

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

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

#### **12. Taxes**

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

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

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

### **14. Implementation Letters**

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

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

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

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

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

### **17. Addresses of Record for Parties**

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

To: William Saad  
Managing Director  
IHS (Nigeria) Plc.  
19 Bishop Aboyade Cole Street  
P.M.B. 80167, Victoria Island  
Lagos, Nigeria

Phone: +234 12 800 790  
Fax: +234 12 800 791  
Email: william@ihsnigeria.com

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

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

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

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

Appropriation No.: 11 10/11 1001  
Activity No.: 2010-11008A  
Reservation No.: 2010110010  
Grant No.: GH2010110004

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

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

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

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

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

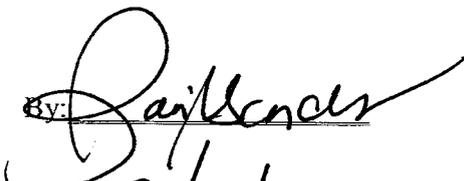
By funding this TA, USTDA seeks to promote the project objectives of the Host Country through the use of U.S. technology, goods, and services. In recognition of this purpose, the Grantee agrees that it will allow U.S. suppliers to compete in the procurement of technology, goods and services needed for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

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

IN WITNESS WHEREOF, the Government of the United States of America and IHS (Nigeria) Plc., 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

For IHS (Nigeria) Plc.

By:   
Date: 2/1/10

By: 

Date: 1 Feb 2010

Witnessed:

By: 

Witnessed:

By: 

Annex I -- Terms of Reference

Annex II -- USTDA Mandatory Clauses

## Annex I

### **Terms of Reference**

IHS (Nigeria) Plc. ("Grantee") is interested in deploying solar power and other alternative energy solutions at its communications tower sites across Nigeria. Currently, the Grantee utilizes diesel fuel generators as a means of providing uninterrupted power to its sites. The purpose of this TA is to assist the Grantee in evaluating renewable energy alternatives, developing performance specifications for proposed renewable energy solutions for the Grantee's tower sites, and arranging a technical visit to the United States for the Grantee to meet with U.S. companies offering renewable energy solutions. The TA aims to introduce the Grantee to one or more U.S. technology providers interested in establishing a renewable energy pilot demonstration at one or more of the Grantee's tower sites in Nigeria in order to verify the solution's viability and cost savings, and to develop an implementation plan for scaling up the solution to a larger number of tower sites.

#### **Task 1: Review of Potential Energy Optimization Solutions**

The purpose of this Task is for the Contractor to identify potential alternative energy solutions which can be used to reduce or eliminate the Grantee's use of diesel generated power, and U.S. vendors who provide the necessary equipment.

- 1) The Contractor shall survey and identify potential U.S. vendors of alternative energy solutions that could be applied to reducing or eliminating the Grantee's dependence on diesel generators to operate its tower sites. The Contractor's review shall include, at minimum: a) solar panels; b) inverters; c) charge controllers; d) deep cycle batteries; e) uninterruptible power supplies (UPS); f) solar air conditioners; g) solar flood lights; h) wind turbines; and i) power-optimized telecommunications equipment.
- 2) The Contractor's review of each of the above items shall include, at a minimum: a) the vendor's manufacturing standards; b) the vendor's experience providing solutions to the telecommunications sector in conditions similar to Nigeria; c) the equipment's expected reliability of performance and usable life; and d) the equipment's price.
- 3) The Contractor shall review any available data regarding the average monthly direct normal irradiance and wind resource data for major regions of Nigeria where Grantee operates or plans to operate cellular towers.
- 4) The Contractor shall review the successful deployments of alternative energy solutions at communications tower sites in similar environmental and economic conditions. The Contractor shall comment on best practices and lessons learned from these deployments which may be applicable to the Grantee's tower sites.

- 5) The Contractor shall develop an estimate of the potential cost of U.S. goods and services for implementation of the Project. The Contractor shall include a list of potential U.S. suppliers and assess their level of interest in the Project. The list shall include U.S. company name, address, personnel contact names with phone and email addresses, and the goods or services that could be exported in connection with the Project.

