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& OHSAS 18001:2007
Certified Company

आरईसी पावर डिस्ट्रीब्यूशन कम्पनी लिमिटेड REC POWER DISTRIBUTION COMPANY LIMITED

(A wholly owned subsidiary of REC Ltd., a 'Navratna CPSE' under Ministry of Power, Govt. of India)

CIN No. RECPDCL-U40101DL2007GOI165779

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NIT No: RECPDCL/LT/SOLAR/AR/2016-17/1638

Date: 19.01.2017

Notice Inviting Financial Tender

(Invited through e-Tendering mode only)

(Limited to Agencies as per RECPDCL's notification dated: 29.11.2016 on List of Successful Agencies (Revised) of our Solar Empanelment EOI no: RECPDCL/Tech/EOI/Empanelment/2015-16/3130 dated: 02.02.2016 and fulfilling the EOI Empanelment Criteria – List of eligible Bidders is notified at Eligibility Criteria section of this NIT)

for

**RURAL ELECTRIFICATION OF 900 NOS. OF OFF-GRID VILLAGES IN ARUNACHAL PRADESH BY
(a) INSTALLING 300Wp SOLAR POWER PACKS AND
(b) INSTALLING SOLAR STREET LIGHTING
UNDER DEENDAYAL UPADHYAYA GRAM JYOTI YOJANA (DDUGJY)**

REC Power Distribution Company Limited (RECPDCL)

(A wholly owned subsidiary of REC Ltd., a 'Navaratna CPSE'

Under Ministry of Power, Govt. of India)

CIN no. of RECPDCL: U40101DL2007GOI165779

Corporate office

10th Floor, 1016-1023,
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New Delhi-110019
Telephone: (011) 44128755
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Website: www.recpdcl.in

Description of task, e-tender submission format and procedure is provided in the NIT document available on RECPDCL website (www.recpdcl.in), REC website (www.recindia.nic.in), e-tendering website (www.tenderwizard.com/REC), Central Public Procurement Portal www.eprocure.gov.in

Important Dates	
Date of Release of NIT / Tender	19.01.2017
Last date of submission of Financial Bid	23.01.2017 at 12:00 Hours
Date of Opening of Bids	23.01.2017 at 12:30 Hours

Note: Online registration has to be done at e-tendering website i.e. www.tenderwizard.com/REC in general, activation of registration may take about maximum 24 hours subject to the submission of all requisite documents required in the process..

-Sd-
(S.C. Garg)
Addl. C.E.O.

[This document is meant for the purpose of engaging of Agencies against this tender and should not be transferred, reproduced or otherwise used for purposes other than specified/issued]

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Section-1
TENDER INFORMATION

Name of the Assignment:

RURAL ELECTRIFICATION OF 900 NOS. OF OFF-GRID VILLAGES IN ARUNACHAL PRADESH BY (a) INSTALLING 300Wp SOLAR POWER PACKS AND (b) INSTALLING SOLAR STREET LIGHTING UNDER DEENDAYAL UPADHYAYA GRAM JYOTI YOJANA (DDUGJY)

Important Information

Sl. No.	Event	Date / Information
1	Date of Release of NIT / Tender	23.01.2017
2	Last date of submission of Bid	23.01.2017 at 12:00 Hours
3	Date of Opening of Bids	23.01.2017 at 12:30 Hours
4	Tender document	The Tender document can be downloaded and viewed from any of the website: www.recpdcl.in (or) www.recindia.nic.in (or) www.eprocure.gov.in (or) (www.tenderwizard.com/REC) at free of cost.
5	Address for communication	REC Power Distribution Company Limited (RECPDCL), 1016-1023, 10th Floor, Devika Tower, Nehru Place, New Delhi – 110019 Phone :+91-11- 44128755, Fax : +91-11-44128768, Email: co.delhi@recpdcl.in
6	Validity of Bid	180 days from the date of opening of bid
7	Contact Person	Shri. S.C. Garg, Addl. CEO, REC Power Distribution Company Limited (RECPDCL), Phone:011-44128755; Fax:011-44128768, Email: co.delhi@recpdcl.in

SECTION - 2
INSTRUCTIONS TO BIDDING AGENCIES

SUBMISSION PROCESS OF BID DOUMENTS:

A. Downloading & viewing of Tender Document:

Bidders can download and view Tender document from RECPDCL web site www.recpdcl.in (or) e-tender website www.tenderwizard.com/REC(or) REC website www.recindia.nic.in (or) Central Public Procurement Portal www.eprocure.gov.in at free of cost.

B. Participation in e-Bid Submission:

Bidders shall submit their bid documents online through website www.tenderwizard.com/REC

(1) In order to participate in e-Bid submission, it is mandatory for agencies to have log-in User ID and Password. For this purpose, the agency has to register with REC PDCL through tender Wizard website as given below.

Steps for Online Registration:

- (i) Go to website <https://www.tenderwizard.com/REC>
- (ii) Click the link 'Register Me'
- (iii) Enter the details about the E-tendering as per format
- (iv) Click 'Create Profile'
- (v) System will provide / confirmation with Login ID and Password

Note:

(1) While accessing tenderwizard.com website, please type 'REC' in capital letters only to get access of tender portal.

(2) Activation of On-Line registration may take about maximum 24 hours. It is the responsibility of the bidder to register in advance.

(2) Please note that the agencies have to obtain digital signature token for applying the bid. Bidders may also obtain the same from Tender Wizard.

Steps for applying for Digital Signature from Tender Wizard:

Download the Application Form from the website <https://www.tenderwizard.com/REC>. Follow the instructions as provided therein. For any kind of support related to e-submission of bids at tender wizard portal you may contact at their helpdesk numbers (011-49424365, 8800496478, 8800591739) and for tender related queries you may contact RECPDCL officials whose address is given in this tender document.

C. Submission of Bid Documents:

Submission of bids will be through online e-tendering mode only from www.tenderwizard.com/REC website.

Agencies should upload following bid documents:

1) Separate Financial bids have to be submitted for (a) Solar Power pack 300 Watts and (b) Solar Street Lighting as per prescribed formats.

SECTION-3 **SCOPE OF WORK**

The scope of work includes the following:

A. Site Survey, planning, design, engineering, assembly manufacturing, testing, supply, loading, transportation, unloading, insurance, delivery at site, handling, storage, installation, testing and commissioning including O & M of the said system for Five (05) Years and documentation of all items/materials required to complete the Electrification Works in various districts of Arunachal Pradesh (list enclosed) as directed/ordered by SECI on contract basis as per the following specifications, terms and conditions to electrify 900 number of off-grid villages with about 13500 numbers of Solar Power Packs, 300 Wp each for every un-electrified household in Arunachal Pradesh (the number of villages, and households may vary at the time of execution).

B. Site Survey, planning, design, engineering, assembly manufacturing, testing, supply, loading, transportation, unloading, insurance, delivery at site, handling, storage, installation, testing and commissioning including O & M of the said system for Five (05) Years and documentation of all items/materials required to complete the Electrification Works and civil foundation work in 1:2:4 PCC in various villages in the identified districts of Arunachal Pradesh as directed/ ordered by SECI on contract basis as per the following specifications, terms and conditions (total numbers of street lights 4500 , which may vary at the time of execution).

Apart from the project requirements, scope of work specified in this tender document, bidder has to comply all activities of installation and commissioning as per requirement of Deen Dayal Updhyaya Gram Jyoti Yojana (DDUGJY) scheme of Government of India.

Time Schedule:

(a) Timeline for completion of Site Survey, planning, design, engineering, assembly manufacturing, testing, supply, loading, transportation, unloading, insurance, delivery at site, handling, storage, installation, testing and commissioning of (i) Solar Power pack 300 Watts - 13500 nos. and (b) Solar Street lighting - 4500 nos. at 900 number of off-grid villages in Arunachal Pradesh state is 6 months from date of award of Order.

