

Langpi Dehangi Rural Bank

Head Office

Diphu, Assam – 782460

Tender Document

Tender Reference Number: LDRB/HO/P&D/2014-15/SOLAR

For

Supply, Installation & Commissioning

Of

Solar Power Solutions at various Branches in the Districts of
Karbi Anglong and Dima Hasao of Assam

Invitation for tender offers

Langpi Dehangi Rural Bank invites sealed tender offers (prequalification, technical and commercial offer) from eligible, reputed and interested MNRE approved manufacturers for supply, installation & commissioning of Solar Power Solutions at **various Branches in the Districts of Karbi Anglong and Dima Hasao of Assam.**

A complete set of tender document may be downloaded by the eligible tenderer from the website www.ldr.org

The copy of tender document may be obtained from Head Office of Langpi Dehangi Rural Bank on all working days in person within office hours.

The details are given below:

Tender Reference	LDRB : HO : P&D: 2014-15: SOLAR
Bid For	Purchase, installation & Commissioning of Solar Power Solutions.
Date of commencement of Tender document	21.04.2014
Last Date and Time for receipts of Tender offers	10.05.2014 upto 2:00 pm.
Address for Tender submission	Langpi Dehangi Rural Bank, Head Office, Diphu, Dist. Karbi Anglong, Assam, Pin-782460
Email address	ldrbank@rediffmail.com and ldrbank@ldr.org
Contact Number	03671-274093,
Cost of Tender Document	Rs 1000.00 (Rupees One Thousand Only) non refundable by Local Cheque /Demand Draft in favour of "Langpi Dehangi Rural Bank" payable along with the prequalification Bid.
Earnest Money Deposit (EMD)	NIL.

[P.K.Purkayastha]
CHAIRMAN

Instructions to vendors

1. Three Bid System Tender

Langpi Dehangi Rural Bank intends to purchase and install Solar Power Solutions in its 10(ten) Nos. of branches in this phase. The details of the required items are given in this tender. Offers (Prequalification, Technical & Commercial) must be submitted at the same time, giving full particulars in **separate sealed envelopes** at the Bank's address given below, **on or before the last date & time mentioned above**. All envelopes should be securely sealed and stamped. The bidder qualifies in Prequalification and in technical bid will be called during opening of commercial offer.

All the envelopes must be super-scribed with the following information:

- Type of Offer (Pre-qualification, Technical & Commercial)
- Tender Reference Number
- Due Date
- Name of Vendor
- Name & Telephone No. of contact person

1.1 ENVELOPE-I (Prequalification Offer)

The prequalification offer should be in line with the prequalification criterion (Annexure - A) stated in the Tender document. All documents as asked for to be submitted for verification of qualification. Non-compliance of any of the criteria as asked will result into rejection of the offer.

1.2 ENVELOPE-II (Technical Offer):

The Technical Offer should be complete in all respects and contain all information asked for, except prices. The Technical Offer should include all items asked for in **Annexure B**. The Technical offer **should not contain any price information**. The Technical offer with any price information anywhere is liable to be rejected. The Technical Offer should be complete to indicate that all products and services asked for are quoted.

1.2 ENVELOPE-III (Commercial Offer):

The Commercial Offer should give all relevant price information as per **Annexure-C** and should not contradict the Technical offer in any manner.

These three envelopes containing the Prequalification, Technical and Commercial Offer should be **separately** submitted. Please note that if envelope is found to contain Prequalification, technical and commercial offer, then that offer will be rejected outright.

2. Terms and Conditions

Terms and conditions for vendors who participate in the tender are specified in the section called “Terms and Conditions”. These terms and conditions will be binding on all the vendors. These terms and conditions will also form a part of the purchase order, to be issued to the successful vendor(s) on the outcome of the tender process.

3. Offer Validity Period

The offer should hold good for a period of 180 days from the closing date of the tender.

4. Address for Communication

Offers should be addressed to the following officer at the address given below:

General Manager,
Langpi Dehangi Rural Bank,
Head Office: DIPHU
Karbi Anglong - 782460 (Assam)

5. Modification and Withdrawal of Offers

The vendor may modify or withdraw their offer after its submission, provided that written notice of the modification or withdrawal is received by Langpi Dehangi Rural Bank prior to the closing date and time prescribed for submission of offers. No offer can be modified by the vendor, subsequent to the closing date and time for submission of offers.

6. Placement of Purchase Order:

Purchase Order will be placed on the Lowest Bidder [**L1**] among the technically accepted offers. It is absolutely essential for the vendors to quote the lowest price at the time of making the offer in their own interest, as the Langpi Dehangi Rural Bank will not enter into price negotiations except with lowest quoted vendor whose offer is found to be fully compliant.

7. Preliminary Scrutiny

Langpi Dehangi Rural Bank will scrutinize the offers to determine whether they are complete, whether any errors have been made in the offer, whether required technical documentation has been furnished, whether the documents have been properly signed, and whether items are quoted as per the schedule.