**Task 1 Deliverable:** The Contractor shall prepare a report of the work performed under Task 1, including a list of equipment needed to deploy an alternative energy solution at the Grantee's tower sites in Nigeria and qualified U.S. vendors of alternative energy equipment. The Task 1 Deliverable shall be included in the Final Report.

### **Task 2: Technical Specifications**

The purpose of this Task is for the Contractor to develop minimum requirements for an alternative energy solution. The Grantee shall use these requirements to supplement its discussions with U.S. vendors of alternative energy solutions in Task 4 below.

- 1) The Contractor shall, with the Grantee's input, select two of the Grantee's tower sites in Nigeria which represent different geographical regions and which are representative of the conditions found at majority of the Grantee's tower sites. The Contractor shall develop or obtain from the Grantee a schematic drawing which shows the site's "as is" physical layout and complete electrical and power system of the two sites.
- 2) The Contractor shall calculate the total expected power load for each month of the year for the two sites selected in Task 2.1. The power load estimate shall include, at a minimum, the cellular base station including all telecommunications equipment, climate control equipment, and security equipment.
- 3) The Contractor shall develop technical specifications and requirements for the deployment of an alternative energy solution to reduce or eliminate the use of diesel generated power, and provide a reliable source of alternative power to the two sites selected in Task 2.1. The Contractor shall determine, at minimum: a) the site's required power generation capacity for each month of the year; and b) the site's required power storage capacity for each month of the year.
- 4) The Contractor shall develop technical specifications and requirements for an alternative energy solution to be deployed at the two tower sites selected in Task 2.1 above to ensure, at a minimum: a) safe housing of equipment; b) security of equipment; c) climate control for ideal operation of equipment; and d) optimal operation of communications equipment in terms of power consumption and reliability of communications services.

- 5) The Contractor shall develop a preliminary estimate of the cost of deployment and maintenance of an alternative energy solution at the two tower sites selected in Task 2.1.

**Task 2 Deliverable:** The Contractor shall develop technical specifications and requirements for an alternative energy solution to reduce or eliminate the selected site's use of diesel generated power. The specifications shall be presented in both diagrammatic and written formats suitable for presentation and discussion with prospective vendors of alternative energy generation equipment. The Task 2 Deliverable shall be included in the Final Report.

### **Task 3: Pilot Program Design**

The Contractor shall design a pilot program with the purpose of verifying the technical viability and cost savings of an alternative energy solution at the two tower sites specified in Task 2 above. The Contractor shall be responsible for the design of the pilot program, but shall not be responsible for implementing the pilot program. The pilot program is intended to be implemented by the Grantee in cooperation with a U.S. source of supply after the completion of the USTDA-funded assistance.

- 1) The Contractor shall outline a step-by-step process for establishing a pilot solution at the tower sites identified in Task 2 above and in accordance with the technical specifications established in Task 2 above.
- 2) The Contractor shall specify the criteria that a pilot solution must meet in order to be deemed technically acceptable to the Grantee, and shall recommend means by which to test the performance of the pilot solution against these criteria. The Contractor's recommendations shall consider, at minimum: a) the pilot solution's power generation capacity; b) the pilot solution's power storage capacity; and c) the extent to which the use of diesel generation has been reduced or eliminated.
- 3) The Contractor shall create a spreadsheet to be used to monitor and project the Grantee's capital expenses, and monthly operating and maintenance expenses for the selected alternative energy pilot sites for a period of at least ten years.
- 4) The Contractor shall create a spreadsheet to be used to monitor and project the Grantee's capital expenses, and monthly operating and maintenance expenses for the Grantee's diesel-fueled tower sites for a period of at least ten years.

**Task 3 Deliverable:** The Contractor shall design a pilot program by which to verify the technical viability and cost savings of an alternative energy power solution at the Grantee's tower sites identified in Task 2 above. The Contractor shall recommend minimum technical standards, means of testing the pilot solution's compliance with those standards, and a means of comparing the capital and operating costs of a site using an alternative energy solution versus a site using diesel power generation. The Task 3 Deliverable shall be included in the Final Report.

