

GOVERNMENT OF NAGALAND
DIRECTORATE OF NEW & RENEWABLE ENERGY
NAGALAND : KOHIMA

TENDER / BID DOCUMENT

F O R

Design, Manufacturer, Supply, Erection, Testing and Commissioning including warranty, operation and Maintenance of Off-Grid Solar Power Plant to be Installed at Nagaland University (Medziphema Campus, Dimapur & Kohima Campus, Kohima).

No.DNRE/SPP-NU/2019/2261

Dt Kohima, the 5th Oct, 2019.

NAME OF FIRM / COMPANY _____

GOVERNMENT OF NAGALAND
DIRECTORATE OF NEW & RENEWABLE ENERGY
NAGALAND : KOHIMA

DNRE/SPP-NU/2019/ 2261

Dt Kohima, the 5th Oct, 2019

NOTICE INVITING TENDER (NIT)

1. The Directorate of New & Renewable Energy (DNRE), Government of Nagaland invites bids for e-Tender from the eligible bidders to participate in the Design, Manufacturer, Supply, Erection, Testing and Commissioning including warranty, Operation and 5 years Annual Maintenance of Off-Grid Solar Power Plant with an aggregate capacity of 415 kWp.

Name of Work	Location	Completion period	Tentative Project Cost (Rs. in Lakh)	Earnest Money Deposit (2%) (Rs. in Lakh)	Cost of Tender Document (in Rs.)
Design, Manufacturer, Supply, Erection, Testing and Commissioning of Off-Grid Solar Power Plant (5kW,10kW,20kW & 25kW) with an Aggregate Capacity of 415 kWp	Nagaland University: 1. Medziphema Campus Dimapur District 2. Kohima Campus, Kohima District	12 (Twelve) month from the date of issue of Work Order	500.00	10.00	10,000/-

2. Date of release of invitation for bids through e-procurement : **5th Oct, 2019**
3. Bids are available online. The bidders are required to pay for the Tender Documents in the form of "**Demand Draft**" in favour of the *Director, New & Renewable Energy*, payable at SBI Main Branch Kohima for amount (Non-refundable) as shown above.
4. The Complete Tender Documents is available and can be downloaded from the <http://nagalandtenders.gov.in> and <http://nre.nagaland.gov.in> Any amendments (s) /Corrigendum /Clarification with respect to this bid shall be uploaded as and when required. The Bidder should regularly follow up for any Amendment /Corrigendum /Clarification on the above websites.
5. Date of Downloading Bid Documents : **9/10/2019**
6. Last Date of Online Bid Submission : **4/11/2019**
7. Opening date for Online Bid : **5/11/2019**


(Er. KAYITO CHISHI)
Director
New and Renewable Energy
Nagaland :Kohima

1. Covering Letter:

(To be furnished on the letter head of the Bidder)

FROM:

M/s. _____

(Full name and address of the Bidder)

To,

The Director,
New & Renewable Energy,
Old Industry Office Building, Upper Chandmari
Kohima : 797 001.Nagaland : Kohima

Sub:- Offer in response to NIT No. DNRE/SPP-NU/2019/ 2261 Dt Kohima, the 5th Oct, 2019

Dear Sir,

I /We, the undersigned Bidder hereby submit my /our offer in full compliance to terms & conditions for Design, manufacture, supply, erection, testing and commissioning including warranty, operation & maintenance of Off Grid Solar Power Plant to be installed at (Medziphema Campus, Dimapur district & Kohima Campus, Kohima district).

We confirm that there are no litigations or disputes against us, which materially affect our ability to fulfill our obligations with regard to execution of projects of capacity offered.

We hereby declare that the terms & conditions mentioned in the NIT have been read and agree that these conditions will be binding upon me / us.

CONTACT PERSON :

Name : _____
Designation : _____
Company : _____
Address : _____
Phone No. : _____
Fax No. : _____
E-mail address : _____

We would be solely responsible for any errors or omissions in our Bid. We confirm that all the terms and conditions of our Bid are valid for acceptance for a period of ninety (90) Days from Bid Deadline. We confirm that we have not taken any deviation so as to be deemed non-responsive.

Dated the _____ day of _____ 20____

Thanking you,

Yours faithfully,

Name,
Designation and Signature of
Authorized Person in whose
name Power of Attorney/Board
Resolution

PARTICULARS OF BID / TENDER

Sl.	No Particulars	Description
1	Document Description	Tender document for Design Supply, Installation, Testing and commissioning including 5 years Comprehensive Maintenance Contract (CMC) of Off Grid Solar Power Plant to be installed at Nagaland University at: 1. Medziphema Campus, Dimapur 2. Kohima Campus, Kohima
2	NIT No. and Date	DNRE/SPP-NU/2019/2261 Dated: Kohima, the 5 th Oct, 2019
3	Funding	MNRE/State/Beneficiary
4	Location	1. Medziphema Camp, Dimapur & 2. Kohima Camp, Kohima (List given below)
5	Downloading of Bidding Document	The Bid / Tender Document can be downloaded online only from http://nre.nagaland.gov.in and http://nagalandtenders.gov.in from 9/10/2019 to 4/11/2019
6	Period of Works	12 (twelve) months from the date of issue of Work order
7	Last date for online submission of Bids	04/11/2019 till 12 Noon
8	Opening of Tender Bid:	5/11/2019 at 10 AM
9	Price Bid Opening	5/11/2019. In case, the Technical & Financial bid consumed the whole day. Price Bid will be accordingly intimated to the Bidders.
10	Cost of Tender document (Non-refundable)	INR 10,000/- (Indian Rupee Ten Thousand Only) to be submitted in the form of Demand Draft (DD) in favour of the Director, NRE payable from any Nationalize Bank"
11	Earnest Money Deposit (EMD)	Earnest Money INR 10,00,000/- (Indian Rupees Ten lakh only) and to be submitted in the form of Bank Guarantee in favour of the Director, NRE, payable from any Nationalize Bank. Minimum validity period upto 06 Months and may be extended as per request / instruction of DNRE
12	Performance Security Deposit to be submitted by successful bidders	10% of the Contract value and shall be submitted in the form of Bank Guarantee in favour of the Director NRE, payable at Kohima and shall be valid for a period of 1 (one) year from the date of signing the Contract Agreement.
13	Details of persons to be contacted in case of any assistance required	1) Er. James Khala Joint Director, NRE M.No. 6009030240 2) Er. Inaho P Awomi Deputy Director NRE M.NO. 88374 26628

Important note:

1. Prospective Bidders are requested to remain updated for any or all notices, amendments, corrigendum, clarifications etc. to the Bidding Document published through the websites <http://nre.nagaland.gov.in> and <http://nagalandtenders.gov.in>. No separate notifications shall be issued for such notices, amendments, corrigendum, clarifications etc. in the print media or individually to the prospective Bidders and in no case DNRE shall be held responsible for any loss of information to the Bidders.

4. GENERAL PARTICULARS OF BIDDER

1	Name of the Company	
2	Registered Office Address	
3	E-mail	
4	Web site	
5	Authorized Contact Person(s) with name, designation, Address and Mobile Phone No., E-mail address/ Fax No. to whom all references shall be made	
6	Year of Incorporation	
7	Have the Bidder/Company ever been debarred By any Govt. Dept. / undertaking for undertaking any work.	
8	Reference of any documentation formation attached by the Bidder other than specified in the Bid document.	
9	TIN No. (Copy enclosed)	Yes/No
10	CST (Copy enclosed)	Yes/No
11	GST No. (Copy enclosed)	Yes/No
12	PAN No. (Copy enclosed)	Yes/No
13	Service Tax (ST-2) (Copy enclosed)	Yes/No
14	Certificate of Incorporation of Bidder/ Affiliate (as applicable) Copy enclosed	Yes/No
15	Partnership deed or LLP/ Sole Proprietor registration (as applicable) Copy enclosed	Yes/No

(Signature of the Bidder with Seal)

5. TECHNICAL ELIGIBILITY CRITERIA REQUIREMENT

(To be furnished on the letter head of the Bidder)

FROM:

M/s._ (Full name and address of the Bidder) ____

To,

The Director,
New & Renewable Energy,
Old Industry Office Building, Upper Chandmari
Kohima : 797 001.
Nagaland : Kohima

Ref: NIT No. DNRE/SPP-NU/2019/2261 Dt Kohima, the 5thOct, 2019

Sub:- Submission of documentary evidence for fulfillment of Technical Eligibility Criteria in response to the NIT No. DNRE/SPP-NU/2019/2261 Dt Kohima, the 5thOct, 2019

Dear Sir,

We submit our Bid for which details of our Technical Eligibility Criteria Requirements are as follows.

S.No.	Off-Grid Solar Power Plant Capacity (kW)	Name of Organization & Work Order / Contract No	Type of Solar Plant (Off Grid / On-Grid)	Enclose copy of work order (Yes/No)	Enclose Copy of Work Commissioning Certificate (Yes/No)
1			Off Grid / On Grid	Yes / No	Yes / No
2			Off Grid / On Grid	Yes / No	Yes / No
3			Off Grid / On Grid	Yes / No	Yes / No
4			Off Grid / On Grid	Yes / No	Yes / No

Yours faithfully

(Signature and stamp of Authorized Signatory of Bidder)

Name: _____

Date: _____

Place: _____

* Please enclose only the copy of the work orders along with completion certificates excluding Annexure & other documents.

