

**REQUEST FOR PROPOSALS**

**FEASIBILITY STUDY FOR THE**

**RURAL MICRO-GRID SOLAR POWER PROJECT**

Submission Deadline: **12:00 PM NOON**  
**LOCAL TIME**  
**FRIDAY, MAY 18, 2012**

Submission Place: Mr Inderpreet S Wadhwa  
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SEALED PROPOSALS SHALL BE CLEARLY MARKED AND RECEIVED PRIOR TO THE TIME AND DATE SPECIFIED ABOVE. PROPOSALS RECEIVED AFTER SAID TIME AND DATE WILL NOT BE ACCEPTED OR CONSIDERED.

**REQUEST FOR PROPOSALS**

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## **Section 1: INTRODUCTION**

The U.S. Trade and Development Agency (USTDA) has provided a grant in the amount of US\$476,670 to Azure Power (the “Grantee”) in accordance with a grant agreement dated March 26, 2012 (the “Grant Agreement”). The study will assess and provide planning assistance for two 500 kilowatt (kW) photovoltaic (PV) pilot projects in the Indian states of Chhattisgarh and Gujarat. The study will not include the construction of a pilot project, but will instead assist in the assessment and planning of two pilot project sites. The analysis of these micro-grid sites will provide the necessary scale to attract equity investors for project implementation and for specialized U.S. solar exporters to establish a foothold in the growing Indian market. Azure has agreed to commit US\$100,000 towards this project, which together with USTDA funding, will amount to a total project cost of US\$576,670. The Grant Agreement is attached at Annex 4 for reference. The Grantee is soliciting technical proposals from qualified U.S. firms to provide expert consulting services to perform the Feasibility Study.

### **1.1 BACKGROUND SUMMARY**

India’s increasing population and rapid economic expansion are placing a growing strain on the country’s energy infrastructure. Approximately 400 million people in 80,000 to 90,000 villages do not have grid connectivity while many households in electrified villages do not have access to grid supply due to difficulties with establishing “last mile” connectivity. In light of this significant shortfall in India’s existing network, off-grid electricity generation via solar power is a logical solution that would enable access to clean energy for millions of Indian citizens. Solar energy is a carbon-free alternative to current diesel generators that are the main suppliers of off-grid electricity. Given that many India locations receive an average of 1,500–2,000 sunshine hours per year, the Indian government and state governments, and many Indian and U.S. companies, have set in motion policies and plans to use this power source to help diversify the country’s energy mix and contribute to environmental sustainability.

Azure aims to set up over 100 micro-grid solar systems with an average system size of 500 kW covering approximately 2-3 acres of land in rural areas that currently have little or no connectivity to existing electrical grids. Through an initial pilot project of two sites, Azure plans to demonstrate the possibility of meeting rural electricity demands via a micro-grid. The main advantage of a micro-grid is that it is treated as a controlled entity within a power system and can be operated as a single aggregated load of electricity. This type of system offers easy controllability and compliance with grid regulations without hampering the reliability and security of the power utility. For electricity customers in rural areas, micro-grids are beneficial for their ability to generate electricity closer to the site of consumption, alleviate transmission and distribution (T&D) losses, supply an uninterrupted source of power, reduce feeder losses and provide electrical voltage support.

### **1.2 OBJECTIVE**

The objective of the proposed FS is to optimize the design of Azure’s planned micro-grid solar projects and to provide a business model that can be deployed in remote non-electrified villages throughout the country. The Contractor will provide no equipment for the feasibility study other

than solar measurement equipment necessary to complete Task 5, the solar irradiation study. That equipment will be leased to the Contractor or subcontractor and will not be property of the Grantee. The specific districts of Raipur in the state of Chhattisgarh and Sabarkantha in the state of Gujarat have been chosen as suitable sites for these pilot initiatives. The Terms of Reference (TOR) for this Feasibility Study are attached as Annex 5.

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

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

The amount for the contract has been established by a USTDA grant of US\$476,670. **The USTDA grant of US\$476,670 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\$476,670 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.

The estimated total budget for this FS is \$576,670. Azure has agreed to commit \$100,000 or approximately 17 percent towards this project both) with in-kind and cash cost share contribution. Azure will provide approximately \$80,140 costs in-kind through international and local transportation costs as well as per diem expenses. Azure will provide \$19,860 in cash cost share to the Contractor.

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

### **2.1 PROJECT TITLE**

The project is called the Rural Micro-Grid Solar Power Feasibility Study

### **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. Portions of the definitional mission report are attached at Annex 2 for background information only. Please note that the TOR referenced in the report are included in this RFP as Annex 5.

### **2.4 EXAMINATION OF DOCUMENTS**

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

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

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

## **2.5 PROJECT FUNDING SOURCE**

The Feasibility Study will be funded under a grant from USTDA. The total amount of the grant is not to exceed US\$476,670. Azure has agreed to commit \$100,000 or approximately 17 percent towards this project both with in-kind and cash cost share contributions. Azure will provide approximately \$80,140 costs in-kind through international and local transportation costs as well as per diem expenses. Azure will provide \$19,860 in cash cost share to the Contractor.

## **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**

THIS SECTION CONTAINS IMPORTANT INFORMATION ON POTENTIAL INDIAN TAX LIABILITIES. PLEASE READ CAREFULLY BEFORE PROCEEDING.

Offerors should note that the successful Offeror could potentially be subject to Indian income tax assessed on the USTDA grant funds under Indian tax law. The applicable Indian income tax rate could be as high as 42.02% of the USTDA grant funds if the successful Offeror is deemed by the Indian tax authorities to have “Permanent Establishment” in India as defined under Indian tax law. USTDA recommends that Offerors consult with their tax advisors on this matter before submitting offers.

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. Refer to Section 1.4 of this RFP for additional information on the applicability of USTDA's Nationality Requirements.

## **2.12 LANGUAGE OF PROPOSAL**

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

## **2.13 PROPOSAL SUBMISSION REQUIREMENTS**

Mr. Inderpreet Wadhwa will provide an email record of receipt of offeror's electronic copy of proposals.

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

Mr Inderpreet S Wadhwa  
CEO, Azure Power  
No. 8 Ground Floor, LSC Madangir  
Pushp Vihar- 110062  
India

Phone: +91 11 49409800  
Fax: +91 11 49409807  
Email: [inderpreet@azurepower.com](mailto:inderpreet@azurepower.com)  
[www.azurepower.com](http://www.azurepower.com)

**Two hard copies of the proposal (one original and one photocopy) along with one electronic copy of your proposal must be received at the above address no later than 12:00 PM Local India Time, on Friday, May 18, 2012**

Proposals may be either sent by mail, overnight courier, or hand-delivered. Whether the proposal is sent by mail, courier or hand-delivered, the Offeror shall be responsible for actual delivery of the proposal to the above address before the deadline. Any proposal received after

the deadline will be returned unopened. The Grantee will promptly notify any Offeror if its proposal was received late.

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

#### **2.14 PACKAGING**

The original and each copy of the proposal must be sealed to ensure confidentiality of the information. The proposals should be individually wrapped and sealed, and labeled for content including the name of the project and designation of "original" or "copy number x." The original and eight (8) copies should be collectively wrapped and sealed, and clearly labeled, including the contact name and the name of the project.

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

#### **2.15 OFFEROR'S AUTHORIZED NEGOTIATOR**

The Offeror must provide the 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.

#### **2.16 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.

#### **2.17 EFFECTIVE PERIOD OF PROPOSAL**

The proposal shall be binding upon the Offeror for SIXTY 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.

#### **2.18 EXCEPTIONS**

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

#### **2.19 OFFEROR QUALIFICATIONS**

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

## **2.20 RIGHT TO REJECT PROPOSALS**

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

## **2.21 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.

## **2.22 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.

## **2.23 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.

## **2.24 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\$476,670, which is a fixed amount.

Offerors shall submit two hard copies of the proposal (one original and one photocopy) along with one electronic copy. Proposals received by fax cannot be accepted.

Each proposal must include the following:

- Transmittal Letter,
- Cover/Title Page,
- Table of Contents,
- Executive Summary,
- Firm Background Information,
- Completed U.S. Firm Information Form,
- 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 U.S. FIRM INFORMATION**

A U.S. Firm Information Form in .pdf fillable format is attached at the end of this RFP in Annex 6. The Offeror must complete the U.S. Firm Information Form and include the completed U.S. Firm Information Form with its proposal.

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

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

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

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

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

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

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

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

### **3.5 EXPERIENCE AND QUALIFICATIONS**

Provide a discussion of the Offeror's experience and qualifications that are relevant to the objectives and TOR for the Feasibility Study. If a subcontractor(s) is being used, similar information must be provided for the prime and each subcontractor firm proposed for the project.

The Offeror shall provide information with respect to relevant experience and qualifications of key staff proposed. The Offeror shall include letters of commitment from the individuals proposed confirming their availability for contract performance.

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

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

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

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

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

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

- Experience in preparing feasibility studies for rural micro-grid solar projects preferably in low income countries -25%
- Experience with PV Plants and Engineering – 25%
- Experience with negotiating regulatory issues in Solar PV in India – 25%
- Experience in financing of rural electrification programs in developing countries preferably in India – 25%

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

Price will not be a factor in contractor selection.

## **ANNEX 1**

Mr Inderpreet S Wadhwa, CEO, Azure Power, No. 8 Ground Floor, LSC Madangir, Pushp Vihar-110062, India, Phone: +91-1149409800, Fax: +91 11 49409807, Email: [inderpreet@azurepower.com](mailto:inderpreet@azurepower.com)

## B: RURAL MICRO-GRID SOLAR POWER PROJECT

POC: Robin Yavuz, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. RURAL MICRO-GRID SOLAR POWER PROJECT. The Grantee invites submission of qualifications and proposal data (collectively referred to as the "Proposal") from interested U.S. firms that are qualified on the basis of experience and capability to develop a feasibility study to assess and provide planning assistance for two 500 kilowatt (kW) photovoltaic (PV) pilot projects in the Indian states of Chhattisgarh and Gujarat. The study will not include the construction of a pilot project, but will instead assist in the assessment and planning of two pilot project sites. The analysis of these micro-grid sites will provide the necessary scale to attract equity investors for project implementation and for specialized U.S. solar exporters to establish a foothold in the growing Indian market.

India's increasing population and rapid economic expansion are placing a growing strain on the country's energy infrastructure. Approximately 400 million people in 80,000 to 90,000 villages do not have grid connectivity while many households in electrified villages do not have access to grid supply due to difficulties with establishing "last mile" connectivity. In light of this significant shortfall in India's existing network, off-grid electricity generation via solar power is a logical solution that would enable access to clean energy for millions of Indian citizens. Solar energy is a carbon-free alternative to current diesel generators that are the main suppliers of off-grid electricity. Given that many India locations receive an average of 1,500–2,000 sunshine hours per year, the Indian government and state governments, and many Indian and U.S. companies, have set in motion policies and plans to use this power source to help diversify the country's energy mix and contribute to environmental sustainability.

Azure Power aims to set up over 100 micro-grid solar systems with an average system size of 500 kW covering approximately 2-3 acres of land in rural areas that currently have little or no connectivity to existing electrical grids. Through an initial pilot project of two sites, Azure plans to demonstrate the possibility of meeting rural electricity demands via a micro-grid. The main advantage of a micro-grid is that it is treated as a controlled entity within a power system and can be operated as a single aggregated load of electricity. This type of system offers easy controllability and compliance with grid regulations without hampering the reliability and security of the power utility. For electricity customers in rural areas, micro-grids are beneficial for their ability to generate electricity closer to the site of consumption, alleviate transmission and distribution (T&D) losses, supply an uninterrupted source of power, reduce feeder losses and provide electrical voltage support.

The objective of the proposed FS is to optimize the design of Azure's planned micro-grid solar projects and to provide a business model that can be deployed in remote non-electrified villages throughout the country. The Contractor will provide no equipment for the feasibility study other than solar measurement equipment necessary to complete Task 5, the solar irradiation study. That equipment will be leased to the Contractor or subcontractor and will not be property of the Grantee. The specific districts of Raipur in the state of Chhattisgarh and Sabarkantha in the state of Gujarat have been chosen as suitable sites for these pilot initiatives.

The U.S. firm selected will be paid in U.S. dollars from a \$476,670 grant to the Grantee from the U.S. Trade and Development Agency (USTDA). Azure has agreed to commit US\$100,000 towards this project, which together with USTDA funding, will amount to a total project cost of US\$576,670.

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

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

Interested U.S. firms should submit their Proposal in English directly to the Grantee by 12pm NOON local time India, May 18, 2012 at the above address. Evaluation criteria for the Proposal are included in the RFP. Price will not be a factor in contractor selection, and therefore, cost proposals should NOT be submitted. The Grantee reserves the right to reject any and/or all Proposals. The Grantee also reserves the right to contract with the selected firm for subsequent work related to the project. The Grantee is not bound to pay for any costs associated with the preparation and submission of Proposals.

## **ANNEX 2**

**PORTIONS OF THIS DEFINITIONAL MISSION REPORT HAVE BEEN  
INTENTIONALLY REDACTED**

**ONLY RELEVANT PORTIONS OF THIS DEFINITIONAL MISSION REPORT  
PERTAINING TO THE MICRO-GRID SOLAR POWER PROJECT FEASIBILITY STUDY  
ARE INCLUDED HEREIN.**

Azure Power is an independent solar power services provider. Azure designs, finances, executes, operates and maintains solar power plants. Their mission is to create innovative solutions and deliver solar energy to government, utility and commercial customers.

**Government:** Azure provides fully managed solar energy services without upfront capital cost for rural development including schools, hospitals and communities thus helping the government reach its objective of driving India's economic growth with clean energy.

**Utilities:** Azure helps utilities meet their RPO (Renewable Power Objectives) by building solar plants and connecting them to the utility grid.

**Commercial Customers:** Azure provides Solar power solutions to SEZ (Special Economic Zones), shopping malls, warehouses, telecom towers and other commercial customers with large real estate portfolios.

Azure Power is the first company to set up megawatt scale solar projects in the country that are grid connected. Azure Power has a project under every Solar Policy in the country in the country starting from Generation based incentives to JNNSM Migration, JNNSM Phase I Batch I, JNNSM Phase I Batch II, Gujarat State Policy and has invested significant capital in its operating facilities in India. Azure currently has 52MW under operation and development and a significant pipeline.