(b) Operation & Maintenance (O&M) of above said installed & commissioning projects is for period of 5 years after commissioning.

SECTION-4 **SPECIFICATIONS**

A. Specifications: SOLAR POWER PACK 300 Watts:

A Solar Home System (SHS) provides a comfortable level of illumination in one or more rooms of a house. The SHS consists of a PV module, control electronics, battery, inter-connecting cables and an inverter. There are five numbers of luminaires based on UV free White Light Emitting Diode (W-LED) to provide lighting. The Systems could be used to run a small DC fan and / or a DC television along with the W-LED Lamps. Provision for Mobile Phone Charging is provided.

The System consists of:

- i) SPV Modules (with Module Mounting Structure): 300 Wp
- ii) Battery: 24 Volts, 75 AH @C/10, Tubular plate maintenance free battery
- iii) Solar Charge Controller: 24 V, 10 A with MPPT to appropriately charge and protect the battery against overcharge and deep discharge suitable for charging above battery bank.
- iv) Solar Inverter: 24V, 300VA, Pure Sine wave (THD<5%), Output Single phase 230Vac sine wave.
- v) Load:
 - a) 5 Nos. of 24V D.C. operated White Light Emitting Diode (W-LED) Luminaire (6.0 Watts each) for 5-6 Hrs. / day
 - b) The Fan should be 24V DC - 20W - Pedestal Mounted and provided with BLDC Motor. Detailed Specification of MNRE should be adhered upon.
 - c) Power for a TV set (max. 25 watts), to be purchased separately by beneficiary (Optional) for 5-6 hrs. / day of running
 - d) Provision for Mobile Phone Charging.

B. TECHNICAL DETAILS:

a. PV MODULE (S)

- i. Indigenously manufactured PV modules should only be used.
- ii. The PV modules should be made up of crystalline silicon solar cells and must have a certificate of testing conforming to IEC 61215 Edition II / BIS 14286, IEC 61730-I and IEC 61730-II from an NABL or IECQ accredited Laboratory.
- iii. The module efficiency should not be less than 14%.
- iv. The terminal box on the module should have a provision for opening, for replacing the cable, if required.
- v. The module should contain the following details laminated inside the module:
 - a. Name of the Manufacturer or Distinctive Logo.
 - b. Model Number
 - c. Serial Number
 - d. Year of manufacture
 - e. RF tag containing information a to d above
- vi. A distinctive serial number starting with NSM will be engraved on the frame of the module or screen printed on the tedlar sheet of the module.

b. INDICATIVE LOAD

- i. 5 Nos. of White Light Emitting Diode (W-LED) Luminaire (max. 6.0 Watts each)
- ii. 1 No. TV set (max 25 Watt) or Laptop or Mobile Charger at a time (AC) (TV or laptop will not be a part of supply)
- iii. DC USB port (24V, 1A) for operating radio and mobile charging.
- iv. DC outlet socket for operating DC fan (24 V, 20 Watt).
- v. DC OUTPUT SOCKET FOR TV (MAX. 25W)

c. BATTERY

The battery should be 24V, 75Ah @ C/10, Tubular sealed maintenance free GEL type. Charging-Discharging Cycles in the Life Span as detailed below:

- (a) 80% DOD : 1500
- (b) 50% DOD : 3000
- (c) 20% DOD : 4000

d. LIGHT SOURCE

- i. The light sources shall be with DC 6.0 Watts of white LED and Light Output should be Minimum 30 Lux when measured at the periphery of 2.5-meter diameter from a height of 2.5 meter.
- ii. At any point within the area of 2.5mtr diameter periphery the light level should not be more than three times of the periphery value.
- iii. The illumination should be uniform, glaze free and soothing to the eyes. There should be no dark bands or abrupt variations in the light. Higher light output would be preferred.
- iv. The color temperature of W-LEDs used in the system should be in the range of 5500oK–6500oK.
- v. LEDs should not emit ultraviolet light.
- vi. The light output from the W-LED light source should be constant throughout the duty cycle.
- vii. The lamps should be housed in an assembly suitable for indoor use with proper heat dissipating enclosures.
- viii. Necessary lengths of wires / cables, switches and fuses should be provided.

e. ELECTRONICS

- i. Maximum Power Point Tracker (MPPT) must be provided in the System.
- ii. Overall total Efficiency of the Electronics should be Minimum 85%
- iii. Electronics should have temperature compensation for proper charging of the battery throughout the year.
- iv. Inverter should be with “THD” less than 5% and Efficiency more than 90 %.
- v. Necessary lengths of wires / cables, switches and fuses should be provided.
- vi. The system should have separate ports for connecting each load along with a charging port for mobile and laptop.
- vii. The idle current i.e. when there is no load (& inverter is switched OFF, in case of A.C. Systems) and no display, it should be less than 150 mA.
- viii. The PCB containing the electronics should be capable of solder free installation and replacement.
- ix. Necessary lengths of wires/cables, switches suitable for DC use and fuses should be provided.
- x. The inverter output AC voltage should not change with the decreased battery voltage in the operating voltage range of the battery
- xi. Inverter must have current limiting facility for the load exceeding 100Watts

f. ELECTRONIC PROTECTIONS

- i. Adequate protection is to be incorporated under “No Load” condition.
- ii. The system should have protection against battery overcharge and deep discharge condition.
- iii. Load reconnect after low battery disconnect should be provided at 80% of the battery capacity status.
- iv. Adequate protection should be provided against battery reverse polarity.
- v. Fuses should be provided to protect against short circuit conditions.
- vi. Protection for reverse flow of current through the PV module(s) should be provided.

g. MECHANICAL COMPONENTS

- i. Corrosion-resistant frame structure (hot dipped galvanized/anodized aluminium) should be provided to hold the SPV module.
- ii. The frame structure should have provision to adjust its angle of inclination to the horizontal, so that it can be installed at the specified tilt angle.
- iii. Light source should be either for wall mounted or ceiling mounted or can be hung from the ceiling in a stable manner, as per site requirements.
- iv. A vented plastic/ wooden/ metallic box with acid proof corrosion resistant paint for housing the storage battery indoors should be provided.
- v. All the houses shall be provided with pole (3" thickness 40 NB - Class B - MS Galvanized/Aluminium Anodized - 2.5 Mtr. Height above Ground Level) mounted structures. Minimum depth of Pole below Ground Level should be 500mm. Foundation for Pedestal should be PCC with 1:2:4 ratio (M15 Concrete). The minimum height of foundation should be 450mm.

h. INDICATORS

- i. The system should have two indicators, green and red.
- ii. The green indicator should indicate the charging under progress and should glow only when the charging is taking place. It should stop glowing when the battery is fully charged.
- iii. Red indicator should indicate the battery "Load Cut Off" condition

i. QUALITY AND WARRANTY

- i. The Solar Home System including Battery, Inverter, DC Luminaire and DC fan will be warranted for a period of five years from the date of installation.
- ii. The PV module(s) will be warranted for a minimum period of 25 years from the date of Installation. PV modules used in Solar Home Lighting System must be warranted for their output peak watt capacity, which should not be less than 90% at the end of Ten (10) years and 80% at the end of Twenty-five (25) years.
- iii. The Warranty Card to be supplied with the system must contain the details of the system. The manufacturers can also provide additional information about the system and conditions of warranty as necessary.

j. OPERATION and MAINTENANCE MANUAL

An Operation, Instruction and Maintenance Manual, in English and Hindi, should be provided with the Solar Home System. The following minimum details must be provided in the Manual:

- i. Basic principles of Photovoltaics.
- ii. A small write-up (with a block diagram) on Solar Home Lighting System - its components, PV module, battery, electronics and luminaire and expected performance.
- iii. Significance of indicators.
- iv. Type, Model number, voltage & capacity of the battery, used in the system.
- v. The make, model number, country of origin and technical characteristics (including IESNA LM-80 report) of W-LEDs used in the lighting system must be indicated in the manual.
- vi. Clear instructions about mounting of PV module(s).
- vii. Clear instructions on regular maintenance and troubleshooting of the Solar Home Lighting System.
- viii. DO's and DONT's.
- ix. Name and address of the contact person for repair and maintenance.

k. OTHER FEATURES

The contractor / bidder will have service center(s) established at least one location in each district of their operation and keep a technician and necessary spare parts readily available so that the beneficiaries can get their system rectified/ repaired when fault occurs. The technician(s) of the contractor (the contact details and mobile number will be provided to such beneficiaries) will go to the villages from time to time and check the systems in a routine way. A toll free number for addressing consumer grievances or request for repair / maintenance shall also be established within one month of installation of the system and this will be widely circulated to beneficiaries, local panchayat, district authorities and SECI.