6. DECLARATION BY THE BIDDER

(To be furnished on the letter head of the Bidder)

(REGARDING NIT No. DNRE/SPP-NU/2019/2261 Dt Kohima, the 5thOct, 2019)

We have carefully read and understood the enclosed Terms and Conditions of the tender and agree to abide by them.

We declare that we are:

1. We solemnly undertake that the responsibility of execution of the Work as per the terms and conditions of the tender/ Contract Agreement shall be entirely ours.
2. I / We, am / are fully aware of all the requirements of the bid document and agree with all provisions of the bid document
3. I / We, am / are capable of executing and completing the work as required in the bid.
4. I / We, am / are able to take all risks and responsibilities directly or indirectly connected with the performance of the bid.
5. I / We don't have any collusion with other Bidder, any employee of DNRE or its successor Companies or with any other person or firm in the preparation of the bid
7. I / We have not been influenced by any statement or promises of DNRE or any of its employees, but only by the bid document
8. I / We am / are financially solvent and sound to execute the work.
9. I / We am / are sufficiently experienced and competent to perform the contract to the satisfaction of DNRE
10. The information and the statements submitted with the bid are true
12. I / We don't have any litigation against DNRE or its successor companies. For any false declaration DNRE has the right to cancel or reject without any notice.
13. This offer shall remain valid for 90 days from the date of opening of the Technical & commercial bid.
14. I / We have attached herewith the earnest money as required in the bid document.
15. I / We have carefully read & understood the terms and conditions of the bid and agree to abide by them. If this Declaration is found to be incorrect or if any NIT Condition is found violated by us, then without prejudice to any other action, our Earnest Money Deposit (EMD) may be forfeited in full and the Proposal to the Extent of Acceptance / anytime during Execution of Assignment may be cancelled.

(Signature of Authorized Signatory)
(Name & Designation in block letters)

ELIGIBILITY CONDITIONS & INSTRUCTION TO BIDDERS

1.1 ELIGIBILITY CRITERIA:

1.1.1 GENERAL ELIGIBILITY CONDITIONS:

The Bidder should be a body corporate incorporated in India under the Companies Act, 1956 or 2013 including any amendment thereto or a Partnership Firm having executed partnership deed and registered as per sections 58 & 59 of the Partnership Act, 1932, as amended or a Limited Liability Partnership Firm (LLP) registered under section 12 of Limited Liability Partnership Act, 2008, as amended or registered Sole Proprietor. A copy of certificate of incorporation, partnership deed or LLP/ Sole Proprietor registration, as applicable and relevant, shall be enclosed.

1.1.2 TECHNICAL ELIGIBILITY CRITERIA:

The Bidder should have experience in design, supply, manufacturing, testing, installation and commissioning of Grid connected / Off Grid Solar PV Power Project with minimum 50 kW aggregate capacity of solar PV array during last three years. The list of project commissioned, indicating whether the project is grid connected or offgrid, along with a copy of the Commissioning certificate, Work Completion Report and Work order from the Client/Owner shall be submitted online in support of Clause 1.1.2 above as per the format prescribed in this NIT (Format -3).

1.1.3 FINANCIAL ELIGIBILITY CRITERIA:

The bidder should submit the Annual Turnover certificate (Excluding the auditor's report) duly signed by a registered Chartered Accountant. The average annual Turn Over for the last three year of the bidder should not be less than Rs.1 Crores and shall be submitted online as per the format prescribed in this NIT (Format – 5).

1.2 INSTRUCTION TO THE BIDDER:

1.2.1 The bidder shall submit the following documents of the proposed items in the Technical Bid

(i) IEC certificate of proposed Solar PV module. 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 from NABL or IECQ accredited Laboratory.

(ii) Test report of the proposed battery as per relevant IEC standard or latest BIS standard.

(iii) Test reports/certificate of PCU from MNRE approved test centers/NABL/BIS accredited testing – calibration laboratories as per relevant IEC standard 15.

(iv) Test certificate / report for the components can be from any of the NABL/IEC Accredited Testing Laboratories or MNRE approved test centers. The Test Certificates / Reports should be in compliance with the latest MNRE specifications

1.2.2 The BOS items /components of the SPV power plants /systems must conform to the latest edition of IEC/equivalent BIS Standards / MNRE specifications / as specified below

BOS Item / System	Applicable BIS /Equivalent IEC standard	Or MNRE Specifications
	Standard Description	Standard Number
Power Conditioners/ Inverters	Efficiency Measurements	IEC 61683 / IS61683
	Environmental Testing	IEC 60068-2 (1, 2,14, 30) / Equivalent BIS Std.
Charge Controller/ /MPPT Units	Environmental Testing	IEC 60068-2(1,2,14,30) /Equivalent BIS Std.
Storage Batteries	General Requirements & Methods of Testing VRLA/ GEL	As per relevant BIS Std.

	Capacity Test, Charge/Discharge Efficiency, Self-Discharge	
Cables	General Test and Measuring Method PVC insulated cables for working voltage up to and including 1100 V and UV resistant for outdoor installation	IEC 60227 / IS 694 IEC 60502 / IS 1554 (Pt. I & II)
Switches/Circuit Breakers /Connectors	General Requirements Connectors –safety A.C./D.C.	IEC 60947 part I, II, III / IS 60947 Part I, II, III EN 50521
Junction Boxes /Enclosures for Inverters/Charge Controllers/Luminaries	General Requirements	IP 54(for outdoor)/ IP 21(for indoor) as per IEC 529

1.2.3 The bidder should submit valid copy GST Registration No & PAN No.

1.2.4 It is mandatory to submit the details of the Local associates of the firm in Nagaland. The local associates should have the necessary infrastructures to provide prompt O& M service and technical support in post installation period, i.e., CMC period.

1.2.5 Any misleading information will disqualify the bidder.

1.2.6 The Price bid shall be furnished as per following instructions:-

1.2.6.1 The appropriate Price Schedules furnished in the Bidding Documents as indicated in the NIT, shall be uploaded on the web portal.

1.2.6.2 Price – Bid must be submitted electronically. The appropriate Price Schedules as furnish in the Bidding Documents shall be uploaded on the web portal

1.2.7 Evaluation of Technical Bids:

1.2.7.1 The Tender Evaluation Committee shall evaluate the proposals received from the bidders.

1.2.7.2 The Committee shall evaluate the Technical Bid on the basis of Bidder responsiveness to the "Scope of Work & Technical Specification". A Bid shall be rejected, if it does not fulfill all the requirements.

1.2.7.3 A Techno-commercial Bid will not be considered for evaluation in any of the following cases:

- (i) The Techno-commercial Bid includes details of costs of the system (i.e., Price Bid), or
- (ii) The Techno-commercial Bid uploaded after the closing time and date specified.

1.2.8 Financial Bid of those bidders shall be opened, who are found to be Techno-commercially qualified. DNRE shall simultaneously notify the qualified bidders in writing, indicating the date, time and location for opening of Financial Bid.

1.2.9 FINAL EVALUATION OF BIDS.

1.2.9.1 The bid of any bidder who has not complied with one or more of the conditions as in numerated in the biddocument will be summarily rejected.

1.2.9.2 Conditional bids will also be summarily rejected.

1.2.9.3 Subsequently, the technical bids will be evaluated by the Tender Evaluation Committee of the Directorate of New & Renewable Energy (DNRE), Nagaland Kohima on the basis of technical bid and technical specifications.

1.2.9.4 Financial bids of only the techno - commercially qualified bidders will be opened for evaluation in the presence of qualified bidders. However, ***Directorate of New & Renewable Energy (DNRE), Nagaland Kohima shall not be bound to accept the lowest or any other tender and shall not assign any reason for non-acceptance or rejection of a tender.***

FINANCIAL ELIGIBILITY CRITERIA REQUIREMENT

(To be submitted on the letterhead of Bidder)

To,

The Director,
Directorate of New & Renewable Energy,
Old Industry Office Building, Upper Chandmari
Kohima : 797 001.
Nagaland : Kohima

Dear Sir,

Sub: Submission of documentary evidence for fulfillment of Financial Eligibility Criteria in response to the NIT No. DNRE/SPP-NU/2019/2261 Dt Kohima, the 5th Oct, 2019

We submit our Bid for which details of our Financial Eligibility Criteria Requirements are as follows.

The average annual Turn Over for the last three year of Indian Rupees _____ Lakh computed as per instructions provided in this NIT based on unconsolidated audited annual accounts. The relevant financial statement for respective years shall be enclosed, duly signed by authorized signatory

Financial Year	Annual Turnover (INR Lakh)

Yours faithfully

(Signature and stamp of Authorized Signatory of Bidder)

Name: _____

Date: _____

Place: _____

(Signature and stamp (on each page) of Chartered Accountant

Name: _____

Date: _____

Place: _____

PREPARATION OF BID

3.1 LANGUAGE OF BID AND MEASURE :

3.1.1 The language of the Bid should be English only. All correspondences should be in English only if otherwise stated. However, any printed literature furnished by the bidder may be written in another language, but that should be accompanied by an English translation. The bid should follow ISI system for units of measurement.