Although India has made significant economic advancement, almost 16% of all Indian villages do not have grid connectivity. Furthermore, many households even in electrified villages do not have grid supply due to difficulties with “last mile” connectivity. Given the large electricity shortfall in India’s overall utility-scale generation it is plausible that increasing off-grid decentralised generation can enable the benefits of power supply to millions of citizens presently without electricity. In order to achieve rural electrification in India, along with conventional large scale power plants, it makes sense that small size non-conventional distributed power plants should be utilized.

Azure is a strong proponent that distributed micro-grid solar power plants would be the most beneficial approach to meet India’s need for rural electrification. The company proposes that small size (500 kW) solar power plants can be built simultaneously around rural communities to serve small groups of villages to meet their immediate electricity demands. Almost 125,000 villages across the country are not connected to power grids. According to Azure's estimation, around 5GW\* power is required to ensure electrification for all the villages in

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\* If 10,000 village clusters were to be supported with 500kW each

India. This makes solar power development for rural electrification an approximately \$15 Billion investment opportunity.

Given the lack of electrification and access to clean energy sources in India's villages, coupled with transmission and distribution (T&D) losses, decentralized distributed systems would seem indeed to make very good sense. While grid-connected large-scale PV can help achieve price reduction through economies of scale, there is thus a great need for off-grid decentralized distribution as well.

The main reasons why Azure believes this to be the best solution for India's rural electricity needs are:

- Availability of abundant solar power supply in India
- Short gestation period of solar plants (Few months as compared to 5-6 years for conventional power plants)
- Social and environmental benefits
- Lower operating costs
- Reduction in T&D losses

The rationale behind a micro-grid is that by bringing the generation of electricity closer to the site of consumption, the T&D losses can be avoided, especially in remote regions. Additionally, it can alleviate the demand-supply gap and provide more reliable power to rural areas.

A 35 kW capacity solar plant is sufficient to meet the minimum demands of a village of 150 households. Azure plans to set up multiple micro-grid solar systems with average system size of 500 kW covering around 2-3 acres of land in rural areas. This will mainly target the villages that currently have no or very little grid supply of electricity. Through an initial pilot project of six such sites of 500 kW each, Azure plans to demonstrate the possibility of meeting the rural electricity demand via a micro-grid. Community land selected for the project would be such that each 500 kW plant should be able to support 7-8 villages within 1-5 km of each other. The power generated from the micro-grids should be sufficient to provide for basic power needs of the communities. Feasibility studies must be conducted for technical assessment, financing options and regulatory framework for large scale deployment of these systems. Azure is requesting a USTDA grant for funding these feasibility studies.

As we know from implementation of rural electrification schemes everywhere in the developing world the availability of electricity can increase productivity in agriculture, improve delivery of healthcare and education, ensure access to various means of communication (radio, television etc.), generate greater employment opportunities and result in the overall development of the region.

Most of these rural households depend upon diesel and kerosene for basic power needs. The solar power generated through the rural micro-grid would have to be sold at charges competitive to diesel and kerosene. The arrangement would be similar to offering electricity as a product to rural consumers along the lines of what micro-finance Institutions have done. The sale of energy to such households over a 10 year period should bring down their energy expense and increase opportunities for education and improved livelihoods. Theoretically, the first line of payment security can be

implemented using group guarantees whereby, members of family become co-guarantors. Creative payment options would be explored during the requested USTDA funded Feasibility Study and field tested during the pilot project.

## **2. Micro-grid Concept**

Over the course of the past century power provisions have transformed from small independent grids serving few customers to complex networks primarily by large generation plants distributed to customers via High Voltage (HV) transmission systems and Low Voltage (LV) distribution systems. Due to emergence of Independent Power Producers and Distributed Energy Resources, there is renewed interest in advanced power system architectural concepts like 'micro-grids' which can serve small group of co-located customers. Research has demonstrated the feasibility of such systems and the concept is proving successful from field projects like 'More Micro-grids' funded by European Commission.

Micro-grid comprises of LV distribution system with the power source (eg. PV module) together with flywheels, capacitors, batteries, loads, hierarchical type management and control scheme supported by communication system. Unlike simple LV grids micro-grids have the ability to behave as a coordinated entity. Micro-grids are faced with many technical challenges due to which unique control strategies are required.

The main advantage of a Micro-grid is that it is treated as a controlled entity within the power system. It can be operated as a single aggregated load. This ascertains its easy controllability and compliance with grid rules and regulations without hampering the reliability and security of the power utility. From customers' point of view, micro-grids are beneficial for locally meeting their electricity requirements. They can supply uninterrupted power, improve local reliability, reduce feeder losses and provide local voltage support. From environmental point of view, micro-grids reduce environmental pollution and global warming through utilization of low-carbon technology.

## **3. Rural Electrification in India**

Development of villages is a critical step for reducing the onslaught of congestion plaguing India's big cities. It is possible to stem the mass migration to cities only when opportunities are created in the villages. Availability of electricity in the villages is an enabler for creating these opportunities. The power demand of villages is often not high enough to warrant providing grid connected power.

### ***i. Solar Home Lighting Systems***

A common system used in rural areas in developing countries is Solar Home Lighting Systems (SHLS) which can power light bulbs and small appliances like fans, radios and TV sets.

SHLS (Solar Home Lightning Systems) consist of a solar PV panel, battery, charge controller and a lighting system (lamps and fan). This requires low ongoing maintenance except for a

battery change every three to five years. In spite of generous support from the government, so far only 580,000 SHLS have been installed in India. However, it is unclear if this includes those installed by private players without availing a government subsidy. One such example is Tata BP Solar, who have sold 150,000 SHLS to households in the states of Uttar Pradesh, Haryana and Karnataka in the year 2009–10. Still, it all adds up to only a tiny fraction of the total potential.

A critical environment for greater penetration of SHLS is the presence of a well-functioning market of suppliers, maintenance service providers and, of course, competitive pricing. Capital subsidies alone cannot ensure success of the installation. Tata BP Solar and SELCO have been the main suppliers of these systems. The systems were paid by customers with a down payment, and a five-year loan contract without any collateral with rural regional banks. The equal monthly installments (EMI) work out to be between Rs. 200 and Rs. 500 for two to four light systems costing Rs. 13,000 to Rs. 25,000.

There are many different models for dissemination of SHLS in rural areas which have been followed in various countries, some examples of which are:

- Franchisees Approach : Argentina, Senegal, Bolivia, Philippines
- Leasing/Micro-rental: Honduras, Nicaragua, Zambia
- Dealer/Credit line Approach: Sri Lanka, India (SELCO)

## *ii. Micro-grids*

Apart from SHLS, there is currently a move towards solar and solar-hybrid mini-grids in rural and remote areas worldwide. Factors that determine the best choice of system include local ambient conditions, access and terrain, eco-financial issues, the purpose for which power will be used for example: lighting, irrigation pumps, water supply, crop processing etc.

Azure has reviewed these options and believes that decentralized solar power plants are ideally suited for large scale village electrification in India. Given the huge demand for power in rural India, many different schemes are being introduced by the government including distribution of solar lanterns, SHLS and solar micro-grids. Some common problems reported about solar lanterns and SHLS in India are theft and lack of proper usage and maintenance.

Azure makes the case that decentralized solar power plants are better suited than giving subsidy on lantern from the point of view of control and monitoring. While solar lanterns and SHLS can be a stopgap measure until electrification, micro-grids can provide more sufficient power to meet residential and community-based requirements, can be readily supplemented if power demands grow and can easily be integrated if and when the primary grid does reach these areas. Micro-grids based on solar energy and other renewable energy sources to meet the needs of a village or cluster of villages can be viewed as a permanent solution as long as appropriate institutional mechanisms are in place for sustainable operations. Through the proposed project, Azure plans to demonstrate techno-economic viability of solar micro-grids. Small scale (8-9 kW systems) solar mini-grids have been

installed in a few villages in India and experience from those will be helpful in the current project.

The International Energy Agency (IEA) has been collaborating with United Nations Environmental Program (UNEP) to support rural electrification in several emerging economies including Bangladesh, Brazil, Chile, China, India, Indonesia, Mexico, Morocco, Pakistan and South Africa. IEA has also carried out workshops and comparative studies on rural electrification policies in emerging economies including Brazil, China, India and South Africa. Many challenges faced by these countries are similar and recommendations from these studies can benefit the proposed project.

Solar Micro-grids have proven to be very successful in several other countries like Morocco, Ecuador, Senegal and Zimbabwe. A common finding is that having an organized group of villagers in managing the systems was critical in its success.

### ***iii. Community Solar Power Plant project (CSPP) in Uttar Pradesh***

In 2009, Statec Solar, a Norwegian company along with Development Alternatives (DA), an Indian non profit organization, developed a Community Solar Power Plant (CSPP) project in two villages: Rampura and Gopalpura in Jhansi district, Uttar Pradesh. The initiative uses solar technology and emphasizes participatory processes for electrifying villages. A Village Energy Committee (VEC) was formed and trained to operate and maintain the solar plant locally.

The project boasts of a unique consumption based tariff structure which simply follows the principle of ‘pay according to your usage’. Villagers willingly pay the variable cost which depends on the units they consume.

According to project literature, CSPP has changed the lives of villagers in Jhansi. More businesses are started than ever before, students can study during evenings, the streets are well-lit and safe, and women can engage in extra income generating activities like sewing.

The objective of this CSPP project was to:

- Test the technological and commercial viability of using solar power for providing electricity in rural areas in India.
- Establish a community managed model of operation and revenue generation
- Build a working model of community based solar plants that can be replicated in other villages across India

The pilot project was launched in two villages: Rampura and Gopalpura. Both villages have approximately 70 households that largely engage in agricultural work. Prior to the establishment of the solar plants, both of these villages were deprived of electricity as they had been left out of all state government electrification schemes. In such a situation, kerosene lamps were used for household lighting. A “Build-Own-Operate-Transfer” (BOOT) model was used with the ultimate goal of a village owned and maintained power plant.

In the CSPP project in Uttar Pradesh, two different technologies were adopted in Rampura and Gopalpura. The Rampura plant uses crystalline silicon solar plants, whereas amorphous silicon thin film modules have been used in Gopalpura. The plant capacity in Rampura and Gopalpura is 8.7 and 9 kWp, respectively. Similarly, two different distribution models have been tested in the villages. Rampura supplies power to individual homes through a 0.75 km long mini-grid, whereas Gopalpura has a centralized charging hub from where villagers can charge their batteries, lanterns (provided through the project funds), mobile phones and other chargeable gadgets. In terms of technological efficacy and community response, the Rampura plant was found to be a better model than the one in Gopalpura.

While the VEC in Rampura effectively executed the entire project and the village community extended their whole hearted support, the case in Gopalpura was different. People in Gopalpura were supportive in the beginning; however, gradually problems arose. For example, people found it difficult to visit the plant to charge their batteries and lanterns. They preferred electricity services at their homes. Social divisiveness also hampered the management and operation of the Gopalpura plant. The success of the Rampura model over the Gopalpura one stresses the importance of promoting social cohesion. The experience indicates that community mobilization is the key to the success of village electrification and it can be done only by people who villagers trust. It is easy to mobilize villages that consist of homogeneous community. Villages having different castes and trades pose challenge in social engineering.

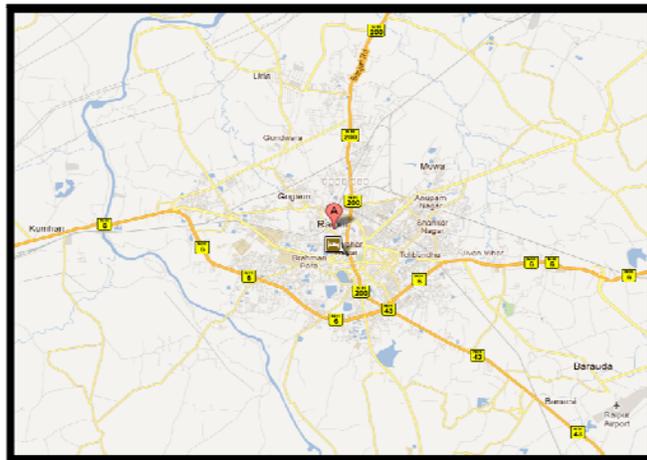
#### *iv. MNRE – Norad 30 Village Project*

Based on the Rampura and Gopalpura experience MNRE and Norad have funded a 30 village electrification model totaling approximately 300 kWp. The project is managed by Scatec Solar and monitored by IREDA. The objective of the project is to develop financial, technological and operational models for village electrification. Under the program a few villages across different states (Madhya Pradesh, Uttar Pradesh, Jharkhand and Leh Ladakh) have been identified. The loads in the villages have been estimated. Village mobilization, capacity building and training are the integral parts of the program. The various commercial activities being considered under the program are irrigation, water services, horticulture, flour mill, butter churning etc.

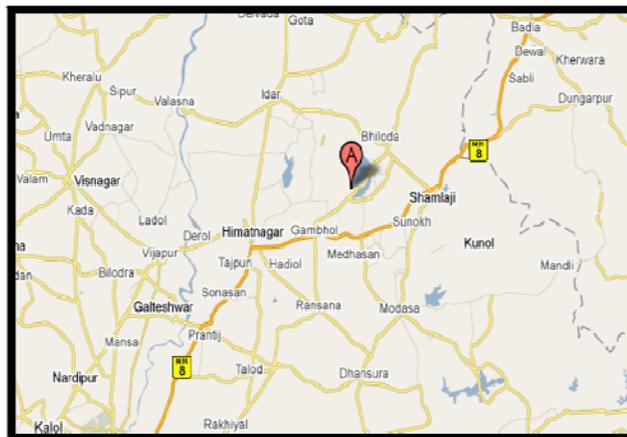
### **3. Project Sites**

As a part of the proposed USTDA funded Feasibility Study, the locations below would be evaluated to find the best sites for the pilot project.

