

e-TENDER DOCUMENT

FOR

DESIGN, SUPPLY, INSTALLATION & COMMISSIONING WITH 5
YEARS COMPREHENSIVE WARRANTY MAINTENANCE
OF

**Solar PV Street Lighting System (White-LED based)
with Li-Fe-PO4 Battery)**

IN

IN VARIOUS HOUSES OF UTTAR PRADESH

e-tender NO.- 01/UPNEDA/SPV/OG/SL/2020-21



Uttar Pradesh New and Renewable Energy Development Agency (UPNEDA)

(Deptt. of Additional Sources of Energy, Govt. of U.P.)

VibhutiKhand, Gomti Nagar, Lucknow-U P

Tel.No. 91-0522-2720652, TeleFax: 0522-2720779, 2720829

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e-tender Notice

Uttar Pradesh New and Renewable Energy Development Agency, (UPNEDA)

(Deptt. of Additional Sources of Energy, Govt. of U.P.)

Vibhuti Khand, Gomti Nagar, Lucknow U P

Mobile. 9415609078, Tele Fax: 0522-2720779, 2720829 Website: <http://www.upneda.org.in>

E-Mail: compneda@rediffmail.com

UPNEDA invites Online Bids from Prospective Bidder through e-tendering for the design, procurement, manufacturing, supply, installation, commissioning and 5 years comprehensive warranty maintenance of following items at various sites in Uttar Pradesh as per the details given in e-tender document.

Sr. No	Item	e-tender No.	Quantity Required and Estimated cost	Fee of e-tender document	Earnest Money
1	Solar Street Lighting System (W-LED based) with Li-Fe-PO4 battery in various sites of various districts of Uttar Pradesh.	01/UPNEDA/SPV/OG/SL/2020-21	Approx. 10000 Units +- 30% (Rs. 20.00 Crore)	Rs 35000.00 +GST 18%=41300/-	Rs. 20.00 (Twenty) Lakhs only
2	Solar PV Power Plants (grid hybrid) of 65 KW with Lithium (Lifepo4) battery backup in Hatcheries situated at Ayodhya, Prayagraj, Sultanpur, Meerut, Basti, Jalaun Gorakhpur and Sahjahanpur Districts of Uttar Pradesh	02/UPNEDA/SPV/OG/SPPM/2020-21	8 nos (Rs. 6.00 Crore)	Rs 35000.00 +GST 18%= 41300/-	6 (Six) Lakhs only
3	Solar fencing of 8 feet height with 6 wire at Hardoi and Lucknow	03/UPNEDA/SPV/OG/FEN/2020-21	Aprox. 1900 meter +_25% (Rs. 1.10 Crore)	Rs. 29500.00 +GST 18%= 34810/-	1.0 (One) Lakh only
4	Solar water heater of 500 LPD and 1000 LPD capacity of flat plate type with thermosyphon in various district of Uttar Pradesh	04/UPNEDA/S T/SWH/Gen/2020-21	Aprox 25000 lpd +-25% (Rs. 1.00 Crore)	Rs. 29500.00 +GST 18%= 34810/-	1.0 (One) Lakh only

The work completion time for all the above work is 4 (four) month.

The tender document is available at e-Procurement website <http://etender.up.nic.in> from 3rd September, 2020. Interested bidders may view, download the e-Bid document, seek clarification and submit their e-Bid online up to the date and time mentioned in the table below:

(a)	Availability of tender document on website	3.9.2020 after 06.30 PM at e-Procurement web site.
(b)	e-Bid submission end date & Time	28 -9-2020 upto 7.00 P.M
(c)	Online technical e-Bid opening date & time	29 -9-2020 at 11:30 AM
(d)	Tentative Online financial e-Bid opening date & time (Only of technically qualified bidders)	05.10.2020 at 12.30 AM
(e)	Venue of opening of technical & financial e-Bids	UPNEDA Head Office, VibhutiKhand, Gomti Nagar, Lucknow-226010

The bidders need to submit the proof/cost of e-Bid document fees and EMD as stated in the above table through Demand Draft as bid documents fees and bank guarantee/DD/FD as EMD in favour of Director Uttar Pradesh New and Renewable Energy Development Agency (UPNEDA), payable at LUCKNOW. The scanned copy of the Demand Draft and Bank guarantee must be uploaded along with the e-Bids. The original Demand Draft and bank guarantee must reach the office of UPNEDA at Vibhuti Khand, Gomti Nagar Lucknow within 15 days of opening of Technical e-Bid. If any deviation in the DD as tender fees and BG/FD as EMD is found then firm will be blacklisted and FIR will be lodge against the firm. The firm and any company founded by its Director/partners/proprietors will not be allowed to participate in UPNEDA future tenders. Numbers of the system mentioned as above, may increase or decrease. Director, Uttar Pradesh New and Renewable Energy Development Agency, (UPNEDA) reserves the right to reject any or all tenders without assigning any reason thereof. The decision of Director UPNEDA will be final and binding.

DIRECTOR, UPNEDA

2. Covering Letter:

FROM:-

(Full name and address of the Bidder)

.....
.....

To:

The Director ,
Uttar Pradesh New and Renewable Energy
Development Agency (UPNEDA)
VibhutiKhand, Gomti Nagar, Lucknow- 226010-U. P.

Subject: -Offer in response to e-tender specification No:

Sir,

We hereby submit our offer in full compliance with terms & conditions of the above e-tender without any deviations.

We confirm that, we have the capability of supply, install and carryout 5 years comprehensive warranty maintenance of more than Solar Street Lighting System (W-LED based) with Li-Fe-PO4 battery in, various districts of Uttar Pradesh in 4 months.

We are fully agreed with Terms-conditions , Technical specifications, Warrantee with 5 years of comprehensive maintenance and Payments conditions etc laid down in this bid document.

The e-tender is to be uploaded in two separate files named Part-A for technical bid & Part-B for Financial Bid only.

(Signature of Bidder)
With Seal

3. Check list of Annexures

(The following information/documents are to be annexed and flagged by the Bidders along with the BID)

Sl. No.	Item	Particulars	Yes/No	Page No.
1	Tender Document Fees	Details of Tender document -		
2	Earnest Money	Details of Earnest money –		
3	Company Eligibility	A Registered Manufacturing Company/Firm/ Corporation in India incorporated under Companies Act, 1956 or Companies Act, 2013/ and further amendment (s), or a registered partnership firm (registered under section 59 of the Partnership Act, 1932) or a limited liability partnership (under the Limited Liability Partnership Act, 2002) of SPV Cells / Modules or Battery for solar application Or PV System Electronics or DC LED Lights/Luminary (the manufactured component must be tested by MNRE authorized lab for Solar lighting systems/ Solar off grid systems) Conforming to relevant National / International Standards. As per annexure-A		
4	System integrator Eligibility	OR A PV System Integrator Company/Firm/ Corporation in India having experience in installation, commissioning with 5 years comprehensive maintenance services as per clause 1.4 As per annexure-A		
5	Test Report	Following Test Certificates & Reports for components specified in technical bid (Test Certificate should have been issued on or after 01 April 2017)		
6	SPV Modules			
6.1		IEC 61215 edition II/ IS 14286 for Crystalline Modules (from NABL/MNRE/IECQ accredited test lab)		
6.2		IEC 61730 Part 1 & 2 (from NABL/MNRE accredited test lab)		
6.3		STC Performance Report –I V curve (from NABL/MNRE accredited test lab)		
7	Batteries	As per IS 16270 /IS 16046 (Part 2 and 3): 2018/IEC 62133-2017 and its latest certificate.		
7.1		NBAL / MNRE authorized test center report with latest BIS certificate of cell and Pack		
7.2				
8	Luminaries			
8.1		LM-80-08 for LED		
8.2		LM-79-0 for 12 watts Luminaries (from MNRE/NABL accredited test lab)		
8.3		IP 65 for. 12 watts Luminaries (from NABL/MNRE accredited test lab)		

8.4	Photometry	The design calculation based on LM 79 report in support of uniformity and Emin/Emax		
		BIS certificate for compliance of IS IS 10322 (Part 5/Sec I):2012		
9	MPPT charge controller	The test report of MPPT charge controller meeting the tender requirement should be submitted from any of the NABL/ MNRE Accredited Testing Laboratories .		
10	Complete tendered Street lighting system	complete tendered Solar LED Street Lighting system with from MNRE/NABAL accredited test center accredited for in testing of solar system		
11	GSTN	A copy of valid GSTIN registration certificate.		
12	Financial Turnover	Overall Average Annual Turnover of the Company/Firm/ Corporation in the latest last three financial years (i.e. FY 2017-18, 2018-19 and 2019-20) should be at least 30% of the estimated cost i.e Rs 600 lakhs (This must be the individual Company's turnover and not that of any group of Companies). (A summarized sheet of average turnover certified by registered CA should be compulsorily enclosed along with corresponding balance sheets.) (For year 2019-20, provisional balance sheet shall also be considered) As per Annexure-A		
13	Financial and Technical Experience	The bidder should have experience of having successfully completed similar works during last 7 years ending last day of August 2020 should be either of the following: - (Annexure VII) 1. Three similar completed works costing not less than the amount equal to 40% of the estimated cost. or 2. Two similar completed works costing not less than the amount equal to 50% of the estimated cost. or 3. One similar completed work costing not less than the amount equal to 80% of the estimated cost. CA certificate along with details as mentioned at annexure-A is required.		
14	Net worth	The bidder should have positive net worth in every year for the last three years and for last preceding financial year (2019-20) shall not be less than 100% of the paid-up share capital. (As per Annexure-A)		
16	Financial capability	The bidder should be profitable in at least last two financial years. i.e., 2018-19 and 2019-20.		

17	Authorization letter	Authorization letter of the Bidder, for the person representing his firm, that he is authorized to discuss and with specific mention of this e-tender.		
18	Undertakings			
18.1	Undertaking for service center	An undertaking that the service centers will be opened in allotted district and list will be submitted before supply and installation for verification		
18.2	Undertaking for blacklisting	Bidder should not have been Debar/ blacklisted by any of the State/ Central Government or organizations of the State/Central Government. (A notarized affidavit Should be submitted on non judicial stamp paper)		
18.3	Under taking for no dues on income tax and GST	Bidder should not have any dues of income tax and GST of the State/ Central Government. (A notarized affidavit Should be submitted on non judicial stamp paper)		
19	Digital Signature certificate	Certificate to be submitted as per Particulars of e-tender point 7		
20	Details of Remote monitoring systems	A detailed note on remote monitoring system should be provided along with software		
21	Other documents			

Note:

- Bids received without supporting documents for the various requirements mentioned in the tender document may be rejected.
- No extra paper than required as above should be submitted in e-tender as well as with hard copy.
- If any paper certificate/document is not clear in scanned uploaded the tender document may be rejected (scanning of papers is not less than 150 dpi in black & white).

(Signature of Bidder)
With Seal

4. Particulars of e-tender

e-tender no.	
2	Particulars of the work
3	Period of work Within 4 months from the date of award of Work or as specified by UPNEDA.
4	Period of validity of rates for acceptance 3 months from opening of financial bid
5	Place of opening of e-tender UPNEDA, Head Office, Vibhuti Khand, Gomti Nagar, Lucknow, Uttar Pradesh-226010

1. Bidders are advised to study the tender Document carefully. Submission of e-Bid against this tender shall be deemed to have been done after careful study and examination of the procedures, terms and conditions of the tender Document with full understanding of its implications.
2. The e-Bid prepared in accordance with the procedures enumerated in ITB Clause 15 of Section-I should be submitted through e-Procurement website <http://etender.up.nic.in>.
3. The e-Bids will be electronically opened in the presence of bidder's representatives, who choose to attend at the venue, date and time mentioned in the above table. An authority letter of bidder's representative will be required to be produced.
4. In the event of date specified for e-Bids opening being declared a holiday for UPNEDA's office then the due date for opening of e-Bids shall be the following working day at the appointed time and place. However, Director, UPNEDA reserves the right to extend the date of opening of Financial Bid in unavoidable circumstances.
5. All the required documents including Price Schedule/BOQ should be uploaded by the e-Bidder electronically in the PDF/XLS format. The required electronic documents for each document label of Technical (Fee details, Qualification details, e-Bid Form and Technical Specification details) schedules/packets can be clubbed together to make single different files for each label. All the enclosures should be scanned and uploaded with bid.
6. The companies/firms who are registered at e-Procurement portal for e-tendering with NIC portal (<http://etender.up.nic.in>) . All companies/firms who have not registered themselves with U.P. Electronics Corporation Ltd. (UPLC) for e-tendering till date can get their registration done. The companies/firms may contact the UPLC officials on phone numbers 0522-2286809, 0522-2288750 (O) 0522-4130303 (Extn: 303, 304 & 307), for their Registration/Digital Signature Certificate related queries.