I. INSTALLATION OF SYSTEM

The system should be properly installed at each of the household of the beneficiaries in different villages. The SPV module mounting structure along with suitable mounting legs should be properly grouted depending upon the location and requirement of the site. The grouting should be such that it should withstand the maximum wind speed /storm prevailing in the area. The frame should be fixed with nuts and bolts. Appropriately sized cables should be used to keep electrical losses to a bare minimum. All the cable lengths/wiring required for successful integration and installation of SHS shall be in the scope of the vendor and cable & wiring should be in a proper conduit or capping case. Wire should not be hanging loose. Any minor items which are not specifically included in the scope of supply but required for proper installation and efficient operation of the SPV systems, is to be provided by the manufacturer as per standards. Wiring should be joint-less and switches should be of appropriate value and suitable for DC operation.

m. AUTHORIZED TESTING LABORATORIES/ CENTERS

Test certificates / reports for the BOS items including LED lights / components can be from any of the NABL/ IEC Accredited Testing Laboratories or MNRE approved test centers.

Technical Requirement/Standards

Item / System	Applicable BIS /Equivalent IEC Standard Or MNRE Specifications	
	Standard Description	Standard Number
Solar PV Systems	Crystalline Silicon Terrestrial PV Modules	IEC 61215 / IS14286 Test Certificates / Reports from IECQ / NABL accredited Laboratory for relevant IEC / equivalent BIS standard. If IEC certificates are not available for small certificate from IEC / NABL accredited laboratory as per relevant standard for any of the higher wattage regular module shall be furnished. Further, the manufacturer should certify that the supplied module is also manufactured using same material design and process similar to that of certified PV Module
Charge Controller/MPPT Units and Protections.		IEC 62093 Equivalent BIS Std. or as per MNRE specification.
Storage Batteries	of Testing Tubular Lead Acid /Capacity Test Charge/Discharge	IS 1651/ IS 13369

	Efficiency Self-Discharge	
Cables	General Test and Measuring Method	IEC 60189
	PVC insulated cables for working voltage up to and including 1100 V	IS 694/ IS 1554
	UV resistant for outdoor installation	IS/IEC 69947
Junction Boxes /Enclosures for Charge Controllers/	General Requirements	IEC 62208 IP21
LED	Lamps Luminaire Cycle life Driver performance	LM -80-08 LM 79-08 LM 70 IEC 62384 Or as per MNRE specification.

SECTION-5

SPECIFICATIONS: SOLAR STREET LIGHTING SYSTEM (LED BASED)

1. The Scope of Work of a Contractor shall include Design, Manufacture, Supply, Erection, Testing and Commissioning including one-year system warranty and Annual Maintenance Contract (AMC) for 5 years of LED based Solar Street Lighting systems in various districts of Arunachal Pradesh.
2. To do survey at the actual site location and carry out detailed design configuration of the solar street lighting systems at the identified sites, develop layout drawings for actual execution of the Work. Detailed layout along with drawings etc. shall be submitted by the bidder to RECPDCL.
3. A standalone solar photovoltaic street lighting system is an outdoor lighting unit used for illuminating a street or an open area. The Solar Street Lighting System(SSLS) consists of solar photovoltaic (SPV) module, a luminaire, storage battery, control electronics, inter-connecting wires/cables, module mounting pole including Single fixture along with the mounting arrangement and the solar panel the integrated solar street light can be installed directly out of the box.
4. The luminaire is based on LED which emits light when electric current passes through it. The luminaire is mounted on the pole at a suitable angle to maximize illumination on the ground. The PV module is placed at the top of the pole at an angle facing south so that it receives solar radiation throughout the day, without any shadow falling on it.
5. Electricity generated by the PV module charges the battery during the day time which powers the luminaire from dusk to dawn. The system lights at dusk and switches off at dawn automatically.

SPECIFICATIONS OF SOLAR STREET LIGHTING:

PV Module:

40 Wp under STC

Battery:

Minimum 160 Wh Lithium Ferro phosphate battery

Light Source:

White Light Emitting Diode (W-LED) 7 Watt (Max.), W-LED luminaire, dispersed beam, soothing to eyes with the use of proper optics and diffuser Light Out put Minimum 16 Lux when measured at the periphery of 4 meter diameter from a height of 4 meter. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher light output will be preferred.

Mounting of light:

Pole mounted, Minimum 5 meters above the ground level

Electronics Efficiency:

Minimum 85% total

Duty Cycle:

Dusk to dawn

Technical Details:

PV MODULE

- i. Indigenously manufactured PV module should be used.
- ii. The PV module should have crystalline silicon solar cells and must have a certificate of testing conforming to IEC 61215 Edition II / BIS 14286 from an NABL or IECQ accredited Laboratory.
- iii. The power output of the module(s) under STC should be a minimum of 40 Wp at a load voltage* of 16.4 \pm 0.2 V.
- iv. The open circuit voltage* of the PV modules under STC should be at least 21.0 Volts.
- v. The module efficiency should not be less than 12 %.
- vi. The terminal box on the module should have a provision for opening it for replacing the cable, if required.
- vii. There should be a Name Plate fixed inside the module which will give:
 - a. Name of the Manufacturer or Distinctive Logo.
 - b. Model Number
 - c. Serial Number
 - d. Year of manufacture
 - e. A distinctive serial number starting with NSM will be engraved on the frame of the module or screen printed on the tedlar sheet of the module.

*The load voltage and Voc conditions of the PV modules are not applicable for the system having MPPT based charge controller.

BATTERY

- i. Minimum 160 Wh capacity Lithium Ferro Phosphate Battery.
- ii. Battery should conform to the latest BIS/ International standards.

LIGHT SOURCE

- i. The light source will be a white LED type.
- ii. The colour temperature of white LED used in the system should be in the range of 5500oK– 6500oK.
- iii. W-LEDs should not emit ultraviolet light.
- iv. The light output from the white LED light source should be constant through out the duty cycle.
- v. The lamps should be housed in an assembly suitable for outdoor use.
- vi. The temperature of heat sink should not increase more than 20oC above ambient temperature during the dusk to dawn operation.

ELECTRONICS

- i. The total electronic efficiency should be at least 85%.
- ii. Electronics should operate at 12 V and should have temperature compensation for proper charging of the battery throughout the year.
- iii. No Load current consumption should be less than 20 mA.
- iv. The PV module itself should be used to sense the ambient light level for switching ON and OFF the lamp.
- v. The PCB containing the electronics should be capable of solder free installation and replacement.
- vi. Necessary lengths of wires/cables, switches suitable for DC use and fuses should be provided.