#### **Figure 1: Possible Locations of Pilot sites for Rural Micro-grid Solar Power Program**



Raipur(Chhattisgarh)



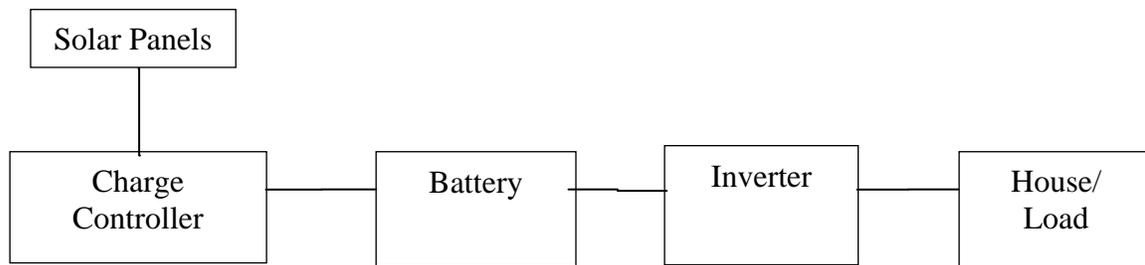
Sabarkantha (Gujarat)

**Figure 2: Scheme of Proposed Rural Micro-grid Solar Power Program**



As shown in Figure 3 below, in an off-grid system the Solar Panels are arranged in an array for a specific voltage and fastened to a mounting structure. The Charge controller connected to the system regulates the battery voltage. The Battery stores the DC current electrical energy and this DC is converted to AC with the help of an inverter connected to the system. This converted form of energy then meets the requirements of the load.

**Figure 3: Scheme of the Off Grid Solar Array**



#### **4. Village Energy Committee (VEC)**

As observed from the experience of the CSPP in Uttar Pradesh, it is crucial to have a Village Energy Committee responsible for the construction, operation, maintenance and overall smooth functioning of the power plant. Similar efforts will have to be taken to form a VEC in the proposed pilot projects. The VEC should have representation from all sectors of the village community. Initially, the major task will be to mobilize villagers and clear up their misconceptions regarding solar energy. This can be carried out with the help of local NGO's which have experience working in the villages. Various workshops will have to be organized to build awareness about the environmental, economic and social benefits of solar power. Also, informal meetings with local government agencies, district administration and the villagers can provide a platform for discussions on the topic. All VEC members will have to be trained in various responsibilities such as cleaning of PV modules, operation, preventative maintenance, data collection, meter reading at the household level, bill preparation and distribution, revenue collection, and accounting.

For the CSPP in Uttar Pradesh, a bank account in the name of the VEC was created for maintaining its finances. The bank account also acted as a social instrument for developing trust amongst the villagers by directly involving them in the financial process. Through the account, the community became aware of the status of their funds at any given time; hence, mitigating the possibility of misuse of revenue.

## 5. End User Payments

The cost of commissioning the CSPP in Uttar Pradesh (9 kW) was about \$60,000. This included the cost of civil works, cables, battery, power controlling unit, and setting up the mini grid. Individual households had to bear the initial cost for necessary infrastructure such as electrical wiring. The cost of internal wiring would have to be explained to the villagers beforehand so that they can meet these expenses on their own. Azure believes that villagers can be encouraged to participate in the construction of the plant so that the earnings they make through labor can be used to meet the expenses of internal wiring. Each household seeking electrical connection would have to pay a security deposit and a service charge per usage. Azure expects that the exact model should be developed in the proposed USTDA funded Feasibility Study.

The electricity tariff would have to be based on what the villagers typically pay for current sources of energy (kerosene and batteries). From the CSPP Uttar Pradesh project it was found that a '*Consumption Based Tariff*' shown in Table # worked most effectively.

**Table 1 Consumption Based Tariff Model**

0-5	20	Rs. 4.5 per unit
5 - 10	90	Rs.22.5 + 5.5 per unit thereafter
10 onwards	160	Rs. 50 + 6.5 per unit thereafter

*Note: Villagers pay an additional charge (Rs 10 / month / household) per street light*

The consumption based tariff structure promotes efficient usage of electricity and allows CSPP to be financially sustainable in operations and maintenance. In the CSPP a chart was prepared to explain the monthly consumption of electrical units (kWh) so that villagers can calculate their monthly bill through a simple meter reading.

The average consumption of a household in the villages is about 5-7 units per month (with increases in the summer). A 500 kW plant would roughly generate about 0.8 Million units per year and with a tariff structure similar to the one in CSPP of Uttar Pradesh, the annual revenue collected would be around \$0.33 Million.

The initial experience of the CSPP in Uttar Pradesh has demonstrated that the consumption tariff structure ensures financial viability in the long run. Villagers accepted this model willingly because it follows the simple rule of 'if you use more, you pay more'.

## **SOLAR in INDIA**

Mr Farooq Abdullah, Union Minister of MNRE has recently stated that the government is targeting to electrify 10,000 remote villages across the country with an investment of US\$ 112.14 million by March 2012. In 2009, the government of India officially released its Jawaharlal Nehru National Solar Mission, as part of its National Action Plan on Climate Change. Under the Mission, India aims to produce 20GW of electricity from solar power by 2022, a goal that will “make India the producer of almost three-quarters of the world’s total solar energy output”, according to the International Energy Agency. The Government has plans to install 20 million solar lights and 20 million m<sup>2</sup> of solar thermal plants by 2022 in conformance with this strategy. The first benchmark established by the National Solar Mission is 1,300MW of solar, with 1,100MW of this total to be grid-connected. The government of India has already allocated \$1 billion to the first phase implementation.

SWOT analysis of the Indian Solar Market is presented below.

<b>Strengths</b>	<ul style="list-style-type: none"><li>• High Growth Industry with significant potential</li><li>• High Direct Natural Insolation (DNI) in major parts of India</li><li>• Proven technology, with low O&amp;M costs</li><li>• Availability of soft loans and Govt. incentives</li></ul>
<b>Weakness</b>	<ul style="list-style-type: none"><li>• High dependence on governmental policies</li><li>• Capital intensive nature favours larger businesses over smaller ones</li><li>• SPV cannot be used as base load due to its intermittent nature</li></ul>
<b>Opportunities</b>	<ul style="list-style-type: none"><li>• Opportunities exist all along PV value chain and not just power plants</li><li>• Reduction of costs expected in future</li><li>• Huge scope of additional R&amp;D</li></ul>
<b>Threats</b>	<ul style="list-style-type: none"><li>• Technology innovation is high, so risk of obsolescence</li><li>• Off-peak seasons reduce cash flow</li><li>• Industry is new, so finding skilled workforce is a problem</li></ul>

As per MNRE, the grid connected installed capacity of solar PV in India was 18 MW and off-grid SPV was 4 MW of 31<sup>st</sup> December 2010.

In 2010, conventional electricity (predominantly coal-based) prices were at about Rs 3/kWh for long-term contracts and Rs 4-8/kWh for short-term power contracts. In contrast, solar power generation costs significantly more, with a delivery cost ranging

from Rs 12-20/kWh, almost four to five times more expensive than the cost of conventional generation. As renewable capacity continues to expand under the favorable business climate and the cost of materials drops, this cost will ultimately fall proportionately, and cost competitiveness should be achieved shortly thereafter. India potentially has a \$1 billion solar energy market according to studies by the United Nations Energy Program.

## **v) Regulatory Framework**

### **a) Evolution of Government of India Solar Policies**

Government support for solar began with the generation-based incentive program announced by the MNRE (Ministry of New and Renewable Energy) in 2008. Under this program, the first 50 MW of grid-connected solar PV projects in India stood to receive a federal incentive of up to Rs. 12/kWh on top of the state tariff, with the total capped at Rs. 15/KWh (i.e. the MNRE would provide a Rs. 10/kWh incentive to a Rs. 5/kWh state solar tariff, bringing the total tariff to Rs. 15/kWh). The program generated widespread interest, attracting over 1500MW of applications – a sign of the private sector recognizing the important role of solar in India’s economic future.

Following this, leading states such as Gujarat and Rajasthan announced independent state-sponsored solar programs. Gujarat, in January of 2009, announced a 500MW program and the tariff for this was set at Rs 15/KWh. Rajasthan initially targeted 50MW supported by a Rs. 15.78/KWh tariff. The Gujarat program has since been revised with increase to 900MW and a current tariff regime of Rs 15/KWh for the first 12 years and Rs 5/KWh for the remaining 13 years.

Parallel to these developments, the Prime Minister of India, Dr. Manmohan Singh, launched the National Action Plan on Climate Change in June 2008. One of the eight missions under the plan was the Jawaharlal Nehru National Solar Mission (JNNSM) – an initiative designed to identify and implement the policy and regulatory frameworks to enable the rapid, large-scale deployment of solar power in India.

### **b) JNNSM**

The objective of the JNNSM (announced in November 2009) is to establish India as a global leader in solar energy, by creating the policy conditions for its diffusion across the country as quickly as possible. In order to achieve this, the Mission has devised important enabling policy measures and regulatory frameworks:

The Mission will adopt a 3-phase approach, first phase ending in 2013, Phase 2 from 2013-17 and 2017-22 as Phase 3. The Table # shows the targets set by the government for each phase.

#### **Table 5: Targets set by JNNSM (MW)**

	<b>Phase I</b>	<b>Phase II</b>	<b>Phase III</b>
	<b>2010-13</b>	<b>2013-17</b>	<b>2017-22</b>
Grid Connected Power	1100	4000	20000
Off Grid Application	200	1000	2000
Solar Collector	7	15	20
<b>Total</b>	<b>1307</b>	<b>5015</b>	<b>22020</b>

The mission has targeted the installation of 20000MW of solar capacity by 2022, making the program, on paper, the largest of its kind in the world.

### **c) Guidelines for Grid-connected Solar Power Policy**

- **Renewable Purchase Obligation and Renewable Energy Certificates**

In order to ensure that the above targets can be achieved, the Mission recommends instituting renewable purchase obligations (with a solar-specific carve-out) on the part of state utilities. The National Tariff Policy 2006 mandates the State Electricity Regulatory Commissions (“SERC”) to fix a minimum percentage of energy purchase from renewable sources of energy. The Mission has called for the National Tariff Policy to be modified to additionally mandate that the SERCs fix a percentage specifically for purchase of solar power. The solar power purchase obligation for States is recommended to start with 0.25% in Phase I and to go up to 3% by 2022. Additionally, the Mission has recommended that this be complemented with a solar specific Renewable Energy Certificate (“REC”) mechanism to allow utilities and solar power generation companies to buy and sell certificates to meet their solar power purchase obligations. Such a mechanism would enable states that receive below-average sunshine to meet their obligations by purchasing these tradable certificates.

- **Domestic Content Requirement**

According to JNNSM guidelines for Phase I (FY 2010-11), it will be mandatory for Solar PV Projects using crystalline silicon technology to use the modules manufactured in India. For Solar PV Projects in Phase II (FY 2011-12), it will be mandatory for all the projects to use cells and modules manufactured in India. However, officials from US government are in discussion with MNRE to withdraw this requirement.

- **Viable Tariff**

The National Solar Mission recognizes the importance of a preferential tariff that allows solar projects to become commercially viable. Accordingly, it has reinforced the guidelines established by the CERC for determination of solar PV tariff. According to its order released in April 2010, the CERC calls for a 25-year Rs. 17.91/kWh tariff for all Solar PV projects commissioned from April 1, 2010 to March 31, 2012. This is a marked improvement from the prior Rs. 15/kWh tariff established by the MNRE and in

conjunction with the high insolation levels experienced in the sunniest parts of the country it makes solar project returns economically feasible. Furthermore, the 25-year duration provides the long-term certainty required for investment to flow into the sector.

- **Creditworthy Off-taker**

In order to incentivize setting up of a large number of Solar Power Projects, the Mission has designed an innovative and simplified structure for the purchase and sale of solar power. Under this structure, NVVN – the power trading arm of India’s largest power generator NTPC (National Thermal Power Corporation), which is CRISIL AAA rated – will be the single buyer of grid-connected solar electricity across the nation. As such, a single PPA format will be set up for private developers to enter into trading arrangement with NVVN, thereby streamlining the process and enhancing the bankability of projects.

- **Bundled power sale**

It is expected that under this scheme, NVVN will purchase solar PV power from developers throughout the nation under 25-year PPAs at Rs. 17.91/KWh, in accordance with the benchmark tariff set by CERC in its renewable energy tariff order from April 2010 (however, the final tariff could be subject to change depending on the terms of the finalized PPA to be released by NVVN). NVVN will in turn bundle this with equivalent capacity of NTPC’s unallocated coal power and sell to states at a blended rate (Note that as a national power generator, NTPC annually allocates a pool of centrally sourced power among India’s various states. This allocation of power supplements state generated power and is a much needed addition for states in a power deficit nation).

Solar developers should now have a single, top credit rated counterparty for all of their PPAs, and will not have to sign different PPAs with each of India’s 28 states. NVVN, being the wholly owned power trading arm of NTPC, is ideally suited to coordinate sale of power to the different states. At the same time, states do not have to purchase power at a significant premium – already, peak power is purchased by states at Rs.5+/kWh. Finally, the risk of PPA defaults is materially reduced because of the financial and strategic strength of NTPC – since states are reliant on NTPC for getting their share of the centrally managed unallocated capacity in India, there is a strong incentive against their defaulting on their agreements with NVVNL.

- **State Solar Programs**

Along with the central government, several states have also declared their solar policies. State of Gujarat has launched an independent solar program in 2009 with an initial target of 500 MW by 2014. In response to this, applications were received for more than 5000 MW. In the first phase, 716 MW have been sanctioned to 34 national and international developers.

State of Rajasthan is also in advanced stage of preparedness for installation of grid-connected solar power plants of more than 500MW in the next 2-3 years.

Other states like West Bengal and Karnataka have released tariff orders for solar projects in these states.

- **Update on JNNSM Phase I bidding**

In JNNSM Phase I, 620 megawatts of solar projects were allotted to 37 companies, 470 megawatts of solar thermal capacity and 150 megawatts of photovoltaic. The 150 MW of Solar PV projects are located across six states while 470 MW of Solar Thermal projects are spread across three states. Projects in Rajasthan make up for 81% of the total capacity awarded. Table 6 shows the allotment of solar projects by states.