8. Clarification of Offers

To assist in the scrutiny, evaluation and comparison of offers, Langpi Dehangi Rural Bank may, at its discretion, ask some or all vendors for clarification of their offer. The request for such clarifications and the response will necessarily be in writing.

9. Revised Commercial Offer

Bank reserves the right to call for revised commercial offer from all the vendors technically qualified after the technical evaluation is over.

10. Documentation

The following information should be furnished along with the technical offer by means of printed technical brochures as per checklist provided.

- Make and model numbers of all the items quoted for.
- Specifications of all items asked along with technical specifications table.

11. Submission of Prequalification offer

It is mandatory to provide all information as asked for against the Prequalification offer to get qualified. The technical and commercial offer of the bidder who does not qualify in this offer will not be opened and hence will be summarily rejected.

12. Submission of Technical Details

It is mandatory to provide the technical details in the exact format of **Technical Details** given in the technical specifications. The offer may not be evaluated by Langpi Dehangi Rural Bank in case of non-adherence to the format or partial submission of technical details as per the format given in the tender. Langpi Dehangi Rural Bank will not allow/permit changes in the product once it is submitted. The relevant product information, brand and model number offered, printed product brochure, technical specification sheets etc. should be submitted alongwith the offer. Failure to submit this information along with the offer could result in disqualification. (Please refer to the suggested checklist given in this document)

13. Make and Models of the Equipment

It is mandatory to provide make, model and part number of all equipment and their subcomponents as asked in the technical specification. The offer may not be evaluated and/or will be liable for rejection in case of non-submission or partial submission of make, model and part numbers/serial numbers of the items offered. Please note that substituting this information by just brand name is not enough.

14. The format suggested for submission of Prequalification offer is as follows:

1. Index
2. Covering letter
3. Prequalification offer with all documents as given in Annexure A
4. Cost of tender document in the form of local cheque/DD for bidders who has downloaded the tender document from the web site.

15. Format for Technical Offer

The Technical Offer must be made in an organized, structured and neat manner. Brochures/leaflets should be submitted as a bound document and not in a loose form.

The suggested format for submission of Technical Offer is as follows:

1. Index
2. Covering Letter.
3. Technical Offer with Specifications as given in **Annexure B**

Term No	Short Description of term	Complied (Yes/No)	Detailed explanation about deviation, if not complied
1	Technical Inspection and performance Evaluation		

4. Warranty and AMC details to be quoted separately.
5. Delivery and Implementation schedule.
6. Technical Documentation (Product Brochures, Leaflets, Manuals etc.). An index of technical documentation submitted with the offer must be enclosed.
7. Details of past installations.

16. Format for Commercial Offer

The Commercial Offer must not contradict the Technical Offer in any way. The suggested format for submission of Commercial Offer is as follows:

1. Index
2. Covering Letter
3. The Commercial Offer should quote the price of the solutions as per **Annexure-C**

17. Alternative Offers

Each offer should specify only a single solution, which is cost-effective and meets the tender specifications and should not include any alternatives. Vendor willing to offer Langpi Dehangi Rural Bank a second or more alternatives for any item(s) of requirement should submit separate prequalification, technical and commercial offers giving details for each alternative. Each option should be complete in all respects and should not require cross-referencing with details given in other options.

18. Costs & Currency

18.1 The offer must be in fixed price basis in Indian Rupees only, including the following:

1. Basic Cost of the equipment.
2. Installation Charges, if any,
3. Minimum of 5 (five) year comprehensive on-site warranty covering all parts & labour.
This period will start from the date of installation and acceptance of all the goods by Langpi Dehangi Rural Bank.
4. Transportation and Forwarding Charges, if any to the site.
5. Insurance to cover equipment up to installation and acceptance of equipment by Langpi Dehangi Rural Bank at site.
6. Charges for Post warranty AMC for 5 years to be quoted separately.
7. **All costs should be given in Figures and Words.**

18.2 The offer shall be exclusive of the Local Sales Tax (State Level)/VAT, if applicable which will be reimbursed in actual.

18.3 No price variation relating to increases in Customs Duty, Excise Tax, Currency variation etc. will be permitted.

19. Unacceptable Quality of Items purchased.

The vendor should not substitute any internal components or subsystems of Solar Solutions by similar items from different manufacturers, without adequate justification that is acceptable to Langpi Dehangi Rural Bank.

Terms and Conditions of the Tender

1. Technical Inspection and Performance Evaluation

Langpi Dehangi Rural Bank reserves its right to carry out a technical inspection and performance evaluation (bench-marking) of complete central system in a factory test environment. For this purpose, our personnel may have to visit the factory site, which shall be provided at the Vendor's cost.