ELECTRONIC PROTECTIONS

- i. Adequate protection is to be incorporated under “No Load” conditions e.g. when the lamp is removed and the system is switched ON.

- ii. The system should have protection against battery overcharge and deep discharge conditions.
- iii. Fuse should be provided to protect against short circuit conditions.
- iv. Protection for reverse flow of current through the PV module(s) should be provided.
- v. Electronics should have temperature compensation for proper charging of the battery throughout the year.
- vi. Adequate protection should be provided against battery reverse polarity.
- vii. Load reconnect should be provided at 80% of the battery capacity status.

MECHANICAL COMPONENTS

- i. A corrosion resistant metallic frame structure should be fixed on the pole to hold the SPV module.
- ii. The frame structure should have provision so that the module can be oriented at the suitable tilt angle.
- iii. The pole should be made of Galvanised Iron (GI) pipe.
- iv. The height of the pole should be 5 metres above the ground level, after grouting and final installation.
- v. The pole should have the provision to hold the luminaire.
- vi. The Luminaire housing should be water proof (IP 65) and should be painted with a corrosion resistant paint and should be housing the battery. Alternatively, A vented, acid proof and corrosion resistant

metallic box or plastic box [made of Polypropylene- Copolymer (PP-CP)] with a locking arrangement for outdoor use should be provided for housing the battery.

INDICATORS

- i. The system should have two indicators, green and red.
- ii. The green indicator should indicate the charging under progress and should glow only when the charging is taking place. It should stop glowing when the battery is fully charged.
- iii. Red indicator should indicate the battery "Load Cut Off" condition.

CIVIL

- i. Pole should be properly concreted with M16 or M20 grade.
- ii. Pole foundation to be laid with minimum 0.5 meter inside the ground.

QUALITY AND WARRANTY

- i. The street lighting system (including the battery) will be warranted for a period of five years from the date of supply
- ii. The PV module(s) will be warranted for a minimum period of 25 years from the date of supply. The PV modules must be warranted for their output peak watt capacity, which should not be less than 90% at the end of Ten (10) years and 80% at the end of Twenty-five (25) years.
- iii. The Warranty Card to be supplied with the system must contain the details of the system.

OPERATION and MAINTENANCE MANUAL

An Operation, Instruction and Maintenance Manual, in English and the local language, should be provided with the Solar Street Lighting System. The following minimum details must be provided in the Manual:

- i. Basic principles of Photovoltaic.
- ii. A small write-up (with a block diagram) on Solar Street Lighting System - its components, PV module, battery, electronics and luminaire and expected performance.
- iii. Type, Model number, Voltage & capacity of the battery, used in the system.
- iv. The make and wattage of the LED used in the lighting system.
- v. About Charging and Significance of indicators.

- vi. Clear instructions about erection of pole and mounting of PV module (s) and lamp housing assembly on the pole.
- vii. Clear instructions on regular maintenance and troubleshooting of the Solar Street Lighting System.
- viii. DO's and DONT's.
- ix. Name and address of the contact person for repair and maintenance, in case of non-functionality of the solar street lighting system.
- x. O&M Manual should contain the make, model number, country of origin and technical characteristics (including IESNA LM-80 report) of W-LEDs used in the lighting system.

Section-6

CENTRALIZED MONITORING SYSTEM

The controller shall have an internal data logging mechanism that reads and stores data/measurements pertaining to system operations. This stored data can be read via Bluetooth using a compatible Android device installed with the data reader app software. The data collected by the device then to be sent via internet to a central data monitoring server. Once available on this

server, the data readings from the remote installation can be viewed on a data monitoring portal (URL) where they will be displayed in the form of charts and graphs.

In order to remotely access and monitor data from installations, the following are needed:

- i. **Android device**: A compatible Android device with Bluetooth support and Internet connectivity is used to wirelessly read the data from the controller and send this data via the Internet to the central data monitoring server.
- ii. **Android Data Reader app**: The Data Reader Android app shall be installed on the Android device. It is this software that enables reading of data from the controller, viewing data readings on the device and sending this data to the central data monitoring server.
- iii. **PC/Laptop**: A laptop/PC with a working Internet connection is used to access the Data Monitoring Portal (URL) in order to view the data pertaining to various remote installations. This URL displays the data in the form of charts and graphs so it is easy for the user to interpret and analyse the same.

The controller shall perform the principal control functions for operating a charge controller. It shall also log the data parameters/measurements pertaining to system operations and store them. For an installation, the controller to log and store data parameters like daily energy consumption, power availability/consumption, state of charge of battery and voltage/current for solar, grid, battery and load. The controller can also wirelessly interface via Bluetooth with any compatible device.

In order to read/access the data logged by the controller, a compatible Android device is used. On this device (smartphone or tablet), the Data Reader Android app is installed. Using this app, one can read the data readings from the controller via the Bluetooth interface. Once the data has been read by the app, one can view the readings on the device. These data readings show usage parameters and also indicate if the installation is running as expected and issues, if any.

Using the Data Reader app, one can also send the data read from the controller to a central data

monitoring server via the internet. Once the data is available on this server, it can be viewed remotely on the Data Monitoring Portal.

Note: Bidder has to indicate the price of Centralized Monitoring System in line with specification at price bid. However, the price of Centralized Monitoring System shall not be considered for evaluation purpose.

Section-7 **Eligibility Criteria**

Limited to Agencies as per RECPDCL's notification dated: 19.11.2016 on List of Successful Agencies (Revised) of our Solar Empanelment EOI no: RECPDCL/Tech/EOI/Empanelment/2015-16/3130 dated: 02.02.2016 and also successful agencies who had submitted security deposit for said empanelment are considered.

S. No.	Name of Agencies
1.	Alien Energy Pvt. Ltd., Sahibabad
2.	Punam Energy Pvt. Ltd., Kolkata
3.	First Green Consulting Pvt. Ltd.
4.	Suncraft Energy Pvt. Ltd., Kolkata
5.	Soura Natural Energy Solutions India Pvt. Ltd., Kerala
6.	VolksEnergiePvt. Ltd., New Delhi
7.	Elcomponics Technologies India Pvt. Ltd., Noida
8.	JV of Two Plus Marketing Pvt. Ltd., Gurgaon and Sukam Power Systems Ltd.
9.	Fourth Partner Energy Pvt. Ltd.
10.	Novus Green Energy Systems Pvt. Ltd., New Delhi
11.	Modern Solar Pvt. Ltd., Kolkata
12.	JV of LCG Industries Ltd., Faridabad and Sunshine TechnoconPvt. Ltd.
13.	Ados Renewable Pvt. Ltd., Dehradun
14.	Rays Power Infra Pvt. Ltd., Jaipur
15.	Premier Solar Systems Pvt. Ltd., Secunderabad
16.	Ujaas Energy Ltd., Indore
17.	Uneecops Technologies Ltd., New Delhi
18.	Novergy Energy Solutions Pvt. Ltd., Udaipur
19.	Power-One Micro Systems Pvt. Ltd., Bangalore
20.	UM Green Lighting Pvt. Ltd., Gurgaon

Section-8 **FINANCIAL BID EVALUATION METHODOLOGY & ALLOCATION**

1. OPENING AND EVALUATION OF FINANCIAL BID:

Opening of financial bids will be through online mode only.

- a. Financial Bids will be opened on the date and time indicated in this document in the presence of bidders or their authorized representatives who desire to be present.
- b. If due date of receipt of Financial Bids/ opening of Financial Bids happens to be a closed holiday, the bids would be received and opened on the next working day.