**Table 6: JNNSM Phase 1 Allotment of solar projects by states**

State	Capacity PV(MW)	Number of PV Projects	Capacity Thermal (MW)	Number of Thermal Projects
Maharashtra	5	1	0	0
Karnataka	10	2	0	0
Andhra Pradesh	15	3	50	1
Uttar Pradesh	5	1	0	0
Tamil Nadu	5	1	0	0
Rajasthan	105	21	400	5
Orissa	5	1	0	0
Gujarat	0	0	20	1
<b>Total</b>	<b>150</b>	<b>30</b>	<b>470</b>	<b>7</b>

The auction had been called by NVVN, for developing 150 MW solar PV projects with a capacity of 5 MW each, and 470 MW solar thermal projects with a minimum capacity of 5 MW and maximum of 100 MW each. NVVN had received 418 applications, both PV and thermal from developers. Applications were received for developing 1,740 MW of solar photovoltaic (PV) projects, which far exceeded the target of 150 MW for the first batch of Phase-I.

The average bid for PV plants was to sell one kWh of electricity at Rupees 12.16 compared with the government's proposed rate of Rupees 17.91 while the average bid for solar thermal projects was for Rupees 11.48 per kWh compared with the government rate of Rupees 15.31.

Winners in Solar PV segment include Azure Power, Indian Oil Corporation Ltd, Punj Lloyd, Oswal Woolen Mills, SunEdison Energy amongst others. Winner in Solar Thermal segment include Lanco Solar, KVK Energy and Reliance Power for 100 MW each, Megha Engineering, Godawari Power and Ispat for 50 MW each and Aurum RE for 20MW.

In order to build viable projects at these low tariffs, developers will have to cut their cost and get access to low cost capital.

**d) Guidelines for Off-grid and Decentralized Solar Application**

Objective of this program is to promote off-grid applications of solar energy (both SPV and Solar Thermal) for meeting the targets set in the Jawaharlal Nehru National Solar Mission for Phase-I. The scheme would be applicable to all parts of India and focus on promoting off-grid and decentralized systems, including hybrid systems.

Various off-grid solar photo voltaic systems up to a maximum capacity of 100 kWp per site and off-grid and decentralized solar thermal applications, to meet / supplement lighting,electricity/power, heating and cooling energy requirements would be eligible for being covered under the Scheme. For mini-grids for rural electrification, applications up to a maximum capacity of 250 kWp per site would be supported.

MNRE would provide financial support through a combination of 30% subsidy and/or 5% interest bearing loans. For the year 2010-11, the benchmark price for photovoltaic systems with battery back-up support is considered as Rs.300/- per Wp. In case of the systems, which do not use storage battery such as water pumping systems, the installed PV system cost is considered as a maximum of Rs.210 per Wp.

Table 7 lists the boundary conditions for off-grid solar PV systems which will be supported through this program.

**Table 7: Conditions for Funding Off Grid Solar Under JNNSM**

	<b>Type</b>	<b>Size</b>	<b>Incentive</b>
	<b>Individual</b>		
	Pumps for irrigation and community drinking water	5 kWp	Capital Subsidy <b>AND</b> Interest Subsidy

	All others	1 kWp	
<b>Non-Commercial Entities</b>			
	Mini-grids for rural applications	250 kWp per site	Capital Subsidy <b>AND</b> Interest Subsidy
	All others	100 kWp per site	
<b>Commercial/Industrial Entities</b>			
	Mini-grids for rural applications	250 kWp per site	Capital Subsidy <b>OR</b> Interest Subsidy
	All others	100 kWp per site	

Based on annual benchmarking, the capital subsidy will be Rs. 90/Wp for systems with battery storage and Rs. 70/Wp for systems without battery storage. Interest subsidy will be soft loan at 5% per annum.

To meet unmet community demand for electricity or in un-electrified rural areas, standalone rural SPV power plants with battery storage in a micro grid mode/ local distribution network, would be provided Rs.150/Wp of capital subsidy AND soft loan at 5%.

#### **e) Rural Electrification Programs**

Until 1997, a village was considered electrified if electricity was being used within its revenue area for any purpose whatsoever. In 1997 a new definition was adopted whereby “A village will be deemed to be electrified if electricity is used in the inhabited locality within the revenue boundary of the village for any purpose whatsoever”. Under this definition, in March 2004 a total of 74% of inhabited villages were considered electrified, whereas only 44% of the 138 million rural households (60.2 million) used electricity as a source of lighting. However, according to this definition, if only one light bulb was kept lit for a nightly hour in the center of a village or one irrigation pump was powered, the whole village was considered electrified. Realizing this inadequacy and the statistical bias that came with it, the government of India changed its definition for rural electrification in March 2004. A village was considered electrified when the following criteria were satisfied:

- The basic infrastructure (such as distribution transformer and/or distribution lines) is made available in the inhabited locality within the revenue boundary of the village, including available power supply on demand at at least one hamlet as applicable, and any of the public places like schools, Panchayat Office (village council), health centers, dispensaries, community centers etc.; and

- The number of households electrified should be at least 10% of the total households in the village.”

As a consequence of this new definition for electrification, many villages that were previously considered electrified fell by definition into the un-electrified category.

### **i) The Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) scheme**

In February 2005, a large-scale electrification effort, the Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) scheme was launched by the MoP. The RGGVY policy therefore aims at

- Provision of electricity access to all households (including rural households) by year 2009 (which includes 23.4 million households living below the poverty line);
- Quality and reliable power supply at reasonable rates
- Minimum lifeline consumption of 1 kWh per household per day as a merit good by year 2012

In January 2008, the RGGVY was further extended into the 11th plan period (2007-2012) with the following new conditions for its better implementation:

- States are to ensure a minimum of 6 to 8 hours of power supply;
- States are to ensure quality and reliable power supply at reasonable rates;
- The deployment of franchisees is mandatory for the management of rural distribution;
- Introduction of the three-tier Quality Monitoring Mechanism to ensure quality of materials and implementation; and
- States are to notify their rural electrification plans to the Rural Electrification Corporation (REC) within six months.

### ***Implementation of RGGVY***

The REC is the nodal agency for the RGGVY. It is a wholly government-owned enterprise responsible for the implementation of its rural electrification schemes.

Under the RGGVY scheme, the first approach to village electrification will be through grid extension. Where grid connection is either not feasible or not cost-effective, then stand-alone systems are considered which can be powered by renewable energy sources or conventional sources, namely through DDG systems. All infrastructures must be grid-compatible in order to ensure that when a village is ultimately connected to the grid, prior investments are not lost. In DDG projects of the RGGVY, the renewable energy technologies currently used are diesel generating sets powered by biofuels (non-edible vegetable oils), diesel generating sets powered by producer gas generated through

biomass gasification, solar photovoltaic, and small hydropower plants. Other technologies, such as diesel generating sets powered by biogas (from animal waste), wind hybrid systems or other hybrid systems, including any “new” technology, are currently not yet popularly used for DDG in India, but may be used in the future. Moreover, although diesel is the easiest form of decentralized power generation, the government of India encourages its use only for stand-by-options or in the case of temporary disruption of renewable energy supply. The general rule of thumb supposes that the technology with the lowest marginal cost and which is considered the most appropriate and effective technological option for the area will be chosen.

### ***Achievements of the RGGVY***

By September 2009, a total of 567 projects had been sanctioned under the RGGVY, covering the electrification of 118,499 villages. The overall achievement of the RGGVY against the targets set for March 2012 are:

- One third of the BPL households and about half of the villages to be electrified.

Azure's proposed project can help meet and exceed the target set by the RGGVY program.

The electrification of villages comprising more than 100 inhabitants will usually be undertaken by the RGGVY scheme while those with fewer inhabitants will fall under the Remote Village Electrification Program. To avoid overlap of efforts, close co-ordination between the RGGVY and the MNRE is ensured mainly through the Rural Electrification Corporation.

### **ii) The Remote Village Electrification (RVE) Program**

Since 2005, the RVE program of the Ministry of New and Renewable Energies (MNRE) has been supplementing the efforts of the Ministry of Power (MoP) through complementary measures for the provision of basic lighting/electricity facilities through renewable energy sources. The Remote Village Electrification program (RVE) is responsible for electrifying un-electrified remote census villages/hamlets (with a population of less than 100 inhabitants) where grid connection is either not feasible or not economical (because they are located in forests, hills, deserts or islands) and where DDG projects are not implemented by the RGGVY of the MoP.

### ***Means of electrification***

Under the RVE program, solar photovoltaic home lighting systems, small hydropower plants, biomass gasification systems in conjunction with 100% producer gas engines or with dual-fuel engines using non-edible vegetable oils, non-edible vegetable oil-based engines, biogas engines, solar photovoltaic power plants are the most commonly used by

the MNRE. However, the vast majority, 95%, of remote census villages taken up for electrification under the program are provided with SPV home lighting systems.

### *Achievements of the RVE*

In March 2009, the cumulative sanctions under the RVE program had reached 9,355 villages and hamlets of which 5,410 have been successfully electrified. The overall achievement of the RVE program against the targets set for March 2012 are:

- 57% of the villages and 60% of the hamlets had been electrified by March 2009.

### **iii) Institutional Structures for Rural Electrification**

The launching of the RGGVY scheme in 2005 marked a turning point in India's rural electrification efforts. State governments are now required to prepare rural electrification plans designed to assess in detail the means by which electricity is to be delivered. These plans also describe which available technologies will be considered, how compliance with environmental norms will be met, as well as more general information such as the number of un-electrified households in the target region etc. These plans are then coordinated between state governments, state utilities and other agencies by the Rural Electrification Corporation Limited (REC), a governmental body under the Ministry of Power that acts as the nodal agency for the RGGVY. State governments are also required to ensure revenue stability, to supply electricity to rural and urban households without interruption, to deploy franchisees and to appoint independent franchisees for monitoring the work. At the central level, the MoP develops rural electrification policies, monitors the program's progress, sanctions projects and releases funds for project implementation.

The REC, as the nodal agency of the RGGVY, not only acts as a lending agency, but also co-ordinates activities between the MoP and the MNRE, sets the framework for project implementation and monitors and evaluates projects to ensure their timely implementation. Under the Remote Village Electrification program, state nodal agencies are responsible for the implementation of rural electrification projects.

### **iv) Public Financing for Rural Electrification**

Under the RGGVY, the MoP grants 90% of the cost of rural electrification projects. States are supposed to cover the remaining 10% of the cost either from their own funds or through loans from the REC or other institutions. The three main financial agencies in the power sector are the REC, the Power Finance Corporation (PFC) and the Indian Renewable Energy Development Agency (IREDA). Only the REC is authorized to act as the nodal agency or lending agency for rural electrification projects under RGGVY. IREDA supports a much wider range of projects in rural areas, including minor-scale rural electrification schemes through renewable energy applications focusing mainly on

biomass and solar PV lighting systems. The PFC lends only to major generation and transmission projects, but not to rural electrification programs.

Since its creation, the REC is India's main financing institution for rural electrification and benefits from strong support from the government of India. To encourage banks and other lending institutions to consider rural electrification initiatives favorably, the government of India has been working with the National Bank for Agriculture and Rural Development (NABARD) and the Reserve Bank of India to facilitate norms, guidelines and limits for capital costs.

#### **v. Business Incentives**

State governments encourage the private sector to invest in rural electrification projects. To do so, many state governments have established administrative mechanisms to facilitate the process of approval and clearance for the setting-up of small and medium-sized industries. Those specifically targeted are industries that seek to use local resources for decentralized generation projects and stand-alone systems.

### **A. ABOUT THE GRANTEE**

Azure Power was incorporated in 2007 by Mr. Inderpreet Wadhwa with a vision for creating energy security in rural India through medium scale Solar PV generation. Azure Power is currently one of the leading independent solar power producers in India. Mr. Wadhwa has been instrumental in creating India's first commercial MW scale Solar Power Plant. His work has been highlighted in top tier publications such as Wall Street Journal, Financial Times, Business Today, and Economic Times.

India's first private, utility-scale solar power plant (2 MW in Awan, Punjab) was developed by Azure Power. It is currently operational and supplying power to 20,000 people and 32 villages in Punjab. Azure also has a 10MW solar power plant operational in Gujarat, a 5MW in Rajasthan and has more than 150 MW of projects in the pipeline. The Company has plans to raise its generation capacity to 100 MW by 2014 with an investment of about \$300 million.

Azure with its current projects has created over 15 jobs in US and 100 permanent positions in India along with 200+ temporary construction positions. Exports of over \$30 million from US in the current fiscal year are expected. With their current success, Azure is recognized as a market leader in solar IPP space in South Asian region. Azure Power is on track to commission 100MWs by 2014,

which will help increase jobs, trade and energy security, a positive for both India and the United States economies.

### **Punjab Solar Power Project- 2 MW**

In 2009 Azure Power successfully installed India's first MW scale solar power plant in Punjab. The plant capacity is 2 MW and is built on 13 acres of land at village Awan , District Amritsar, Punjab, India. The plant was set up under the Generation based incentive scheme and Azure signed a 30 year PPA with PSEB for the same. The plant is now also one of the first projects to be selected under the migration scheme of the National Solar Mission, India. It is generating sufficient power for 4000 rural homes totaling 20,000 people and 32 villages in Punjab. In the process the solar power plant will help in eliminating CO2 emissions equivalent to 535,000 trees and removing nearly 90000 cars from roads over its life span of 30 years.

### **Gujarat Solar Power Project- 10 MW**

Azure Power has a 10 MW capacity grid-connected solar PV plant operational in Gujarat, India. The system covers 42 acres of land at Khadoda village in Gujarat and was commissioned in October, 2011. The plant supplies electricity through a 25 year power purchase agreement to GUVNL, the holding company for the six companies in Gujarat responsible for generation, transmission, distribution, and trading and one of the most creditworthy power utilities in India today. The plant is instrumental in offsetting around 17000 metric tons of CO2 per year and has the same impact as that of removing nearly 15000 cars from Indian roads each year.

### **Rajasthan Solar Power Project- 5MW**

In 2010 Azure Power signed MOU Rajasthan Renewable Energy Corporation Limited for installing 50 MW plant in Rajasthan. The system is under development and covers 300 acres of land at Karauli village in Rajasthan. The first phase of 5 MW has been commissioned in December, 2012. The plant is instrumental in offsetting around 340,000 metric tons of CO2 per year and has the same impact as that of removing nearly 300,000 cars from India roads each year.