2. Payment Terms

Langpi Dehangi Rural Bank will make payment as follows:

Sl. No	Payment due on	Percentage of amount to be paid	Remarks
1	Against Delivery of all equipments ordered	40%	40 % of the order value will be paid on delivery of all equipment ordered, by Head Office against acknowledged delivery challans.
2	Against installation and acceptance by the Bank	50%	40 % of the order value will be paid, on completion of installation of Solar Power unit.
3	Performance Bank	10%	The balance of 10% will be paid by

	Guarantee.		the Bank after submission of Performance Bank Guarantee (as per the Bank's standard format) for the equivalent amount valid for the warranty period i.e. 5 yrs and additional claim period of 3 months.
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- Local Sales Tax / VAT (wherever applicable) will be paid extra at the time of submission of invoice by the vendor.

3. Delivery and Installation

3.1 The Vendor shall be responsible for delivery and installation of the equipment ordered at all the sites and for making them fully operational at no additional charge within **12 weeks from the date of the respective work orders or 6 weeks from the date of Pre Dispatch Inspection whichever is earlier.**

3.2 If the vendor fails to deliver and/or install all the equipment ordered within the stipulated time schedule or by the date extended by Langpi Dehangi Rural Bank, it will be a breach of contract.

3.3 Appropriate insurance to cover the equipment for the transit period and till the time of its acceptance by Langpi Dehangi Rural Bank at the respective site is to be taken by the vendor. At the discretion of Langpi Dehangi Rural Bank, there will be an acceptance test conducted by the vendor in presence of Langpi Dehangi Rural Bank officials and/or its nominated consultants after installation of complete equipment. In case of discrepancy in items supplied, Langpi Dehangi Rural Bank may cancel the entire purchase order and return the equipment back to the vendor at vendor's costs and risks.

4. Completeness of Installation

The vendor has to install the Solar Power Unit. The installation will be deemed as incomplete if any component of the items supplied, batteries etc., or any documentation/media is not delivered or is delivered but not installed and/or not operational or not acceptable to Langpi Dehangi Rural Bank after acceptance testing/examination.

In such an event, the supply & installation will be termed as incomplete and it will not be accepted and warranty period will not commence. The entire site will be accepted after complete installation of equipment and satisfactory working of the entire equipment for a minimum period of 10 days.

5. Order Cancellation

Langpi Dehangi Rural Bank reserves its right to cancel the order in the event of one or more of the following situations:

1. Delay in delivery and installation beyond 12 weeks from the date of respective work order.
2. Discrepancy in Solar Power Units noticed during installation.

6. Acceptance Tests

At the discretion of Langpi Dehangi Rural Bank, acceptance test will be conducted by the vendor at the site in the presence of the officials of Langpi Dehangi Rural Bank and/or its nominated consultants. The tests would check for trouble-free operation of the complete system for ten consecutive days apart from physical verification and testing. There shall not be any additional charges payable by Langpi Dehangi Rural Bank for carrying out this acceptance test. Langpi Dehangi Rural Bank will take over the system on successful completion of the above acceptance test.

7. Manuals

The Vendor will have to supply all necessary documentation for training use and handling of the Solar system. This will include at least, one set of original copies per installation of the user manuals, reference manuals, operational manuals and system management manuals in English.

8. Warranty

The offer must include a **minimum 5 years comprehensive on-site warranty** from the date of installation and acceptance of the system by Langpi Dehangi Rural Bank. The warranty will start only after complete installation and acceptance of equipments in the Branch as a unit.

Vendor shall be fully responsible for the manufacturer's warranty in respect of proper design, quality and workmanship of all equipment, accessories etc. covered by the tender. Vendor must warrant all equipment, accessories, spare parts etc. against any manufacturing defects during the warranty period. During the warranty period, vendor shall maintain the systems and repair/replace at the installed site all defective components, at no charge to Langpi Dehangi Rural Bank.

Warranty should not become void if Langpi Dehangi Rural Bank buys any other solutions from a third party and installs it with/in these machines in the presence of the representative of the vendor. However, the warranty will not apply to such third-party items installed by Langpi Dehangi Rural Bank.

9. Annual Maintenance Charges

The vendor should also quote separately for annual comprehensive maintenance at site (for Solar Power Solutions) from the date of expiry of the warranty period for a period of further 05 years. The same is available with commercial offer/Price schedule under **Annexure-C**. The offer must give commitment to provide maintenance at the price quoted as above from the date of expiry of warranty.

10. Spare parts

Vendor will make the spare parts for the systems available for a minimum period of Five years from the time of acceptance of the system. Thereafter, vendor will give at least Six months notice prior to discontinuation of support services, so that Langpi Dehangi Rural Bank may order its requirements of the spares, if it so desires. If any of the peripherals, etc. are not available or difficult to procure or the procurement is likely to be delayed for replacement if required, the replacement shall be carried out with state of the art technology equipment of equivalent capacity or higher capacity at no additional charges to Langpi Dehangi Rural Bank.