#### **Task 4: Meetings with U.S. Renewable Energy Vendors and Potential Project Financiers**

The Contractor shall arrange meetings between the Grantee and potential U.S. vendors of renewable energy equipment and prospective lenders and financiers. The Contractor shall travel with the Grantee and participate in all meetings. The objective of the meetings shall be to introduce the Grantee to qualified U.S. sources of supply with the objective of identifying one or more U.S. sources of supply to perform a pilot demonstration project at one or more of the Grantee's tower sites in Nigeria in accordance with the Technical Specifications developed in Task 2 above, and the pilot Program Design developed in Task 3 above. The Task 2 and Task 3 Deliverables shall be available during all meetings to supplement the Grantee's discussions with U.S. vendors and financiers.

- 1) The Contractor shall make arrangements for at least three Grantee decision makers to visit the United States for about eight business days. The Contractor shall make all logistical and meeting arrangements, and shall pay for the Grantee's travel expenses, including visas, airfare, ground transportation, lodging, and meals associated with the event.
- 2) The Contractor shall arrange meetings between the Grantee and qualified U.S. sources of supply. These meetings shall take place at the vendors' facilities in the Silicon Valley area of California, and may include site visits to demonstrate the operation and deployment of renewable energy technologies.
- 3) The Contractor shall arrange meetings between the Grantee and potential financiers of equipment purchased from the United States, including the U.S. Export-Import Bank in Washington, D.C. The purpose of these meetings is to assist the Grantee in identifying ways to reduce the cost of capital for the purchase of U.S. equipment.

**Task 4 Deliverable:** The Contractor shall create a trip report which documents all vendors and financiers contacted, meeting summaries, any supporting documentation (e.g. presentations), and a complete list (including name, position held, company, phone and email) of individuals contacted. The Task 4 Deliverable shall be included in the Final Report.

#### **Task 5: Preliminary Environmental Impact Assessment**

The Contractor shall prepare a Preliminary Environmental Impact Assessment that identifies any potential negative and positive impacts resulting from the Project. This Assessment shall include reference to local requirements and requirements of multi-lateral lending agencies, such as the World Bank and African Development Bank. The Contractor shall make recommendations to mitigate any potentially negative environmental impacts.

**Task 5 Deliverable:** The Contractor shall prepare a Preliminary Environmental Impact Assessment for Project. The Task 5 Deliverable shall be included in the Final Report.

**Task 6: Developmental Impact Assessment**

The Contractor shall assess the development benefits associated with the Project. The assessment shall include examples of the development benefits that would be expected in Nigeria if the Project is implemented. The Assessment shall give emphasis to:

- 1) *Infrastructure:* improvements in the physical, financial, and social infrastructure of Nigeria.
- 2) *Technology Transfer and Productivity Improvements:* introduction of advanced technologies and improvement of processes that stimulate greater economic productivity.
- 3) *Human Capacity Building:* new job opportunities, sustained employment, or advanced training to upgrade the capability of the workforce.
- 4) *Market-Oriented Reforms:* transparency and private sector participation.
- 5) *Other/Spin-Off Effects:* any other developmental benefits derived from the Project including, for example, decreased use of diesel fuel, more reliable telecommunications, etc.

**Task 6 Deliverable:** The Contractor shall provide a detailed assessment of the developmental impact of the Project. The Task 6 Deliverable shall be included in the Final Report.

**Task 7: 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. 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 IHS (Nigeria) Plc. ("Client"), dated \_\_\_\_\_ ("Grant Agreement"). The Client has selected \_\_\_\_\_ ("Contractor") to perform the ("TA") for the Solar Powered Communications Towers Project ("Project") in Nigeria ("Host Country"). Notwithstanding any other provisions of this contract, the following USTDA mandatory contract clauses shall govern. All subcontracts entered into by Contractor funded or partially funded with USTDA Grant funds shall include these USTDA mandatory contract clauses, except for clauses B(1), G, H, I, and J. In addition, in the event of any inconsistency between the Grant Agreement and any contract or subcontract thereunder, the Grant Agreement shall be controlling.