A. Digital Signature Certificate:

7. It is mandatory for all the bidders to have class-III Digital Signature Certificate (DSC) with signing and Encryption certificate (in the name of person who will sign the BID) from any of the licensed Certifying Agency (Bidders can see the list of licensed CAs from the link www.cca.gov.in) to participate in e-tendering .

(Signature of Bidder with Seal)

5. GENERAL PARTICULARS OF BIDDER

1	Name of Bidder	
2	Postal Address	
3	Mobile no.	
4	Telephone, Telex, Fax No	
5	E-mail	
6	Web site	
7	Name, designation and Mobile Phone No. of the representative of the Bidder to whom all references shall be made	
8	Name and address of the Indian/foreign Collaboration if any	
9	Have anything/extra other than price of items (as mentioned in price Schedule) been written in the price schedule.	
10	Have the Bidder to pay arrears of income tax? If yes up to what amount?	
11	Have the Bidder ever been debarred By any Govt. Deptt. / Undertaking for undertaking any work?	
12	Supply capacity in 04 Months	
13	Details of offer (please mention number of pages and number of Drawings in the hard copy)	
14	Reference of any other information attached by the tenderer (please Mention no. of pages & no. of drawings)	
15	Details of Bank name and account number etc for RTGS	

(Signature of Bidder with Seal)

6. DECLARATION BY THE BIDDER

(REGARDING e-tender NO.)

I/We _____ (hereinafter referred to as the Bidder) being desirous of e-tendering for the work under the above mentioned e-tender and having fully understood the nature of the work and having carefully noted all the terms and conditions, specifications etc. as mentioned in the e-tender document,

DO HEREBY DECLARE THAT

1. The Bidder is fully aware of all the requirements of the e-tender document and agrees with all provisions of the e-tender document.
2. The Bidder is capable of executing and completing the work as required in the e-tender.
3. The Bidder accepts all risks and responsibilities directly or indirectly connected with the performance of the e-tender.
4. The Bidder has no collusion with other Bidders, any employee of UPNEDA or with any other person or firm in the preparation of the bid.
5. The Bidder has not been influenced by any statement or promises of UPNEDA or any of its employees, but only by the e-tender document.
6. The Bidder is financially solvent and sound to execute the work.
7. The Bidder is sufficiently experienced and competent to perform the contract to the satisfaction of UPNEDA.
8. The information and the statements submitted with the e-tender are true.
9. The Bidder is familiar with all general and special laws, acts, ordinances, rules and regulations of the Municipal, District, State and Central Government that may affect the work, its performance or personnel employed therein.
10. The Bidder has not been debarred from any type of work by UPNEDA and or any Government undertaking/ Department.
11. This offer shall remain valid for acceptance for 3 Months from the date of opening of financial bid of e-tender.
12. The Bidder gives the assurance to execute the e-tendered work as per specifications terms and conditions.

(Signature of Bidder)
with SEAL

PART-2 : INSTRUCTION TO BIDDERS

SECTION 1: THE TENDER DOCUMENT

1.1 Content of e-tender DOCUMENT

1.1.1 The e-tender procedure and contract terms are prescribed in the e-tender Documents. In addition to the e-tender Notice the Bidding documents include.

PART-A

Part -1

- 1 e-tender Notice
- 2 Covering Letter
- 3 Checklist of Annexures
- 4 Particulars of e-tender
- 5 General Particulars of Bidder
- 6 Declaration by Bidder

Part – 2 : Instruction to Bidders

- Section -1 Contents of e-tender document
- Section -2 Eligibility condition
- Section-3 Preparation of e-tender
- Section-4 Submission of e-tender
- Section -5 e-tender opening and evaluation
- Section-6 Procedure for Finalization of Bid

Part – 3 : General Condition of Contract

Part – 4 : Scope of Work & Technical specifications

Part – 5 : Details of Warranty

Part – 6 : Technical Bid

Part-7 : Annexures

Part – B: Financial Bid

The Bidder is expected to examine all instructions, forms, terms and specifications as mentioned in the e-tender document. Failure to furnish all information required by the e-tender documents or submission of a bid not substantially responsive to the Bid Document in every respect will be at the Bidder's risk and is likely to result in out-right rejection of the e-tender

1.2 LOCAL CONDITIONS

It shall be imperative on each bidder to fully inform him of all local conditions and factors, which may have any effect on the execution of the works covered under these documents and specifications. UPNEDA shall not entertain any request for clarifications from the Bidder, regarding such local conditions

1.3 CLARIFICATION :

A prospective Bidder requiring any clarification of the e-tender documents shall submit their request in writing to UPNEDA by Post/Fax/Email at the UPNEDA's mailing address indicated in the invitation for e-tender. The request must reach on or before 10th September 2020. Based on quarry UPNEDA may host webinar meeting by sending links to firms who submit their quarry by mail till 10th September 20. The UPNEDA will upload the changes/modifications/amendment based on clarification request if any on the website <http://etender.up.nic.in>. The webinar meeting may be held on 15.9.2020 at 12.30 PM.

All are requested to remain updated with the website. No separate reply/ intimation will be given elsewhere. Verbal clarifications and information given by the UPNEDA or its employees or its representatives shall not be in any way entertained

Enquiries/clarifications may be sought by the Bidder from:

Director,
Uttar Pradesh New & Renewable Energy Development Agency,
VibhutiKhand, Gomti Nagar, Lucknow
Fax: 0522-2720779, 2720829
Email: compneda@rediffmail.com;
Website: <http://upneda.org.in>

1.4 AMENDMENT OF e-tender DOCUMENTS

At any time prior to the submission of the e-tender the UPNEDA may for any reason, whether at its own initiative or in response to a clarification requested by the Bidder, modify the e-tender documents by amendments. Such document shall only be made available on websites: <http://etender.up.nic.in> and No separate reply/ intimation will be given elsewhere.

Therefore, all concerned are required to remain updated with the website.

(Signature of Bidder)
with SEAL

SECTION 2: ELIGIBILITY CONDITIONS

Eligibility Conditions for Bidders

1. Minimum Eligibility Conditions:

1.1 The Bidders should be

A Registered Manufacturing Company/Firm/ Corporation in India incorporated under Companies Act, 1956 or Companies Act, 2013/ and further amendment (s), or a registered partnership firm (registered under section 59 of the Partnership Act, 1932) or a limited liability partnership (under the Limited Liability Partnership Act, 2002) of SPV Cells / Modules or Battery for solar application Or PV System Electronics or DC LED Lights/Luminary (the manufactured component must be tested by MNRE authorized lab for Solar lighting systems/ Solar off grid systems) Conforming to relevant National / International Standards.

OR

A PV System Integrator Company/Firm/ Corporation in India having experience in installation, commissioning with 5 years comprehensive maintenance services as per clause 1.4

1.2 The Test report of various components (PV module, battery, luminaries, charge controller etc) offered by bidder must be submitted with tender.

1.3. SPV Modules

a) IEC 61215 edition II/ BIS 14286 for Crystalline Modules from MNRE/NABL or IECQ accredited test lab.

b) IEC 61730 Part 1 & 2 from MNRE /NABL accredited test lab

c) STC Performance Report –I V curve from MNRE/NABL accredited test lab

ii. **Batteries** – MNRE /IEC /BIS accredited test labs, report for relevant IEC IS 16270 /IS 16046 (Part 2 and 3): 2018/IEC 62133-2017, from a recognized lab (as applicable) with latest BIS certificate of 30AH battery pack and cell.

iii. Luminaries/Balance of System

a)LED – LM-80-08 , Luminaire- LM-79-08 from MNRE/ NABAL accredited lab for luminary testing

b) Luminaries and charge controller housing- IP 65

c) The design calculation based on LM 79 reports in support of uniformity and Emin/Emax

All the test report of component should be issued on or after 1April 2017.

1.3 The bidder should have Test report in their name for the complete tendered Solar LED Street Lighting system **with communication node device compatibility with charge controller** for remote monitoring from MNRE/NABAL accredited test center accredited for testing of solar equipment.

The test report complete systems should be issued on or after 1April 2018.

1.4 The bidder should have experience of having successfully completed similar works in last 7 years ending last day of August 2020 should be either of the following: -

- I. Three **similar completed works** costing not less than the amount equal to 40% of the estimated cost. **or**
- II. Two **similar completed works** costing not less than the amount equal to 50% of the estimated cost. **or**
- III. One **similar completed work** costing not less than the amount equal to 80% of the estimated cost.

(Similar work includes contracts off-grid solar PV system with Battery and Solar LED Street Lighting systems executed with 5 years of AMC under MNRE/SNAs schemes to central/state PSU and SNA's.)

CA certificate along with details as mentioned at annexure-A is required.

- 1.5 The Bidder should have valid GSTIN registration certificate. A copy of which should be enclosed.
- 1.6 Overall Average Annual Turnover of the Company/Firm/ Corporation in the latest last three financial years (i.e. FY 2017-18, 2018-19 and 2019-20) should be at least **30% of the estimated cost** i.e Rs 600.00 lakhs. (This must be the individual Company's turnover and not that of any group of Companies). (A summarized sheet of average turnover certified by registered CA should be compulsorily enclosed along with corresponding balance sheets.) (For year 2019-20, provisional balance sheet shall also be considered).
- 1.7 The bidder should have positive net worth in every year for the last three years and for last preceding financial year (2019-20) shall not be less than 100% of the paid-up share capital.
- 1.8 The bidder should be profitable in at least last two financial years. i.e., 2018-19 and 2019-20.

Note: In response to above all points the document is to be submitted as per annexure A

((A summarized sheet certified by registered CA should be enclosed for clause 1.4, 1.6, 1.7 and 1.8)

SECTION 3: PREPARATION OF e-tender

3.1 LANGUAGE OF BID AND MEASURE

3.1.1 The e -tender prepared by the Bidder and all correspondence and documents relating to the bid exchanged by the Bidder and UPNEDA shall be written in the English provided that any printed literature furnished by the Bidder may be written in another language so long as accompanied by an English translation of its pertinent passages in which case, for purpose of interpretation units of measurement shall be MKS system.

3.2 DOCUMENTS COMPRISING THE BID

3.2.1 The e-tender prepared by the Bidder shall comprise the following components

- (a) Covering letter as provided in e-tender document.
- (b) General particulars of bidder, as provided in e-tender document.
- (c) Declaration by The Bidder, as provided in e-tender document.
- (d) Documentary evidence establishing that the bidder is eligible to Tender and is qualified to perform the contract if its tender is accepted. Check list of Annexure as provided in e-tender document.
- (e) A hard copy of the in e-tender document signed on each page, as a confirmation by the Bidder to accept all technical specifications/ commercial conditions along with all necessary enclosures/annexures (**only at the time of executing the contract**)
- (f) Authorization letter of the Bidder, for the person representing his Company/Firm/ Corporation, that he is authorized to discuss and with specific mention of this e-tender.
- (g) Duly filled technical bid format Part-6.

3.3 BID PRICE

3.3.1 The Bidder shall indicate prices on the appropriate financial bid schedule.

3.3.2 DUTIES AND TAXES

The price quoted should include all taxes what so ever as applicable. A Bidder shall be entirely responsible for all taxes, duties, license fees, etc. All taxes payable as per Government income tax & GST norms will be payable by the Bidder. TDS of income Tax and GST as applicable will be deducted from the payment of the Bidder as per the prevalent laws and rules of Government of India and Government of Uttar Pradesh in this regard.