3.2 DOCUMENT COMPRISING THE BID

3.2.1 The Bid shall comprise the following components.

- (a) Covering letter.
- (b) Signed Copy of Bid Document
- (c) All relevant & necessary documents as sought in this Tender.
- (d) Tender Fee, Earnest Money Deposit (EMD).
- (e) Authorization letter of the representative of the bidder

3.3 BID PRICE

3.3.1 DUTIES AND TAXES

The price shall be inclusive of all applicable taxes and duties. A Bidder shall be entirely responsible for all taxes, duties, license fees, etc. If any new tax/duty is levied during the contract period the same will be borne by the firm exclusively. TDS will be deducted from the payment of the Bidder as per the prevalent laws and rules of Government of India and Government of Nagaland in this regard.

3.3.2 BID CURRENCIES : Prices shall be quoted in Indian Rupees (INR) only.

3.5 Earnest Money Deposit (EMD) : EMD is to be submitted in original form offline only. Scan copy shall also be uploaded.

3.5.1 The Bidder shall furnish Interest Free Bid EMD as mentioned in the clause 'Particulars of Bid' from a nationalized/ scheduled bank in the form of Bank Guarantee (BG) / Demand Draft drawn in favour of the Director, DNRE payable at SBI Main Branch Kohima. The validity of EMD shall be for a period of 12 months.

3.5.2 Any bid not accompanied with the earnest money deposit (EMD) shall be summarily rejected.

3.5.3 The Earnest Money Deposit (EMD) of unsuccessful bidders shall be returned only on receiving a request letter for release of EMD

3.5.4 The Earnest Money may be forfeited:

- a) If a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the bid form.
- b) If the Successful Bidder fails to unconditionally accept the tender within 7 days from the date of issuance
- b) If the Successful Bidder fails to furnish the "Contract Performance Guarantee" within 15 days from the date of issuance of Work Contract

3.6 SECURITY DEPOSIT / CONTRACT PERFORMANCE GUARANTEE:

3.6.1 The successful bidder, who executes the contract agreement with DNRE, shall have to submit a Security Deposit/ Contract Performance Guarantee amount equivalent to 10% of the Contract Value and shall submit in the form of Bank Guarantee in favour of the Director, DNRE, payable at Kohima and shall be valid for a period of 1 (one) year. The Initial validity period up to 12 Months on signing the Contract Agreement. The EMD amount may be forfeited in case of non-execution of the work against the work order placed.

3.6.2. The Contract Performance Guarantee shall be released only after submission of project completion reports.

3.7. PERIOD OF VALIDITY OF BID

3.7.1 Validity of the offer should be 90 (Ninety) days from the date of opening of the bid. Without this validity the bid will be rejected.

3.7.3 In exceptional circumstances, DNRE will solicit the Bidder's request for extension of the period of validity. The request and the response there of shall be made in writing.

3.8 FORMAT AND SIGNING OF BID

3.8.1 The bid must contain the name, residence and places of business of the firm and must be signed and sealed by the competent authority. The name and designation of all persons signing the bid should be typed or printed below the signature.

3.8.3 The original copy of the Bid shall be typed or written in indelible ink and shall be signed by the authorized signatory. The letter of authorization shall be uploaded along with power-of-attorney. All the pages of the bid shall be initiated by the person or persons signing the bid.

(Signature of Bidder with Seal)

SUBMISSION OF BID

4.1 ONLINE BID FOR SUBMISSION OF TECHNO-COMMERCIAL BID AND PRICE BID

Each Bidder shall mandatorily submit its Bid electronically and shall comprise of the Techno-Commercial Bid and the Price Bid. All documents on the response to NIT submitted online must be digitally signed on <http://nagalandtenders.gov.in> using their own Digital Signature Certificate.

4.2.1 TECHNO – COMMERCIAL BID

The Techno-Commercial Bid shall contain the scanned copy of the documents set out below, in a sequential manner:

- ☐ Original power of attorney issued by the Bidder in favour of the authorized person signing the Bid, in the form prescribed in this tender document.
- ☐ General particulars of Bidder as per Format 2 of this NIT, including Certificate of Incorporation of Bidder/ Affiliate, partnership deed or LLP/ Sole Proprietor registration as applicable.
- ☐ Format 3 for meeting Technical Eligibility Requirement including Commissioning Certificate and Workorder / Contract / Agreement from the Client / Owner in support of technical eligibility criteria.
- ☐ Format 4; declaration by the bidder
- ☐ Format 5 for meeting Financial Eligibility Requirements along with all supporting documents
- ☐ Details of the proposed system as per Format- 6 of this NIT, including test report / certificate of proposed SPV module, battery and PCU.
- ☐ Signed and stamped copy of NIT including amendments and clarification by authorized signatory of Company on each page.

4.2.2 PRICE BID

Financial Price Bid shall be submitted online mode with due encryption as per **Format-12**. The Bidder shall submit its financial bid in the format uploaded in the portal <http://nagalandtenders.gov.in>

4.3 EXPENSES OF AGREEMENT

The Bidder is required to enter into a formal Contract agreement with the Director, Directorate of New & Renewable Energy (DNRE), Nagaland for the proper fulfillment of the contract. The expenses of completing and stamping of the agreement shall be paid by the bidder. The agreement shall be valid throughout, till completion of the work.

4.4 DEADLINE FOR SUBMISSION OF BID

Bid must be submitted at the date and time specified in the bid documents.

BID OPENING AND EVALUATION

5.1 OPENING OF BID

The procedure of opening of the bid shall be as under:

5.1.1 The Technical & Commercial Bid shall be opened at the time and date as specified in the NIT.

5.1.2 The Financial Price bids will be open only for those tenderers who are qualified for Technical & Commercial Bid

AWARD OF CONTRACT

6.1 AWARD CRITERIA

6.1.1 The Director, DNRE, Nagaland will award the contract to successful bidder (also referred to as L1 bidder) whose bid has been determined to be substantially responsive and to be lowest evaluated bid, further provided that the Bidder is determined to be qualified, as per the Qualification Requirement specified in bidding document to perform the contract satisfactorily.

6.1.2 The Director, DNRE reserves the right at the time of award of contract to increase or decrease the quantity of goods and change locations of supply without any change in price or other terms and conditions.

6.1.3 The award shall be made a Single Contract and shall contain the following works:

- i. Supply of all equipment and materials including all applicable taxes and duties,
- ii. Providing all services i.e. inland transportation for delivery at site, insurance, unloading, storage, handling at site, installation, Testing and Commissioning including performance testing in respect of all the equipment supplied and any other services specified in the NIT.
- iii. Provide CMC for a consecutive period of 5 (five) years of the installed systems

6.2 CONTRACT AGREEMENT DOCUMENTATION:

The sequence of contract agreement documentation is given here as under:

- a. Issuance of Letter of Intent (LoI) by the Director, DNRE and its unconditional acceptance by the successful turnkey contractor within seven working days from date of issuance of LoI.
- b. Submission of Contract Performance Security for an amount of 10% of the contract value, within 30 days from date of issue of Work Contract and signing of Contract Agreement.

6.5 EXECUTION PERIOD

The work shall be completed within 12 (Twelve) months from the date of award of work contract and signing of Contract Agreement.

GENERAL CONDITIONS OF CONTRACT

1. DEFINITIONS

In the deed of contract unless the context otherwise requires:

1.1 DNRE shall mean the Director or his representative of Directorate of New & Renewable Energy, Old Industry Office Building, Upper Chandmari, Kohima : 797 001, Nagaland and shall also include its successors in interest and assignees.

The contractor shall mean the person whose bid has been accepted by DNRE and shall include his legal representatives, successors in interest and assignees.

1.2 The Contract agreement shall be valid through till commissioning of the work and shall be on turn-key basis. The work shall be completed within 365 days from the date of award of Work Contract. However, DNRE may in case of urgency ask the bidder to complete the work earlier, with the mutual consent of the contractor.

1.3 That on the request of the contractor and also in the interest of the organization, DNRE is authorized to extend the validity of the agreement, subject to the condition that the request of the contractor is received before the expiry of the agreement period, or any extended period granted to the contractor.

1.4 The bidder, in any case, will not be allowed to operate in the state through authorized dealers for execution of the work orders. It will be the sole responsibility of the contractor, to execute orders placed as per time schedule, and to ensure quality parameters, specifications and other requirements provided in the bid document and as per agreement.

1.5 In the interest of the work and the program, agreement executed between the bidder and the DNRE may be extended to a mutually agreed period, if the need so arises.

1.6 It shall be sole responsibility of the contractor to get verified the quality & quantity of the supplied material at the site of delivery.

2 LIQUIDATED DAMAGES :

2.1 If the contractor fails to execute the works within the time periods specified in the contract, the DNRE shall without prejudice to its other remedies under the contract deduct from the contract price as liquidated damage, a sum equivalent to 1% of the price of the unperformed works/services for each week of delay until actual performance up to a maximum deduction of 10% of the delayed services. If the contractor fails to complete the works beyond the 10 weeks of delay period, the work order will be treated as cancelled and the 10% of the Earnest money deposit will be forfeited. Once the maximum of the penalty is reached, DNRE may consider termination of the contract / blacklisting of the contractor for non execution or non performance of the contractor.

3 The contractor shall have to comply with all the rules, regulations, laws and by-laws for the time being in force and the instructions if any, of the organization, in whose premises the work has to be done. DNRE shall have no liability in this regard.

4 FORCE MAJEURE :

4.1 Notwithstanding the provisions of clauses contained in this deed; the contractor shall not be liable for forfeiture of its performance security, liquidated damages, termination for default, if he is unable to fulfill his obligation under this deed due to event of force majeure circumstances.