- c. REC PDCL reserves the right to postpone and/or extend the date of receipt/opening of Financial Bids or to withdraw the Financial Bid notice, without assigning any reason thereof. In any such cases, the bidders shall not be entitled to any form of compensation from the Company.
- d. Financial Bids shall be evaluated on the total price bid sum of (a) Solar Power pack 300 Watts and (b) Solar Street Lighting as per Scope of Work/Technical Specifications mentioned in this NIT.
- e. E-reverse auction will be done as per necessity at RECPDCL's discretion.
- f. Sum of total cost for (a) installing power packs of 300 watt except the cost of centralized monitoring system (b) installing solar street lighting will be considered for evaluation.

2. ALLOCATION OF QUANTITY:

- a. Based on total quoted price inclusive of all taxes and duties by the bidders, RECPDCL shall arrange the bids in the ascending order i.e. L1, L2, L3, ___ (L1 being the lowest quote).
- b. Initially 50% of the total quantity shall be allocated to the L1 successful bidder.
- c. For further allocation, (after allocating the quantity to the L1 bidder) based total quoted price inclusive of all taxes and duties by the bidders, RECPDCL shall arrange the bids in the ascending order i.e. L2, L3, L4 ___ and so on (L2 being the second lowest quote) and allocate the balance quantity in equal ratio up to selection of total five successful bidders. However, RECPDCL reserves right to select no. of successful bidders less than/ beyond five bidders at its sole discretion as per requirement of the project. RECPDCL shall allocate the quantity until the Tender quantity is fulfilled.
- d. All the qualified bidders except the L1 bidder will be given 7 days from the date of identification of L1 Bidder to give their consent to execute the work at L1 quoted price inclusive of all taxes and duties, failing which it will be assumed that they are not interested to match L1 quoted price inclusive of all taxes and duties and their quantity shall be allocated to the other successful bidder(s) who wish to match the same. RECPDCL as its sole discretion may increase the timeline as indicated above.
- e. If the quantity still remains unallocated, RECPDCL may invite consent from successful bidders to whom quantity is already allocated and the work may be allocated in orderly manner to the interested bidders depending upon their consent at sole discretion of RECPDCL.
- f. RECPDCL at its sole discretion may also allocate more than 50% of the total quantity to L1 successful bidder with due consent of such bidder.
- g. If the successful bidder(s), to whom work order has been issued does not fulfil any of the conditions specified in bid document, the RECPDCL reserves the right to annul/cancel the award of work of such successful bidder.
- h. RECPDCL will review the performance of the selected bidder(s) including L-1 bidder(s), to whom work order has been issued. If found unsatisfactory, RECPDCL at its sole discretion may withdraw the work from such non-performing bidder and allocate the quantity to other performing bidders in orderly manner as per above. RECPDCL reserves right to forfeit security deposit & PBG of such non-performing bidder as applicable.

SECTION-9

COMMERCIAL TERMS, CONDITIONS & OTHER PROVISIONS

1. COMMERCIAL TERMS & CONDITIONS:

1.1 PRICE:

The price will be inclusive of packing, forwarding, loading & unloading charges, cost of insurance, transportation for delivery at destination and training to users, technical personnel and field functionaries of

RECPDCL, and all taxes and duties of Central & State Governments as applicable on the date of execution of project, mainly, VAT/CST tax on the supply of material and Service tax on execution of service. At the time of release of payment to the Contractor/Supplier, TDS/WCT / Labour cess will be deducted as the case may be. Payment will be made as per allotted quantity pro rata basis.

1.2 ADVANCE BANK GUARANTEE (ABG) FEES:

Successful bidder has to furnish Advance Bank Guarantee of 110% of advance value for release of Mobilization advance with validity up to the target time for completion of installation plus 90 days claim period as per format **Annexure - 2**. The mobilization advance will be adjusted proportionately in subsequent payments. Validity of Advance bank guarantee shall have to be suitably extended if necessary on request by

RECPDCL, without which the tender/Work Order shall be rejected. The said deposit would be forfeited, if the supplies are not made as per the Terms & Conditions of the Work Order. Bidder has to supply separate ABGs for each released Work Order.

If Bidder does not opt Mobilization advance, he has to submit a letter in original stating the same on company's letterhead with authorized person's signature to RECPDCL.

1.3 PERFORMANCE BANK GUARANTEE (PBG) FEES:

After successful installation of the awarded Solar Power plant, bidder must deposit Performance Bank Guarantee (PBG) fees @ **10%** of the Work Order value to RECPDCL as per format **Annexure -3** with validity till completion of maintenance period. The said deposit would be forfeited, if the maintenance activities are not up to the satisfactory of RECPDCL. PBG will be refunded after the completion of the maintenance period of awarded Solar Plant, subject to satisfactory performance of the systems. Bidder has to supply separate PBGs for each released Work Order.

1.4 DELIVERY:

The materials must be delivered to the project sites (Beneficiary's place). The system should preferably be delivered to the consignee within one month of issue of Work Orders. RECPDCL will not issue Form-C during procurement of Project equipment / Items / Components.

1.5 QUANTITY:

The quantity / capacity mentioned in the tender might either increase or decrease according to the requirement.

1.6 CONSIGNEE: The Addl. CEO, RECPDCL, New Delhi - 110019

1.7 VALIDITY OF OFFER:

The offer must be kept valid for a period of 180 days from the date of opening of bid. No escalation clause would be accepted. The validity can be further extended with mutual consent.

1.8 LIQUIDATED DAMAGES:

Subject to FORCE MAJEURE clause and Time Schedule clause of this NIT document, if the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to 0.5% of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of 10% of the Contract Price. Once the maximum is reached, the Purchaser may be considered as terminated.

2. INSPECTION:

All tests and inspections shall be made at the place of delivery unless otherwise specifically agreed upon by the bidder and RECPDCL at the time of purchase if necessary.

Pre-dispatch inspection shall be carried out on sampling basis (10%) and Post Installation inspection shall be carried out in all the households and street lights by authorized representative of Employer.

3. PAYMENT TERMS:

Two Separate Orders related to Supply and Services shall be issued to Successful Bidder. The details are mentioned as below: -

- i) The First Order shall be comprising of Planning, Design, Engineering, Assembly Manufacturing / Fabrication, Testing and Supply of Materials covered under the Scope of Work
- ii) The Second Order shall be comprising of Freight & Insurance and Erection, Testing and Commissioning of Materials covered under the Scope of Work as per following: -

1. The payment for the First Order (related to Supply Portion) shall be made as per the following terms and conditions:

A. Interest bearing adjustable initial advance (OPTIONAL) of 15% shall be released to successful bidder in 02 different phases as detailed below. The annual interest rate shall be calculated based on SBI Base Rate as applicable from time to time.

(i) First installment of 7.5% shall be released upon receipt of unconditional acceptance of LOA, detailed Performa invoice of contractor, unconditional & irrevocable Bank Guarantees with a validity period upto date of final commissioning in favor of employer total amounting to 110% of total advance amount and unconditional & irrevocable Bank Guarantee for ten percent (10%) of the total Contract price towards Contract Performance Guarantee (CPG) with a validity period of 05 (five) years from the date of final commissioning plus 90 days claim period.

(ii) The successful bidder must utilize first advance installment of 7.5% of ex-works supply component before requesting for second advance installment. Second installment of 7.5% shall be released on presentation of contractor's invoice and satisfactory utilization certificate supported with documentary evidences of first advance installment.

B. Sixty percent (60%) payments shall be paid against supply, receipt and acceptance of Materials at site on submission of documents (except Advance Bank Guarantee) indicated under clause i).(a), Contractor's detailed invoice & packing list identifying contents of each shipment, evidence of

dispatch (GR/LR copy), Copies of Certificates to the effect of payments of State/Central taxes, duties, levies etc, Certified copy of Insurance policy/Insurance Certificate, Manufacturer's/Contractor's guarantee certificate of Quality, submission of the certificate by the Employer's authorized representative that the item(s) have been received and MDCC (Material Dispatch Clearance Certificate) issued by Employer's authorized representative in original.