3.4 BID CURRENCIES

3.4.1 Prices shall be quoted in Indian Rupees (INR) only

3.5 SECURITY DEPOSIT/ PERFORMANCE GUARANTEE

3.5.1 The successful Bidders, who execute the agreement with UPNEDA for the work, shall have to furnish a security amount equivalent to 10% of total value of the contract in the form of Bank Guarantee valid for a period of 18 months from the date of execution of agreement. The bank guarantee may be issued by a nationalized bank or scheduled bank of RBI. Bank Guarantee shall be in favour of "Director, UPNEDA". The aforesaid Bank Guarantee shall be furnished prior to the execution of agreement. The performance Bank Guarantee shall be released after completion of installation and commissioning of all systems.

3.6 PERIOD OF VALIDITY OF e-tender

3.6.1 Validity of the offer should be 3 months from the date of opening of the financial bid of the e-tenders. Without this validity the e-tenders will be rejected.

3.6.2 In exceptional circumstances; the UPNEDA will solicit the Bidder's consent to an extension of the period of validity. The request and the response thereof, shall be made in writing. The contract performance security provided under clause 3.5.1 above shall also be suitably extended.

3.7 BID SECURITY (Earnest Money)

The bidder shall furnish, as part of its bid, bid security of **Rs.20 Lakhs (Twenty Lakhs only)** in the form of Bank guarantee. The bank guarantee shall be valid for a period of 4 months from the opening of technical bid.

3.7.1 Any bid not secured with the tender fee and earnest money as stipulated in tender notice will be liable for action before opening of financial bid.

3.7.2 No Interest shall be payable on the amount of earnest money and the same will be released, after the e-tenders have been decided, to those Bidders who fail to get the contract.

3.7.3 The e-tender security (earnest money) may be forfeited:

a) If a bidder withdraws its e-tender during the period of e-tender validity specified by the Bidder in the e-tender.

b) If the successful Bidder fails to sign the contract within stipulated period.

3.7.5 EMD of successful bidder shall only be released after signing of agreement and submission of 10% Security bank guarantee.

3.8 FORMAT AND SIGNING OF e-tender

3.8.1 The bid must contain the name, residence and places of business of the persons making the e-tender and must be signed and sealed by the Bidder with his usual signature. The name and designations of all persons signing should be typed or printed below the signature.

3.8.2 e-tender by corporation/ company must be signed with the legal name of the corporation/ company/firm by the 'President', Managing director or by the 'Secretary' or other designation or a person duly authorized

3.8.3 The original copy of the e-tender shall be typed or written in indelible ink and shall be signed by the Bidder or a person duly authorized to bid and bidder to the contract. The letter of authorization shall be submitted along with power-of-attorney. All the pages of the bid shall be initialed by the person or persons signing the e-tender and submitted at the time of signing of agreement/contract.

3.8.4 The bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder in which case such corrections shall be initialed by the person or persons signing the e-tender.

(Signature of Bidder with seal)

SECTION: 4: UPLOADING OF e-tender

- 4.1 The bid shall be uploaded online as per guide lines of U. P. Electronics Corporation Ltd. (UPLC), 10, Ashok Marg, Lucknow (UP).
- 4.1.1 The tender must be completed in all technical and commercial respect and should contain requisite certificate, drawings, informative literature etc. as required in the specification.
- 4.1.2 First part (part-A) should contain technical specification, brochure literature etc. all parts of tender documents **except financial bid** which should be uploaded as per e-procurement mode in due date and time. Scanned copy of Requisite tender fees and earnest money in the form of Bank Guarantee should be enclosed. Duly filled technical bid Part-6 must be uploaded.
- 4.1.3 The Bidder should submit price bid in Second part. Second part (part-B) should contain financial bid only should be uploaded as per e-procurement mode in due date and time. Anything in regard of financial condition, payment terms, rebate etc. mentioned in financial bid may make the tender invalid. Therefore, it is in the interest of the Bidder not to write anything extra in part-B except price.
- 4.1.4. The original Bank draft as tender fees and Bank guarantee/FD as EMD must be sent to UPNEDA HQ at the Address mentioned in this document within fifteen days of opening of technical bid failing which the financial bid not be opened.
- 4.2 EXPENSES OF AGREEMENT: A formal agreement for a period of 01 (one) year shall be entered into between UPNEDA and the contractor/ bidder for the proper fulfillment of the contract. The expenses of completing and stamping of the agreement shall be paid by the successful bidder.
- 4.3 DEADLINE FOR SUBMISSION OF BIDS: Bids must be uploaded by the renderer in the date; time and address specified in the e-tender notice/ tender documents.

(Signature of Bidder)
with seal

SECTION 5: e-tender OPENING AND EVALUATION

5.1 OPENING OF e-tender

The procedure of opening of the e-tender shall be as under:

- 5.1.1 First part (part-A) uploaded having e-tender specification and super scribed as “Technical Bid” shall be opened at the time and date mentioned in the e-tender notice by UPNEDA’s representatives in the presence of Bidders, who choose to be present.
- 5.1.2 Second part (Part-B) containing Financial Bid shall be opened (after establishing technical suitability of the offer) as per schedule. Second part of only those Bidders shall be opened whose first part (part-A) shall be found commercially clear and technically suitable.

5.2 Technical Evaluation

The UPNEDA will carry out a detailed evaluation of the bids previously determined to be substantially responsive in order to determine whether the technical aspects are in accordance with the requirements set forth in the bidding documents. In order to reach such a determination, the UPNEDA will examine and compare the technical aspects of the bids on the basis of the information supplied by the bidders, taking into account the following factors:

- ii. Overall completeness and compliance with the technical specifications as stipulated in this bid. The bid that does not meet minimum acceptable standards of completeness, consistency and detail will be rejected for non-responsiveness.
- iii. Achievement of specified performance criteria by the facilities as per scope of work
- iv. Type, quantity and long-term availability warranty and maintenance services
- v. Any other relevant factors, if any, listed in the tender document, or that the UPNEDA deems necessary or prudent to take into consideration.

CLARIFICATION OF e-tender

- 5.3 To assist in the examination, evaluation and comparison of bids the UPNEDA may at its discretion ask the bidder for a clarification of its bid. The request for clarification and the response shall be in writing.
- 5.4 UPNEDA reserves the right to interpret the Bid submitted by the Bidder in accordance with the provisions of this document and make its own judgment regarding the interpretation of the same. In this regard UPNEDA shall have no liability towards any Bidder and no Bidder shall have any recourse to UPNEDA with respect to the selection process. UPNEDA shall evaluate the Bids using the evaluation process specified in this document or as amended, at its sole discretion. UPNEDA’s decision in this regard shall be final and binding on the Bidders.

Signature of Bidder with seal

SECTION-6: Procedure for Finalization of BID

6.0 The Procedure for Finalization of BID would be as follows:

6.1 Finalization of BID:

First the Technical bids shall be opened and evaluated.

Then the price bid of technically qualified bidders shall be opened.

6.2 Finalization of Empanelment:

First the Technical Bids shall be opened and evaluated. Then the price bid of technically qualified parties shall be opened.

6.2.1 The lowest rate (i.e. L-1) received (and in turn approved by the competent authority) would be the “Approved Rate”.

6.2.2 L-1 i.e. lowest rate bidder will be awarded up to 35% of the total bid quantity or as per his categories and capacity given in the bid whichever is lower.

6.2.3 Total Maximum 5 firms will be empanel and approved lowest rate would be offered to 4 lowest bidders (i.e. L-2, L-3,L4 and L5) subject to their rate fall within 20% of L1 and shall be awarded as L1-35% L2-25%; L3-20%; L4-10% and L5-10% of total bid quantity or as per his capacity given in the bid, whichever is lower if they agree to work at L1 approved rate.

6.2.4 In case of bidder is less than 5 the distribution ration shall be:

In case of Distribution between	Ratio in percentage
Two Parties (L1 : L2)	55% : 45%
Three Parties (L1 : L2 : L3)	45% : 35% : 20%
Four Parties (L1 : L2 : L3 : L4)	40% : 30% : 20% : 10%

6.2.7 UPNEDA will assign districts/division to the short-listed contractor/ bidders /suppliers as and when districts are ready to take supplies. Normally one district /division will have only one contractor/ bidder, so that he can open a service station .

6.2.8 NEDA may stagger supplies in a district depending on readiness of each village.

6.2.9 Training of the users and entrepreneurs/ operators will be arranged by the contractor/ bidder.

6.3 If required UPNEDA reserves the right to negotiate with (lowest) L-1 bidder before finalization of the tender.

6.4 UPNEDA reserves the right at the time of awarding the contract to increase or decrease the quantity of goods and locations of supply without any change in price or other terms and conditions.

6.5 UPNEDA reserves the right to accept any bid and to reject any or all bids.

6.6 Notification of awarding the contract:

List of successful Bidder(s) for contract shall be displayed on UPNEDA's website and shall be intimated in writing to the contractor.

6.7 **CONTRACT**

Before execution of the work, a contract agreement for execution of the work shall be signed by the Bidder with UPNEDA within 15 days of communication from UPNEDA. In case agreement is not executed within the stipulated time, earnest money will be forfeited.

Signature of Bidder with seal

PART 3 : GENERAL CONDITIONS OF CONTRACT

1.0 In the deed of contract unless the context otherwise requires:-

DEFINITIONS :

- 1.2. “UPNEDA’ shall mean The Director of UPNEDA or his representative and shall also include its successors in interest and assignees. The “Contractor” shall mean (successful bidder) i.e. the person whose e-tender has been accepted by UPNEDA and shall include his legal representatives and successors in interest.
- 1.3 The agreement shall be on rate contract basis valid for 12 months. The work shall be completed within 4 months from the date of placement of work order on turnkey basis. However, “UPNEDA” may in case of urgency ask the bidder to complete the work earlier, with the mutual consent of the contractor/ bidder. In case the contractor/ bidder fails to execute the said work within stipulated time (4 months) , “UPNEDA” will be at liberty to get the work executed from existing other approved contractors or through the open market, without calling any tender/ e-tender and without any notice to the contractor/ bidder, at the risk and cost of the contractor/ bidder. Any additional cost incurred by “UPNEDA” shall be recovered from the contractor/ bidder. If the cost of executing the work as aforesaid shall exceed the balance due to the contractor/ bidder, and the contractor/ bidder fails to make good the additional cost, “UPNEDA” may recover it from the contractor/ bidders’ pending claims against any work in “UPNEDA” or in any lawful manner.
- 1.4 That on the request of the contractor/ bidder and also in the interest of the organization the “UPNEDA” is authorized to extend the validity of the agreement, subject to that the request of the contractor/ bidder is received before the expiry of the agreement period, or any extended period granted to the contractor/ bidder. Maximum period of extension shall be 2 months on the same terms and conditions as contained in this agreement.
- 1.5 The agreement shall be deemed to be extended till the date of completion of last work order subject to the completion period as provided in the clause 1.3.
- 1.6 In the interest of the work and the programme, agreement executed between the contractor/ bidder and the “UPNEDA” may be extended to a mutually agreed period, if the need so arises. It shall be sole responsibility of the contractor/ bidder to get verified the quality & quantity of the supplied material at the site of delivery.

2 LIQUIDATED DAMAGES

- 2.1 If the contractor/ bidder fails to perform the services within the time periods specified in the contract (In case of delay for any reason other than due to Force Majeure conditions or any extension thereof granted to him by UPNEDA) the “UPNEDA” shall without prejudice to its other remedies under the contract deduct from the contract price (on full cost of each systems) as liquidated damage, a sum equivalent to 1.0% of the price of the unperformed work (Here the unformed work means no of system not completed) for each week (For the purposes as calculation of delay, part of week shall be treated as week) of delay until actual performance up to a maximum deduction of 10% of the delayed services and GST as applicable. Once the maximum is reached, the “UPNEDA” may consider termination of the contract. In the case of violation of contract, UPNEDA may confiscate pending payments/ dues of the contractor/ bidder assigning specific reasons and shall also have the power to debar/ blacklist the contractor/ bidder in similar circumstances. UPNEDA may also invoke performance /security bank guarantee of 10% together with any other tax levied by the State and Central Government.