11. Penalty for Delay

For any delay in installation of the Solar Power Units, Langpi Dehangi Rural Bank will charge penalty @ 1% of the order value per week or part thereof, subject to a maximum of 5%. Thereafter Order may be cancelled and other penal measure may be taken like foreclosure of BG etc.

12. Penalty for Downtime

Any equipment that is reported to be down on a given date should be either fully repaired or replaced by temporary substitute (of equivalent configuration) within 24 hours. However, the downtime should not exceed 24 hours for remote/rural locations. The reporting will be through a telephonic message or any other mode viz. email, fax as Langpi Dehangi Rural Bank may decide. In case vendor fails to meet the above standards of maintenance, there will be a **penalty of Rs.500 per day** subject to a maximum of 5% of the order value for the units affected:

The temporary substitute machine or equipment should be replaced by the original machine or equipment duly repaired within a week's time, failing which the above penalty will be imposed for the number of days exceeding one week.

13. Solar Unit Failure

If during the warranty period, any equipment has a failure on four or more occasions in a quarter, it shall be replaced by equivalent new equipment by the vendor at no cost to Langpi Dehangi Rural Bank.

14. Indemnity

Vendor shall indemnify, protect and save Langpi Dehangi Rural Bank against all claims, losses, costs, damages, expenses, action suits and other proceeding, resulting from infringement of any patent, trademarks, copyrights etc. or such other statutory infringements in respect of all the equipment etc. supplied by him.

15. Publicity

Any publicity by the vendor in which the name of Langpi Dehangi Rural Bank is to be used should be done only with the explicit written permission of Langpi Dehangi Rural Bank.

16. Guarantees

Vendor should guarantee that the systems delivered to Langpi Dehangi Rural Bank are brand new, including all components. All the units must be supplied with their original and complete printed documentation.

17. Resolution of Disputes

All disputes arising out of tender will be settled by Bank's Internal Dispute settlement advisory committee Langpi Dehangi Rural Bank, Head Office, Diphu only.

18. Standards:

All standards to be followed should adhere to the guidelines set by MNRE (Ministry of New and Renewable energy), Govt. of India, or Bureau of Indian Standards (BIS) specifications.

General Instructions to vendors:

1. Non-transferable Tender

This tender document is not transferable. Only the vendor, who has purchased this tender, is entitled to quote.

2. No Commitment to Accept Lowest or Any Tender

Langpi Dehangi Rural Bank shall be under no obligation to accept the lowest or any other offer received in response to this tender notice and shall be entitled to reject any or all offers including those received late or incomplete offers without assigning any reason whatsoever. Langpi Dehangi Rural Bank reserves the right to make any changes in the terms and conditions of purchase. Langpi Dehangi Rural Bank will not be obliged to meet and have discussions with any tenderer, and or to listen to any representations.

3. Credentials

The Prequalification offer must contain the credentials of the vendor, which should clearly indicate that the vendor is eligible by all means to participate in the tendering process. The responsibility to prove the eligibility of the vendor to participate in the tendering process is on the vendor itself.

4. Erasures or Alterations

The offer should be neatly typed and no hand-written addition/alterations should be there. Such additions/alterations will make the offer ineligible. Technical details must be completely filled up. Correct technical information of the product being offered must be filled in. Filling up of the information using terms such as "OK", "accepted", "noted", "as given in brochure/manual" is not acceptable. Langpi Dehangi Rural Bank may treat offers not adhering to these guidelines as unacceptable.

5. Location

This tender is being floated by the Langpi Dehangi Rural Bank, Head Office: Diphu. The Solar Power Units and other items being procured through this tender shall be installed by the vendor after getting the order of the Langpi Dehangi Rural Bank. Bank reserves right to make changes in the location, if necessary.

6. Billing

The billing should be done locally in Assam for which the items are being purchased. Local Sales Tax / VAT etc. will be paid extra as per the rate applicable for the respective state.

7. No Negotiation

It is absolutely essential for the vendors to quote the lowest price at the time of making the offer in their own interest, as the Langpi Dehangi Rural Bank may enter into a price negotiation, if necessary, only with the lowest quoting vendor, whose offer is found to be fully technically compliant.

8. Right to Alter Quantities

Langpi Dehangi Rural Bank reserves the right to alter the quantities specified in the tenders. Langpi Dehangi Rural Bank also reserves the right to delete one or more items from the list of items specified in tender.

9. Repeat Orders

Langpi Dehangi Rural Bank reserves the right to place a repeat order on the vendor under the same terms and conditions within the validity period of the offer.