(i) If Successful Bidder has opted for advance then, Ten percent (10%) of proportionate advance shall be adjusted while making payments of this installment. Also, up-to-date accrued interest shall also be recovered.

C. Thirty percent (30%) payments shall be paid against successful erection, testing and commissioning of materials at site and functional operation of service centre. The successful bidder need to submit the installation certificate duly certified by the authorized representative of the Employer and owner of the respective house along with a self attested xerox copy of KYC document (Aadhaar Card/Voter ID Card/PAN Card/Driving License/Ration Card/ID card issued by state or central Govt. authority).

(i) If Successful Bidder has opted for advance then, Five percent (5%) of proportionate advance shall be adjusted while making payments of this installment. Also, up-to-date accrued interest shall also be recovered.

D. Final Ten percent (10%) payments shall be paid after 06 months from the date of final commissioning and upon submission of Additional Performance Bank Guarantee of 10% of entire contract value with a validity period of 05 (five) years from the date of final commissioning plus 90 days claim period. The original CPBG amounting 10% of entire contract value and additional CPBG amounting 10% of entire contract value (Total CPBG amounting 20% of the entire contract value) shall be released @ 4% upon successful completion of each year of O & M upto third year of O & M. The balance CPBG (amounting 8%) shall be released upon successful completion of 5th year of O & M period. Successful bidder need to ensure the validity of all the submitted CPBG upto 05 (five) years from the date of final commissioning. Necessary extension of all the CPBG shall be done by the successful bidder at its own expenses, if required.

2. For the Second Order (related to Services Part), the payment shall be made as detailed below. No Initial Advance Payment shall be made against Second Order related to Service Part.

A. For the Second Portion of Second Order (i.e. F & I, Erection, Testing and Commissioning Portion), the payment shall be made as detailed below: -

(i) Ninety percent (90%) payments shall be paid against successful erection, testing and commissioning of materials at site and functional operation of service centre. The successful bidder need to submit the installation certificate duly certified by the authorized representative of the Employer and owner of the respective house along with a self attested xerox copy of KYC document (Aadhaar Card/Voter ID Card/PAN Card/Driving License/Ration Card/ID card issued by state or central Govt. authority).

(ii) Final Ten percent (10%) payments shall be paid after 06 months from the date of final commissioning provided the submission of Additional Performance Bank Guarantee of 10% of entire contract value with a validity period of 05 (five) years from the date of final commissioning plus 90 days claim period. The original CPBG amounting 10% of entire contract value and additional CPBG amounting 10% of entire

contract value (Total CPBG amounting 20% of the entire contract value) shall be released @ 4% upon successful completion of each year of O & M upto third year of O & M. The balance CPBG (amounting 8%) shall be released upon successful completion of 5th year of O & M period. Successful bidder need to ensure the validity of all the submitted CPBG upto 05 (five) years from the date of final commissioning. Necessary extension of all the CPBG shall be done by the successful bidder at its own expenses, if required.

3. All the payment shall be released from RECPDCL Corporate Office upon submission of Original applicable Documents as mentioned against each Payment Milestones, Joint commissioning and Handing Over Certificate (Format will be provided later) duly certified by the authorized representative of RECPDCL and beneficiary/User.

4. SIGNING OF SUPPLIER CONTRACT AGREEMENT:

Finally selected firm will submit signed (on each page) & stamped original purchase / work order on behalf of the firm as token of acceptance to execute the work as per the terms and conditions laid down in this tender document and Work Order. Selected firm shall also execute/sign Supplier Contract Agreement (2nos. of copies) with RECPDCL for each released work order on India Non Judicial Stamp paper of value Rs 100/- with validity from starting date of Work Order scope activities till end of Comprehensive Maintenance Contract period (5 years). The two deployed officers (Agreement Signing person - should be of level not below General Manager (GM) and Witness - should be of level not below Engineer) from vendor side for Supplier Contract Agreement signing, should present at our office with prior submission of original signing authority letter for agreement signing person and witness on company's letterhead authorized by Director / Owner of the company clearly mentioning the designations in every case.

5. COMPREHENSIVE MAINTENANCE CONTRACT (CMC):

The bidder must execute Comprehensive maintenance contract for the specified period after successful commissioning of project. (Suitable format will be provided later)

6. SPLIT OF WORKS:

In view of targeted quantity and limited time available for completion of the task, RECPDCL reserves the right to increase / decrease / split of the work to agencies based on quantity/ Districts/Blocks/ Villages etc. at the sole discretion of the RECPDCL. Suitable amendment / communication shall be issued in the event of variations in quantities.

7. TRAINING PROGRAMMES:

The bidder should conduct Training programs (General, Technical, Maintenance, Safety) to users, technical personnel & field functionaries of RECPDCL at site , on day-to-day operation of all equipment of plant, Relay settings, Switchgear positions, standard parameters, repair and maintenance of the system. Technical training should be of minimum two days period and Maintenance training period is of 1 week.

8. FORCE MAJEURE:

Force majeure shall mean any cause, existing or future, which is beyond the reasonable control of Bidder or RECPDCL including, but not limited to, acts of God, storm, fire, floods, explosion, epidemics, quarantine, earthquake, strike, riot, lock out, embargo, interference by civil or military authorities, acts,

regulations or orders of any governmental authority in their sovereign capacity, acts of war (declared or undeclared) including any acts of terrorism, and all other such acts of similar or analogous nature (where all such acts to be collectively referred to as "Force Majeure"). RECPDCL and Bidder shall not be liable for the failure to perform any obligation in terms of this Proposal if and to such extent such failure is caused by a Force Majeure, provided that none of such acts of Force Majeure will relieve the Customer from meeting its payment obligations.

9. DISPUTE:

For adjudication of any dispute between RECPDCL and the bidder arising in any case, reference can be made to any Law courts under the jurisdiction of New Delhi High Courts only.

The Addl. Chief Executive Officer, RECPDCL reserves the right to accept or reject any or all tenders without assigning any reason thereof.

Section-10

MISCELLANEOUS CLAUSES:

- a. RECPDCL has the right to reject this tender at its own discretion.
- b. Pre-dispatch inspection shall be carried out on sampling basis (10%) and Post Installation inspection shall be carried out in all the households and street lights by authorized representative of Employer.
- c. All Households and Solar Street Lighting systems are to be provided with a sign board on flex laminated sheet with colour printing by Screen printing method (with proper permanent painting withstanding site conditions) for unique identification of the household / structure. The details of pre-painting preparations, painting and writing shall be as per scope of work. The sign board (1ft x 1ft) should indicate the name of the scheme, name of implementation agency, capacity of household system / street lighting system. The sign board should be put up immediately after commissioning.
- d. A sign board (min 4 ft x 3 ft) is to be installed in each village at prominent locations like public building, school, health center, Panchayat Bhawan etc. The sign board should contain the name of scheme, Details of village with census code & district name, number of households covered, number solar street lights installed under the scheme etc. A photograph depicting installation of board shall be submitted to the Project Manager while submission of claim for the completed village. The list of village wise photographs (both households and Street lighting system), in soft copy shall be maintained by the contractor and shall be submitted for review at the time of block wise reconciliation of works and associated payments.
- e. On completion of district wise work, contractor shall provide beneficiary wise details of standalone system installed in the village depicting unique serial no of set, name of beneficiary, contact number of beneficiary, name & census code of village, date of commissioning, details of Aadhar Card/election card and digital photograph.
- f. The contractor must obtain a copy of photo id proof like Aadhar card, voting id card etc for each household wherein standalone system has been provided. The contractor shall also take digital photographs of all equipment including house wiring, panel, battery etc and submit the photographs in soft copy of each households to the Project Manager. The Project Manager shall ensure strict compliance before release of payment to the contractor.
- g. ISI marked system wiring as per following: i. Panel to charge controller: 2 core 4 sqmm flexible multi strand copper conductor cable as per IS 694. Cable between panel to Solar DC charge controller shall be fixed properly with cable ties and shall be laid underground as per CPWD specifications between installation support and household. ii. Charge controller to battery: 2 core 4 sqmm flexible multi strand copper conductor cable as per IS 694 iii. Charge controller to USB port for mobile charging: 2 core 1.5 sqmm flexible multi strand copper conductor cable as per IS 694 iv.