### **Table 8 Azure Corporate Information**

Azure Power India Pvt Ltd.  www.azurepower.com	8, Local Shopping Complex, Madangir Ground Floor, Pushp Vihar, New Delhi – 110062  Phone - +91. 11. 49409800 Fax - +91 11. 49409807 US Phone - +1.650. 245. 6464
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Chief Executive Officer	Mr. Inderpreet Wadhwa
Lenders	OPIC, IFC, US Exim, DEG
Investors and Promoters	Foundation Capital - Venture firm in CA, USA Helion Venture Partners - Venture firm in Bangalore, India
Project Portfolio	<u>Projects commissioned</u> <ul style="list-style-type: none"> <li>• 2 MW in Punjab</li> <li>• 10 MW in Gujarat</li> <li>• 5MW in Rajasthan</li> <li>• <u>Projects in Pipeline</u></li> <li>• 2.5MW rooftop in Gujarat</li> <li>• 35 MW in Rajasthan</li> <li>• 150 MW across different states in India</li> </ul>

## **ANNEX 3**



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

**NATIONALITY, SOURCE, AND ORIGIN REQUIREMENTS**

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

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

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

**NATIONALITY:**

1) Rule

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

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

## 2) Application

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

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

## 3) Definitions

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

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

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

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

## **SOURCE AND ORIGIN:**

### 1) Rule

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

### 2) Application

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

### 3) Definitions

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

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

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

## **ANNEX 4**

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## 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 Azure Power India Private Limited ("Grantee"). USTDA agrees to provide the Grantee under the terms of this Agreement US\$476,670 ("USTDA Grant") to partially fund the cost of goods and services required for a feasibility study ("Study") on the proposed Rural Micro-Grid Solar Power project ("Project") in India ("Host Country").

### 1. USTDA Funding

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

### 2. Terms of Reference

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

### 3. Standards of Conduct

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

### 4. Grantee Responsibilities and Support

The Grantee shall undertake its best efforts to provide reasonable support for the Contractor, such as local transportation, office space, and secretarial support. In addition to the USTDA funding provided under this Agreement, the Grantee shall be responsible to cover at least \$100,000 of costs in cash to complete the full Terms of Reference (the "Grantee Cost Share"). The Grantee shall pay the Grantee Cost Share to the Contractor in proportion to the funding being provided by USTDA and the Grantee respectively (USTDA US\$476,670 : Grantee US\$100,000) and in accordance with the procedures set forth in the USTDA Mandatory Clauses in Annex II. The Grantee shall pay the Contractor the cash cost share of \$19,800 upon commencement of the study and the in-

kind cost share shall be paid as specified in the contract between the Grantee and the Contractor.

## **5. USTDA as Financier**

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

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

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

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

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

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

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

It is understood by the parties that USTDA has reserved certain rights such as, but not limited to, the right to approve the terms of the contract and any amendments thereto, including assignments, the selection of all contractors, the Terms of Reference, the Final Report, and any and all documents related to any contract funded under the Grant Agreement. The parties hereto further understand and agree that USTDA, in reserving any or all of the foregoing approval rights, has acted solely as a financing entity to assure the proper use of United States Government funds, and that any decision by USTDA to exercise or refrain from exercising these approval rights shall be made as a financier in the course of funding the Study and shall not be construed as making USTDA a party to the contract. The parties hereto understand and agree that USTDA may, from time to time, exercise the foregoing approval rights, or discuss matters related to these rights and the Project with the parties to the contract

or any subcontract, jointly or separately, without thereby incurring any responsibility or liability to such parties. Any approval or failure to approve by USTDA shall not bar the Grantee or USTDA from asserting any right they might have against the Contractor, or relieve the Contractor of any liability which the Contractor might otherwise have to the Grantee or USTDA.

**(E) Grant Agreement Controlling**

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

**6. Disbursement Procedures**

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

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

**(B) Contractor Invoice Requirements**

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

**7. Effective Date**

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

**8. Study Schedule**

**(A) Study Completion Date**

The completion date for the Study, which is March 28, 2014, is the date by which the parties estimate that the Study will have been completed.

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

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

## **9. USTDA Mandatory Clauses**

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

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

### **(A) Air**

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

### **(B) Marine**

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

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

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

## **12. Taxes**

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

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

The parties will cooperate to assure that the purposes of the Grant Agreement are accomplished. For five (5) years following receipt by USTDA of the Final Report (as defined in Clause I of Annex II), the Grantee agrees to respond to any reasonable inquiries from USTDA about the status or results of the Project, and upon receipt by the Grantee of the Final Report, will designate (by both title and organization) a point of contact for any such inquiries.

### **14. Implementation Letters**

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

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

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

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

For all purposes relevant to the Grant Agreement, the Government of the United States of America will be represented by the U. S. Ambassador to Host Country or USTDA and Grantee will be represented by the Chief Executive Officer. 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: Rajni Bhandari  
Manager of Business Development, Azure Power  
No. 8 Ground Floor, LSC Madangir  
Pushp Vihar- 110062  
India

Phone: +91 11 49409800  
Fax: +91 11 49409807  
Email: [rajni.bhandari@azurepower.com](mailto:rajni.bhandari@azurepower.com)  
[www.azurepower.com](http://www.azurepower.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 12/131001  
Activity No.:20012-31007A  
Reservation No.:2012089  
Grant No.: GH 201231089

## **18. Termination Clause**

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

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

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

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

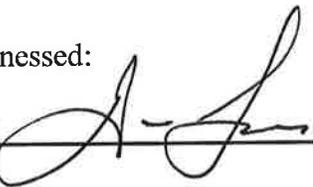
By funding this Study, USTDA seeks to promote the project objectives of the Host Country through the use of U.S. technology, goods, and services. In recognition of this purpose, the Grantee agrees that it will allow U.S. suppliers to compete in the procurement of technology, goods and services needed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

[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK]

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

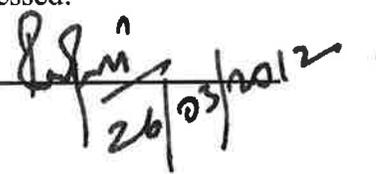
**For the Government of the  
United States of America**

By:   
Date: 3-26-2012

Witnessed:  
By: 

**For Azure Power India  
Private Limited**

By:   
Date: 26th March, 2012.

Witnessed:  
By:   
26/03/2012

**Annex I -- Terms of Reference**

**Annex II -- USTDA Mandatory Clauses**

## Annex I

### **Terms of Reference**

The objective of this project is to assist the Grantee in developing a Rural Micro-grid Solar PV System and business model that can be deployed in remote non-electrified villages in India. The Feasibility Study will be carried out on pilot 500 kW PV plants at two locations in Chhattisgarh and Gujarat, India. Any change in location of the two pilot projects will be subject to approval by USTDA. The Grantee shall provide project management support, local project implementation information including but not limited to: the provision of information, data and material; the coordination of meetings; the provision of information pertaining to project costs and site conditions; and assistance in obtaining necessary information from relevant entities. The Contractor shall address all issues related to the feasibility of developing and implementing the Rural Micro-grid solar PV plants as specified in this Terms of Reference.

#### **Task 1 – Site Assessment and Project Planning**

The Contractor shall travel to India within 6 weeks of signing the contract with the Grantee for the Project Kick-off Meeting with the Grantee. During the same trip the Contractor shall also meet with key representatives of the regulatory bodies and officials responsible for the two States (Chhattisgarh and Gujarat) where the pilot projects will be developed. These meetings will be arranged by Grantee. Prior to or during this trip, the Grantee shall deliver the following information to the Contractor:

- Detailed information and status update on no more than 12 sites for the proposed PV plants
- Preliminary cost estimations and schedule for the proposed projects
- Solar Regulatory and Policy status update for all considered site locations
- Copies of any approvals and permissions obtained to date

The Contractor shall prepare a detailed Work Plan during the Project Kick-off meetings. This plan shall become the basic project management tool and shall contain specific deadlines and overall implementation schedule.

On this same mission, the Contractor shall visit proposed sites for the two plants. Physical and site constraints will be evaluated during this visit, including but not limited to:

- Topography and soil testing
- Electrical resistivity testing
- Flatness of the terrain and degree of leveling required
- Preliminary meteorological assessment, including flood risks, flood management/drainage required

- Availability of any grid or required setup for evacuation over HT and LT lines to consumers
- Logistical access for equipment supply (will roads need to be built, modified, etc)

The Contractor shall make note of all site characteristics relevant to plant design and technology evaluation. The Contractor shall recommend the most attractive sites based on criteria to be agreed upon with the Grantee. The Contractor shall certify suitability of all recommended sites for rural micro-grid solar power plants or indicate complicating factors preventing suitability.

**Deliverable:** The Contractor shall prepare a report describing the findings of the initial meetings, documentation of all gathered information and previous studies, and a detailed work plan on how the following tasks are to be completed.

### **Task 2: Review Solar Micro-Grid Models in Other Countries**

The Contractor shall review recent experience related to establishing successful solar micro-grids in rural electrification programs in other countries in the region and elsewhere. The Contractor shall specifically focus on laws and regulations that have been enacted to facilitate sustainable institutional framework, including formation of new rural electric service providers and viable business and financing models. The Contractor shall evaluate and document the best practices of each country examined. Recent positive experiences in Uganda, Sudan, Bangladesh, and the Philippines are suggested as starting points.

**Deliverable:** The Contractor shall provide a report that describes the best practices for establishing regulatory and business models for solar micro-grids in other countries.

### **Task 3 - Regulatory Review and Policy Recommendations**

The Contractor shall review at both the National and State levels existing schemes for rural electrification programs, permitting requirements, electricity production and distribution license requirements, tariff regulations, construction regulations and other constraints (right-of-way, zoning ordinances, etc.) that may need to be taken into account before the Project can move into the implementation stage. The Contractor shall prepare a regulatory database and permitting process report, highlighting policy and regulatory strengths and weaknesses.

The regulatory database and permitting process report should focus on tariff setting, construction regulations, Independent Power Producer (IPP) rules and regulations, interconnection and distribution conditions, environmental regulations, land and water use and regulations. The Contractor shall identify any areas that could prevent U.S. companies' participation in the Project.

In addition, the Contractor shall provide an investor-level summary of "investor friendliness" of the Chhattisgarh and Gujarat states solar sector, including an overview of solar resource considerations, and regulatory framework. In particular, the Contractor

shall provide a detailed legal and commercial review of the proposed distributed power system at both National and State levels. This review shall highlight key areas for improvement and present in a format which can be submitted to the States' regulatory committees for consideration and amendment. The Contractor shall also provide input and recommendations on further tariff/regulatory submissions. Based upon the legal and commercial review, the Contractor shall evaluate which, if any, laws, institutions, or policies require modification in order to institute the best practices identified in Task 2. This shall at minimum include:

- Preparation of a definitive list of all the National and State level policy, legal, and regulatory changes recommended to implement solar micro-grids in India generally and Chhattisgarh and Gujarat states and selected localities in particular;
- Prepare suggested language in the form of policy statements, decrees or amendments to existing policies, laws, decrees, etc. required for implementation of the program
- Prepare an implementation schedule for policy statements, decrees, or amendments

**Deliverable:** The Contractor shall prepare a regulatory database and permitting process report and summary of each States' solar sector. In addition, the Contractor shall produce a detailed legal and commercial review report of all sites and prepare policy, legal and regulatory recommendations for submission to State regulatory bodies.

#### **Task 4 – Demand Analysis and Willingness to Pay Study**

The Contractor shall carry out the demand analysis and willingness to pay studies for the communities to be served by the two locations selected as a result of Task 1. These studies shall be conducted to international standards including surveys of sample populations and businesses in the communities in order to establish the projected energy loads. The Contractor shall collect data on end users' main sources and level of income, lifestyle and ability to pay for power, acceptable tariff level, and the expected monthly energy costs for different categories of end users.

**Deliverable:** The Contractor shall prepare a report outlining the findings of the demand analysis and willingness to pay studies.

#### **Task 5 – Solar Irradiation Study**

In order to validate production and energy yields, the Contractor shall conduct measurement and an analysis of the onsite solar irradiation ("solar measurement campaign") at the two proposed plant sites. The solar measurement campaign, upon which the Contractor shall base its solar resource assessment, shall be conducted to provide at least 12 months of quality data on both Global Horizontal Irradiance (GHI) and Direct Normal Irradiance (DNI) at each site. This data shall be used in the final version of the economic model to be prepared by the Contractor.

The Contractor shall perform a solar resource assessment based on the solar measurement campaign. The Contractor shall ensure that either the Contractor itself or a subcontractor retained by the Contractor to perform the solar resource assessment is accredited as an acceptable provider. The solar measurement equipment shall be provided to the Contractor or sub-contractor on a leased basis, and will not be the property of the Grantee.

During the first week of the solar measurement campaign, the Contractor shall visit every solar measuring device after installation in order to check that the monitoring systems correspond to all the parameters. During the 12 month solar measurement campaign the Contractor shall make a monthly reporting on the measurement quality and data availability. The Contractor shall provide correlation analysis between the available reference data and the actual local measurements during the monitoring term in order to provide information about the long term consistency of the local measurements to be used for the conceptual design.

The Contractor shall prepare the solar resource assessment based on the results of the solar measurement campaign. The solar resource assessment shall include at minimum the following information:

- Description of the sites and monitoring equipment
- Selection of a reference meteorological station
- Solar data measurements recorded at the sites, both GHI and DNI
- Data analysis procedures
- Equipment calibration (including certificates)
- Functional specifications for the measurement devices
- Wind shear analysis
- Site wind speed variations
- Projected energy production
- Conclusions and recommendations

**Deliverable:** The Contractor shall prepare a solar resource assessment report for the 2 selected project sites.

#### **Task 6 – Solar Plant Technical Feasibility Analysis**

The Contractor shall carry out a technical feasibility analysis of the rural micro-grid solar PV plants for the two sites of 500 kW each selected in Task 1. Based on the solar assessment report, the Contractor shall provide the Grantee with the expected generation from each site. The Contractor will also provide a preliminary list of all the components, hardware, software, proposed specifications and suppliers needed for the project. The technical feasibility report shall also include a break-out of all the CAPEX and OPEX costs associated with the rural micro-grid solar PV plants. The data compiled from the technical feasibility analysis shall inform the conceptual design to be prepared in Task 8.

**Deliverable:** The Contractor shall prepare a technical feasibility report that includes the evaluation of expected plant electricity generation over time for both plants.