Annexure - A

**(PRE-QUALIFICATION BID)
BIO - DATA OF CONTRACTING AGENCY**

1. Name of the firm :	
Address :	
Telephone No. :	
Office :	
Residence :	
Mobile :	
Fax :	
E-Mail :	
2. a) Whether proprietary/partnership/ :	
Pvt. Ltd. / Public Ltd. (certificate of registration / partnership deed to be enclosed as Annexure-I)	
2.b) Name of the Contact Person with Address and contact No:	
2.c) Year of establishment :	
3. Registration with Tax Authorities:	
i) Income-tax (PAN) No.:	
ii) Service tax No.:	
iii) EPF Regn. No.:	
iv) ESI Regn. No.:	
v) TIN / VAT No.:	

(Copies of certificates of registration with relevant authorities to be enclosed as as per above 3(i) to 3(v))

4. Names of the Bankers with address & telephone numbers:

- I)
- II)

5. Details of similar work executed for banks:

Type of work	Name of the Bank for which work has been executed	Location	Value	Date of commencement	Date of completion

Prequalification criteria:

Eligibility condition for supply, Installation and commissioning of Solar Power Generating system.

Sl. No.	Eligibility criteria	Document
1	The bidder should be in core business of manufacture, supply, installation and commissioning of solar power generating system in India at least for a period of last 05 years	Copy of certificate of Incorporation
2	The bidder should have made net profit during last 03 financial years with a minimum sales turnover of Rs.10 crore each year for last 03 years.	Copy of audited balance sheet of 2011-12 2012-13 2013-14
3	ISO certification - 9002 for manufacturing facility from where the equipment will originate	Copy of ISO certificate
4	The bidder should have service centers and support offices in the districts of our operation.	List of service centers with address, contact person with mobile no. to be provided
5	The bidder should have supplied such similar system to at least 02 public sector Commercial Bank branches in the country working satisfactorily for at least last 02 years. The Bidder should have such similar installation for powering Computers, Printer etc. in Assam running successfully for last 02 years preferably in Banks.	Copies of purchase orders along with performance certificate to be provided
6	The bidder should have sales tax registration in Assam.	Assam VAT NO. with Sales Tax Registration Certificate.

Our Requirements:

Solar Power Generating System providing 230 Volts, ± 3 % Pure Sine Wave 50 Hz AC Power for running of Computers, Printers , Scanners, CFL's and Wall Fans for minimum of 7/8 hours daily operations with backup facility of 3 days (NO SUN Autonomy). Capacity of the solar power generating system will be 4.5 KWp for our different branches.

The Battery bank should be designed to provide load energy requirement for minimum of 3 days in the event of No Sunshine / cloudy conditions (No Sun Autonomy).

Interested bidders may inspect the sites at their own cost and determine the load and solutions thereof.

Delivery:

Delivery is to be done at the installation site/location mentioned in Annexure-D or at the substituted site as per discretion and requirement of the Bank.

ANNEXURE B- Technical Offer

Langpi Dehangi Rural Bank intends to go for installation of Solar Photovoltaic (SPV) system in the premises of its 10(ten) branches on pilot basis as per location given in Annexure-D which may be substituted by other branch as per discretion of the Bank.

Technical Specifications of Solar Power Solutions.

I. Solar PV MODULE

1. Solar PV module array to be of high efficiency Solar Modules utilizing Crystalline Silicon Solar PV cells. **Power output Guarantee offered for the SPV Module shall not be less than 10 years.** Individual Solar module rating should not be less than 80 Wp @ STC. Each Solar PV module offered should meet following Min. requirement.

Efficiency of cell, $Eff_c \geq 14\%$

Efficiency of module, $Eff_m \geq 12.5\%$

I-V curve of each PV module with SI Nos. should be submitted along with Modules.

2. Solar PV Modules shall conform to IEC-61215, ISPR A Italy, IECQ (PV-GAP), MNRE & BIS standards. Following details to be provided:

- Maximum Power, P_{max}
- Open Circuit Voltage, V_{oc}
- Short Circuit Current, I_{sc}
- Voltage at Max Power V_{mp}
- Current at Max power I_{mp}
- Efficiency of cell, E_f, c
- Efficiency of module, E_f, m

3. Solar PV Module should conform to following Mechanical requirement:

- Toughened, low iron content, high transmissivity front glass.
- Anodized Aluminum Frame.
- Ethyl Vinyl Acetate (EVA) encapsulant.
- Silicon edge sealant around laminate.
- Tedlar /Polyester trillaminate back surface.
- ABS plastic terminal box for the module output termination with gasket to prevent water moisture.
- Resistant to water, abrasion, hail impact, humidity & other environment factor for the worst situation at site.
- Bypass diode.

Type of Solar PV Modules offered should have proven Performance Track record in Indian climatic conditions.

II. Module mounting structure / Array

- Structure shall be designed for simple mechanical and electrical installation. It shall support SPV modules at a given orientation, absorb and transfer the mechanical loads to the ground properly.
- The mounting structure should be Galvanized & with anti corrosive paint.
- The array structure shall be so designed that it will occupy minimum space without sacrificing the output from SPV panels & shall withstand heavy winds. Support structure design and foundation or fixation mounting arrangements should withstand minimum horizontal wind speed of 140kmps / hr (Designed value shall be greater than 140kms /hr).
- The Structure should have suitable anti-theft measures to prevent easy removal of Solar Modules.