Battery to battery connections: 2 core 4 sqmm flexible multi strand copper conductor cable as per IS 694.

All cables shall be terminated using copper lugs (ring type) duly crimped by a crimping machine. The cable shall be free of joints.

- h. Wiring fixtures: Rigid non-metallic 12mm dia conduits for electrical installations as per IS-2509 (latest amendment) having ISI stamping to be used for all system and internal wiring works. The wires must be properly dressed and fixed on supporting structure at 1 feet intervals. Suitable tying materials like nylon cable ties or 16/18 SWG insulated GI wire shall be used to tie / dress the wire at interval of 1 ft. Depending on size of wall structure available at beneficiary house, decision shall be taken to provide length of cable ties. In case brick wall or solid structure of house is available for wiring, clips may be provided at 1 feet distance to hold the rigid nonmetallic 12mm dia conduits pipes. 25 w power plug, USB port shall be installed on 40 mm dia round switch board properly installed on wall structure. At all corners wiring should be dressed properly using round corners etc.
- i. System losses as per following:
 - (a) Solar to load directly < 4%
 - (b) Solar to battery plus battery to load < 10% excluding battery losses
 - (c) Grid to load directly < 8 %
 - (d) Grid to battery plus battery to load <12 % excluding battery losses
- j. In addition to the description of Wiring mentioned in Amendment - I, the detailed technical specification of cable ties shall be included as mentioned below: Non-releasable Nylon Cable Ties shall be used suitable for continuous use on -40 degree to +85 degree centigrade temperature. It should be MIL 23190 E Tensile Strength complied cable ties having flame resistance capacity in accordance with UL 94V2. Following sizes of cable ties shall be used depending upon requirement at site
 - (a) 120mm Long - 4.8mm Wide
 - (b) 200mm Long - 4.8mm Wide
 - (c) 430mm Long - 4.8mm Wide
- k. Following clause for Identification of Assets to be implemented in conjunction with clause no. 20 of Amendment-I.
Sign Boards for Village Electrification:

The DDUGJY sign boards shall be provided in villages which have been electrified under the scheme. The board shall be erected at a suitable location preferably near the office of Sarpanch/Gram Panchayat/or any other prominent location.

The specification and format of sign board under DDUGJY is attached as Annexure-I to Amendment - IV.
- l. The Centralized Monitoring System consists of Local/Remote Monitoring through Laptop / Cell Phone from any where in the world should be implemented by displaying following informations. Kindly refer attached Annexure-I to this Amendment-V.
 - (a) Daily Generation
 - (b) Daily Consumption
 - (c) Daily Storage

Annexure – 1
Letter for Submission of Bid

(To be submitted on Company's letterhead duly signed)

To,

Addl. Chief Executive Officer
REC Power Distribution Company Ltd,
1016-1023, 10th Floor,
Devika Tower, Nehru Place,
New Delhi-110019

Sub.: Engagement of Service Agency

Dear Sir,

1. We wish to apply for Bid against RECPDCL's Tender no: RECPDCL/FB/RB/SOLAR/2016-17/..... dated:for " Rural Electrification Of 900 Nos. Of Off-Grid Villages In Arunachal Pradesh By (A) Installing 300wp Solar Power Packs And (B) Installing Solar Street Lighting Under Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY)" as per the requirements of RECPDCL.

Further, I hereby certify that-

2. I have read the provisions of all clauses and confirm that notwithstanding anything stated elsewhere to the contrary, the stipulation of all clauses of Tender are acceptable to me and I have not taken any deviation to any clause.
3. I further confirm that any deviation to any clause of Tender found anywhere in my Bid, shall stand unconditionally withdrawn, without any cost implication whatsoever to the RECPDCL.
4. Our bid shall remain valid for period of 180 days from the last date of bid submission.

Date:
Place:

Signature:
Full Name:

Designation:
Address:

Note:

In absence of above declaration/certification, the Bid is liable to be rejected and shall not be taken into account for evaluation.

Annexure-2
ADVANCE BANK GUARANTEE (ABG) FORMAT

**M/s REC Power Distribution Company Ltd.,
Core 4, Scope Complex, Lodhi Road,
New Delhi – 110003 (INDIA)**

OUR LETTER OF GUARANTEE NO.:

In consideration of REC Power Distribution Company Ltd., having its office at
..... (hereinafter referred to as “RECPDCL” which
expression shall unless repugnant to the content or meaning thereof include all its successors,
administrators and executors) and having issued NIT/Work Order No.dated
..... with/on M/s
..... (hereinafter referred to as
“The Agency” which expression unless repugnant to the content or meaning thereof, shall
include all the successors, administrators, and executors).

WHEREAS the Agency having unequivocally accepted to perform the services as per terms and conditions
given in the NIT/Work Order No. dated and RECPDCL having
agreed that the Agency shall furnish to RECPDCL an Advance Bank Guarantee for the advance taken, to
the extent of 10% (ten percent) (or the percentage as per the individual case) of the value of the
NIT/Work Order i.e. for

We, (“The Bank”) which shall include OUR successors,
administrators and executors herewith establish an irrevocable Letter of Guarantee No.
..... in your favour for account of (The Agency) in
cover of performance guarantee in accordance with the terms and conditions of the NIT/Work Order.

Hereby, we undertake to pay up to but not exceeding (say
..... only) upon receipt by us of your first written demand accompanied
by your declaration stating that the amount claimed is due by reason of the Agency having failed to
perform the NIT/Work Order and despite any contestation on the part of above named agency.

This letter of Guarantee will expire on including 90 day of claim period and any
claims made hereunder must be received by us on or before expiry date after which date this Letter of
Guarantee will become of no effect whatsoever whether returned to us or not.

Authorized Signatory
Chief Manager/ Manager
Seal of Bank

Note: The date shall be 90 days after the date of completion of installation.

Annexure-3
PERFORMANCE BANK GUARANTEE (PBG) FORMAT

M/s REC Power Distribution Company Ltd.,
Core 4, Scope Complex, Lodhi Road,
New Delhi – 110003 (INDIA)

OUR LETTER OF GUARANTEE NO.:

In consideration of REC Power Distribution Company Ltd., having its office at
..... (hereinafter referred to as "RECPDCL" which
expression shall unless repugnant to the content or meaning thereof include all its successors,
administrators and executors) and having issued NIT/Work Order No.dated
..... with/on M/s
..... (hereinafter referred to as
"The Agency" which expression unless repugnant to the content or meaning thereof, shall
include all the successors, administrators, and executors).

WHEREAS the Agency having unequivocally accepted to perform the services as per terms and conditions
given in the NIT/Work Order No. dated and RECPDCL having
agreed that the Agency shall furnish to RECPDCL a Performance Guarantee for the faithful performance
of the entire contract, to the extent of% (..... percent) (or the percentage as per the individual
case) of the value of the NIT/Work Order i.e. for
.....

We,("The Bank") which shall include OUR successors,
administrators and executors herewith establish an irrevocable Letter of Guarantee No.
.....in your favour for account of.....(The Agency) in
cover of performance guarantee in accordance with the terms and conditions of the NIT/Work Order.