4.2 For purpose of this clause, "Force majeure" means an event beyond the control of the contractor and not involving the contractor's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of God either in its sovereign or contractual capacity, wars or revolutions, bandh, fires, floods, epidemics, quarantine restrictions and freight embargoes.

4.3 If a force majeure situation arises, the contractor shall promptly notify DNRE in writing within a week from the date situation so arises.

5. In case of dispute, the High court of Judicature at Guwahati Courts ,**Kohima Bench**, shall alone havejurisdictions to the exclusion of all other courts.

6. The contract shall not without the consent in writing of DNRE, transfer, assign or sublet the work under thiscontract or any substantial part thereof to any other party

7.DNRE shall have at all reasonable time access to the works being carried out by the contractor under thiscontract. All the work shall be carried out by the contractor to the satisfaction of DNRE and as per MNRE technical specifications.

8. If any question, dispute or difference what so ever shall arises between DNRE and the contractor, in theconnection with this agreement except as to matters, the decisions for which have been specifically provided,either party may forthwith give to the other notice in writing of existence of such question, dispute or differenceand the same shall be referred to the Commissioner & Secretary to the Govt. of Nagaland, New & Renewable Energy Department, Kohima, Nagaland or a person nominated by the Govt. of Nagaland

9. DNRE may at any time by notice in writing to the contractor either stop the work all together or reduce or cut itdown. If the work is stopped all together, the contractor will only be paid for work done and expenses distinctlyincurred by him as on preparation or the execution of the work up to the date on which such notice is received byhim. Such expenses shall be assessed by DNRE, whose decision shall be final and bidding on the contractor. If thework is cut down, the contractor will not be paid any compensation what so ever for the loss or profit which hemight have made if he had been allowed to complete all the work included in the contract.

10 INSPECTION AND TESTS

10.1 The DNRE or its representative shall have the right to inspect and / or to test the goods to confirm theirconformity to the contract. The special conditions of contract and / or the Technical specifications shall specifywhat inspections and test the DNRE required.

10.3 INSPECTION AT WORKS.

10.3.1The DNRE, has duly authorized representative shall have at all reasonable times access to the premises ofapplicant firm or works and shall have the power at all reasonable timeto inspect and examine the materialsand workmanship of the works during its manufacture.

10.3.2 The Contractor shall give DNRE 15 day's written notice of any material being ready for testing. Such tests shallbe on the Bidder's accounts/ expenses except for the expenses of the inspector. If DNRE wants to inspect thematerial other than its works/ factory (specified in the bid) than the whole expenses of the inspector shall beborne by the contractor. DNRE reserves the full rights, to waive off inspection of material.

10.3.3 The contractor shall ensure receipt of material at site within 30 days from the date of receipt of dispatchinstructions. In case, materials are not received within 30 days from date of issue of dispatch instruction, thedispatch instruction shall stand cancelled. All expenditure incurred by DNRE in performance of dispatchinstruction shall be recovered from contractor.

10.3.3 The contractor shall ensure that pre-dispatch inspection for materials are intimated only when the material iscompletely ready for inspection. On due date of inspection, if it is found that materials are not ready in requiredquantities or the inspection could not be carried out due to non-availability of requisite calibrated certificate ofinstruments with manufacturer, closing of works on scheduled date of inspection, non-availability of sufficienttesting/material handling staff at manufacturer works etc, all expenditures incurred on deployment of variousinspecting officials along with a fine of Rs 50,000/- shall be recovered from the bills of the contractor and reinspectionshall be carried out on expense of contractor. In case sub-standard materials (old component, re-cycledmaterials, re-used material etc) offered for inspection and are noticed during the inspection, materials shall berejected, and DNRE may consider termination of the contract / blacklisting of the contractor for non-execution ornon-performance of the contractor and the 10% of the security money deposit will be forfeited.

10.3.4 The inspection by DNRE and issue of dispatch instruction there on, shall in no way limit the liabilities and responsibilities of the Bidder in respect of the agreed quality assurance program forming a part of the contract.

Nothing in clause 10 shall in any way release the Contractor/ bidder from any guarantee or other obligations under this rate contract.

11. WARRANTY

11.1 The Bidder shall warrant as per standards for quality that anything to be furnished shall be new, free from all defects and faults in material, workmanship and manufacture, shall be of the highest grade and consistent with established and generally accepted standards for material of the type ordered, shall be in full conformity with the specifications, drawing or samples, if any and shall if operable, operate properly.

11.2 Performance of Equipment: In addition to the warranty as already provided, the Bidder shall guarantee satisfactory performance of the equipment and shall be responsible for the period or up to the date specified in the scope of work hereof after the equipment has been accepted by the DNRE to the extent for any defects that may develop such defects shall be removed at his own cost when called upon to do so by DNRE.

11.3 The Warranty period shall be 10 Years for the PV modules and 5 years for complete system including the battery from the date of commissioning and handing over of the system. The contractor shall rectify defects developed in the system within Warranty period promptly.

11.4 Since the maintenance of the system may also be taken up by the contractor after expiry of 5 years of warranty period if the end user/ DNRE so desires, the contractor shall take up annual maintenance of the installed system.

11.5 The contractor shall maintain the system for 05 years (mandatory) under comprehensive maintenance contract (CMC) with the DNRE /end user.

12. Notice statement and other communication send by DNRE through registered post or telegram or fax or Email to the contractor at his specified addresses shall be deemed to have been delivered to the contractor.

13. Any work which is not covered under this contract but is essentially required for the completion of job (to the satisfaction of DNRE) shall be carried out by the contractor as extra item for which payment shall be made separately at the rates decided by DNRE.

14. The work shall be carried out by the contractor as per design submitted by the contractor and approved by DNRE. Any deviation from the approved design during implementation must be brought to the notice of DNRE.

15. The contractor shall provide one copy of instruction manual and routine maintenance manual with each system supplied or installed, this shall be in English. The contractor shall provide Name & address of the contact person in case of non-functioning of the system. The contractor shall also provide address post card and log card with the system for proper record and quick maintenance of installed system during warranty and CMC period.

16. The contractor shall not display the photographs of the work and not take advantage through publicity of the work without written permission of DNRE.

17. PATENT RIGHT AND ROYALTIES.

The Contractor shall indemnify the DNRE against all third party claims of Infringement of patent, royalties' trademark or industrial design rights arising from use to the goods or any part thereof.

18. PACKING FORWARDING

18.1 Contractors, wherever applicable, shall after proper painting, pack and crate all the equipment in such manner as to protect them from deterioration and damage during rail and road transportation to the site and storage at the site till time of installation. Contractor shall be held responsible for all damage due to improper packing.

18.2 The contractor shall inform DNRE of the date of each shipment from his works, and the expected date of arrival at the site for the information of the DNRE project offices at least 7 days in advance.

21. TRANSPORTATION

The Contractor is required under the contract to deliver the goods to the site. (The storage/ handling etc shall be sole responsibility of the contractor till the commissioning/ handover of the system).

22. TERMINATION FOR INSOLVENCY

DNRE may at any time terminate the contract by giving written notice to the contractor without compensation to the contractor, if it becomes bankrupt or otherwise insolvent, provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to the DNRE.

23. TERMINATION FOR CONNIVANCE

The DNRE, may by written notice sent to the Contractor, terminate the contract, in whole or in part at any time for its connivance. The notice of termination shall specify that termination is for the bidder's connivance in the interest of DNRE.

24. APPLICABLE LAW

The contractor shall be interpreted in accordance with the laws of the Govt. of Nagaland. The station of DNRE, Headquarter Kohima shall have exclusive jurisdiction in all matters arising under this contract.

25. NOTICE

25.1 Any notice given by one party to the other pursuant to the contract shall be sent in writing or Email and confirmed in writing to the address specified for that purpose in the special condition of contract.

25.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

26. TAXES AND DUTIES

The price shall be inclusive of all applicable taxes and duties. The Contractor shall be entirely responsible for all taxes, duties, license fees, etc. All taxes payable as per Government norms will be payable by the contractor. If any new tax/duty is levied during the contract period the same will be borne by the contractor exclusively. TDS will be deducted from the payment of the contractor as per the prevalent laws and rules of Government of India and Government of Nagaland in this regard.

27. OTHERS:

27.2. The Contractor in consultation with concerned official/officials of DNRE will conduct training program for users, focusing on main features, operation and maintenance of the systems.

27.3 The Bidder shall continue to provide spare parts after the expiry of warranty period at the users cost if desired by the user. If the contractor fails to continue to supply spare parts and services to users DNRE shall take appropriate action against the firm.

27.4 After successful commissioning of the system and training, the system will be handed over to the person designated by the end user.

28. COMPLETION OF WORK

On completion of the work, the Contractor shall submit 3 sets of Completion Report to Director, DNRE which will include photographs of the installed systems, drawings and as executed reports of various systems containing details of installation from the point of view of future maintenance of the installed systems. This report must also contain all Technical Details, Detailed Circuit Diagram of the Electronic/Electrical components of all the system. The report shall include satisfactory performance report from appropriate authority for each site along with photograph of the installed system with the representative of the authority and the party.