- 2.2 The contractor/ bidder 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. “UPNEDA” shall have no liability in this regard.
- 3 FORCE MAJEURE
- 4.1 Notwithstanding the provisions of clauses contained in this deed; the contractor/ bidder 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/ bidder and not involving the contractor/ bidder's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of Government either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and fright embargoes
- 4.3 However, If a force majeure situation arises, the contractor/ bidder shall immediately notify the “UPNEDA” in writing. The decision of the competent authority of UPNEDA in above conditions shall be final.
- 5 The High court of Judicature at Allahabad and Courts subordinate thereto, at Lucknow, shall alone have jurisdictions to the exclusion of all other courts.
- 6 The contractor/ bidder shall not, without the consent in writing of “UPNEDA”, transfer, assign or sublet the work under the contract or any substantial part thereof to any other party
- 7 “UPNEDA” shall have at all reasonable time access to the works being carried out by the contractor/ bidder under the contract. All the work shall be carried out by the contractor/ bidder to the satisfaction of “UPNEDA”.
- 8 If any question, dispute or difference what so ever shall arises between “UPNEDA” and the contractor/ bidder, in the connection with the 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 difference and the same shall be referred to the sole arbitration of the Additional Chief Secretary /Principal Secretary/Secretary of the Uttar Pradesh or a person nominated by him not below the rank of Secretary. This reference shall be governed by the Indian Arbitration and Conciliation Act 1996, and the rules made there under. The award in such arbitration shall be final and binding on both the parties. Work under the agreement shall be continuing during the arbitration proceedings unless the “UPNEDA” or the arbitrator directs otherwise.
- 9 “UPNEDA” may at any time by notice in writing to the contractor/ bidder either stops the work all together or reduce or cut it down. If the work is stopped all together, the contractor/ bidder will only be paid for work done and expenses distinctly incurred by him as on preparation or the execution of the work up to the date on which such notice is received by him. Such expenses shall be assessed by “UPNEDA”, whose decision shall be final and binding on the contractor/ bidder. If the work is cut down the contractor/ bidder will not be paid any compensation what so ever for the loss or profit which he might have made if he had been allowed to complete all the work included in the contract.

10 INSPECTION AND TESTS

- 10.1 The following inspection procedures and tests are required by the “UPNEDA” in the presence of “UPNEDA’s representative if so desired by “UPNEDA”.
- 10.2 The “UPNEDA” or its representative shall have the right to inspect and / or to test the goods to confirm their conformity to the contract. The special conditions of contract and/ or the Technical specifications shall specify what inspections and test the “UPNEDA” required.
- 10.3 INSPECTION AT WORKS.
- 10.3.1 The “UPNEDA”, his duly authorized representative shall have at all reasonable times access to the contractor/ bidders premises or works and shall have the power at all reasonable time to inspect and examine the materials and workmanship of the works during its manufacture.
- 10.3.2 The contractor/ bidder shall give the “UPNEDA” , 15 day's written notice of any material being ready for testing. It shall be mandatory that such notice should reach “UPNEDA” within 45 days of placement of work order. Such tests shall be on the contractor/ bidder's accounts/ expenses except for the expenses of the inspector. “UPNEDA” reserves the full rights, to waive off inspection of material if required.
- 10.3.3 The contractor/ bidder is required to get the entire lot of the ordered material or more (considering the future order if any) inspected at one time, before the supply of the materials. In case the contractor/ bidder fails to get the entire lot inspected at one time, the total expenses of the further inspection will be borne by the supplier/contractor/ bidder.
- 10.3.4 UPNEDA will bear the inspector cost at only one manufacturing plant for one time only. If a component is produced in more than one location, then the cost of positioning the inspection in the second and subsequent plants would be borne by the successful Bidder at their cost.
- 10.3.5 The inspection by “UPNEDA” and issue of dispatch instruction there of shall in no way limit the liabilities and responsibilities of the contractor/ bidder in respect of the agreed quality assurance programme forming a part of the contract.

11. WARRANTY

- 11.1 The contractor/ 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. Nothing in clause 10 above shall in any way release the contractor/ bidder from any guarantee or other obligations under this contract.
- 11.2 Performance of Equipment: In addition to the warranty as already provided, the contractor/ bidder shall guarantee satisfactory performance of the equipment and shall be responsible for the period or up to the date specified in clause 11.3 hereof after the equipment has been accepted by the “UPNEDA” 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 the “UPNEDA”
- 11.3 The Warranty period shall be 25 Years for the PV modules and 5 years for complete system including battery from the date of commissioning and handing over of the system. The contractor/ bidder shall rectify defects developed in the system within Warranty period promptly. In case the defects are not rectified within a week of the receipt of the complaint by the contractor/ bidder

“UPNEDA” shall have full liberty to restore the system in working condition. The expenditure so incurred by “UPNEDA” shall be deducted from the contractor/ bidder pending claims, security/performance guarantee deposit or in other law full manner.

- 11.4 Since the maintenance of the system may also be taken up by the contractor/ bidder after expiry of 05 years of warranty period if the end user/”UPNEDA” so desires, the contractor/ bidder shall take up annual maintenance of the installed system.
12. Notice statement and other communication send by “UPNEDA” through registered post or telegram or fax or Email to the contractor/ bidder at his specified addresses shall be deemed to have been delivered to the contractor/ bidder.
13. Any work which is not covered under this contract but is essentially required for the completion of job (To the satisfaction of UPNEDA) shall be carried out by the contractor as extra item or which payment shall be made separately at the rates decided by UPNEDA
14. The work shall be carried out by the contractor/ bidder as per design and drawings approved by “UPNEDA”, wherever, necessary, the contractor/ bidder shall submit relevant designs and drawings for approval of “UPNEDA”, well in advance. Work carried out without “UPNEDA”'s approval shall not be accepted and the “UPNEDA” shall have right to get it removed and to recover the cost so incurred from the contractor/ bidder.
15. The contractor/ bidder shall provide one copy with each system instruction manual/ routine maintenance manual both in English and Hindi language.

The following minimum details must be provided with manual:

- (a) About the complete photovoltaic system including PV modules, battery and electronics
 - (b) Do's and Don'ts
 - (c) Clear instructions on regular maintenance and troubleshooting of the system
 - (d) Name & address of the contact person in case of non-functioning of the system.
 - (e) About LED lighting
16. The contractor/ bidder shall not display the photographs of the work and not take advantage through publicity of the work without written permission of “UPNEDA”. The contractor shall distribute and fix a calendar at site, showing instructions, Do's, Don'ts with each unit. (The format of calendar should be approved by UPNEDA).
 17. **PATENT RIGHT AND ROYALTIES.**

The Contractor/ bidder shall indemnify the “UPNEDA” against all third-party claims of Infringement of patent, royalty's trademark or industrial design rights arising from use to the goods or any part thereof.
 18. **PACKING FORWARDING**
 - 18.1 Contractor/ bidders, 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/ bidder shall be held responsible for all damage due to improper packing.

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

20. DEMURRAGE WARFAGE, ETC

All demurrage, wharf age and other expenses incurred due to delayed clearance of the material or any other reason shall be to the account of the contractor/ bidder.

21. INSURANCE

The goods supplied under the contract shall be fully insured against loss or damage incidental to manufacture or acquisition, transportation, storage during transportation shall be included in the bid price.

21. TRANSPORTATION

The contractor/ bidder is required under the contract to deliver the goods to the site.

22. TERMINATION FOR INSOLVENCY

“UPNEDA” may at any time terminate the contract by giving written notice to the contractor/ bidder without compensation to the contractor/ bidder, 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 “UPNEDA”.

23. TERMINATION FOR CONVENIENCE

The “UPNEDA”, may by written notice sent to the contractor/ bidder, terminate the contract, in whole or in part at any time for its convenience. The notice of termination shall specify that termination is for the purchaser’s convenience in the interest of “UPNEDA”.

24. APPLICABLE LAW

The contractor/ bidder shall be interpreted in accordance with the laws of the purchaser’s country i.e. India. The station of “UPNEDA” Headquarter 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 by 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 DUTIES AND INSURANCE:

The price quoted should include all taxes, duties and Insurance expenditure etc. what so ever, if any. Supplier/ contractor/ bidder shall be entirely responsible for all taxes, duties, license fees, etc. All taxes payable as per Government income tax & GST or any other tax State or Central Government norms will be payable by the contractor/ bidder what so ever. If any new tax/duty is levied during the contract period the same will be borne by the contractor exclusively. CGST&SGST and TDS will be deducted from the payment of the contractor/ bidder as per the prevalent laws and rules of Government of India and Government of the Uttar Pradesh in this regard.

27. OTHERS:

- 27.1 I-V curve of each module technical details such as Voc, Isc, , FF, cell efficiency and Pmax etc shall be supplied along-with each consignment and a soft copy should be sent to “UPNEDA” HQ for records.
- 27.2. The Contractor/ bidder in consultation with concerned Project Officer of “UPNEDA” will conduct training programme for users, focusing on main features, operation and maintenance of the systems.
- 27.3 The Contractor/ bidder shall continue to provide spare parts after the expiry of warranty period at the users cost. If the contractor/ bidder fails to continue to supply spare parts and services to users “UPNEDA” shall take appropriate action against the Contractor/ bidder.
- 27.4 After successful supply/commissioning of the system and training, the system will be handed over to the Beneficiaries /person designated by the UPNEDA.
- 27.5 It shall be the sole responsibility of the contractor/ bidder to get verified the quality & quantity of the supplied material at the site of delivery.
- 27.5 The UPNEDA has the right to pick any sample in working condition from field, for random testing of any of the component of the system or complete system from MNRE authorized test center or own. The expenditure on the tests (for maximum 2 systems) will be borne by the supplier. If more system(s) are taken for testing, the cost of testing shall be borne by the UPNEDA.

28. PAYMENTS:

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

- i) 75% of the ordered value after the supply installation and commissioning of the system along with the Joint Commissioning & handing over certificate, indicating bill of material and successful commissioning duly countersigned by the designated officer and end user. As per format -1
 - ii. 10% of the ordered value after submission of reports of successful operation and satisfactory performance of system for 1 (one) month of systems as per format -2
 - iii) The balance 15% payment shall be kept as security deposit. Out of this security deposit 10% (10% of 15%) will be utilised by UPNEDA for IVRS services to follow-up the 5 years comprehensive warrant services of firm in order to provide timely maintenance of systems. The firm will be paid @ 2.7% (3%-10% of 3%) at the end of each year for 5 years, on satisfactory performance and timely submission of quarterly performance report as per format -3 (Verified by IVRS)
29. In case of any ambiguity in interpretation of any of the provisions of the tender, the decision of “UPNEDA” shall be final.

Note: The payments shall only be processed after uploading of the work details, bill details and photos etc on the UPNEDA, RESIMS website.

30. Mode of Execution

The entire work shall be executed on turnkey basis. Any minor item(s) not included in the schedule but required for completion of the work shall have to be carried out/supplied without any extra cost. Such works, not listed in the schedule of works but elaborately described to perform or to facilitate particular operation(s) required for completion of the project shall deemed to have been included in the scope of this work and the Contractor shall supply, install the same without any extra cost.

Price Escalation

31. The rate(s) quoted against the work shall remain firm during the entire Contract period.

Labor Engagement

32. The Contractor shall be responsible to provide all wages and allied benefits to its labours engaged for execution of the project work and also to carry out Operation & Maintenance service. The Contractor shall remain liable to the authorities concerned for compliance of the respective existing rules and regulations of the government for this purpose and shall remain liable for any contravention thereof.

(Signature of Bidder with seal

Part -4

SCOPE OF WORK AND TECHNICAL SPECIFICATIONS

SCOPE OF WORK

The scope of work includes design, supply, installation, commissioning of Solar Street Lighting Systems (LED based) including 05 years comprehensive warranty maintenance in various villages/ hamlets, institutions, individuals etc. of various districts of Uttar Pradesh as directed by UPNEDA at sites identified by UPNEDA as per the terms and conditions in this document and following specifications.