### **Task 7 – Interconnection, Distribution and Metering Study**

The Contractor shall prepare a detailed plan for distribution of power generated from the solar plants to the communities associated with the two sites. The Contractor shall provide a plan for the micro-grid with proposed connection points, and a cost estimate associated with each of these items. The Contractor shall develop a detailed plan for a metering system to monitor and record power usage by the consumers of the power from the solar micro-grid. This shall include the appropriate hardware, software, training needs and the required cost for the whole system. The Contractor shall also determine the scope and cost associated with any future upgrades of the micro-grid or possible connection to the utility grid.

**Deliverable:** The Contractor shall prepare an interconnection, distribution and metering report.

**NOTE:** The analyses in Tasks 6 and 7 shall be performed within the context of the two sites comprising the pilot program. Therefore the Contractor shall give special attention to creating standard design approaches with the aim of launching the program of rural micro-grid solar PV plants on a large scale to other locations across India.

### **Task 8 – Conceptual Design**

The Contractor shall prepare the conceptual designs for the two sites based on the results of Tasks 5, 6 and 7 and on consultations with the Grantee. The conceptual designs shall include the final equipment specification, layouts, grid connection details, performance standards and preliminary drawings. The conceptual design shall be prepared up to highest international standards and shall be suitable for forming the basis of an RFP to be issued for EPC contracting services for the two project sites.

**Deliverable:** The Contractor shall prepare a conceptual design report.

### **Task 9– Economic Analysis**

The Contractor shall perform an economic and financial analysis to evaluate the income levels required to make the proposed rural micro-grid solar PV plant economically viable. The Contractor shall consider different potential financing structures for implementation of the Project.

The Contractor shall use data from the analyses conducted pursuant to this Terms of Reference to form the energy production projection, capital costs and operating expenses. So as not to delay the conduct of this task, the Contractor shall begin to build the model using the proxy data for solar irradiation provided by the Grantee pursuant to Task 1. The final model shall be updated to use the input data from the solar resource assessment to be completed by the Contractor pursuant to Task 5.

The Contractor shall develop their own assumptions for macro economic data and financing terms based on:

- Research and discussions with the International Monetary Fund, the National Bank of India, the Ministry of New and Renewable Energy and the Rural Electrification Corporation and others macro-economic assumptions.
- Discussions about concessional debt and grant funding with the World Bank and other International Financial Institutions, including the Global Environment Facility (“GEF”), the Clean Technology Fund (“CTF”), donors and regional development banks such as the Asian Development Bank, the International Finance Corporation (“IFC”), U.S. Overseas Private Investment Corporation, the United Nations Industrial Development Organization (“UNIDO”), and other appropriate agencies.
- Discussions about carbon credits and the Clean Development Mechanism (CDM) with carbon finance institutions including Natsource, Ecosecurities, Syndicatum, Cantor CO2e and other appropriate institutions.
- Development of a viable scheme for proving payment guarantees sufficient to enable project financing through consultations with micro credit institutions, government and quasi-government bodies in India such as Rural Electrification Corporation (REC), Power Finance Corporation (PFC), Indian Renewable Energy Development Agency (IREDA) and National Bank for Agriculture and Rural Development (NABARD), and international financial institutions providing risk insurance products such as U.S. OPIC, Multilateral Investment Guarantee Agency (MIGA) and Hermes Corporate Investing.
- Discussions with the Grantee’s shareholders.
- Discussions with Indian commercial lenders.

The Contractor shall perform a sensitivity analyses on the CAPEX, OPEX, energy production projections, financing inputs and macro-economic data. The CAPEX and OPEX shall include the costs associated with organizing, establishing and operating the micro-grids as well as the solar plants. The sensitivity analysis shall model changes to these key input variables as well as a series of events that could impact the financial return of the projects such as end user payment risks, weather conditions and technical breakdowns.

The Contractor shall also take into account in the economic analysis the potential impact of financial and tax incentives such as accelerated depreciation, income tax-free solar energy production zones, import duty or value added tax (VAT) exemptions on solar PV related equipment etc. which could reduce the tariff level while providing attractive investment returns.

The primary output of the economic model shall be a determination of the income streams necessary to make rural micro-grid solar PV plants economically viable in India under different conditions. The Contractor shall ensure that the economic evaluation performed meets all standard requirements typically imposed by international lending

institutions on such projects. Standard economic indicators shall be provided for all configurations and sensitivities, such as economic and financial internal rates of return, return on capital employed, benefit/cost ratio, and payback period. The Contractor shall provide an economic model prepared in MS Excel showing all assumptions and calculations for the economic and sensitivity analysis.

**Deliverable:** The Contractor shall provide an economic model that includes an income statement, balance sheet, and a cash flow statement accompanied by analysis.

#### **Task 10: Development of Business Plans**

The Contractor shall prepare full business plans for the rural micro-grid solar PV plants. The Business Plan shall include at a minimum describe the following:

- Market opportunity
- Technical solutions
- Implementation plan
- Enabling regulatory framework
- Financing plan (as detailed in Task 11)
- Organization structure
- Staffing plan
- Compensation
- Job descriptions and qualifications
- Decision making matrix
- Growth plans and targets
- Reporting requirements
- Corporate governance
- Board composition
- Financial Projections as developed in Task 8 for a 10 year period showing:
  - Capital requirements
  - Operating and maintenance budgets
  - Balance sheet and income statements

**Deliverable:** The Contractor shall prepare a business plan report.

#### **Task 11: Establish Financing Plan**

The Contractor shall in concert with the Grantee, develop a financing plan for the rural micro-grid solar PV plants encompassing financing for the pilot project of 2 plants that can serve as a model for expansion on a larger scale. The goal of this task shall be to prepare all documents necessary for the following entities:

- Indian financiers such as REC, PFC, IREDA, NABARD;
- International Financial Institutions such as the World Bank, Global Environment Facility (GEF), the Clean Technology Fund (CTF);
- Donors and regional development banks such as the Asian Development Bank, the International Finance Corporation (IFC), U.S. Overseas Private

Investment Corporation, the United Nations Industrial Development Organization (UNIDO), and other appropriate agencies; and

- Export Credit Agencies such as U.S. Export-Import Bank, and other participating donors identified by the Contractor, and the Grantee.

The Contractor is not expected in this task to actually obtain the financing or funding commitments but shall prepare the aforementioned documents necessary for requests to be submitted.

**Deliverable:** The Contractor shall prepare a financing plan report.

### **Task 12 – Procurement and Logistics**

The Contractor shall provide support to the Grantee on selection of and negotiations with Engineering Procurement and Construction (EPC) and Operation and Maintenance (O&M) providers for the two projects as follows.

The Contractor shall provide cost benchmarking of EPC services and components to assist in the negotiation and selection of the EPC contractor. The Contractor shall also provide detailed pre-qualifying criteria for potential technology providers and a clear selection methodology to be used in the evaluation.

The Contractor shall prepare a Request for Proposals (RFP) to distribute to potential EPC contractors, including the full set of conceptual design and technical specification documents, requested commercial terms, testing, commissioning and handover; all other required services and protections; as well as warranties, performance guaranties and insurances. The Contractor shall provide standard form EPC and O&M services contracts for inclusion in the RFP package.

Prior to negotiation of the EPC and O&M contracts with the selected contractors to be undertaken by the Grantee, the Contractor shall provide advice and guidelines to the Grantee on technical issues and on matters related to warranties, performance guaranties and insurances. For the avoidance of doubt, the Contractor shall not under any circumstance provide advice or recommendation on the selection of the EPC contractor as part of the Contractor's work under this Terms of Reference funded by USTDA.

**Deliverable:** The Contractor shall prepare an EPC cost benchmarking analysis, technology and EPC contractor selection criteria, technical issues, warranty/performance guarantee guidelines, and the Request for Proposal document with EPC and O&M contracts reviewed for commercial and legal terms for the two projects.

### **Task 13: Construction and O & M Planning**

The Contractor shall create a detailed scalable construction plan for the pilot projects. The Contractor shall also provide O&M requirements of the project. It shall include all activities required to ensure proper operation of the facilities for 25-30 year period. All the requirement of spares or replacement of parts of different components after the plant has been commissioned shall be described with expected time period for replacement.

**Deliverable:** The Contractor shall prepare a construction and O&M plan report.

**NOTE:** Contractor shall be obligated to perform the work under Task 12 and 13 only up to a period extending 6 months from the date on which the Contractor has submitted the final Request for Proposal document for each Project pursuant to Task 12 of this Terms of Reference (the “end date”). If for any reason Grantee has not reached the Project implementation milestones necessary that would allow Contractor to perform any of the work in Tasks 12 and 13 by the end date then the Contractor shall be relieved of responsibility to perform Tasks 12 and 13 and the feasibility study budget will be reduced by eliminating the related line item payments associated with this work.

#### **Task 14: Metering, Billing and Collection Assistance**

The Contractor shall provide a plan for preparing and collecting the bills for power used by the consumers. The Contractor shall evaluate current methods used in rural communities elsewhere and assist the Grantee in developing the most suitable approach. This shall also include the period for billing, the rates, fines, payment security mechanism and method for collection from defaulters.

**Deliverable:** The contractor shall prepare a report outlining the method for metering, billing and collection of payment for the solar power.

#### **Task 15: Preliminary Environmental Impact Assessment**

The Contractor shall prepare a preliminary Environmental Impact Assessment (“EIA”) for each Project in accordance with current World Bank standards. The Contractor shall assess the pertinent laws, ordinances, and directives that apply to the construction of off-grid solar power plants in India. The EIA should summarize the applicable codes and standards that apply (both international and locally). The assessment shall address at a minimum land use, water use, noise, visibility, archaeology, endangered species and sandstorms.

**Deliverable:** The Contractor shall prepare a preliminary environmental impact assessments report.

#### **Task 16: Developmental Impact Assessment**

The Contractor shall report on the potential development impact of each Project. The Contractor shall focus on the local economic development outcomes produced if the Projects are implemented. While specific focus shall be paid to the immediate impact of the Projects, the Contractor shall include, where appropriate, any additional development and social benefits of the Projects, including spin-off and demonstration effects. The Contractor’s analysis of potential benefits should be as concrete and detailed as possible.

The development impact factors are intended to provide the Projects’ decision-makers and interested parties with a broader view of the Projects’ potential effects on the Host Country.

The Contractor shall provide estimates of the Projects' potential benefits in the following areas:

- Infrastructure/Industry. The Contractor shall provide a statement on the infrastructure built and a brief synopsis of the impacts of the project on the industry.
- Market-Oriented Reforms. The Contractor shall provide a description of any regulation, law or institutional changes that are recommended and the effect they would have if implemented.
- Human Capacity Building. The Contractor shall address the number and type of positions that would be needed to construct and operate the proposed Projects as well as the number of people who will receive training and a brief description of the training program.
- Technology Transfer and Productivity Enhancement. The Contractor shall provide a description of any advanced technologies that will be implemented as a result of the Projects. The Contractor shall provide a quantitative description of any efficiency that will be gained.
- Other. The Contractor shall identify any other development benefits of the Projects, including any spin-off or demonstration effects including the effect on the rural communities where the sites will be located and the neighboring villages.

**Deliverable:** The Contractor shall prepare a developmental impact assessment report.

#### **Task 17: Final Report**

The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive final report of all work performed under these Terms of Reference ("Final Report"). The Final Report shall be organized according to the above tasks, and shall include all deliverables and documents that have been provided to the Grantee. The Contractor shall identify U.S. sources of supply and shall list the business name, point of contact, address, telephone, e-mail, and fax numbers of principal prospective sources. The Contractor shall meet with the Project Sponsor to present and review the Draft Report findings and agree on all report revisions. 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 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 Azure Power India Private Limited ("Client"), dated \_\_\_\_\_ ("Grant Agreement"). The Client has selected \_\_\_\_\_ ("Contractor") to perform the feasibility study ("Study") for the Rural Micro-Grid Solar Power project ("Project") in India ("Host Country"). Notwithstanding any other provisions of this contract, the following USTDA mandatory contract clauses shall govern. All subcontracts entered into by Contractor funded or partially funded with USTDA Grant funds shall include these USTDA mandatory contract clauses, except for clauses B(1), G, H, I, and J. In addition, in the event of any inconsistency between the Grant Agreement and any contract or subcontract thereunder, the Grant Agreement shall be controlling.

#### B. USTDA as Financier

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

A payment schedule for disbursement of Grant funds to the Contractor shall be included in this Contract. Such payment schedule must conform to the following USTDA requirements: (1) up to twenty percent (20%) of the total USTDA Grant amount may be used as a mobilization payment; (2) all other payments, with the exception of the final payment, shall be based upon contract performance milestones; and (3) the final payment may be no less than fifteen percent (15%) of the total USTDA Grant amount, payable upon receipt by USTDA of (i) an approved Final Report in accordance with the specifications and quantities, set forth in Clause I below, and (ii) the cost-share certification and cost breakdown, set forth in Clause L 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 N 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, and USTDA's mailing and delivery addresses. If the complete version of the Final Report contains confidential information, the Contractor shall be responsible for labeling the front cover of that version of the Final Report with the term "Confidential Version". The Contractor shall be responsible for labeling the front cover of the Public Version of the Final Report with the term "Public Version." The front cover of every Final Report shall also contain the following disclaimer:

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

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

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

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

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

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

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

## **J. Modifications**

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

## **K. Study Schedule**

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

The completion date for the Study, which is March 28, 2014, is the date by which the parties estimate that the Study will have been completed.

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

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

**L. Grantee Cost Share**

The Grantee agrees that, in addition to the funding provided by the USTDA Grant, it shall be responsible for ensuring that it cover at least US\$ 100,000 of costs to complete the full Terms of Reference as set forth in Annex I to the Grant Agreement and this Contract. The Grantee shall pay the Contractor the cash cost share of \$19,800 upon commencement of the study and the in-kind cost share shall be paid as specified in the contract between the Grantee and the Contractor.

**M. Business Practices**

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

**N. 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 12/131001

Activity No.:20012-31007A

Reservation No.:2012089

Grant No.: GH 201231089

**O. Definitions**

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

**P. Taxes**

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

## **ANNEX 5**

## **Terms of Reference**

The objective of this project is to assist the Grantee in developing a Rural Micro-grid Solar PV System and business model that can be deployed in remote non-electrified villages in India. The Feasibility Study will be carried out on pilot 500 kW PV plants at two locations in Chhattisgarh and Gujarat, India. Any change in location of the two pilot projects will be subject to approval by USTDA. The Grantee shall provide project management support, local project implementation information including but not limited to: the provision of information, data and material; the coordination of meetings; the provision of information pertaining to project costs and site conditions; and assistance in obtaining necessary information from relevant entities. The Contractor shall address all issues related to the feasibility of developing and implementing the Rural Micro-grid solar PV plants as specified in this Terms of Reference.