29. Payment terms:

The payment shall be made as per the following terms and conditions:

29.1 ► All payments shall be made in Indian Rupees, and will be governed by the ***availability of fund from MNRE, State Matching Share and the beneficiary.***

► A request letter for release of 10% Mobilization advance must be submitted to the Director (DNRE), Kohima, Nagaland. This mobilization advance shall be released only after submission of the Bank Guarantee of equivalent amount pledged in favour of Director, DNRE, Nagaland

► The recovery of mobilization advance will be deducted from the running bills on pro-rata basis @10% starting from the first running bill.

► The release of payment will be made on progress of work/ measurement on supply, delivery and installation of the system at site through Running account bills till the completion of the project. The balance 5% of the work value will be kept against 5 (five) years AMC which will be release every year of equal instalment. This is subjected to half yearly progress report on AMC submitted within a year spread over five years.

► The TDS on Income Tax and GST Deduction at percentages as applicable from time to time shall be deducted from all payments.

► The Contractor should submit his final bill within one week from the date of completion of work, after which no further claims shall be entertained. The Contractor shall remain liable to make any deficiency in material used or workmanship detected within 90 days of issue of completion certificate and set right the same within the period to be specified by Director, DNRE failing which the DNRE shall do the needful at the cost and risk of the contractor.

► In the event of contractor not being able to supply or to carry out the work or a part of the work assigned to him in accordance with the terms of this contract, the purchaser shall have the right to recover any sums advanced, from the contractor from his/its assets/amount due against Performance Guarantee.

Scope of work & Technical specification

1.0 SCOPE OF WORK:

1.1 DESIGN, SUPPLY, ERECTION AND COMMISSIONING:

Scope of work covers Design, Supply, Installation, Commissioning and five years comprehensive Maintenance Contract of Off-Grid Solar Power Plant with the battery backup for 3 (three) hours of the connected load as per the technical specification given in this bid.

- ☐ Detailed planning of time bound smooth execution of Project;
- ☐ The Contractor shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.
- ☐ The Contractor shall be responsible for delivering all the equipment at store of district head quarter under his own arrangement within the stipulated time frame.
- ☐ The goods supplied under the contract shall be fully insured against loss or damage incidental to manufacture of acquisition, transportation, storage at site and delivery to site during the construction period by the supplier at his own cost.
- ☐ Comprehensive O&M of the Project for five year to assure faultless operation, and inventory maintenance;
- ☐ After sales service through service center/s;
- ☐ Coverage of risk liability of all personnel associated with implementation and realization of the Project;
- ☐ The Contractor shall train the user about the day to day care and maintenance of the system.
- ☐ The Contractor shall maintain sufficient inventory of the spare parts to ensure that the Project is functional during the period of warranty period.
- ☐ Comprehensive O &M of the Project at every location, from the date of the Commissioning of Project has to be carried out by the Contractor. Comprehensive O &M of the Project shall be for the five (5) years from the date of Commissioning.
- ☐ Performance or supervision of the on-site assembly and/or start-up of the supplied Goods;
- ☐ Furnishing of tools required for assembly and/or maintenance of the supplied Goods;
- ☐ Furnishing of detailed operations and maintenance manual for each appropriate unit of supplied Goods;
- ☐ Performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and

1.2 SCOPE OF WORK – OPERATION AND MAINTENANCE:

1.2.1. The operation & maintenance of the plant would include wear, tear, overhauling, machine breakdown, insurance, replacement of defective modules, invertors, PCU's, spares, consumables & other parts for a period of five years. This shall also include operation and maintenance of the evacuation infrastructure, as well.

1.2.2. The Selected Bidder shall be responsible for following activities.

1.2.2.1. Carry out maintenance activities as a result of sudden failure/breakdown of any particular component or equipment. It shall be responsible to carry out breakdown maintenance of each and every component of the power plant and shall provide the required manpower, materials, consumables, components or equipment etc. for breakdown maintenance at his own cost irrespective of the reasons of the breakdown/failure.

1.2.2.2. Prepare and maintain records towards maintenance of the plant, electricity generation, etc.

1.2.2.3. The Selected Bidder should not misuse the area and/or assign responsibility for the safety of machinery within the premises.

Term

1.2.3. The Selected Bidder shall be responsible for undertaking the operation and maintenance of the plant for a term of five (5) years from the date of entering into handover agreement of the plant to respective Primary Beneficiaries.

1.2.4. The term for operation and maintenance of the plant may be extended for another five (5) years on mutually agreed terms and conditions and charges as quoted by the Selected Bidder.

The successful contractor should supply and install a signboard of size 4ft. X 3ft. made of Aluminium sheet and MS angle at a suitable location at the site of each project location as per direction of the official of DNRE. The signboard should be written as follows:

Name of Project Location : _____
 Capacity of Off-Grid Solar PV Power Plant : _____
 Installed & Commissioned by : _____
 Date of Installation : _____
 Name of the Implementing Agency : Directorate of New & Renewable Energy, Nagaland,
 Kohima
 Address of the service center : _____
 Name of Contact Person (Service Center): _____
 Service Center Contact Number: _____

2.0 DETAILED SPECIFICATIONS OF COMPONENT:

Description of Off-grid Solar Power Plants

Table – 1

Sl. No	Capacity of System	SPV Module Array Capacity as required	Capacity of Battery Bank(4 hours backup)	Power Conditioning Unit with inbuilt charge controller
	5 kW to 25 kW	5 kW to 25 kW	Battery Bank @ 7.2 VAH/Wp	(5kW to 25 kW); xxx VDC to xxx VAC; Single Phase/Three Phase PCU as per design

2.1. SOLAR PV MODULES:

- i. Only indigenous manufactured PV modules should be used.
- ii. Crystalline high power/efficiency cells shall be used in the Solar Photovoltaic module.
- iii. The open circuit voltage of the PV modules under STC should be at least 21.0 Volts.
- iv. PV module must be warranted for output wattage, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.
- v. The terminal box on the module shall be designed for long life out door operation in harsh environment should have a provision for opening for replacing the cable, if required.
- vi. The offered module shall be in accordance with the requirements of MNRE.
- vii. Latest edition of IEC 61215 edition II / IS 14286 for Crystalline and shall be certified by MNRE authorized test centre. The bidder shall submit appropriate certificates.
- viii. PV modules must qualify to IEC 61730 Part 1- requirements for construction & Part 2 – requirements for testing, for safety qualification.

ix. Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided and if required, blocking diode(s) may also be provided.

x. IDENTIFICATION AND TRACEABILITY

Each PV module must use a RF identification tag (RFID), which must contain the following information:

- (i) Name of the manufacturer of PV Module
- (ii) Name of the Manufacturer of Solar cells
- (iii) Month and year of the manufacture (separately for solar cells and module)
- (iv) Country of origin (separately for solar cells and module)
- (v) I-V curve for the module
- (vi) Peak Wattage, I_m , V_m and FF for the module
- (vii) Unique Serial No and Model No of the module
- (viii) Date and year of obtaining IEC PV module qualification certificate
- (ix) Name of the test lab issuing IEC certificate.
- (x) Other relevant information on traceability of solar cells and module as per ISO 9000 series.
- (xi) The RFID should be placed inside the module laminate

Test reports/ certificate from IEC/NABL accredited laboratory to be mandatorily enclosed for relevant IEC/equivalent BIS Standards.

2.2 Module Mounting Structure:

2.2.1 The array structure shall be so designed that it will occupy minimum space without sacrificing the output from SPV panels.

2.2.2 The structure shall be designed to allow easy replacement of modules while at the same time be in line with Site requirements.

2.2.3 The structure shall be fixed type with option of periodic change in the tilt angle

2.2.4 The array structure shall be made of hot dipped galvanized MS angles of suitable size and minimum 85 micron thickness of galvanization. Alternatively, aluminum structure specially designed and manufactured by an experienced company for solar module mounting can be used.

The mounting structure steel should be as per latest IS 2062: 1992 and galvanization of the mounting structure should be in compliance with latest IS 4759.

2.2.5 The support structure design & foundation shall be designed to withstand wind speed up to 150 km/hr. This must be tested and certified by a reputed third-party inspection agency.

2.2.6 The module alignment & tilt angle shall be calculated to provide the maximum Annual energy output and this shall be decided based on the location of array installation.

2.2.7 All fasteners shall be of stainless steel of grade SS 304.

2.2.8 The array structure shall be grounded properly using maintenance free earthing kit suitable for mounting over building terrace.

2.2.9 The mounting of solar modules shall be done in such a way that the lower position of solar module shall be at least 500 mm above the terrace level.

2.2.10 regarding civil structures the bidder needs to take care of the load bearing capacity of the roof and needs to arrange suitable structures based on the quality of roof.

2.3 Inverters (Power Conditioning Units):

The power conditioner unit/ central inverter should be provided to convert DC power produced by SPV modules, into AC power. The power conditioning unit/inverter should be Off-Grid type. Typical technical features of the inverter shall be as follows:

Power conditioning unit with inbuilt charge controller of capacity & ratings as specified in the Table-1 above for various capacity of Solar Power Plants should convert DC power in to AC power, must confirm to standards IEC 61683.