The scope of work also include **mandatory opening of Service Center in their name in concerned district through which servicing and maintenance should be provided as stipulated quarterly in a year and within 72 hours time as per Part 5 of this document.**

GENERAL TECHNICAL SPECIFICATION:

A Solar Street Light (LED based) consist of white LED luminary of maximum 12 Watt (LED + Driver) as per configuration along with solar PV modules and Li-Fe-PO4 battery of given capacity, necessary control electronics-inter connecting wires / cables, module mounting structures etc. to operate the load for dusk to dawn. The broad performance specifications of a White Light Emitting Diode (W-LED) light source based solar street lighting system are given below.

BROAD PERFORMANCE PARAMETERS

PV Module	Only indigenous modules shall be used in the project. SPV module of 36 cells 75 Wp at 16.4 ± 0.2 Volt if MPPT is not used with positive tolerance. Module Voc should be minimum of 21 V.
Battery	Lithium Ferro Phosphate (LifePO4/ LFP) 12.8 Volt, 30 Ah, (384 Watt hour) at STC
Light Source	<ul style="list-style-type: none">White Light Emitting Diode (W-LED) 12 Watt(LED +Driver)Using LEDs which emits ultraviolet light will not be permitted
Light Out put	White colour (colour temperature 5500-6500 K). Lumen efficacy of LED- min 135 lumens/Watt @350 mA. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher light output will be preferred.
Mounting of light, Controller and Battery pack	Approx., 4.5 meter above the ground mounted at pole below the mounting structure.
Average duty cycle	Dusk to dawn

MINIMUM TECHNICAL REQUIREMENTS / STANDARDS

1. DUTY CYCLE

- The LED solar street lighting system should be designed to operate for dusk to dawn

2. SPV MODULES:

- Only indigenous modules of IEC Tested shall only be used in the project.** Crystalline high power/efficiency 36 cells should be used in the solar photovoltaic module. The power output of the module shall not be less than 75 Wp at 16.4 ± 0.2 Volt at STC, if MPPT is not used with positive tolerance. The module efficiency should not be less than 14%.

- ii. The open circuit voltage of the PV modules under STC should be at least 21.0 Volts.
- iii. 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.
- iv. 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.
- v. The offered module shall be in accordance with the requirements of MNRE standards and tested as per:
 - a) Latest edition of IEC 61215 / IS 14286 for Crystalline Silicon Terrestrial Photovoltaic (PV module - Design Qualification and Type Approval
 - b) Latest edition of IEC 61730 Part 1- requirements for construction & Part 2 – requirements for testing, for safety qualification.
- vi. 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.
- vi. IDENTIFICATION AND TRACEABILITY
Each PV module must use a identification tag which must contain the following information:
 - (i) Name of the manufacturer with logo
 - (ii) Month and year of the manufacture
 - (iii) Unique Serial No
 - (iv) Model No of the module with voltage and rated wattage
 - (viii) Made in India **The test report should be from MNRE/NABL/IECQ authorized test center issued after 1st April 2017. The bidder shall submit appropriate certificates**

2. **Lithium-Ferro-Phosphate (Li-Fe-Po4) Battery :**

The minimum cell capacity should be 3.2 volt, 5AH.

Batteries – MNRE /IEC /BIS accredited test labs, report for relevant IEC

IS 16270 /IS 16046 (Part 2 and 3): 2018/IEC 62133-2017, from a recognized lab (as applicable) with latest BIS certificate of 30AH battery pack and cell. (Certificate Enclosed).

1. Capacity of the battery shall not be less than 12.8 V (nominal), 30 Ah at STC, 384-Watt Hour.
2. The battery cycle life should be 2000 cycle at 95% discharge.
3. BMS (Battery Management System) should be part of battery pack and battery pack enclosure should be as per standard. The battery pack should be integrated with the system in such way that it is theft proof and not removable from system. It should be installed with combination of module structure/luminaire. The height of battery pack will be approximate, 4.5 meters above the ground. The system must withstand wind velocity of 150 km/hr. The battery pack should be capable of high rate of heat dissipations. The battery box should be acid proof and corrosion resistant, hot dip galvanized metallic box (IP 65) with anti-theft locking arrangement.

4. The battery should operate between temperature range of 0 degree C to 55 degree C
The other feature of the battery should be:

Sr. No.	Description	Specifications
1	Battery Configuration	12.8V- 30AH; Li fe PO4
2	Working Temperature Range (both for charging & discharging)	0-60 deg C
3	Storage Temperature Range	@ 0-25 Deg- 6 months
4	Cycle Life (Full charge to full discharge @ 25 deg C before capacity of battery falls below 75%)	more than 2000 Cycles
5	Battery Warranty	5 years
6	Capacity of Individual Cells (Minimum)	3.2V cell of 5 AH
7	Type of Cell	Prismatic/Cylindrical
8	Nominal Capacity	12.8 volt - 30AH
9	Nominal Voltage	12.8V
10	Operating Voltage Range	11.2 V - 14.6V
11	Total Energy	384 WHr
12	Rated Charging current	20 Amps
13	Maximum Charging current	20 Amps
14	Maximum Discharging Current	10 Amps
15	Discharge Cut off Voltage	>11.2V
16	Over Charge Cut off Voltage	15.5V+/- 0.2V
17	Charging Time	Around 5 - 5.5 Hours

3. ELECTRONICS/CHARGE CONTROLLER :

- i. MPPT Charge controller to maximize energy drawn from the solar PV array. The MPPT Charger should be microcontroller based. The charge controller should have:

Solar Charge Controller

Sr No.	Description	Specification
1	Charge controller Type	MPPT type -Maximum Power point Tracking EN 50530:Performance evaluation of maximum power point tracking (MPPT)
2	Charge controller Rating @ Related Voltage	5 Amps
3	Module Rating	75 Wp @ 16.4 volt \pm 0.2 v, if MPPT is not used with positive tolerance
		36 Cell configuration
		Voc- > 21 Volts
		Vmp-16.4 volt \pm 0.2 at STC without MPPT

4	Load current Max @rated Voltage	2 Amps
5	Ideal current consumption (self-consumption)	< 30 mAmps
6	Maximum Efficiency	>90%
7	Battery Voltage Setting	Charging 14.4v ± 0.2 Volts
		Battery Low Volt disconnect >10.5 Volts
		Load Reconnects-12.8V± 0.2Volts
		Low Battery Cutt of - 11.2 V± 2%
8	LED indication with LCD display	GREEN LED for charging under Process and red for battery low
9	Protection	Over Charge / Deep Discharge
		Solar & Battery reverse protection
		Reverse current from battery at night
10	Central Monitoring System	The charge controller should be provided with a communication node with necessary cables and connectors to interface with the charge controller and a monitoring system enable it to monitor the location and status of system on line with app.

- Electronics should operate at 12.8V and the efficiency of DC-DC converter should be at least 90 %.
- Full Protection against polarity reversal of PV array and battery, Over Voltage, Short Circuit, Deep Discharge, Input Surge Voltage, open circuit, accidental short circuit and night time leakage of current from battery to Module.

The Lithium iron phosphate battery needs a very good “Battery Management System” BMS to ensure the proper charging and discharging of each cell of battery with proper protection of battery when temperature is reaching beyond battery permissible limits. This battery also needs constant current and constants voltage charging methodology related to upper voltage limit of battery. BMS primary focus are therefore on the safety and the protection of the battery ,to Minimize the risk of sudden failure and to maximize the life cycle of the battery .

4. Central Monitoring system

A Central solar Street Lighting monitoring system consisting of a Software as a Service (SaaS) platform, a set of street lighting applications for connected Intelligent off-grid solar lighting system. The Software as a Service (SaaS) shall provide all licenses, computing, storage, security, web application including a map based, graphical user interface. The user interface shall remotely connect to the connected intelligent off-grid solar lighting system in order to monitor and receive operational data.

The connected intelligent off-grid solar lighting system shall connect automatically and directly to the public mobile network via GSM 2G/3G/4G network and shall not require any proprietary network, gateways or associated infrastructure. The communication node of the solar lighting system should be communicating to the server through an Industrial grade public M2M SIM with minimum data requirement of 150 MB per month. Contractor shall purchase the SIM cards and pay the monthly rental till 5 years of operation of systems. The communication node should be able to operate upto minimum of -55 dBm GSM signal strength .The web-application should be able to monitor all the off-grid solar street lighting systems deployed and no restriction on how the devices are deployed into the field (either in terms of quantities or locations).

The connected intelligent solar lighting system shall use an on-board GPS connection to identify its individual geo-location, and data shall be automatically be uploaded to the back-end server and the device graphically displayed in the user interface without human intervention.

Asset id's for solar street lighting system during installation and commissioning should be collected by a smart tool such as an mobile application through which accumulated asset id's can be uploaded in the server without any manual intervention. This unique asset ids should be referred for tracking assets during implementation and maintenance period.

The communication should fully and end to end secured TLS 1.2 based communication. Nodes should be specially designed to have one to one dedicated secured communication.

The communication nodes shall connect to the charge controller through suitable communication interface such as RS485 or similar.

The communication nodes should automatically sense and monitor various parameters of the MPPT charge controller such as PV voltage and current, Battery voltage and current, Load voltage and current without any need of configuration beforehand. In case of any fault / deviation from the threshold values set, the communication nodes should send appropriate alerts on the web application.

Complete monitoring data should be downloadable in excel format from the GUI with timestamps of operational data, events and alerts.

Consolidated alerts shall be reported through email / WhatsApp on daily basis to at least 5 pre-defined users. The dashboard or GUI should have user-friendly features such as tabular and graphical representation of data in a single window for user defined group of lights. The dashboard must be able to provide at least 5 level hierarchical structure for grouping of assets.

Authorized users can securely log into the site at anytime from anywhere (with the agreed access rights) and monitor all parts of the system according to their pre-configured user level.

The system should report voltage, current and power for PV panel, Battery and Load. Also support the following faults delivered by fault notifications:

- - Battery Over voltage
- - Battery under voltage
- - Load overvoltage
- - PV over voltage

The communication node compatible with charge controller including software dashboard has to be supplied of same make as per L1 bidder to ensure compatibility. Functional live demonstration needs to be done to prove working of the CMS by bidder before opening of financial bid if desired by the tender committee . In this case the lowest bidder should provide the devices to others eligible bidders at reasonable price. The overall cost of the communication system including software should be maximum 20% (including network charges for five years) in the lowest price received.

LIGHT SOURCE:

- i. The light source will be of white LED type the color temperature of white LEDs used in the system should be in the range of 5500-degree K – 6500-degree K. Use of LEDs which emits ultraviolet light

- ii. will not be permitted. The temperature of heat sink should be not increase more than 20 degree centigrade above ambient temperature during the dusk to dawn operation.
 - iii. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher light output will be preferred. The light output from the white LED light source should be almost constant.
 - iv. **The lamps, DC-DC driver and battery management system (BMS) should be housed in aluminum die-casted casing suitable for outdoor use and shall comply with IP 65.**
 - v. The temperature of heat sink should not increase more than 30 degree C above ambient temperature even after 48 hrs of continuous operation. This condition should be complied for the dusk to dawn operation of the lamps while battery operating at any voltage between the load disconnect and charge regulation set point.
 - vi. High power LED of minimum 1 (one) watt each capacity capable to withstand maximum 1 amp driving current having optical lens angle greater than 120 degree shall be used.
 - vii. LED Chip should be compliance to IES: LM-80 (APPROVED Method for Measuring Lumen Maintenance of LED Light Sources and LED lumen depreciation time to L70). Test report for same should be submitted.
 - viii. The LED efficacy should be >135 lumen per watt and the lumens output of luminaire should be ≥ 1500 lumen.
 - ix. The lumen depreciation of LED shall not be more than 30% even after 50,000 burning hours for this explanatory report should be provided along with LM80 report.
 - x. Power consumption of the LED Luminaire / Lighting unit shall not be more than 12W (including LED and Driver power loss).
 - viii. The luminaire should have Suitable UV Stabilized polycarbonate Diffuser.
 - ix. Luminaries, reflectors and LED's should be engineered in such a way to give the specified lumens output distributed uniformly as per point xv.
 - xi. The luminaire should be designed, manufactured and tested as per LM-79-08 or latest standard by the MNRE/NABAL accredited lab for such testing.
 - xii. xi. The luminaire should be tested as per LM-79 test methodology or another instrumental/BIS Standard. The test report should be from MNRE/ NABL accredited lab.
 - xii. The PCB used in luminaries should replaceable card type.
 - xiii. The Luminaire manufacture should have in house test facilities for testing of the luminaire along with its photometry.
- xv. Lux for single light level:

Minimum 24 Lux when measured at the periphery of 4-meter diameter from a height of 4 meter. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher light output will be preferred.