III. Array Junction Box

- The junction boxes shall be dust, vermin and waterproof and made of FRP / Thermo Plastic with IP65 protection.
- The terminals shall be connected to copper bus bar arrangement of proper sizes.
- The junction boxes shall have suitable cable entry points fitted with cable glands of appropriate sizes for both incoming and out going cables.
- Suitable markings shall be provided on the bus bar for easy identification and cable ferrules shall be fitted at the cable termination points for identification.
- The rating of the JB's shall be suitable with adequate safety factor to inter connect the Solar PV array. Metal oxide arrestors shall be provided inside the Array Junction Boxes.

IV. Battery Bank

The battery Bank of the solar system should be Tubular Plate lead acid low maintenance type. **The Performance Warranty of the Battery Bank should not be less than 05 Years.**

Main features of the battery.

The batteries shall be 12V battery at C10 rate

- Polypropylene Container
- Terminals: Of lead alloy, suitable for bolted connection.
- Vent Plugs: Microporous, ceramic for minimizing electrolyte loss.
- Positive Plate: Tubular Type cast of highly corrosion resistant low antimony special alloy.
- Negative Plate: Flat plate with grids cast of corrosion resistant special alloy.
- Separators: Microporous polyethylene envelope.
- Topping Up frequency: once in 8/10 months.
- Very Low maintenance.
- Recharge ability: at very low rates charging rates as low as 0.05% of the normal charging current.

- High charging efficiencies: Ah efficiency; In excess of 90%.
- Low rate of self-discharge: less than 3% per month at 30°C.
- Variation of capacity with temperature : 0.43% per °C at 10 hour rate as per IS 1651:1991
- Capacity to sustain partial state of charge – should with stand partial state of charge up to six months.
- Service life of minimum 8 – 10 years under normal operating conditions.

The Battery of reputed make (Exide/HBL) to be used shall be in the field along with a Solar PV system

V. Battery Rack

A suitable battery rack with interconnections & end connector shall be provided to suitably house the batteries in the bank. Battery interconnecting links shall be provided for interconnecting in series and in parallel as needed. Connectors for inter cell connection (series / parallel) shall be maintenance free screws. Insulated terminal covers shall be provided.

VI. Solar Charge Controller / Control Electronics:

The Solar charge controller is one of the main components of the system and Battery charge/discharge operation must be done to achieve highest cycle life of the battery bank, being installed. The charge control algorithm must guarantee 100% state of charge without overcharging/discharging and should have following features:.

1. Advance Battery Management Program with PWM regulation to keep the battery bank fully charged without over charging it and should have following features:

- Boost Phase : all charge current available is used to charge battery.
- Absorption Phase : constant battery voltage towards end charge to prevent excessive gassing.
- Float Stage (below gassing voltage to avoid electrolyte loss).
- Equalization Phase: Occasional over charge (periodical) to equalize voltage and specific gravity of all the cells in the battery and stir up electrolyte in liquid cells to reduce stratifications.

2. User adjustable set points : To have different user programmable set points for the above as per user and site requirement in view of type of battery used, (Flooded or Gel Type), Battery age, available Energy etc. Open features are useful for future user requirement. Program / Data Tampering Lock should also be provided.

3. Display of System data: Display Panel should have the following information:

- Battery Bank Voltage
- Charging Current
- Load Current
- Total Energy Generated
- Total energy utilized
- Maximum battery voltage since midnight
- Minimum battery voltage since midnight
- Time of day when the battery bank was fully charged (float stage)
- Solar Panel Voltage (open circuit)
- Performance data for last 30 days

4. Temperature Compensation : To prevent excessive gassing during hot conditions & vice versa.

5. Self-Consumption: The Solar regulator should be microcontroller based with low energy consumption towards system efficiency. The regulator supply current shall not be more than 15 milliamps.

VII. PCU (Power Conditioning Unit) / Inverter

Inverter is the another major component of the system and does the function of inverting DC to AC. Inverter should also charge the battery bank from the AC mains as and when it is required. The Inverter is to be of Online Topology with the load getting Inverted power at all times.

- Inverters shall be of very high quality having high efficiency and shall be capable of running in isolated mode. The inverter should be completely compatible with the Solar charge controller and distribution panel.
- The inverter shall be designed for continuous, reliable power supply as per specifications. The inverter shall have high conversion efficiency from 25 percent load to the full rated load. The peak efficiency of the inverter shall be more than 90% and more than 80% at partial load (50%-75%).
- The Inverter shall have internal protection arrangement against any sustained fault. The Inverter shall have provision for input & output isolation.
- The PCU shall have provision to charge from Grid Power, when required.
- Each solid-state electronic device shall have to be protected to ensure long life of the inverter as well as smooth functioning of the inverter.
- Tripping voltage & start up voltage for the inverters should be perfectly matched with the recommendation of battery manufacturers.
- Details of proper operation, maintenance and troubleshooting details is to be furnished