The PCU will have the following features:

- ☐ MOSFET / IGBT based MPPT / PWM charging
- ☐ Wide input voltage range
- ☐ Output voltage 230 V + 2% of modified/ pure sine wave for single phase PCU & 440 V + 2%. for three phase PCU
- ☐ Output frequency: 50 Hz + 0.5 Hz
- ☐ Capacity of PCU/ Inverter is specified at 0.8 lagging power factor
- ☐ THD: less than 3%
- ☐ Efficiency: >85% for 5 KW & > 90 % for 10 KW capacity of PCU at full load
- ☐ Ambient Temp 50 degree Celsius (max.)
- ☐ Operating humidity 95% maximum
- ☐ Protections:
 - Over voltage (automatic shut down)
 - Under voltage (automatic shut down)
 - Overload
 - Short circuit (circuit breaker & electronics protection against sustained fault)
 - Over Temperature
 - Battery, PV reverse polarity
- ☐ Indicators
 - Array on
 - MPPT/ PWM charger on
 - Battery connected, charging
 - Inverter ON
 - Load on solar/ battery
 - Grid charger on
 - Load on Grid
 - Grid on
- ☐ Display Parameters
 - Charging current
 - Charging voltage
 - Voltage of PV panels
 - Output voltage
 - Grid voltage
 - Inverter loading
 - Output frequency
- ☐ Cooling: Air Cooled
- ☐ When battery bank is fully charged, the PCU should have the feature to feed the power generated from solar to load and draw the additional power from main supply to meet the load requirements in the case load is more than solar energy produced.
- ☐ The PCU/ inverters should be tested from the MNRE approved test centres / NABL / BIS accredited testing calibration laboratories.
- ☐ In case of imported power conditioning units, these should be approved by international test houses.

2.4 String Combiner Boxes:

2.4.1 The string combiner boxes shall be dust, vermin and water proof and made of thermo plastic or metallic and shall have protection minimum as per IEC 62208 and IP 65 type, Class II protection.

2.4.2 The string combiner box will also have suitable surge protection

2.4.3 The string combiner boxes should be designed to operate at 50 degrees Celsius and 85% humidity

2.4.4 The string combiner boxes should provide arrangement for disconnection for each of the groups.

2.4.5 It should provide a test point for each sub-group for quick fault location to provide group array isolation

2.4.6 The current carrying rating of the string combiner boxes shall be suitable with adequate safety factor to interconnect the Solar PV array.

2.4.7 The string combiner boxes shall have suitable cable entry points fitted with cable glands of appropriate sizes for both incoming & outgoing cables.

2.4.8 Suitable markings shall be provided on the bus bar for easy identification & cable ferrules shall be fitted at the cable termination points for identification.

2.5 DC and AC Cables:

☐ All DC and AC cables shall be terminated using suitable crimped cable lugs/sockets and screw type terminal strips. No soldered cable termination shall be accepted. Only terminal cable joints shall be accepted. No cable joint to join two cable ends shall be accepted.

☐ Conduits/concealed cable trays shall be provided for all DC cabling on the terrace. Conduits/concealed cable trays shall be adequately secured onto the terrace.

☐ The DC and AC cable type shall be PVC/XLPE insulated, suitably armored, 1100V grade multi-stranded copper conductor. Appropriate color coding shall be used. DC cables from array combiner box on the terrace to DC distribution box in the control room shall be laid inside cable duct where available or secured with conduits/concealed cable trays where duct is not available.

☐ DC and AC cabling between inverter and distribution boxes shall be secured with conduits/concealed cable trays.

☐ The DC and AC cables of adequate electrical voltage and current ratings shall be also rated for 'in conduit wet and outdoor use' and the cable size shall be selected to maintain losses within specified limits over the entire lengths of the cables.

☐ All cable conduits shall be GI/HDPE type.

☐ All cable trays shall be powder coated steel or GI or equivalent.

2.6 Earthing for Solar Panel

☐ PV array, DC equipment, Inverter, battery, AC equipment and distribution wiring shall be earthed as required.

☐ Equipment grounding (Earthing) shall connect all non-current carrying metal receptacles, electrical boxes, appliance frames, chassis and PV panel mounting structures in one long run. The grounding wire should not be switched, fused or interrupted.

☐ The equipment grounding wire shall be connected to one grounding electrode per PV power plant.

☐ A separate grounding electrode shall be installed using earth pit per power plant. Test point shall be provided for each earth pit.

2.7 BATTERY:

☐ VRLA type

☐ Battery should have a minimum rating @ 7.2 Vah/Wp at C/10 rate of discharge. The voltage of battery may be selected according to the PCU design.

☐ 75 % of the rated capacity of the battery should be between fully charged & load cut off conditions.

☐ Battery should conform to the latest BIS/ International standards. A copy of the relevant test certificate for the battery should be furnished.

□The battery should be warranted for minimum 5 years

□The battery should be installed inside the premises of consumers on a Battery rack of acid resistant material to bear the required battery load. The non-reactive acid proof mat should be provided around the floor space of battery bank. The capacity of battery bank should be for 6 hr backup (i.e., 7.2 Vah/Wp). The voltage of battery may be selected according to the PCU design. The batteries should conform to IS 1651 / IS 13369/ International standards. Capacity of the battery bank shall not be less than as specified above at C10 rate. The battery should be installed inside the premises of the consumers on a Battery rack of acid resistance materials to bear the required battery load. The non-reactive acid proof mat should be provided around the floor space of battery bank.

2.8 PROTECTIONS:

The system should be provided with all necessary protections like earthing, Lightning, and grid islanding as follows:

Lightning protection

"Lightning protection should be provided as per IEC 62305 / NFC 17102 / UNE 21186/ IE standards.

Lightning protection shall be provided by the use of metal oxide arrestors and suitable earthing such that induced transients find an alternate route to earth. There shall be required number of lightning conductors and structures shall be earthed through flats as per applicable Indian Standards with earth pits.

Surge Protection

Internal surge protection shall consist of three MOV type arrestors connected from +ve and -ve terminals to earth (via Y arrangement) for higher withstand of the continuous PV-DC voltage during earth fault condition. SPD shall have safe disconnection and short circuit interruption arrangements through integrated DC in-built bypass fuse (parallel) which should get tripped during failure mode of MOV, extinguishing DC arc safely in order to protect the installation against fire hazards. Nominal discharge current (I_n) at 8/20 micro seconds shall be minimum 10 kA with maximum discharge (I_{max}) at 8/20 micro seconds minimum 20 kA with visual indication (through mechanical flag) in modules to monitor the life of SPD.

Earthing protection:

Each array structure of the PV yard should be grounded/ earthed properly as per IS:3043-1987. In addition the lightning arrester/masts should also be provided inside the array field. Provision should be kept for shorting and grounding of the PV array at the time of maintenance work. All metal casing/shielding of the plant should be thoroughly grounded in accordance with Indian Electricity Act/IE Rules. Earth resistance shall not be more than 5 ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential. The earthing conductor shall be rated for the maximum short circuit current, and shall be 1.56 times the short circuit current. The area of cross-section of conductor shall not be less than 1.6 sq mm in any case.

2.9 CAUTION SIGNS:

The standard caution and danger boards or labels as per Indian Electricity Rules, the AC distribution box near the solar inverter and the building distribution board.

2.10 QUALITY AND WARRANTY

(i) The PV module(s) will be warranted for a minimum period of 25 years from the date of supply. PV modules used in Solar Power Plant 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.

(ii) The mechanical structures, electrical works including power conditioners/inverters/charge controllers/maximum power point tracker units/distribution boards/digital meters/switch gear/storage batteries, battery bank etc. and over all workmanship of the SPV power plants/ systems must be warranted against any manufacturing/ design/ installation defects for a minimum period of 5 years.

2.11 AUTHORIZED TESTING LABORATORIES/ CENTERS:

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

3.0 WARRANTY (INCLUDING COMPREHENSIVE MAINTENANCE CONTRACT) OF 5 YEARS:

- ☐ The PV modules will be warranted for a minimum period of 10 years from the date of installation of the system. (Output wattage should not be less than 90% at the end of 10 years and 80% at the end of 25 years).
- ☐ The mechanical structures, electrical works including power conditioners/inverters/charge controllers/maximum power point tracker units/distribution boards/digital meters/switch gear/storage batteries, etc. and over all workmanship of the SPV power plants/ systems must be warranted against any manufacturing/ design/ installation defects for a minimum period of 5 years from the date of installation & commissioning.