For Multiple Light levels:

The luminaire should have two levels of light to take care of different lighting needs during the night. Minimum 24 Lux when measured at the periphery of 4meter diameter from a height of 4 meter (at'' High'' illumination level). The illumination Should be uniform without dark bands or abrupt variations. Minimum 12 Lux at lower illumination level .(Higher light output will be preferred) . The following design calculation based on photometry data should be furnished:

Lux level available from the light source mounted at a height of 4 meter, Across the road width of 4 meter and along the road for 7-meter distance both side from pole with interval of 1 meter shall be submitted. The luminaries must have street light distribution polar curve with more than 36 degree of spread and more than 44 degree of throw. It must have a bat wing distribution pattern & must provide uniform lighting in road application as per IS 1944. The bidder should submit the polar curve of luminaries along with technical bid.

Uniformity of light (min / avg) –0.45
Uniformity of light (min / max) –0.25

The luminaire should be teste for all type tests as per IS 10322 Part 5 Sect 3 or IEC 60598-2-3 standards.The luminaire shall be tested for electrical, Photometry and Colour parameter as per IES LM-79:2008 or IS: 16106:2012 for following performance parameters like:

- 1) Total luminous flux: ≥ 1500 lm.
 - 2) Luminous efficacy (efficacy (i.e. system efficacy): ≥ 125 lm/W.
 - 3) Colour Temperature: Between 5500 K to 6500k.
 - 4) CRI ≥ 70
 - 5) Luminous intensity distribution should follow the batwing patterns in polar curves.
- 7) The luminaire should be tested for all type tests as per IS 10322 Part 5 Sect 3 or IEC 60598-2-3 standards.

xvi. Other Parameters :

- LED DC current regulation – better than 3 %
 - Input – 12.8 V DC
 - Driver Type- DC-DC (as per IEC 62384)
 - Lighting quality- Free from glare, flickering and UV
 - Ambient temp 0 to– upto 55 deg
 - Total electronics efficiency > =90 %
- xvii. The connecting wires used inside the luminaries, shall be low smoke halogen free, fire retardant e-beam cable.
- xviii. Auto resettable reverse polarity protection shall be provided.
- xiv. The make, model number, country of origin and technical characteristics of white LEDs used in the lighting system must be furnished.
- xvi. **In order make the system performance better and longer life a suitable micro controller dimmer must be provided to dim the light. First 04 Hours full light (Min. 24 Lux), rest of the time at lower light (50%, Min. 12 Lux) level.**
- xvii. Electronics
- Electronics should operate at 12.8V and the efficiency of DC-DC converter should be > 90%.
 - Fuses should be provided to protect against short circuit conditions.
 - A blocking diode should be provided as part of the electronics, to prevent reverse flow of current through the PV module, in case such a diode is not provided with the PV module.
 - Full protection against open circuit, accidental short circuit and reverse polarity should be provided.

- Charge controller shall have automatic dusk-dawn circuit based on spv module as sensor for switching on/off the street light without manual intervention
- The self-consumption of the charge controller shall not be more than 20 mA at rated voltage and rated current.
- Adequate protection shall also be incorporated under no-load conditions (i.e. when the system is ON & the load (LED Lamp is removed)
- The system should be provided with 2 LED indicators: a green light to indicate charging in progress and a red LED to indicate deep discharge condition of the battery. The green LED should glow only when the battery is actually being charged.
- All capacitors shall be rated for max. temp of 105° C.
- Resistances shall preferably be made of metal film of adequate rating.
- Devices shall have adequate thermal margin at amb. temp. of 55° C
- Fiber glass epoxy of grade FR 4 or superior shall be used for PCB boards.

Technical Requirement/Standards

Item / System	Applicable BIS /Equivalent IEC Standard Or MNRE Specifications	
	Standard Description	Standard Number
Solar PV Systems	Crystalline Silicon Terrestrial PV Modules	IEC 61215 / IS14286 Test Certificates/ Reports from MNRE/IECQ / NABL accredited laboratory for relevant IEC / equivalent BIS standard.
Charge Controller/MPPT and Protections		IEC 62093 Equivalent BIS Std.
Storage Batteries	Secondary Cells and Batteries for Solar Photovoltaic Application n General- Requirement and Methods of test	Batteries – Li fe Po4 IS 16270 /IS 16046 (Part 2 and 3): 2018/IEC 62133-2017, from a recognized lab (as applicable) with latest BIS certificate of 30AH battery pack and cell.
Cables	General Test and Measuring Method PVC insulated cables for working voltage up to and including 1100 V UV resistant for outdoor installation	IEC 60189 IS 694/ IS 1554IS/IEC 69947
LED	Lamps (LED) Luminary	LM -80-08 LM 79-08 General Lighting – LEDs and LED modules- Terms and Definitions Self-

	IS 16101, IS 16102, IS 16103 IS 16107	Ballasted LED Lamps for General Lighting Services LED Modules for General Lighting Luminaries Performance
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6. MECHANICAL HARDWARE

- (i) A metallic frame structure (hot dip galvanized with 35*35*5 mm angle) to be fixed on the pole to hold the SPV module(s). The frame structure should be fixed at 30 degree from horizontal facing true south.
- (ii) The pole should be hot dip galvanized pipe as per IS 1161 & IS 4736 i.e. Class B. with 76 mm outer diameter of 6-meter length. The pole should have the provision to hold the weather proof lamp housing individually as per case. SPV panel shall be mounted on pole. The mounting structure shall be fixed in the center of GI tubular pole made flat at fixing end, square angle adjusting plate of 115 mm size 5 mm thick shall be provided. So that SPV panel can be fixed at inclination of 30 degree from horizontal.
 - (a) The metallic arm for holding the light assembly should be set at a suitable angle to maximize uniform illumination of desired level over the specified area (4-meter-wide road). The arm length of luminary holder from pole should be 0.6 meter for its easy approachability for repairing and replacement.
 - (b) Two 10 mm steal bar of 300 mm length should be inserted at the interval of 25 mm from bottom of the pole

iii) ELECTRIC CABLE

The electric cable used shall be twin core PVC insulated water and UV resistance copper cable of minimum size 1.5 mm. Cable shall meet IS 1554 / 694 Part 1:1988 & shall be of 650 V/ 1.1 kV

7. OTHER FEATURES

A toll free number (i.e. 1800 180 0005) of IVRS of UPNEDA and 14 digit UID number of minimum thickness 5mm and height of letter should be at least 25mm (issued/provided by UPNEDA) is to be embossed / punch/ nut-bolted strip on pole between 1-1.5 meter above from ground level by contractor/ bidder, which in case of non-working/ operational problems etc of system will be dialed by the beneficiary etc to lodge a complaint in respect of system problems. The suitable sign board of 500 mm x 300 mm size powder coated MS Sheet assigned by UPNEDA should be installed on pole under different schemes as per the requirement. The IVRS will divert the complaint to Contractor/ bidder through e-mail, SMS etc. The contractor/ bidder will have to rectify the same to make/ restore the system to working position within 72 hours in the warrantee period of 5 years, failing which the system may be get rectified on contractor/ bidder cost and the cost will be recovered by contractor/ bidders pending claims what so ever and appropriate action as per noncompliance etc of agreement will be considered / taken.

8. INSTALLATION OF SYSTEM:

The system should be properly installed at site. The SPV module mounting structure along with pole should be properly grouted depending upon the location and requirement of the site. The grouting should be such that it must withstand the maximum wind speed /storm. The pole should be grouted with CC mixture of 1:2:4 of dia 300 mm having depth of 1000 mm and 200 mm above ground level with 200 mm dia. Adequate space should be provided behind the PV module/array for allowing unobstructed air flow for passive cooling. Cables of appropriate size should be used to keep electrical

losses to a bare minimum. All wiring should be in a proper conduit or capping case. Wire should not be hanging loose. Any minor items which are not specifically included in the scope of supply but required for proper installation and efficient operation of the SPV systems, is to be provided by the manufacturer as per standards.

9. AUTHORIZED TESTING LABORATORIES/ CENTERS

1. Test certificates of complete solar street lighting system as per specifications laid down in this tender along with inbuilt remote monitoring device (communication node) should be from MNRE/NABL Accredited test Lab should be submitted. The test lab must have facilities for SPV module performance , Lithium Battery capacity, electronics and lumens testing. The test lab should declare the list of equipment/instruments on which test has been conducted.

2. The component testing should be from MNRE/NABL Accredited Lab for particular component.

10. WARRANTY

The mechanical structures, electrical works including charge controllers/ maximum power point tracker units/DC circuit drivers/Luminaire, storage batteries, etc. and overall workmanship of the SPV lighting systems must be warranted against any manufacturing/ design/ installation defects for a minimum period of 5 years. The SPV module should be warranted for 25 years.

11. TRACEABILITY OF THE PRODUCT TO BE SUPPLIED

In order to prevent the misuse of the product such as unauthorized sale or diversion to the open market, the following incorporation shall be made in the product.

- a) Engraving (or) Screen printing of UPNEDA at a suitable place on the main components viz., SPV Panel, LED Lighting Units to be used in the installation of the solar street lighting systems.
- b) The system unique ID number as provided by UPNEDA shall be **permanently embossed / punch on a metallic strip nut-bolted / riveted to or directly embossed/punch on pole of the system. The UID number painting or marking will not be allowed.**
- c) **sign board** as prescribed by UPNEDA should be fixed on pole.

PART -5

WARRANTY AND MAINTENANCE

- The PV modules will be warranted for a minimum period of 25 years from the date of supply. (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 components, luminary including battery and overall workmanship of the Solar power pack Systems must be warranted for a minimum of 5 years from the date of commissioning and handing over of the system.
- The Comprehensive Maintenance (within warranty period) shall be executed by the firm themselves or through the authorized dealer/ service center of the firm in the concerned district.
UPNEDA is imparting training to ITI/Diploma holders under “Suryamitra Skill Development Program”. The successful contractor(s) should engage them in their service centers to provide necessary repairs and maintenance service including installation of the systems during the time of execution
- Necessary maintenance spares for five years trouble free operation shall also be supplied at service centres.
- The contractor/ bidder shall be responsible to replace free of cost (including transportation and insurance expenses) to the purchaser whole or any part of supply which under normal and proper use become dysfunctional within one month of issue of any such complaint by the purchaser.
- The service personnel of the Successful Bidder will make routine quarterly maintenance visits. The maintenance shall include thorough testing & replacement of any damaged parts Apart from this any complaint registered/ service calls received / faults notified in the report generated by the IVRS should be attended to and the system should be repaired/ restored/ replaced within 72 hours.
- The deputed personnel shall be in a position to check and test all the components regularly and upload in on UPNEDA System Dash-Board.
- Normal and preventive maintenance of the solar systems such as cleaning of module surface, topping up of batteries, tightening of all electrical connections, cleaning & greasing of battery terminals, also the duties of the deputed personnel during quarterly maintenance visits.
- During operation and maintenance period of the systems, if there is any loss or damage of any component due to miss management/miss handling or due to any other reasons pertaining to the deputed personnel, what-so-ever, the supplier shall be responsible for immediate replacement/rectification. The damaged component may be repaired or replaced by new component.