The Following features should be present

- Inverter mode nominal AC Volt O/P : 220 / 230 V \pm 1%
- Inverter Surge O/P rating : 150% for 15 Sec, 200% for 3 Sec
- Inverter mode Frequency : 50Hz \pm .01%
- Wave Shape : Sinusoidal
- Design : Microcontroller, Mosfet
- Topology Soft Start : To be incorporated .
- Over voltage / under voltage / over load / short circuit protection to be present Peak Efficiency : > 80%
- THD : < 3%
- Grid supply voltage window : 90 to 270 Volt
- Generator Compatibility : To be Compatible
- Over temperature protection: To be present. Cooling Fan to be temperature sensitive
Operating Temperature : 0°C to 50°C
- Humidity : 5% to 95% non-condensing
- Acoustic warning : depth of discharge, battery low, over temperature, Over load
Noise level :< 50db
- Protection Class : Standard IP Protection

Test Report towards efficiency of Inverter from MNRE approved Test centre to be enclosed

VIII. Cables and accessories

All the cables shall be supplied conforming to IS 694 & shall be of 650 V/ 1.1 kV grade as per requirement. Only PVC Copper cables shall be used. The size of the cables between array interconnections, array to junction boxes, junction boxes to DCDB, DCDB to PCU etc shall be so selected to keep the voltage drop and losses to the minimum.

All installation accessories, which are required to install and successfully commission the power plant, are to be provided.

IX. Earthing and protection

The array structure of the System shall be grounded properly using adequate number of grounding kits. All metal casing / shielding of the plant shall be thoroughly grounded to ensure safety of the power plant. Earthing connection shall be provided by the Bank.

X. System Functioning

The system should be compatible with **Solar, Mains & Diesel Generator** with Energy Management function. Priority should always be given to the Solar Energy. Depending upon specified battery state of charge, the system should intelligently decide whether mains supply is to be used or in case of situation so warrants, backup generator should be started.

The grid charging is switched on only when battery reaches a specified SOC / Volt (user defined) and stopped when battery has reached a specified SOC / Volt again, thus ensuring solar energy is fully utilized. i.e., after grid charging has stopped, solar will have to do the end charging.

When Solar, mains are available and battery is fully charged: The load shall be supplied by solar energy.

When solar is not available but grid is available: AC mains will supply the load along with charging the battery bank. The set points should be freely programmable as per user requirement.

The Following features are essential:

1. The set points for Energy Management like Battery Voltage or battery SOC (state of Charge) to be Programmable as per user requirement.
2. The entire functioning is to be automatic without any user intervention required.
3. In case of diesel Generator being used in the system, the system should have capability to do generator **exercising** at pre-decided interval to keep the back up generator healthy.
4. **System should be modular in design towards future upgradeability/scalability.**

The system should also have excess energy management option, whereby a second battery bank may be charged or operating a pump for filling overhead tank etc.

5. Should have option to have Computer / Modem Interface for remote access / monitoring.
6. Night Lamp function / operating loads at pre decided interval to be present.

XI. Scope of Work

This job involves by means of the enclosed specification, design, manufacture, supply, installation, commissioning of the Solar Power Generating System with 5 years warranty period. The warranty should cover all the equipment parts & labour.

XII. After Sales Services:

The Vendor should ensure **5 (five) years Onsite** after sales service free of cost during which include routine and preventive maintenance every quarter. The vendor shall also give details of their service centers and ensure that all the essential men and materials are placed to ensure quick and efficient after sale service. The terms and conditions for training and after sales supply and service are to be presented clearly in the proposal. An explanation of preventive maintenance schedule, plan of operation, scope and implementation of the after sale service is to be defined.

XIII. AMC (Annual Maintenance Contract):

The Vendor should quote rate of AMC after the completion of Warranty Period for another 05 years.

XIV. Derivation of Lowest bid

Lowest bid will be arrived on Total Cost of the Ownership (TCO).

TCO = Total Basic value +Installation Charges + Packing & forwarding Charges + Freight +Insurance + Post warranty maintenance charges for 05 years.

Please note that AMC charges after expiry of warranty to be quoted separately failing which the bid will be summarily rejected.

XV. Other Conditions

1. Technical description for all components & electronics along with block diagram, Layout, drawing is to be submitted.

ANNEXURE-C
COMMERCIAL OFFER
PRICE SCHEDULE

SI No	Description	Quantity	Unit Price	Total Price
1	4.5 KWp Solar Power System complete with Solar Module, Mounting structure, Battery Bank, Rack, Power conditioning unit, Charge Controlling Unit, Cables, Wires etc as per Technical Specification Furnished on Technical Offer.	1 Set		
2	Freight & Delivery Charges	1Set		
3	Installation Charges	1Set		
4	Transit Insurance Charges	1Set		
5	Sales Tax (Vat)	1Set		
	Total Cost			

Any other charges apart from as mentioned above, if applicable, to be included in basic price.