TECHNICAL BID**Format – 6**

DNRE/SPP-NU/2019-20/2261

dated: 5/10/2019

TECHNICAL BID

Supply, Installation, Testing and Commissioning including 5 years Operation, Comprehensive Warranty and Maintenance of Off Grid Solar Photovoltaic Power Plants with battery backup at Medziphema Camp, Dimapur & Kohima Camp, Kohima

Particulars	System Design Details	Proposed by the Bidder
SPV MODULES	Make / Name of Manufacturer:	
	Type of Solar Cell	
	(Mono crystalline / Poly crystalline)	
	Capacity of each module (W)	
	Module efficiency (%)	
	Voc	
	Vmp	
	Isc	
	Imp:	
	FF efficiency:	
	Enclose test report/certificate of Solar PV Module from IEC/NABL accredited laboratory as per relevant IEC standard (IEC 61215 edition II / IS 14286 and IEC 61730 Part-I requirements for construction & Part-2 - requirement for testing for safety qualifications	Yes/No
Battery	Make / Name of Manufacturer:	
	Type:	
	Battery Capacity: (V & Ah) @C/10	
	Total nos. of batteries	
	Enclose test reports/ certificate of proposed battery from accredited laboratory as per relevant IEC standard or latest BIS standard (The batteries should conform to IS 1651 / IS 13369/International standards)	Yes/No
Battery Rack/Trolley	Make / Name of Manufacturer:	
	Material:	
Mounting Structure	Make / Name of Manufacturer:	
	Material:	
Charge Controller	Make / Name of Manufacturer:	
	Type :	
PCU	Make:	
	Rating	
	AC Output:	
	DC Input voltage	

	Enclose test reports/ certificate of proposed PCU from IEC/NABL accredited laboratory as per relevant IEC standard (Inv Efficiency as per IEC 61683; MPPT efficiency as per EN50530; Grid Parallel operation as per IEC 61727; Inverter Islanding as per IEC 62116)	Yes/No
DC/AC Distribution Box	Make / Name of Manufacturer:	
	Make / Name of Manufacturer:	
Cables	Type	

(Laboratory Test certificate for each component should be enclosed)

(Signature of Bidder with seal)

FORMAT OF HANDING OVER CERTIFICATE

Certified that ____ (KW) Off-Grid Solar Power Plant has been installed, commissioned and tested successfully as per the specification at (location details - full address of site) _____ and has been handed over to

(Beneficiary

Organization as per Work Order) on the date the _____ with the following assets.

Sl. No	Component	Details
	Work Order No:	
1	Name of Project Site with Complete Address.	
I	Longitude/ LatitudeEN
II	Shadow Free Area Sqft.
2	Capacity of system installed (kWp)	kWp
3	Specification of the Solar Modules	
I	Type of Module (Mono/poly crystalline)	
II	Make of Modules & year of manufacturing	
III	Wattage of each module	
IV	Module Efficiency (Enclose I-V curve of any of the module used in the system)	Attach/Not attach
V	No of Modules installed	
VI	No of series & Parallel combinations	Series Nos. & Parallel Nos.
VII	Tilt Angle of Modules	
VIII	IEC certificate	
	Date of issue	
	Agency	
	Validity	
	Enclose a IEC certificate	
IX	Whether imported or indigenous	Indigenous
X	Whether RFID tag is pasted or not ?	
XI	If so, tag is inside or outside. If not, the reason?	
XII	Type of RFID	
4	PCU	
I	Make, & rating	Make: Charge Controller / MPPT :
II	Type of Charge controller/MPPT	
III	Capacity of inverter & year of manufacturing	
IV	AC Output :Single Phase/3 Phase	
V	Whether hybrid or stand alone	
VI	Whether indigenous or imported	
VII	Enclose test certificate as per MNRE requirement	
VII	Input Voltage to Inverter	
5	Batteries	
	Make of batteries & year of manufacturing	
	Type : Tubular Lead Acid /VRLA/GEL	

	Rating	Volt:
	Nos.	AH:
	No of series and parallel combinations	Series: Nos.
		Parallel: Nos.
	Enclose test certificate as per NIT requirement	
6	Depth of Discharge Proposed	
	Autonomy (hours)	
7	Structures	
	Tracking or non tracking	
	Indigenous or imported	
8	Cables Make and size	
	Enclose Certificate:	
	Rating :-	
	voltage of cable	
9	Distribution Box	
	Name (ACDB and DCDB)	
	Make	
	Certificate	
10	Earthling and protections	
	Lightening Arrester (Type)	
11	Date of Commissioning of the system	
12	Generation since Installation(Enclose one month data)	
13	Technical Person Trained to maintain system	Name:
	Name with Mobile no.	Nos. :

Handed Over by: Taken Over by User:

For M/s. _____

(Authorized Signatory) Signature

Name: Full Name & Designation

Seal Seal& Date

(Counter signed by DNRE Officer)

Signature

Name of DNRE Official

Seal

Copies:

1. Copy to User
2. Copy to be forwarded to Director DNRE (by concern DNRE officer)
3. Copy to Contractor.
4. Copy to for information.

BANK GUARANTEE FORMAT

Format - 8

**BANK GUARANTEE FORMAT
PROFORMA OF BANK GUARANTEE
FOR
SECURITY DEPOSIT**

(To be stamped in accordance with Stamp Act)

[The non-judicial stamp paper should be in the name of issuing Bank]

Ref. Bank Guarantee No

Date ____ / ____ / ____

To

The Director,
New & Renewable Energy,
Old Industry Office Building, Upper Chandmari
Kohima : 797 001.
Nagaland : Kohima

Dear Sir,

In consideration of -----(Hereinafter referred to as 'DNRE' which expressions shall unless repugnant to the context or meaning thereof include its successors, administrators and assigns) having awarded to M/s----- with its Registered/Head office at----- (hereinafter referred to as the "Contractor" which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), a Contract by issue of DNRE's Work Order No.----- dtd.and the same having been acknowledged by the Contractor, resulting in a Contract, valued atfor.....
(scope of Contract) and the Contractor has agreed to provide a Contract Performance Guarantee for the faithful performance of the entire Contract equivalent to 10% (ten per cent) of the said value of the Contract to DNRE.

We,.....
having its Head Office at..... (hereinafter referred to as the 'Bank', which expressions shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do
hereby guarantee and undertake to pay the DNRE on demand any and all money payable by the Contractor to the extent ofas aforesaid at any time up to 1 year (one year) without any demur, reservation, contest, recourse or protest and/or without any reference to the Contractor.

Any such demand made by DNRE on the Bank shall be conclusive and binding notwithstanding any difference between DNRE and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Bank undertakes not to revoke this guarantee during its currency/extended period without previous consent of DNRE and further agrees that the guarantee herein contained shall continue to be enforceable till DNRE discharges this guarantee.

DNRE shall have the fullest liberty without affecting in any way the liability of the Bank under this guarantee, from time to time to extend the time for performance of the Contract by the Contractor. DNRE shall have the fullest liberty, without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Contractor, and to exercise the same at any time in any manner, and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract between DNRE and the Contractor or any other course or remedy or security available to DNRE. The Bank shall not be released of its obligations under these presents by any exercise by the DNRE of its liberty with reference to the matters aforesaid or any of them or by reason of any other act of omission or commission on the part of the DNRE or any other indulgences shown by the DNRE or by any other matter or thing whatsoever which under law would, but for this provision have the effect of relieving the Bank.

The Bank also agrees that the DNRE at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee the DNRE may have in relation to the Contractor's liabilities.

Notwithstanding anything contained hereinabove, our liability under this guarantee is restricted to.....

and it shall remaining in force up to and including..... and shall be extended from time to time for such period (not exceeding one year), as may be desired by M/S.....on whose behalf this guarantee has been given.

Dated..... this day of..... . at.....

WITNESS

(Signature)
(Name)
(Official Address)

(Signature)
(Name)
(Designation with Bank Stamp)

Attorney as per Power
Of Attorney No. _____
Date ____ / ____ / ____ \

Format for submitting Bank Guarantee**NIT No:** DNRE/SPP-NU/2019/ 2261 **Dt** Kohima, the 5thOct, 2019**(To be submitted in Rs. 50/- Non-Judicial Stamp Paper to be purchased in the name of the issuing bank)**

To

The Director,
 New & Renewable Energy,
 Old Industry Office Building, Upper Chandmari
 Kohima : 797 001.
 Nagaland : Kohima

WHEREAS _____ (Supplier's/ Tenderer's name) (thereinafter referred to as "Supplier"), a company registered under Companies Act, _____ and having its registered office at _____

_____ is required to deposit with you, the Purchaser, the Earnest Money amounting of Rs. _____/- (Rupees in word) by the way of Bank Guarantee from a Nationalized Bank/Schedule Bank of RBI in connection with its tender for the work with reference to NIT No. _____ dtd. _____ as per specification and terms and Conditions enclosed therein. WHEREAS the Supplier as per "clause No _____ of the bid document has to deposit Earnest Money" & has agreed to deposit an irrevocable Bank Guarantee in your favour through us operative till validity of offer upto _____.

1. We (Name of the Bank) and branch office at _____ hereby agree and undertake to pay you on demand the said amount of Rs (Rupees in words only) without any protest or demur in the event the Supplier/ Tenderer after submission of his tender, resiles from or withdraws his offer or modifies the terms and conditions thereof in a manner not acceptable to you or expresses his unwillingness to accept the order placed/ letter of intent issued on the Supplier/Tenderer for the work under "Notice inviting tender ref.No. _____ dtd _____."

2. Your decision as to whether the Supplier/ Tenderer has resiled from or has withdrawn his offer or has modified the terms and conditions thereof in a manner not acceptable to you or has expressed his unwillingness to accept the order placed/ letter of intent issued by you on the Supplier/ Tenderer for the work under "Notice inviting tender ref.No. _____ dtd. _____" in this regard, shall be final and binding on us and we shall not be entitled to question the same.

3. Notwithstanding anything contained in the foregoing, our liability under this Guarantee shall be restricted to Rs. _____ (Rupees in words).

4. This Guarantee shall remain valid and in full force and effect upto (Expiry Date) and shall expire here after unless an intimation is given to the bank by you earlier in writing discharging us from our obligation under this Guarantee.

5. We shall not revoke this Guarantee during its currency except by your consent in writing.

6. This Guarantee shall not be affected by any change in the constitution of the Supplier/ Tenderer or yourselves or ourselves but shall ensure to your benefit and be enforceable against our legal successors or assignees by you or your legal successors.