(Signature of Bidder with seal)

TECHNICAL BID

Part-6.2

Minimum Technical Parameters guaranteed		
	Description	To be furnished by the Tenderer
A.	Solar PV Module	
1	Type of cell material	
2	Make	
3	Max power at STC Pmax (W)	
4	Max power voltage Vmp(V)	
5	Max power current Imp(A)	
6	Open circuit voltage Voc (V)	
7	Short circuit current Isc (A)	
8	Module Efficiency	
9	No of cells per module	
10	bypass diodes	
11	Fill factor	
B.	Battery	
1	Make of battery pack	
2	Make of cell	
3	Capacity of Battery	
4	Capacity of each cell of battery	
5	No of cell	
6	Design Cycle Life of battery	
C	Electronics	
1	Make	
2	Charger Type	
3	Operating voltage	
4	Temperature compensated set points	
5	Details of Indicators provided	
6	Details of Protections provided :	
	i. Battery over charge set value	
	ii. Deep discharge set value	
	iii. Short circuit	
	iv. Open circuit	

	v. Reverse polarity	
	vi. Blocking Diode	
	vii. Others	
D	LED Lighting Unit	
1	Make of Luminaire	
2	Power consumption of LED lighting unit	
3	No of LEDs	
4	Wattage of each LED	
5	Driver Consumption	
6	Make and origin of LED	
7	Lumens output	
8	LED DC Current Regulation	
9	Input Voltage	
10	Beam Angle	
11	CRI	
12	LED Efficacy	
13	Luminaire Efficiency	
14	Other features (IP----)	
15	Average lux at work table.	
16	Uniformity	
17	Emin/Emax	
18	BIS certification	
E	Module Mounting frame	
1	Material used	
2	Whether Protection against corrosion provided	
3	Angle of inclination to horizontal	
F.	Battery housing	
1	Material	
2	Dimension	
3	Whether Protection against corrosion Provide	
4	locking arrangement	
G.	Connecting cables/wire	
1	Materials and size	
2	Details of Switches (Nos.)	
H.	Monitoring System	
1	Make	
2	Type of communication node	
3	Software	
4	Other features	
I.	Any other Details	

NOTE: The make of SPV Module, Battery and Luminary (including charge controller) as tested with complete systems in bidder name will be a part of agreement, hence it is advisable to mention optional make upto maximum three of each component but it should be got tested together.

(Signature of Bidder)
With seal

e-Tender No:

FINANCIAL BID

Name of the Firm: -----

Design, Supply, Installation, Commissioning and 5 years Warranty with Comprehensive Maintenance of Complete Solar Street Lighting (White-LED based) with Li-Fe-PO4 Battery System at identified sites of various districts of Uttar Pradesh as per Technical specifications, Terms and Conditions of the e-tender document.

S.N.	Item	Unit Rate (in Rs.)
1.	Design, Supply, Installation, Commissioning and 5 years Warranty with Comprehensive Maintenance of Complete Solar Street Lighting system (White-LED based) with, PV module-75 watt, Li-Fe-PO4 Battery Pack-12.8 V 30 Ah and 12 watt LED luminaire at identified sites of various districts and various sites of Uttar Pradesh, FOR sites as per Technical specifications, Terms and Conditions of the e-tender document inclusive of all taxes & duties, storage, transportation up to site, GST, insurance etc. what so ever and any other job required to properly execute the complete work, under the light of bid/agreement and its validity.	
Total Amount (In Figures and Words)		

NOTES:

1. Certified that rates quoted above are as per the requirement, specification terms & condition mentioned in the e-tender document.
2. The rates are inclusive of all taxes & duties, GST as per Govt. Rules applicable, storage, transportation up to site, insurance etc., and any other job required to properly execute the complete work.

(Signature of Bidder)
With seal

To be uploaded in Part B.
Other document / condition, terms if enclosed will liable to be rejection of bid.

QUALIFYING REQUIREMENT DOCUMENTS :

S No. (A)	Criteria (B)	Documents to be submitted (C)
1	A Registered Manufacturing Company/Firm/ Corporation in India incorporated under Companies Act, 1956 or Companies Act, 2013/ and further amendment (s), or a registered partnership firm (registered under section 59 of the Partnership Act, 1932) or a limited liability partnership (under the Limited Liability Partnership Act, 2002) of SPV Cells / Modules or Battery for solar application Or PV System Electronics or DC LED Lights/Luminary (the manufactured component must be tested by MNRE authorized lab for Solar lighting systems/ Solar off grid systems) Conforming to relevant National / International Standards.	1. Photocopy of Certificate of Incorporation issued by the competent authority. 2. Test certificate of component either alone or with any SPV systems from MNRE/NABAL accredited lab.
2.	A PV System Integrator Company/Firm/ Corporation in India having experience in installation, commissioning with 5 years comprehensive maintenance services as per clause 1.4	1. Photocopy of Certificate of Incorporation issued by the competent authority. 2. Work order copy and completion certificate
3.	Overall Average Annual Turnover of the Company/Firm/ Corporation in the latest last three financial years (i.e. FY 2017-18, 2018-19 and 2019-20) should be at least 30% of the estimated cost i.e Rs 600.00 lakhs. (This must be the individual Company's turnover and not that of any group of Companies). (A summarized sheet of average turnover certified by registered CA should be compulsorily enclosed along with corresponding balance sheets.) (For year 2019-20, provisional balance sheet shall also be considered).	Duly authorized copy of audited annual report/Balance Sheet for last three years is to be submitted by respondent along with CA certificate for Average turnover, net worth and profitability as per annexure B.
4.	The bidder should have experience of having successfully completed similar works during last 7 years ending last day of August 2020 should be either of the following: (Annexure VII) 5. Three similar completed works costing not less than the amount equal to 40% of the estimated cost. or 6. Two similar completed works costing not less than the amount equal to 50% of the estimated cost. or 7. One similar completed work costing not less than the amount equal to 80% of the estimated cost. (Similar work includes contracts off-grid solar PV system with Battery and Solar LED Lighting systems executed with 5 years of AMC under MNRE/SNAs schemes to central/state PSU and	1. Work order copies; Completion Certificates and AMC certificate from central/state/PSU/ SNAs /organisation responsible implementation of MNRE Schemes. 2. CA Certificate in tabular form comprising of Order No.; Order Date; Client's Name; Description of Project; Supply/Completion Period (with from-/to- dates); Ref. No. & Date of Material Receipt Certificates/ PO/Work Completion Certificates/AMC certificates other documents. As per Annexure-B

	SNA's.)	
5.	The bidder should have positive net worth in every year for the last three years and for last preceding financial year (2019-20) shall not be less than 100% of the paid-up share capital.	CA's certificate is to be submitted.
6.	The bidder should be profitable in at least last two financial years. i.e., 2018-19 and 2019-20.	CA's certificate is to be submitted.

• Net worth means the sum total of the paid up share capital and free reserves. Free reserve means all reserves credited out of the profits and share premium account but does not include reserves credited out of the revaluation of the assets, write back of depreciation provision and amalgamation. Further any debit balance of Profit and Loss account and miscellaneous expenses to the extent not adjusted or written off, if any, shall be reduced from reserves and surplus.

- Other income shall not be considered for arriving at annual turnover.
- The supporting documents in support of above Qualification Requirement should be submitted along with tender document, otherwise Techno-commercial offer submitted by the bidder is liable to be considered as non-responsive.

FORMAT**Name of Firm:****REGISTERED OFFICE ADDRESS:****Information on Average Annual Turnover**

{To be printed on the Letterhead of the bidder including full postal address, telephone, faxes and e-mail address}

Annual Turnover Data for the Last 3 Years

Year	Net Worth(in INR)	Annual Turnover (in INR)
2017-18		
2018-19		
2019-20		

This is to certified that the firm has positive Net worth in all three years and more than 100% of paid up capital for last financial year 2019-20.

{This format should be certified by the practicing CA's of the Bidder}

FORMAT- 2**Information on Profitability**

{To be printed on the Letterhead of the bidder including full postal address, telephone, faxes and e-mail address}

Profit before Tax Data for the last 3 years

Year	Amount (in INR)
2017-18	
2018-19	

{This format should be certified by the practicing CA of the Bidder}

Annexure -C
Details of work completed

Following work has been completed by the Firm:

(Address)

Sl no	Year	Organization	Name of work	PO nos and date	Quantity	Capacity in KW	Value in Lakhs	Completion date	Certificate of completion	Certificate of AMC
Total										

The above is to be certified by the CA's

Part-C

JCR
Format -1

FORMAT OF JOINT COMMISSIONING REPORT (JCR)

INSTALLATION, COMMISSIONING AND HANDING OVER CERTIFICATE WITH WARRANTY CARD

It is hereby certified that following SOLAR PV SYSTEM/ RO WATER / POWER PLANT with following details has been supplied, installed and commissioned at site:-

- (a) **Name of District**
- (b) **Name of Firm.....**
- (c) **Name of System/Plant.....**
- (d) **Work order no. and date-----**

Sl.	Items	Details
1.	Name of system: (Solar Street Light/Solar High Mast/Solar PV Power Pack/ RO water / Off-Grid Solar Plant)	
2.	Agreement number & Date:	
3.	Capacity of System:	
4.	Name of Firm with full address: Contact person name and mobile no -Mandatory	
5.	Name of Beneficiary with full address: District: Pin code: Contact person with mobile number- Mandatory	
6.	Exact location on installation Latitude and longitude exactly One photo of system showing longitude and latitude in photo	
7.	Date of installation:	
8.	Warrantee expire on:	
9.	Name & Address of the local service Centre: Contact person name with mobile no - Mandatory Email address:	

DETAILS OF INSTALLATION OF SOLAR MODULES

10.	a) SPV Modules (Multi / Poly Crystalline)	a)
	b) Sr. No of module: (Use separate sheet in case of more module)	b) From ----- to -----
	c) Make of module:	c)
	d) Model No:	d)
	e) Each Module wattage -----and number of module-----	e)

f) Total wattage of module installed:	f)
g) Tilt angle of module to true south	g)
h) Module is fixed properly to withstand wind loading of 180 km/hr of wind velocity.	h)
i) Number of Module installed at shadow free area (in case of Power Pack / RO Water plant / Off-Grid Power Plant)	i)
j) Module / System installed at shadow free and Community place (in case of Solar Street Light / High Mast)	j)

DETAILS OF INSTALLATION OF BATTERY

11.	a) Details of Battery	a)
	b) Type of Battery (Lithium/ Lead acid Tubular)	b)
	c) Sr. no of Battery : (Use separate sheet in case of more Battery)	c) From ----- to -----
	d) Make of Battery :	d)
	e) Model No:	e)
	f) Battery Voltage at the time of installation :	f)
	g) Type of Cell (in case of Lithium, Cylindrical/Prismatic) :	g)
	h) Year of Manufacturing :	h)
	i) Number of Battery installed :	i)

INSTALLATION / FIXING OF LUMINAIRE / BATTEN / BULB

12.	a) Name of Manufacturer	a)
	b) Casing of Luminaire / Batten / Bulb Installed :	b)
	c) Sr. no of Luminaire / Batten / Bulb Installed : (Use separate sheet in case of more)	c) From ----- to -----
	d) Model No :	d)
	e) Height of installed Luminaire (in case of Solar Street Light and Solar High Mast)	e)
	f) Number of LED in Luminaire	f)
	g) Wattage of Luminaire/ Batten	g)
	h) The Luminaire should have Suitable UV Stabilized Polycarbonate Diffuser:	h) Yes or No

INSTALLATION OF POLE / MOUNTING STRUCTURE AND OTHER HARDWARE

17.	a) Specify the Name of Manufacture of POLE / STRUCTURE / HARDWARE	
-----	--	--

b) Length and Size of installed Pole (in case of Solar Street Light and Solar High Mast)	length in meter.----- and dia in mm -----
c) Grouting of Pole (300 x 300 x 1000 mm below the ground) and (200 x 200 mm above the ground) in case of Solar Street Light.	Yes or No
d) RCC Foundation with iron rings of Pole (600 x 600 x 1250 mm deep) and (500 mm above the ground level) in case of Solar High Mast Lighting Systems.	Yes or No
e) Installed foundation bolts 4 / 6 / 8 nos. size (1200 mm x 20 mm dia)	Yes or No
f) Fixing of Module and LED light as per agreement	Yes or No
g) Fixing of Battery bank at suitable height of pole (in case of Solar Street Light and Solar High Mast)	Yes or No
h) UID no. is Properly embossed / Punched on the system / Pole	Yes or No
i) Toll Free no Properly embossed / Punched on the system / Pole	Yes or No
j) Sign board installed at pole properly	Yes or No
k) Earthing done as per specification / agreement (in case of Power Pack and Plant)	Yes or No
l) Grouting of Module mounting structure at Roof Top / Ground as specification of agreement. (in case of Solar Power Pack and Off-Grid Plant)	Yes or No
m) System is installed with anti-theft locking nut and Bolt (in case of Solar Street Light, High Mast and RO System)	Yes or No
n) System is also provided with Alarm System to avoid theft (in case of RO water System)	Yes or No
o) All the cable should be multi strand copper conductor properly insulated and sheathed. The maximum voltage drop should not exceed 1%.	Yes or No
q) Lightning protections is provided	Yes or No
r) Data acquisition system if plant is more than 10 KW	Yes or No
s) Training for operation & maintenance of the system	Yes or No
t) Technical literature, operation & maintenance manual with in English/Hindi	Yes or No
u) Energy generation of plant in case of power plant greater than 2KW	Enclose
w) Take photograph of system along with beneficiaries	Enclose
x) Others pl add separate if required	Separate sheet added/not added

Note: Pl write NA in front of column which is not applicable.