Post Warranty Comprehensive AMC Schedule

Sl. No.	Years	Charges for 4.5 KWp per unit
1	1 st year	
2	2 nd year	
3	3 rd year	
4	4 th year	
5	5 th year	
	Total Charges	

Note: Service Tax, if applicable, to be indicated separately.

UNDERTAKING BY THE VENDOR

I/We during the course of implementation of this project may be having access to restricted/confidential/Internal information/data of the bank; and therefore, the undersigned undertakes that:

- a. I/We will not disclose or make available to any third party of the bank, any confidential, internal or proprietary contents of the knowledge or information of the bank or information about its clients maintained on the knowledge or information bases of the bank, nor will I/We grant direct access to such information or information sharing processes unless:
 - a. *The concerned information owner in the bank gives them expressed, advanced and written permission as to each and every third party, and ;*
 - b. *Each and every employee of the third party enters into a written agreement in the form of this Agreement.*
2. Such confidentiality will be maintained by me/us during the period of my/our employment / contract with the bank as well as after the termination of such employment / contract.
3. I/We will protect confidential / internal information of the bank from loss and unauthorized use and manipulation and will indemnify the Bank in case of reputation loss or any kind of loss.

Seal and Signature of the Vendor

Annexure - D

Name of the Branches and their location

Sl. No.	Branch	Branch Manager's Name & Contact No.	Address of Branch
01.	Zirikinding	Shri Nibadon Langtha,, 8753051970	Langpi Dehangi Rural Bank, Zirikinding Branch, P.O. Zirikinding, Via - Lanka, Dist. Karbi Anglong, PIN - 782442.
02.	Diyungmukh	Shri Prasanta Kar (Temporary), 9435065700	Langpi Dehangi Rural Bank, Diyungmukh Branch, P.O. Diyungbra, Via - Lanka, Dist. Dima Hasao, PIN - 782448.
03.	Lahorijan	Shri Ranjit Kr. Sharma, 9678693167	Langpi Dehangi Rural Bank, Lahorijan Branch, P.O. Lahorijan, Dist. Karbi Anglong, PIN - 782480.
04.	Angjokapani	Shri Sutimon Swargiary, 7896270995	Langpi Dehangi Rural Bank, Angjokpani Branch, P.O. Angjokpani, Dist. Karbi Anglong, PIN - 782139.
05.	Jenkha	Shri Nilotpal Sharma, 9854024617	Langpi Dehangi Rural Bank, Jenkha Branch, P.O. Jenkha, Via - Kheroni, Dist. Karbi Anglong, PIN - 782448.
06.	Maibang	Shri Prakash Goswami, 9678273059	Langpi Dehangi Rural Bank, Maibang Branch, P.O. Maibang, Dist. Dima Hasao, PIN - 788831.
07.	Bokajan	Shri Surjya Kt. Saikia, 8474882746	Langpi Dehangi Rural Bank, Bokajan Branch, P.O. Bokajan, Dist. Karbi Anglong, PIN - 782480.
08.	Hidipi	Shri Molan Ch. Laskar, 9957302358	Langpi Dehangi Rural Bank, Hidipi Branch, P.O. Hidipi, Via - Bokajan, Dist. Karbi Anglong, PIN - 782480.
09.	Dolamara	Shri Sarat Ch. Mahanta, 9435165047	Langpi Dehangi Rural Bank, Dolamara Branch, P.O. Borjuri, Dist. Karbi Anglong, PIN - 785612.
10.	Kheroni Chariali	Shri Sekhar Ch. Dutta, 9435168057	Langpi Dehangi Rural Bank, Kheroni Chariali Branch, P.O. Kheroni, Via - Lanka, Dist. Karbi Anglong, PIN - 782448.

Tender Offer Cover Letter

Date: _____ 2014
Tender Reference No.: _____

To:

The Chairman
Langpi Dehangi Rural Bank
Head Office
Diphu, Karbi Anglong
PIN -782460 (ASSAM)

Having examined the tender documents including all annexure the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and deliver

_____ (Description of equipment and Services) in conformity with the said tender documents in accordance with the Schedule of Prices attached in the commercial offer and made part of this tender.

If our tender offer is accepted, we undertake to commence delivery within _____ (Number) days and to complete delivery, installation and commissioning of all the equipment including structured cabling as specified in the Contract within _____ (Number) days calculated from the date of receipt of your Notification of Award/Letter of Intent.

We agree to abide by this tender offer till 180 days from the closing date of tender and our offer shall remain binding upon us and may be accepted by the Bank any time before the expiration of that period.

Until a formal contract is prepared and executed, this tender offer, together with the Bank's written acceptance thereof and the Bank's notification of award, shall constitute a binding contract between us.

We understand that the Bank is not bound to accept the lowest or any offer the Bank may receive.

Dated this _____ day of _____ 2014

Signature: _____

(In the Capacity of :) _____

Duly authorized to sign the tender offer for and on behalf of