### **Task 1 – Site Assessment and Project Planning**

The Contractor shall travel to India within 6 weeks of signing the contract with the Grantee for the Project Kick-off Meeting with the Grantee. During the same trip the Contractor shall also meet with key representatives of the regulatory bodies and officials responsible for the two States (Chhattisgarh and Gujarat) where the pilot projects will be developed. These meetings will be arranged by Grantee. Prior to or during this trip, the Grantee shall deliver the following information to the Contractor:

- Detailed information and status update on no more than 12 sites for the proposed PV plants
- Preliminary cost estimations and schedule for the proposed projects
- Solar Regulatory and Policy status update for all considered site locations
- Copies of any approvals and permissions obtained to date

The Contractor shall prepare a detailed Work Plan during the Project Kick-off meetings. This plan shall become the basic project management tool and shall contain specific deadlines and overall implementation schedule.

On this same mission, the Contractor shall visit proposed sites for the two plants. Physical and site constraints will be evaluated during this visit, including but not limited to:

- Topography and soil testing
- Electrical resistivity testing
- Flatness of the terrain and degree of leveling required
- Preliminary meteorological assessment, including flood risks, flood management/drainage required

- Availability of any grid or required setup for evacuation over HT and LT lines to consumers
- Logistical access for equipment supply (will roads need to be built, modified, etc)

The Contractor shall make note of all site characteristics relevant to plant design and technology evaluation. The Contractor shall recommend the most attractive sites based on criteria to be agreed upon with the Grantee. The Contractor shall certify suitability of all recommended sites for rural micro-grid solar power plants or indicate complicating factors preventing suitability.

**Deliverable:** The Contractor shall prepare a report describing the findings of the initial meetings, documentation of all gathered information and previous studies, and a detailed work plan on how the following tasks are to be completed.

### **Task 2: Review Solar Micro-Grid Models in Other Countries**

The Contractor shall review recent experience related to establishing successful solar micro-grids in rural electrification programs in other countries in the region and elsewhere. The Contractor shall specifically focus on laws and regulations that have been enacted to facilitate sustainable institutional framework, including formation of new rural electric service providers and viable business and financing models. The Contractor shall evaluate and document the best practices of each country examined. Recent positive experiences in Uganda, Sudan, Bangladesh, and the Philippines are suggested as starting points.

**Deliverable:** The Contractor shall provide a report that describes the best practices for establishing regulatory and business models for solar micro-grids in other countries.

### **Task 3 - Regulatory Review and Policy Recommendations**

The Contractor shall review at both the National and State levels existing schemes for rural electrification programs, permitting requirements, electricity production and distribution license requirements, tariff regulations, construction regulations and other constraints (right-of-way, zoning ordinances, etc.) that may need to be taken into account before the Project can move into the implementation stage. The Contractor shall prepare a regulatory database and permitting process report, highlighting policy and regulatory strengths and weaknesses.

The regulatory database and permitting process report should focus on tariff setting, construction regulations, Independent Power Producer (IPP) rules and regulations, interconnection and distribution conditions, environmental regulations, land and water use and regulations. The Contractor shall identify any areas that could prevent U.S. companies' participation in the Project.

In addition, the Contractor shall provide an investor-level summary of "investor friendliness" of the Chhattisgarh and Gujarat states solar sector, including an overview of

solar resource considerations, and regulatory framework. In particular, the Contractor shall provide a detailed legal and commercial review of the proposed distributed power system at both National and State levels. This review shall highlight key areas for improvement and present in a format which can be submitted to the States' regulatory committees for consideration and amendment. The Contractor shall also provide input and recommendations on further tariff/regulatory submissions. Based upon the legal and commercial review, the Contractor shall evaluate which, if any, laws, institutions, or policies require modification in order to institute the best practices identified in Task 2. This shall at minimum include:

- Preparation of a definitive list of all the National and State level policy, legal, and regulatory changes recommended to implement solar micro-grids in India generally and Chhattisgarh and Gujarat states and selected localities in particular;
- Prepare suggested language in the form of policy statements, decrees or amendments to existing policies, laws, decrees, etc. required for implementation of the program
- Prepare an implementation schedule for policy statements, decrees, or amendments

**Deliverable:** The Contractor shall prepare a regulatory database and permitting process report and summary of each States' solar sector. In addition, the Contractor shall produce a detailed legal and commercial review report of all sites and prepare policy, legal and regulatory recommendations for submission to State regulatory bodies.

#### **Task 4 – Demand Analysis and Willingness to Pay Study**

The Contractor shall carry out the demand analysis and willingness to pay studies for the communities to be served by the two locations selected as a result of Task 1. These studies shall be conducted to international standards including surveys of sample populations and businesses in the communities in order to establish the projected energy loads. The Contractor shall collect data on end users' main sources and level of income, lifestyle and ability to pay for power, acceptable tariff level, and the expected monthly energy costs for different categories of end users.

**Deliverable:** The Contractor shall prepare a report outlining the findings of the demand analysis and willingness to pay studies.

#### **Task 5 – Solar Irradiation Study**

In order to validate production and energy yields, the Contractor shall conduct measurement and an analysis of the onsite solar irradiation ("solar measurement campaign") at the two proposed plant sites. The solar measurement campaign, upon which the Contractor shall base its solar resource assessment, shall be conducted to provide at least 12 months of quality data on both Global Horizontal Irradiance (GHI) and Direct Normal Irradiance (DNI) at each site. This data shall be used in the final version of the economic model to be prepared by the Contractor.

The Contractor shall perform a solar resource assessment based on the solar measurement campaign. The Contractor shall ensure that either the Contractor itself or a subcontractor retained by the Contractor to perform the solar resource assessment is accredited as an acceptable provider. The solar measurement equipment shall be provided to the Contractor or sub-contractor on a leased basis, and will not be the property of the Grantee.

During the first week of the solar measurement campaign, the Contractor shall visit every solar measuring device after installation in order to check that the monitoring systems correspond to all the parameters. During the 12 month solar measurement campaign the Contractor shall make a monthly reporting on the measurement quality and data availability. The Contractor shall provide correlation analysis between the available reference data and the actual local measurements during the monitoring term in order to provide information about the long term consistency of the local measurements to be used for the conceptual design.

The Contractor shall prepare the solar resource assessment based on the results of the solar measurement campaign. The solar resource assessment shall include at minimum the following information:

- Description of the sites and monitoring equipment
- Selection of a reference meteorological station
- Solar data measurements recorded at the sites, both GHI and DNI
- Data analysis procedures
- Equipment calibration (including certificates)
- Functional specifications for the measurement devices
- Wind shear analysis
- Site wind speed variations
- Projected energy production
- Conclusions and recommendations

**Deliverable:** The Contractor shall prepare a solar resource assessment report for the 2 selected project sites.

### **Task 6 – Solar Plant Technical Feasibility Analysis**

The Contractor shall carry out a technical feasibility analysis of the rural micro-grid solar PV plants for the two sites of 500 kW each selected in Task 1. Based on the solar assessment report, the Contractor shall provide the Grantee with the expected generation from each site. The Contractor will also provide a preliminary list of all the components, hardware, software, proposed specifications and suppliers needed for the project. The technical feasibility report shall also include a break-out of all the CAPEX and OPEX costs associated with the rural micro-grid solar PV plants. The data compiled from the technical feasibility analysis shall inform the conceptual design to be prepared in Task 8.

**Deliverable:** The Contractor shall prepare a technical feasibility report that includes the evaluation of expected plant electricity generation over time for both plants.

### **Task 7 – Interconnection, Distribution and Metering Study**

The Contractor shall prepare a detailed plan for distribution of power generated from the solar plants to the communities associated with the two sites. The Contractor shall provide a plan for the micro-grid with proposed connection points, and a cost estimate associated with each of these items. The Contractor shall develop a detailed plan for a metering system to monitor and record power usage by the consumers of the power from the solar micro-grid. This shall include the appropriate hardware, software, training needs and the required cost for the whole system. The Contractor shall also determine the scope and cost associated with any future upgrades of the micro-grid or possible connection to the utility grid.

**Deliverable:** The Contractor shall prepare an interconnection, distribution and metering report.

**NOTE:** The analyses in Tasks 6 and 7 shall be performed within the context of the two sites comprising the pilot program. Therefore the Contractor shall give special attention to creating standard design approaches with the aim of launching the program of rural micro-grid solar PV plants on a large scale to other locations across India.

### **Task 8 – Conceptual Design**

The Contractor shall prepare the conceptual designs for the two sites based on the results of Tasks 5, 6 and 7 and on consultations with the Grantee. The conceptual designs shall include the final equipment specification, layouts, grid connection details, performance standards and preliminary drawings. The conceptual design shall be prepared up to highest international standards and shall be suitable for forming the basis of an RFP to be issued for EPC contracting services for the two project sites.

**Deliverable:** The Contractor shall prepare a conceptual design report.

### **Task 9– Economic Analysis**

The Contractor shall perform an economic and financial analysis to evaluate the income levels required to make the proposed rural micro-grid solar PV plant economically viable. The Contractor shall consider different potential financing structures for implementation of the Project.

The Contractor shall use data from the analyses conducted pursuant to this Terms of Reference to form the energy production projection, capital costs and operating expenses. So as not to delay the conduct of this task, the Contractor shall begin to build the model using the proxy data for solar irradiation provided by the Grantee pursuant to Task 1.

The final model shall be updated to use the input data from the solar resource assessment to be completed by the Contractor pursuant to Task 5.

The Contractor shall develop their own assumptions for macro economic data and financing terms based on:

- Research and discussions with the International Monetary Fund, the National Bank of India, the Ministry of New and Renewable Energy and the Rural Electrification Corporation and others macro-economic assumptions.
- Discussions about concessional debt and grant funding with the World Bank and other International Financial Institutions, including the Global Environment Facility (“GEF”), the Clean Technology Fund (“CTF”), donors and regional development banks such as the Asian Development Bank, the International Finance Corporation (“IFC”), U.S. Overseas Private Investment Corporation, the United Nations Industrial Development Organization (“UNIDO”), and other appropriate agencies.
- Discussions about carbon credits and the Clean Development Mechanism (CDM) with carbon finance institutions including Natsource, EcoSecurities, Syndicatum, Cantor CO2e and other appropriate institutions.
- Development of a viable scheme for proving payment guarantees sufficient to enable project financing through consultations with micro credit institutions, government and quasi-government bodies in India such as Rural Electrification Corporation (REC), Power Finance Corporation (PFC), Indian Renewable Energy Development Agency (IREDA) and National Bank for Agriculture and Rural Development (NABARD), and international financial institutions providing risk insurance products such as U.S. OPIC, Multilateral Investment Guarantee Agency (MIGA) and Hermes Corporate Investing.
- Discussions with the Grantee’s shareholders.
- Discussions with Indian commercial lenders.

The Contractor shall perform a sensitivity analyses on the CAPEX, OPEX, energy production projections, financing inputs and macro-economic data. The CAPEX and OPEX shall include the costs associated with organizing, establishing and operating the micro-grids as well as the solar plants. The sensitivity analysis shall model changes to these key input variables as well as a series of events that could impact the financial return of the projects such as end user payment risks, weather conditions and technical breakdowns.

The Contractor shall also take into account in the economic analysis the potential impact of financial and tax incentives such as accelerated depreciation, income tax-free solar energy production zones, import duty or value added tax (VAT) exemptions on solar PV related equipment etc. which could reduce the tariff level while providing attractive investment returns.

The primary output of the economic model shall be a determination of the income streams necessary to make rural micro-grid solar PV plants economically viable in India under different conditions. The Contractor shall ensure that the economic evaluation performed meets all standard requirements typically imposed by international lending institutions on such projects. Standard economic indicators shall be provided for all configurations and sensitivities, such as economic and financial internal rates of return, return on capital employed, benefit/cost ratio, and payback period. The Contractor shall provide an economic model prepared in MS Excel showing all assumptions and calculations for the economic and sensitivity analysis.

***Deliverable:** The Contractor shall provide an economic model that includes an income statement, balance sheet, and a cash flow statement accompanied by analysis.*

**Task 10: Development of Business Plans**

The Contractor shall prepare full business plans for the rural micro-grid solar PV plants. The Business Plan shall include at a minimum describe the following:

- Market opportunity
- Technical solutions
- Implementation plan
- Enabling regulatory framework
- Financing plan (as detailed in Task 11)
- Organization structure
- Staffing plan
- Compensation
- Job descriptions and qualifications
- Decision making matrix
- Growth plans and targets
- Reporting requirements
- Corporate governance
- Board composition
- Financial Projections as developed in Task 8 for a 10 year period showing:
  - Capital requirements
  - Operating and maintenance budgets
  - Balance sheet and income statements

**Deliverable:** The Contractor shall prepare a business plan report.

**Task 11: Establish Financing Plan**

The Contractor shall in concert with the Grantee, develop a financing plan for the rural micro-grid solar PV plants encompassing financing for the pilot project of 2 plants that can serve as a model for expansion on a larger scale. The goal of this task shall be to prepare all documents necessary for the following entities:

- Indian financiers such as REC, PFC, IREDA, NABARD;
- International Financial Institutions such as the World Bank, Global Environment Facility (GEF), the Clean Technology Fund (CTF);

- Donors and regional development banks such as the Asian Development Bank, the International Finance Corporation (IFC), U.S. Overseas Private Investment Corporation, the United Nations Industrial Development Organization (UNIDO), and other appropriate agencies; and
- Export Credit Agencies such as U.S. Export-Import Bank, and other participating donors identified by the Contractor, and the Grantee.

The Contractor is not expected in this task to actually obtain the financing or funding commitments but shall prepare the aforementioned documents necessary for requests to be submitted.

**Deliverable:** The Contractor shall prepare a financing plan report.

### **Task 12 – Procurement and Logistics**

The Contractor shall provide support to the Grantee on selection of and negotiations with Engineering Procurement and Construction (EPC) and Operation and Maintenance (O&M) providers for the two projects as follows.