Certified that the system is installed as per technical specifications laid down in the above agreement, if any shortcoming is found in future, will be replaced/rectify immediately.

(Signature)

Authorized Signatory of Firm

Name:

Designation:

Mobile No

CERTIFICATE OF UPNEDA PROJECT OFFICER

1. Checked and verified the above details.
2. The plant/ system has been installed & commissioned in good condition as per technical specification of the agreement and PDI report
3. The System is working Satisfactorily since its installation -----
4. The out put of System is checked found satisfactorily as per agreement. (The energy generation report for power plant should be enclosed)
5. The Instruction Manual ,Guarantee Card and maintenance pass book has been provided to beneficiaries.
6. The Supplier has provided basic training to the beneficiaries for day to day care & maintenance of the system/ plant.
7. The name, complete address, contact person and contact number along with e-mail address of the supplier and local service center has been provided to the beneficiaries.

Place
Date:

(Signature)
Name:
Sr./Project Officer/In charge
UPNEDA, Seal

HANDING OVER TO BENEFICIARIES/INSTITUTION

(In case of complaint dial toll free number 1800 180 0005)

The Above System/Plant is being taken over by us in new and good condition and we will ensure the safety & security and also the weekly cleaning of solar panel of the system. I am fully satisfied with system performance. I have also noted the name and mobile number of person responsible for maintenance of system.

Signature of beneficiaries -----
Name of beneficiaries -----
Address -----

Mobile no -----

Seal

Signature of Project Officer/With

(Project officer will retain 01 copies of joint commissioning report, provide one copy to beneficiaries and send one copy to HQ)

Measurement sheet for Solar lighting System**Sheet-1**

Name of District:-----

System UID NO:-----

Work order no. and date-----

Specification/parameter	Value as per contract	As seen/tested	Remark
Module manufacturer name			
Module Serial no	-		
No of cell in module	36/60/72 of Crystalline silicon		
Module Wattage	----- Watt at 16.4 +_ 2		As per data sheet fixed on module
Short circuit current of module		-----Amp	Measurement Time at ---AM/PM
Open Circuit voltage	Min 21 Volt	-----Volt	Time at ---AM/PM
Load/charging current	-----Amp at-----volt at STC	-----Amp ----Volt	Time at ---AM/PM
Battery Type	Lead acid tubular/ Lithium		Time at ---AM/PM
Voltage of Battery without load and without charging		-----Volt	Time at ---AM/PM
Voltage of Battery with charging		----Volt	Time at ---AM/PM
Voltage of Battery with load		----Volt	Time at ---AM/PM
LED light	12 watt for Street light and 18 watt for High Mast and ----- watt for Power Pack	---- Amp at---- Volt	Take load current and voltage
Fan	12 Volt 22 watt	-----Amp at -----V	Take load current and voltage
Lumens –Solar Street light	At center as per agreement -----		At center as per measurement ----- Lux, time -----
Lumens –Solar High Mast	as per agreement -----		Periphery of 10 mtr / 20 mtr / 26 mtr. measurement ----- Lux, time -----
Lumens -Power pack	The average lux level at floor level should be 9 lux for 5 watt and 5 lux for 3 watt. The luminaire should be wall mounted and placed at the center of the wall and 2.5 m above the ground. The all calculation for lux distribution and uniformity should be calculated with room size 2.5M*2.7M*3M (H) for 5watt and 1.5M*1.8M*3M (H) for 3watt and 2.5M*3M*3M (H) for 7watt.		

Certified that the systems is working satisfactorily since installation and its performance is found as per agreement.

PO UPNEDA**Beneficiary**

**Uttar Pradesh New and Renewable Energy Development Agency (UPNEDA)
AMC REPORT SHEET- SOLAR LIGHTING SYSTEMS**

Name of System -----

Agreement No:-----Date -----

Work order no. and date-----

System installed at: District: Block: Village:

Name of firm: _____

Name of Person & Address of Service center with mobile no.-----

Installation Month: ____ 201 System UID code: _____

Inspection Report for AMC period from-----to----- Inspection Date:_____

Name of person available during visit _____ Mobile no -----

A. System Visual observations:

Item	Specifications as per contract		Specifications as seen		Remarks
	Value	make	Value	make	
SPV ModuleWatt at -----V				
BatteryV, ... Ah Tubular/Lithium				
LED luminary					
12 Watt Street Light					
3,5 &7 watt for Power Pack					
Charge controller/					
Battery Box	MS Galvanized/Plastic				
Mounting structure	MS Galvanized				
DC Fan	22/25 watt at 12 Volt				

B. : General Visual observation:

Item	Make	As seen during visit		Remarks
		Description	Observation	
SPV Module		SPV module is not broken and working properly	Yes No	

Battery		Battery is full of electrolyte and is in working condition	Yes	No	
---------	--	--	-----	----	--

LED Light		Is in working condition	Yes	No	
Fan		Is in working condition	Yes	No	
Wire		Copper	Yes	No	
Charge controller		Working properly and indicators are OK	Yes	No	
Battery Box		In good conditions	Yes	No	
Name Plate	With name of manufacture, Model no., Serial no., yr of manufacturing and UPNEDA logo or name fixed on system		Yes	No	
Manual	An operation, instruction and maintenance manual both in English and Hindi with warranty card provided with system		Yes	No	
Toll free no	Provided on system as well is available with beneficiary		Yes	No	
UID no.	Provided on system as well is available with beneficiary		Yes	No	

C. Functionality:

- i. System is working trouble free since : -----
Month/Year
- ii. System is working but not for full hours:hrs.
- iii. System is not working at present since -----
- iv. Frequency for shutdown since installation times.
- v. Last complaint date -----and resolve date----- (if any)
- vi. System is working properly after resolve date: Yes/no
- vii. Normally system stop working due to: Overload Short Circuiting
 Charge controller failure Discharge of Batteries Less current from Module:
- viii. Other reasons of failure:.....

D. Vendor Services:

- i. Systems is regularly maintained by the vendor with Quarterly visit : Yes/No
- ii. Time taken by vendor in repairing of system after failure;-----days
- iii. How Vendor response after notice of failure: Very prompt After reminder After several reminder Not responding
- iv. The system has been repaired by vendor: -----times since installation in guarantee period
- v. System is not repaired by firm in warranty period since: -----
- vi. local service center is active: ----- Yes/No

E. Users Participation:

- i. Users are aware of system use and its limits-----Yes/No
- ii. Users received systems operation and maintenance manual with warranty card/pass book: ---

- iii. Users are trained for operation of systems: -----Yes/No-----
- iv. Users are operating the systems properly-----Yes/No
- v. Users are aware of local service center contact details:-Yes/No

- vi. Users satisfaction

Excellent	Good	Satisfactory	Poor
-----------	------	--------------	------

- vii. Users Comments:-----

INSPECTING OFFICER REMARKs (if any)

Date of inspection:..... **Place:**.....**Sign**

(Name of Officer)
Project officer UPNEDA

Signature of Users –
Name-
Mobile no-----

Measurement sheet for Solar lighting System

System UID NO:-----

Work order no. and date-----

Specification/parameter	Value as per contract	As seen/tested	Remark
Module manufacturer name			
Module Serial no	-		
No of cell in module	36/60/72 of Crystalline silicon		
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Short circuit current of module		-----Amp	Measurement Time at ---AM/PM
Open Circuit voltage	Min 21 Volt	-----Volt	Time at ---AM/PM
Load/charging current	-----Amp at-----volt at STC	-----Amp ----Volt	Time at ---AM/PM
Battery Type	Lead acid tubular/ Lithium		Time at ---AM/PM
Voltage of Battery without load and without charging		-----Volt	Time at ---AM/PM
Voltage of Battery with charging		-----Volt	Time at ---AM/PM
Voltage of Battery with load		-----Volt	Time at ---AM/PM
Gravity			Time at ---AM/PM
LED light	12 watt for street light and --- watt for power pack	----- Amp at---- Volt	Take load current and voltage
Fan	12 Volt 22 watt	-----Amp at -----V	Take load current and voltage
Lumens –Solar Street light	Lumens of Light as per agreement ----- Lux		Measure ----- --Lux
Lumens –Solar High Mast	Lumens of Light as per agreement ----- Lux		Measure ----- --Lux
Lumens -Power pack	The average lux level at floor level should be 9 lux for 5 watt and 5 lux for 3 watt. The luminaire should be wall mounted and placed at the center of the wall and 2.5 m above the ground. The all calculation for lux distribution and uniformity should be calculated with room size 2.5M*2.7M*3M (H) for 5watt and 1.5M*1.8M*3M (H) for 3watt and 2.5M*3M*3M (H) for 7watt.		

INSPECTING OFFICER REMARK:

Date of inspection:..... Place:.....Sign

Name : -----

Designation: -----

Model Bank Guarantee Format for Furnishing EMD

Whereas(hereinafter called the “tenderer”) has submitted their offer dated..... for the supply, installation, commissioning with 5 years of comprehensive warranty maintenance of hereinafter called the “tender”) against the purchaser’s tender enquiry No.KNOW ALL MEN by these presents that WE ofhaving our registered office at are bound unto (hereinafter called the “Purchaser) in the sum of Rs..... for which payment will and truly to be made to the said Purchaser, the Bank binds itself, its successors and assigns by these presents. Sealed with the Common Seal of the said Bank this..... day of20..... THE CONDITIONS OF THIS OBLIGATION ARE:

If the tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender.

If the tenderer having been notified of the acceptance of his tender by the Purchaser during the period of its validity

- (1) Fails to furnish the Performance Security for the due performance of the contract.
- (2) Fails or refuses to accept/execute the contract.

WE undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or both the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including 45 (forty five) days after the period of tender validity and any demand in respect thereof should reach the Bank not later than the above date.

(Signature of the authorised officer of the Bank)

Name and designation of the officer

.....

Seal, name and address of the Bank / Branch

UPNEDA Account no for B G purpose: 2185286335

IFSC: CBIN0283946

Branch: NCEDA, Gomati Nagar, Lucknow

POWER OF ATTORNEY

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)

Power of Attorney to be provided by the Bidding Company 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 Bidding Company 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 implementation of grid connected Roof top solar PV scheme in selected States in India in response to the BID DOCUMENT. No..... dated issued by UPNEDA(UPNEDA), New Lucknow 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 the UPNEDA may require us to submit. The aforesaid Attorney is further authorized for making representations to the UPNEDA, New Lucknow and providing information / responses to UPNEDA, New Lucknow representing us in all matters before UPNEDA, New Lucknow and generally dealing with UPNEDA, New Lucknow in all matters in connection with this Bid till the completion of the bidding process as per the terms of the above mentioned BID DOCUMENT.

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 BID DOCUMENT.

Signed by the within named

..... **(Insert the name of the executant company)**

through the hand of Mr.

duly authorized by the Board(vide Board resolution No_____) 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.....(Board of

Director's Resolution is also enclosed)

WITNESS

(iii)

(Signature)

Name.....

Designation

(iv)

(Signature)

Name.....

Designation

Notes:

The mode of execution of the power of attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and the same should be under common seal of the executant affixed in accordance with the applicable procedure. Further, the person whose signatures are to be provided on the power of attorney shall be duly authorized by the executant(s) in this regard.