Hereby, we undertake to pay up to but not exceeding (say
..... only) upon receipt by us of your first written demand accompanied
by your declaration stating that the amount claimed is due by reason of the Agency having failed to
perform the NIT/Work Order and despite any contestation on the part of above named agency.

This letter of Guarantee will expire on including 90 day of claim period and any
claims made hereunder must be received by us on or before expiry date after which date this Letter of
Guarantee will become of no effect whatsoever whether returned to us or not.

Authorized Signatory
Chief Manager/ Manager
Seal of Bank

Note: The date shall be 90 days after the date of completion of contract.

Annexure-4

Technical Bid			
Sl. No.	Description	To be furnished by the Bidder	
		Solar Power Pack	Solar Street Light
A.	Solar PV Module		
	1. Type of Module		
	2. Make		
	3. Availability of RFID tag		
	4. Max power at STC Pmax (W)		
	5. Max power voltage Vmp(V)		
	6. Max power current Imp(A)		
	7. Open circuit voltage Voc (V)		
	8. Short circuit current Isc (A)		
	9. Load current at 16.4 Volt Iload		
	10. Conversion Efficiency		
	11. No of cells per module		
	12. bypass diodes		
	13. Solar module frame material		
	14. Module Dimension		
	15. Module Weight		
16. Fill factor			
B.	Battery		
	1. Make		
	2. Type		
	3. Capacity of Battery		
	4. Self Discharge		
	5. DOD		
	6. Design Cycle Life of battery		
	7. Charge efficiency		
8. Size & Weight of Battery			
C.	Electronics		
	1. Make		
	2. Charger Type		
	3. PV Charging Efficiency		
	4. Idle current consumption		
5. Operating voltage			

	6. Temperature compensated set points		
	7. Details of Indicators provided		
	8. Details of Protections provided		
	i. Battery Over charge set value		
	ii. Deep discharge set value		
	iii. Short Circuit		
	vi. Open Circuit		
	v. Reverse polarity		
	vi. Blocking Diode		
	vii. Others		
	LED Lighting Unit		
D.	1. Make and material of housing		
	2. Power consumption of LED lighting unit.		
	3. No of LEDs		
	4. Wattage of each LED		
	5. Driver Consumption		
	6. Make and origin of LED		
	7. Lumens output		
	8. LED DC Current Regulation		
	9. Input Voltage		
	10. Beam Angle		
	11. CRI		
	12. LED Efficacy		
	13. Luminaire Efficiency		
	14. Automatic ON/OFF Timings		
	15. Other features (IP ---)		
E.	Module Mounting frame		
	1. Material used		
	2. Whether Protection against corrosion		
	3. Angle of inclination to horizontal		
F.	Battery housing		
	1. Material		
	2. Dimension		
	3. Whether Protection against corrosion provided		
	4. Air vent and locking arrangement		
G.	Connecting cables / wire		
	1. Material and size		
	2. Details of Switches (Nos.)		

Annexure-5

PRICE BID

(A) PRICE BID - SOLAR POWER PACKS OF 300 WATTS (13500 nos.)

Tender Ref No:RECPDCL/LT/SOLAR/AR/2016-17/1638								
Dated: 19.01.2017								
PRICE BID FOR SOLAR STREET LIGHTING								
TABLE-A								
TENDER: RURAL ELECTRIFICATION OF 900 NOS. OF OFF-GRID VILLAGES IN ARUNACHAL PRADESH BY (a) INSTALLING 300Wp SOLAR POWER PACKS AND (b) INSTALLING SOLAR STREET LIGHTING UNDER DEENDAYAL UPADHYAYA GRAM JYOTI YOJANA (DDUGJY)								
Name of Company								
Sl. No	Description of Item	Proposed/Estimated Quantity of Solar Power Packs (In Nos.)	PRICES (IN INR)					Total Price including all Taxes & Duties (in Rs)
			Unit Ex-Works Price	Total Ex-Works Price	Applicable Taxes & Duties {i.e. ED, CST/VAT, Entry Tax, Service Tax etc. }			
1	2	3	4	5 = 3 * 4	6A Type of Tax (Name)	6B Percentage	6C Amount (in Rs)	7 = 5 + 6C
1	Planning, Design, Engineering, Assembly Manufacturing / Fabrication, Testing and Supply of Solar Street Lights with incidental services as per	4500		0.00			0.00	0.00
							0.00	
							0.00	

	specifications mentioned in NIT.							
2	Inland Transportation including Loading, Unloading, Insurance, Transfer to Site and other Costs Incidental for Delivery	4500		0.00			0.00	0.00
							0.00	
							0.00	
3	Installation, Testing, Commissioning and Documentation of all Items / Materials required to complete the Electrification Works which interalia include installation of Solar PV standalone system	4500		0.00			0.00	0.00
							0.00	
							0.00	
	GRAND TOTAL (In Figures)			0.00				0.00

NOTES

1	Certified that rates quoted above are as per the requirement, specification terms & condition mentioned in the e-tender document.
2	The rates quoted are inclusive of all taxes & duties, storage, transportation up to site, insurance, installation, testing, commissioning, handling charges etc and 5 year comprehensive warrantee and annual maintenance charges and any other job required to properly execute the work.

(B) PRICE BID - SOLAR STREET LIGHTING (4500 nos.)

TABLE-B								
PRICE BID FOR SOLAR POWER PACK 300 WATT								
Sl. No.	Description of Item	Proposed/Estimated Quantity of Solar Power Packs (In Nos.)	PRICES (IN INR)					Total Price including all Taxes & Duties (in Rs)
			Unit Ex-Work Price	Total Ex-Work Price	Applicable Taxes & Duties {i.e. ED, CST/VAT, Entry Tax, Service Tax etc. }			
1	2	3	4	5 = 3 * 4	6A Type of Tax (Name)	6B Percentage	6C Amount (in Rs)	7 = 5 + 6C
1	Planning, Design, Engineering, Assembly Manufacturing / Fabrication, Testing and Supply of Solar Power Packs (300 Wp) with incidental services as per specifications mentioned in NIT.	13500		0.00			0.00	0.00
							0.00	
							0.00	
2	Inland Transportation including Loading, Unloading, Insurance, Transfer to Site and other Costs Incidental for Delivery	13500		0.00			0.00	0.00
							0.00	
							0.00	
3	Installation,	13500		0.00			0.00	0.00

	Testing, Commissioning and Documentation of all Items / Materials required to complete the Electrification Works which interalia include installation of Solar PV standalone system						0.00	
	GRAND TOTAL (In Figures)			0.00				0.00
4	Centralized Monitoring System	13500		0.00			0.00	0.00
							0.00	
							0.00	

NOTES

1	Certified that rates quoted above are as per the requirement, specification terms & condition mentioned in the e-tender document.
2	The rates quoted are inclusive of all taxes & duties, storage, transportation up to site, insurance, installation, testing, commissioning, handling charges etc and 5 year comprehensive warrantee and annual maintenance charges and any other job required to properly execute the work.
3	Bidder Has to indicate the price of Centralized Monitoring System in line with specification. However the price of Centralized Monitoring System shall not be considered for evaluation purpose.

Grand Total (In Figures) (TABLE-A+TABLE-B)	0.00
Grand Total (In Words) (TABLE-A+TABLE-B)	

Annexure-6

List of Districts as detailed below:

Sr. No.	Name of District
1	Anjaw
2	Changlang
3	Dibang Valley
4	East Kameng
5	East Siang
6	Kurung Kumey
7	Lohit
8	Lower Dibang Valley
9	Lower Subansiri
10	Papum Pare
11	Tawang
12	Upper Siang
13	Upper Subansiri
14	West Kameng
15	West Siang