#### **B. USTDA as Financier**

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

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

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

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

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

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

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

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

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

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

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

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

#### **(2) Marine**

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

#### **F. Workman's Compensation Insurance**

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

#### **G. Reporting Requirements**

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

#### **H. Disbursement Procedures**

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

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

##### **(2) Payment Schedule Requirements**

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

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

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

USTDA to the Contractor for performance of the contract by submitting the following to USTDA:

**(a) Contractor's Invoice**

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

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

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

(ii) For contract performance milestone payments:

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

(iii) For final payment:

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

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

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

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

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

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

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

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

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

**(4) Termination**

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

**I. USTDA Final Report**

**(1) Definition**

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

**(2) Final Report Submission Requirements**

The Contractor shall provide the following to USTDA:

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

and

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

and

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

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

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

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

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

"This report was funded by the U.S. Trade and Development Agency (USTDA), an agency of the U. S. Government. The opinions, findings, conclusions or recommendations expressed in this document are those of the author(s) and do not necessarily represent the official position or policies of USTDA. USTDA makes no representation about, nor does it accept responsibility for, the accuracy or completeness of the information contained in this report."

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

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

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

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

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

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

#### **J. Modifications**

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

#### **K. TA Schedule**

##### **(1) TA Completion Date**

The completion date for the TA, which is February 1, 2012, is the date by which the parties estimate that the TA will have been completed.

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

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

## **L. Business Practices**

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

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

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

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

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

### Fiscal Data:

Appropriation No.: 11 10/11 1001  
Activity No.: 2010-11008A  
Reservation No.: 2010110010  
Grant No.: GH2010110004

## **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.

## **Terms of Reference**

IHS (Nigeria) Plc. ("Grantee") is interested in deploying solar power and other alternative energy solutions at its communications tower sites across Nigeria. Currently, the Grantee utilizes diesel fuel generators as a means of providing uninterrupted power to its sites. The purpose of this TA is to assist the Grantee in evaluating renewable energy alternatives, developing performance specifications for proposed renewable energy solutions for the Grantee's tower sites, and arranging a technical visit to the United States for the Grantee to meet with U.S. companies offering renewable energy solutions. The TA aims to introduce the Grantee to one or more U.S. technology providers interested in establishing a renewable energy pilot demonstration at one or more of the Grantee's tower sites in Nigeria in order to verify the solution's viability and cost savings, and to develop an implementation plan for scaling up the solution to a larger number of tower sites.

### **Task 1: Review of Potential Energy Optimization Solutions**

The purpose of this Task is for the Contractor to identify potential alternative energy solutions which can be used to reduce or eliminate the Grantee's use of diesel generated power, and U.S. vendors who provide the necessary equipment.

- 1) The Contractor shall survey and identify potential U.S. vendors of alternative energy solutions that could be applied to reducing or eliminating the Grantee's dependence on diesel generators to operate its tower sites. The Contractor's review shall include, at minimum: a) solar panels; b) inverters; c) charge controllers; d) deep cycle batteries; e) uninterrupted power supplies (UPS); f) solar air conditioners; g) solar flood lights; h) wind turbines; and i) power-optimized telecommunications equipment.
- 2) The Contractor's review of each of the above items shall include, at a minimum: a) the vendor's manufacturing standards; b) the vendor's experience providing solutions to the telecommunications sector in conditions similar to Nigeria; c) the equipment's expected reliability of performance and usable life; and d) the equipment's price.
- 3) The Contractor shall review any available data regarding the average monthly direct normal irradiance and wind resource data for major regions of Nigeria where Grantee operates or plans to operate cellular towers.
- 4) The Contractor shall review the successful deployments of alternative energy solutions at communications tower sites in similar environmental and economic conditions. The Contractor shall comment on best practices and lessons learned from these deployments which may be applicable to the Grantee's tower sites.
- 5) The Contractor shall develop an estimate of the potential cost of U.S. goods and services for implementation of the Project. The Contractor shall include a list of potential U.S. suppliers and assess their level of interest in the Project. The list shall include U.S.

company name, address, personnel contact names with phone and email addresses, and the goods or services that could be exported in connection with the Project.