7. Notwithstanding anything contained herein above unless a demand or claim under this Guarantee is made on us in writing within six months from the date of expiry of this Guarantee we shall be discharged from all liabilities under this Guarantee thereafter.

8. We have power to issue this Guarantee under our memorandum and articles of association and the undersigned who is executing this Guarantee has the necessary power to do so under a duly executed power of attorney granted to him by the bank.

Signed and delivered for and on behalf of _____

Bank. (Banker's Name)

Name of Bank Manager: _____

Address: _____

CONTRACT AGREEMENT FORMAT

Format – 10

CONTRACT AGREEMENT FORMAT

This contract (hereinafter, together with all attachment annexed hereto and forming its integral part thereof, call the Contract) is made on theday of the month of..... '2019, between, The Director, New & Renewable Energy, Old Industry Office Building, Upper Chandmari .Kohima : 797 001. Nagaland : Kohima (hereinafter referred to as DNRE which expression shall unless repugnant to the context of meaning thereof includes its successors and assigns) of the one part and.....a Company registered under the Laws of.....and having its registered office at.....(hereinafter called the contractor which expression shall unless repugnant to the context of meaning thereof includes its successors and assigns) of the other part.

WHEREAS

(A) DNRE has placed work order for Design, manufacture, supply, erection, testing and commissioning including warranty, operation & maintenance of Off- Grid Solar Power Plant with battery backup at Nagaland University, Medziphema Camp, Dimapur & Kohima Camp, Kohima and provides other services as covered in this contract vide work order no.....dtd.

(B) The contractor has accepted the work order as set forth above vide reference No.....Dtd.

(C) The DNRE and the contractor shall jointly be termed as "Parties"

(D) The contractor, having represented to DNRE that they have the required professional skill, personnel and technical resource have agreed to provide the services on the terms and conditions set forth in this contract.

NOW THEREFORE THE PARTIES HERETO HEREBY AGREE AND COVENANT AS FOLLOWS:

1. The parties hereto hereby covenant, bind and undertake to observe and perform this contract faithfully for the work of "Design, manufacture, supply, erection, testing and commissioning including warranty, operation & maintenance of Off- Grid Solar Power Plant with battery backup at Nagaland University, Medziphema Camp, Dimapur & Kohima Camp, Kohima" and execute, perform and do all works and things mentioned and described in the contract and in all other documents annexed hereto and in accordance with such conditions, specifications and terms and conditions forming part of this contract to the entire satisfaction of DNRE and shall respect, perform, observe and fulfill all such terms, conditions and specifications which are expressed or intended to be performed, observed or fulfilled by the contractor.

2. The following documents, which are deemed to be integral part of this contract as in herein, set out verbatim and / or is hitherto annexed, shall be binding on the parties.

- a. Annexure – A : Copy of Letter of Intent, if any
- b. Annexure – B : Copy of work order No / LOA No
- C. Annexure – C : Copy of Contractor's Acceptance Letter
- D. Annexure – D : Contract Performance Guarantee
- D. Negotiation record, if any

3. Security Deposit: The contractor has deposited a security amount to the tune ofby

The security deposit will be released after successful and satisfactory completion of installation and commissioning of the full ordered systems & completion of the CMC period.

4. The parties hereto hereby agree and declare that in consideration of the payments to be made by DNRE, the contractor shall execute the work as defined in the contract in the manner and as prescribed in this contract or which are implied or may be necessary for the completion of the said work or incidental thereto on the terms and conditions mentioned in the contract.

In witness whereof the parties hereto have signed this agreement hereunder on the date respectively mentioned against signature of each.

FOR AND ON BEHALF OF
SUPPLIER / MANUFACTURER/CONTRACTOR

FOR AND ON BEHALF OF
DNRE

PLACE:.....
DATE:.....

WITNESS:

- 1.
- 2.

POWER OF ATTORNEY

(To be on non-judicial stamp paper of Minimum Rs. 50/-)

Power of Attorney to be provided by the Bidder in favour of its representative as evidence of authorized signatory's authority. Know all men by these presents, We (name and address of the registered office of the Bidder as applicable) do hereby constitute, appoint and authorize Mr./Ms. _____ (name & residential address) who is presently employed with us and holding the position of _____ as our true and lawful attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to submission of our Bid for Design, Supply, Installation & Commissioning of Off- Grid Solar Power Plant with battery backup at Nagaland University, Medziphema Camp, Dimapur & Kohima Camp, Kohima in response to the NIT No. Dated: _____ issued by Assam Power Distribution Company Limited including signing and submission of the Bid and all other documents related to the Bid, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document which DNRE may require us to submit. The aforesaid Attorney is further authorized for making representations to the Director, New & Renewable Energy, Old Industry Office Building, Upper Chandmari, Kohima : 797 001. and providing information / responses to DNRE representing us in all matters before DNRE and generally dealing with DNRE in all matters in connection with Bid till the completion of the bidding process as per the terms of the above mentioned in NIT.

We hereby agree to ratify all acts, deeds and things done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall be binding on us and shall always be deemed to have been done by us.

All the terms used herein but not defined shall have the meaning ascribed to such terms under the RFS.

Signed by the within named
(Insert the name of the executants' company)
through the hand of
Mr. _____
duly authorized by the Board to issue such Power of Attorney
Dated this _____ day of _____
Accepted _____

Signature of Attorney
(Name, designation and address of the Attorney)
Attested _____

(Signature of the executant)
(Name, designation and address of the executant)

Signature and stamp of Notary of the place of execution
Common seal of _____ has been affixed in my/our presence pursuant to Board of Director's
Resolution dated _____

WITNESS

(Signature)
Name _____
Designation _____

(Signature)
Name _____
Designation _____

PRICE BID

(Price – Bid must be submitted electronically).

Price Bid – Item-wise for the “Design, manufacture, supply, erection, testing and commissioning including warranty, operation & maintenance of Off- Grid SolarPower Plant with battery backup Nagaland University, Medziphema Camp, Dimapur & Kohima Camp, Kohima”

Sample Bill of material for Solar Power Plant: Price Bid (5/10/20/25 kW)

	Description of Item	Unit	Amount in Rs
1	Solar Module	5/10/20/25 kWp	
2	Module Mounting Structure	suitable as above	
3	Array Junction Box	Nos	
4	Main Junction Box	Nos	
5	Power conditioning unit (PCU) for 5/10/20/25 kWp with build in charge controller, MPPT 230 V AC, 50 Hz, inverter pure sine wave and charger suitable for both stand alone and hybrid mode of operation along with all protection & controlling arrangement	No	
6	Poly Ethylene copper cable-Different size	Meters	
7	AC Distribution Board with MCB, Voltmeter, Ammeter and Energy meter for PCU output	Nos	
8	DC Distribution Board	Nos	
9	Battery bank Lead Acid type/ Tubular VRLA @ C10, 27°C with rack and accessories for backup of 4 hours	Set	
10	Earthing Kit	Set	
11	Lightning & Overvoltage protection	Set	
12	Installation Kit/T&P	Set	
13	PCU spares	Nos	
14	Installation & Commissioning	LS	
15	5 years CMC	LS	
16	GST as per prevailing rates		
	Total Cost		

Note:

- (1) Supply of material, Installation and Commissioning rates as well as CMC rates shall be inclusive of all applicable taxes & duties etc.
- (2) CMC will start after successful installation & commission of the system.
- (3) It is mandatory to quote all the items i.e., Supply of Materials, Installation & Commissioning of the system & CMC for 5 years.

Signature of the bidder with seal

**LIST OF NAGALAND UNIVERSITY BUILDINGS, MEDZIPHEMA AND KOHIMA CAMPUS
FOR INSTALLATION OF OFF-GRID SOLAR POWER PLANTS.**

Sl no	List of Completed Solar Project.	Plant Capacity (In kW)
1	TenyiedieDepartment, Kohima Campus	5
2	Department of Teachers Education, Kohima Campus	5
3	Health Centre Building, Kohima Campus	5
4	Ladies Common room, Kohima Campus	5
5	Vice Chancellor Quarter Agri. & Science R.D. Meziphema	5
6	Guest house, Medziphema Campus	10
7	Exam Hall, Medziphema Campus	10
8	Abronomy&Agri.EngineeringDepartment ,Medziphema	10
9	Commerce & English Department, Kohima Campus	10
10	Tenyiedie& History Department Building, Kohima Campus	10
11	Restaurant Complex, Kohima Campus	10
12	Guest House, Kohima Campus	10
13	Education &Geology,Department, Kohima Campus	10
14	Administrative Block, Kohima Campus	10
15	Lecturer Hall, Kohma Campus	20
16	Valley View Boy Hostel, Medziphema Campus	20
17	Lady Bird Girls Hostel, Medziphema Campus	20
18	Shilloisirgh Hostel, Medziphema Campus	20
19	Department of Agri. Education Building Office, Medziphema	20
20	Pauna Boys Hostel, Medziphema Campus	20
21	Commerce Building Kohima Campus	20
22	Library, Kohima Campus	20
23	PrimalaSirgh Hostel, Medziphema Campus	20
24	Horticulture Department Office Building, Medziphema Campus	20
26	Library, Medziphema Campus	25

27	Main Building Medziphema Campus	25
28	Pauna Men Hostel, Kohima Campus	25
29	Mesia Women Hostel, Kohima Campus	25
Total (In KW)		415 kW