The Contractor shall provide cost benchmarking of EPC services and components to assist in the negotiation and selection of the EPC contractor. The Contractor shall also provide detailed pre-qualifying criteria for potential technology providers and a clear selection methodology to be used in the evaluation.

The Contractor shall prepare a Request for Proposals (RFP) to distribute to potential EPC contractors, including the full set of conceptual design and technical specification documents, requested commercial terms, testing, commissioning and handover; all other required services and protections; as well as warranties, performance guaranties and insurances. The Contractor shall provide standard form EPC and O&M services contracts for inclusion in the RFP package.

Prior to negotiation of the EPC and O&M contracts with the selected contractors to be undertaken by the Grantee, the Contractor shall provide advice and guidelines to the Grantee on technical issues and on matters related to warranties, performance guaranties and insurances. For the avoidance of doubt, the Contractor shall not under any circumstance provide advice or recommendation on the selection of the EPC contractor as part of the Contractor's work under this Terms of Reference funded by USTDA.

**Deliverable:** The Contractor shall prepare an EPC cost benchmarking analysis, technology and EPC contractor selection criteria, technical issues, warranty/performance guarantee guidelines, and the Request for Proposal document with EPC and O&M contracts reviewed for commercial and legal terms for the two projects.

### **Task 13: Construction and O & M Planning**

The Contractor shall create a detailed scalable construction plan for the pilot projects. The Contractor shall also provide O&M requirements of the project. It shall include all activities required to ensure proper operation of the facilities for 25-30 year period. All the requirement of spares or replacement of parts of different components after the plant has been commissioned shall be described with expected time period for replacement.

**Deliverable:** The Contractor shall prepare a construction and O&M plan report.

**NOTE:** Contractor shall be obligated to perform the work under Task 12 and 13 only up to a period extending 6 months from the date on which the Contractor has submitted the final Request for Proposal document for each Project pursuant to Task 12 of this Terms of Reference (the “end date”). If for any reason Grantee has not reached the Project implementation milestones necessary that would allow Contractor to perform any of the work in Tasks 12 and 13 by the end date then the Contractor shall be relieved of responsibility to perform Tasks 12 and 13 and the feasibility study budget will be reduced by eliminating the related line item payments associated with this work.

#### **Task 14: Metering, Billing and Collection Assistance**

The Contractor shall provide a plan for preparing and collecting the bills for power used by the consumers. The Contractor shall evaluate current methods used in rural communities elsewhere and assist the Grantee in developing the most suitable approach. This shall also include the period for billing, the rates, fines, payment security mechanism and method for collection from defaulters.

**Deliverable:** The contractor shall prepare a report outlining the method for metering, billing and collection of payment for the solar power.

#### **Task 15: Preliminary Environmental Impact Assessment**

The Contractor shall prepare a preliminary Environmental Impact Assessment (“EIA”) for each Project in accordance with current World Bank standards. The Contractor shall assess the pertinent laws, ordinances, and directives that apply to the construction of off-grid solar power plants in India. The EIA should summarize the applicable codes and standards that apply (both international and locally). The assessment shall address at a minimum land use, water use, noise, visibility, archaeology, endangered species and sandstorms.

**Deliverable:** The Contractor shall prepare a preliminary environmental impact assessments report.

#### **Task 16: Developmental Impact Assessment**

The Contractor shall report on the potential development impact of each Project. The Contractor shall focus on the local economic development outcomes produced if the Projects are implemented. While specific focus shall be paid to the immediate impact of the Projects, the Contractor shall include, where appropriate, any additional development and social

benefits of the Projects, including spin-off and demonstration effects. The Contractor's analysis of potential benefits should be as concrete and detailed as possible.

The development impact factors are intended to provide the Projects' decision-makers and interested parties with a broader view of the Projects' potential effects on the Host Country. The Contractor shall provide estimates of the Projects' potential benefits in the following areas:

- **Infrastructure/Industry.** The Contractor shall provide a statement on the infrastructure built and a brief synopsis of the impacts of the project on the industry.
- **Market-Oriented Reforms.** The Contractor shall provide a description of any regulation, law or institutional changes that are recommended and the effect they would have if implemented.
- **Human Capacity Building.** The Contractor shall address the number and type of positions that would be needed to construct and operate the proposed Projects as well as the number of people who will receive training and a brief description of the training program.
- **Technology Transfer and Productivity Enhancement.** The Contractor shall provide a description of any advanced technologies that will be implemented as a result of the Projects. The Contractor shall provide a quantitative description of any efficiency that will be gained.
- **Other.** The Contractor shall identify any other development benefits of the Projects, including any spin-off or demonstration effects including the effect on the rural communities where the sites will be located and the neighboring villages.

**Deliverable:** The Contractor shall prepare a developmental impact assessment report.

### **Task 17: Final Report**

The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive final report of all work performed under these Terms of Reference ("Final Report"). The Final Report shall be organized according to the above tasks, and shall include all deliverables and documents that have been provided to the Grantee. The Contractor shall identify U.S. sources of supply and shall list the business name, point of contact, address, telephone, e-mail, and fax numbers of principal prospective sources. The Contractor shall meet with the Project Sponsor to present and review the Draft Report findings and agree on all report revisions. The Final Report shall be prepared in accordance with Clause I of Annex II of the Grant Agreement.

**Notes:**

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

## **ANNEX 6**



## USTDA-Funded Feasibility Study, Technical Assistance, or Training Grant

### U.S. Firm Information Form

This form is designed to enable the U.S. Trade and Development Agency ("USTDA") to obtain information about entities and individuals proposed for participation in USTDA-funded activities. Information in this form is used to conduct screening of entities and individuals to ensure compliance with legislative and executive branch prohibitions on providing support or resources to, or engaging in transactions with, certain individuals or entities with which USTDA must comply.

USTDA Activity Number *[To be completed by USTDA]*

Activity Type <i>[To be completed by USTDA]</i>	Feasibility Study	Technical Assistance	Other (specify)

Activity Title *[To be completed by USTDA]*

Full Legal Name of U.S. Firm

Business Address (street address only)

Telephone	Fax	Website

Year Established (include any predecessor company(s) and year(s) established, if appropriate).  
Please attach additional pages as necessary.

Please provide a list of directors and principal officers as detailed in Attachment A. Attached?  Yes  No

Type of Ownership	Publicly Traded Company
	Private Company
	Other (please specify)

If Private Company or Other (if applicable), provide a list of shareholders and the percentage of their ownership. In addition, for each shareholder that owns 15% or more shares in U.S. Firm, please complete Attachment B.

Is the U.S. Firm a wholly-owned or partially owned subsidiary?	Yes <input type="checkbox"/> No <input type="checkbox"/>
--	--

If so, please provide the name of the U.S. Firm's parent company(s). In addition, for any parent identified, please complete Attachment B.

Is the U.S. Firm proposing to subcontract some of the proposed work to another firm?	Yes <input type="checkbox"/> No <input type="checkbox"/>
--	--

If yes, U.S. Firm shall complete Attachment C for each subcontractor. Attached?	Yes <input type="checkbox"/> Not applicable <input type="checkbox"/>
---	--

#### Project Manager

Name	Surname	
	Given Name	
Address		
Telephone		
Fax		
Email		

#### Negotiation Prerequisites

Discuss any current or anticipated commitments which may impact the ability of the U.S. Firm or its subcontractors to complete the Activity as proposed and reflect such impact within the project schedule.	
--	--

Identify any specific information which is needed from the Grantee before commencing negotiations.	
--	--

*U.S. Firm may attach additional sheets, as necessary.*

**U.S. Firm's Representations**

U.S. Firm shall certify to the following (or provide any explanation as to why any representation cannot be made):

1. U.S. Firm is a [check one]  Corporation  LLC  Partnership  Sole Proprietor  Other:   
 duly organized, validly existing and in good standing under the laws of the State of:   
 The U.S. Firm 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 USTDA Activity. The U.S. Firm 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 U.S. Firm has included herewith, a copy of its Articles of Incorporation (or equivalent charter or document issued by a designated authority in accordance with applicable laws that provides information and authentication regarding the legal status of an entity) and a Certificate of Good Standing (or equivalent document) issued within 1 month of the date of signature below by the State of:   
 The U.S. Firm commits to notify USTDA and the Grantee if it becomes aware of any change in its status in the state in which it is incorporated. USTDA retains the right to request an updated certificate of good standing.
3. Neither the U.S. Firm nor any of its principal officers have, within the three-year period preceding the submission of this proposal, 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 U.S. Firm, nor any of its principal officers, is presently indicted for, or otherwise criminally or civilly charged with, commission of any of the offenses enumerated in paragraph 3 above.
5. There are no federal or state tax liens pending against the assets, property or business of the U.S. Firm. The U.S. Firm, has not, within the three-year period preceding the submission of this proposal, been notified of any delinquent federal or state taxes in an amount that exceeds US\$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 U.S. Firm has not commenced a voluntary case or other proceeding seeking liquidation, reorganization or other relief with respect to itself of its debts under any bankruptcy, insolvency or other similar law. The U.S. Firm has not had filed against it an involuntary petition under any bankruptcy, insolvency or similar law.
7. The U.S. Firm certifies that it complies with USTDA Nationality, Source, and Origin Requirements and shall continue to comply with such requirements throughout the duration of the USTDA-funded activity. The U.S. Firm commits to notify USTDA and the Grantee if it becomes aware of any change which might affect U.S. Firm's ability to meet the USTDA Nationality, Source, and Origin Requirements.

*The U.S. Firm shall notify USTDA if any of the representations are no longer true and correct.*

U.S. Firm certifies that the information provided in this form is true and correct. U.S. Firm understands and agrees that the U.S. Government may rely on the accuracy of this information in processing a request to participate in a USTDA-funded activity. If at any time USTDA has reason to believe that any person or entity has willfully and knowingly provided incorrect information or made false statements, USTDA may take action under applicable law. The undersigned represents and warrants that he/she has the requisite power and authority to sign on behalf of the U.S. Firm.

Name	<input type="text"/>	Signature	<input type="text"/>
Title	<input type="text"/>		
Organization	<input type="text"/>	Date	<input type="text"/>





**ATTACHMENT B**

**USTDA-Funded Feasibility Study, Technical Assistance, or Training Grant**

**U.S. Firm Information Form – Shareholder(s) and Parent Company(s)**

If applicable, U.S. Firm provided a list of shareholders and the percentage of their ownership. This form shall be completed for each shareholder that owns 15% or more shares in U.S. Firm, as well as any parent corporation of the U.S. Firm (“Shareholder”). In addition, this form shall be completed for each shareholder identified in Attachment B that owns 15% or more shares in any Shareholder, as well as any parent identified in Attachment B.

USTDA Activity Number <i>[To be completed by USTDA]</i>	
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Activity Title <i>[To be completed by USTDA]</i>	
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Full Legal Name of U.S. Firm	
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Full Legal Name of Shareholder	
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Business Address of Shareholder (street address only)	
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Telephone number		Fax Number	
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Year Established (include any predecessor company(s) and year(s) established, if appropriate). Please attach additional pages as necessary.	
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Country of Shareholder’s Principal Place of Business	
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Please provide a list of directors and principal officers as detailed in Attachment A. Attached?	Yes
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Type of Ownership	<input type="checkbox"/> Publicly Traded Company
	<input type="checkbox"/> Private Company
	<input type="checkbox"/> Other

If applicable, provide a list of shareholders and the percentage of their ownership. In addition, for each shareholder that owns 15% or more shares in Shareholder, please complete Attachment B.	
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Is the Shareholder a wholly-owned or partially owned subsidiary?	<input type="checkbox"/> Yes
	<input type="checkbox"/> No

If so, please provide the name of the Shareholder’s parent(s). In addition, for any parent identified, please complete Attachment B.	
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*Shareholder may attach additional sheets, as necessary.*



**ATTACHMENT C**

**USTDA-Funded Feasibility Study, Technical Assistance, or Training Grant**

**Subcontractor Information Form**

This form is designed to enable the U.S. Trade and Development Agency ("USTDA") to obtain information about entities and individuals proposed for participation in USTDA-funded activities. Information in this form is used to conduct screening of entities and individuals to ensure compliance with legislative and executive branch prohibitions on providing support or resources to, or engaging in transactions with, certain individuals or entities with which USTDA must comply.

USTDA Activity Number <i>[To be completed by USTDA]</i>	
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Activity Title <i>[To be completed by USTDA]</i>	
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Full Legal Name of Prime Contractor U.S. Firm ("U.S. Firm")	
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Full Legal Name of Subcontractor	
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Business Address of Subcontractor (street address only)	
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Telephone Number	
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Fax Number	
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Year Established (include any predecessor company(s) and year(s) established, if appropriate). Please attach additional pages as necessary.	
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**Subcontractor Point of Contact**

Name	Surname	
	Given Name	

Address	
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Telephone	
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Fax	
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Email	
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**Subcontractor's Representations**

Subcontractor shall provide the following (or any explanation as to why any representation cannot be made), made as of the date of the proposal:

1. Subcontractor is a <i>[check one]</i>	<input type="checkbox"/> Corporation	<input type="checkbox"/> LLC	<input type="checkbox"/> Partnership	<input type="checkbox"/> Sole Proprietor	<input type="checkbox"/> Other
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duly organized, validly existing and in good standing under the laws 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 U.S. Firm is selected, to execute and deliver a subcontract to the U.S. Firm for the performance of the USTDA Activity and to perform the USTDA Activity. 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 the submission of the Offeror's proposal, 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.

6. The Subcontractor certifies that it complies with the USTDA Nationality, Source, and Origin Requirements and shall continue to comply with such requirements throughout the duration of the USTDA-funded activity. The Subcontractor commits to notify USTDA, the Contractor, and the Grantee if it becomes aware of any change which might affect U.S. Firm's ability to meet the USTDA Nationality, Source, and Origin Requirements.

*The selected Subcontractor shall notify the U.S. Firm, Grantee and USTDA if any of the representations included in its proposal are no longer true and correct.*

Subcontractor certifies that the information provided in this form is true and correct. Subcontractor understands and agrees that the U.S. Government may rely on the accuracy of this information in processing a request to participate in a USTDA-funded activity. If at any time USTDA has reason to believe that any person or entity has willfully and knowingly provided incorrect information or made false statements, USTDA may take action under applicable law. The undersigned represents and warrants that he/she has the requisite power and authority to sign on behalf of the Subcontractor.

Name		Signature	
Title			
Organization		Date	