**Task 1 Deliverable:** The Contractor shall prepare a report of the work performed under Task 1, including a list of equipment needed to deploy an alternative energy solution at the Grantee's tower sites in Nigeria and qualified U.S. vendors of alternative energy equipment. The Task 1 Deliverable shall be included in the Final Report.

## **Task 2: Technical Specifications**

The purpose of this Task is for the Contractor to develop minimum requirements for an alternative energy solution. The Grantee shall use these requirements to supplement its discussions with U.S. vendors of alternative energy solutions in Task 4 below.

- 1) The Contractor shall, with the Grantee's input, select two of the Grantee's tower sites in Nigeria which represent different geographical regions and which are representative of the conditions found at majority of the Grantee's tower sites. The Contractor shall develop or obtain from the Grantee a schematic drawing which shows the site's "as is" physical layout and complete electrical and power system of the two sites.
- 2) The Contractor shall calculate the total expected power load for each month of the year for the two sites selected in Task 2.1. The power load estimate shall include, at a minimum, the cellular base station including all telecommunications equipment, climate control equipment, and security equipment.
- 3) The Contractor shall develop technical specifications and requirements for the deployment of an alternative energy solution to reduce or eliminate the use of diesel generated power, and provide a reliable source of alternative power to the two sites selected in Task 2.1. The Contractor shall determine, at minimum: a) the site's required power generation capacity for each month of the year; and b) the site's required power storage capacity for each month of the year.
- 4) The Contractor shall develop technical specifications and requirements for an alternative energy solution to be deployed at the two tower sites selected in Task 2.1 above to ensure, at a minimum: a) safe housing of equipment; b) security of equipment; c) climate control for ideal operation of equipment; and d) optimal operation of communications equipment in terms of power consumption and reliability of communications services.
- 5) The Contractor shall develop a preliminary estimate of the cost of deployment and maintenance of an alternative energy solution at the two tower sites selected in Task 2.1.

**Task 2 Deliverable:** The Contractor shall develop technical specifications and requirements for an alternative energy solution to reduce or eliminate the selected site's use of diesel generated power. The specifications shall be presented in both diagrammatic and written formats suitable

for presentation and discussion with prospective vendors of alternative energy generation equipment. The Task 2 Deliverable shall be included in the Final Report.

### **Task 3: Pilot Program Design**

The Contractor shall design a pilot program with the purpose of verifying the technical viability and cost savings of an alternative energy solution at the two tower sites specified in Task 2 above. The Contractor shall be responsible for the design of the pilot program, but shall not be responsible for implementing the pilot program. The pilot program is intended to be implemented by the Grantee in cooperation with a U.S. source of supply after the completion of the USTDA-funded assistance.

- 1) The Contractor shall outline a step-by-step process for establishing a pilot solution at the tower sites identified in Task 2 above and in accordance with the technical specifications established in Task 2 above.
- 2) The Contractor shall specify the criteria that a pilot solution must meet in order to be deemed technically acceptable to the Grantee, and shall recommend means by which to test the performance of the pilot solution against these criteria. The Contractor's recommendations shall consider, at minimum: a) the pilot solution's power generation capacity; b) the pilot solution's power storage capacity; and c) the extent to which the use of diesel generation has been reduced or eliminated.
- 3) The Contractor shall create a spreadsheet to be used to monitor and project the Grantee's capital expenses, and monthly operating and maintenance expenses for the selected alternative energy pilot sites for a period of at least ten years.
- 4) The Contractor shall create a spreadsheet to be used to monitor and project the Grantee's capital expenses, and monthly operating and maintenance expenses for the Grantee's diesel-fueled tower sites for a period of at least ten years.

**Task 3 Deliverable:** The Contractor shall design a pilot program by which to verify the technical viability and cost savings of an alternative energy power solution at the Grantee's tower sites identified in Task 2 above. The Contractor shall recommend minimum technical standards, means of testing the pilot solution's compliance with those standards, and a means of comparing the capital and operating costs of a site using an alternative energy solution versus a site using diesel power generation. The Task 3 Deliverable shall be included in the Final Report.

### **Task 4: Meetings with U.S. Renewable Energy Vendors and Potential Project Financiers**

The Contractor shall arrange meetings between the Grantee and potential U.S. vendors of renewable energy equipment and prospective lenders and financiers. The Contractor shall travel with the Grantee and participate in all meetings. The objective of the meetings shall be to introduce the Grantee to qualified U.S. sources of supply with the objective of identifying one or more U.S. sources of supply to perform a pilot demonstration project at one or more of the Grantee's tower sites in Nigeria in accordance with the Technical Specifications developed in

Task 2 above, and the pilot Program Design developed in Task 3 above. The Task 2 and Task 3 Deliverables shall be available during all meetings to supplement the Grantee's discussions with U.S. vendors and financiers.

- 1) The Contractor shall make arrangements for at least three Grantee decision makers to visit the United States for about eight business days. The Contractor shall make all logistical and meeting arrangements, and shall pay for the Grantee's travel expenses, including visas, airfare, ground transportation, lodging, and meals associated with the event.
- 2) The Contractor shall arrange meetings between the Grantee and qualified U.S. sources of supply. These meetings shall take place at the vendors' facilities in the Silicon Valley area of California, and may include site visits to demonstrate the operation and deployment of renewable energy technologies.
- 3) The Contractor shall arrange meetings between the Grantee and potential financiers of equipment purchased from the United States, including the U.S. Export-Import Bank in Washington, D.C. The purpose of these meetings is to assist the Grantee in identifying ways to reduce the cost of capital for the purchase of U.S. equipment.

**Task 4 Deliverable:** The Contractor shall create a trip report which documents all vendors and financiers contacted, meeting summaries, any supporting documentation (e.g. presentations), and a complete list (including name, position held, company, phone and email) of individuals contacted. The Task 4 Deliverable shall be included in the Final Report.

#### **Task 5: Preliminary Environmental Impact Assessment**

The Contractor shall prepare a Preliminary Environmental Impact Assessment that identifies any potential negative and positive impacts resulting from the Project. This Assessment shall include reference to local requirements and requirements of multi-lateral lending agencies, such as the World Bank and African Development Bank. The Contractor shall make recommendations to mitigate any potentially negative environmental impacts.

**Task 5 Deliverable:** The Contractor shall prepare a Preliminary Environmental Impact Assessment for Project. The Task 5 Deliverable shall be included in the Final Report.

#### **Task 6: Developmental Impact Assessment**

The Contractor shall assess the development benefits associated with the Project. The assessment shall include examples of the development benefits that would be expected in Nigeria if the Project is implemented. The Assessment shall give emphasis to:

- 1) *Infrastructure:* improvements in the physical, financial, and social infrastructure of Nigeria.

- 2) *Technology Transfer and Productivity Improvements*: introduction of advanced technologies and improvement of processes that stimulate greater economic productivity.
- 3) *Human Capacity Building*: new job opportunities, sustained employment, or advanced training to upgrade the capability of the workforce.
- 4) *Market-Oriented Reforms*: transparency and private sector participation.
- 5) *Other/Spin-Off Effects*: any other developmental benefits derived from the Project including, for example, decreased use of diesel fuel, more reliable telecommunications, etc.

**Task 6 Deliverable:** The Contractor shall provide a detailed assessment of the developmental impact of the Project. The Task 6 Deliverable shall be included in the Final Report.

### **Task 7: 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. 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.



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

**B. Offeror's Authorized Negotiator**

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

**C. Negotiation Prerequisites**

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

**D. Offeror's Representations**

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

1. Offeror is a corporation [*insert applicable type of entity if not a corporation*] duly organized, validly existing and in good standing under the laws of the State of \_\_\_\_\_. The Offeror has all the requisite corporate power and authority to conduct its business as presently conducted, to submit this proposal, and if selected, to execute and deliver a contract to the Grantee for the performance of the Technical Assistance. The Offeror is not debarred, suspended, or to the best of its knowledge or

belief, proposed for debarment, or ineligible for the award of contracts by any federal or state governmental agency or authority.

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 2 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: \_\_\_\_\_



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: \_\_\_\_\_