



SMART CITY BHAGALPUR

Bhagalpur Smart City
*Bhagalpur Municipal Corporation Campus,
Katchhari Campus, Bhagalpur, Bihar - 812001, India..*
info@smartcitybhagalpur.org

Request for selection (RFS) document design, supply, installation, commissioning and 05 years comprehensive warranty with maintenance of solar led street light (single arm / double arm / high mast lighting system) (with lithium phosphosphate battery) in various places of Bhagalpur.

Tender NO. - BSCL/PDMC /Solar LED Light/2018-19/03

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Tender Notice
Bhagalpur Smart City Ltd, (BSCL)
*(Bhagalpur Municipal Corporation Campus,
 Katchhari Campus, Bhagalpur, Bihar - 812001, India..*
 Email : info@smartcitybhagalpur.org

BSCL invites Online Bids from Prospective Bidders through tendering for the design, supply, installation, commissioning and 5 years comprehensive warranty with maintenance of following item at various sites in Bhagalpur as per the details given in e -tender document.

Sr. no.	Item	tender No.	Quantity Required	Benchmark Cost as notified by MNRE per watt
1	Solar PV High Mast Light 12 watts (White-LED light source and LI-ION PHEROPHOSPHATE battery based)	BSCL/PDMC /Solar LED Light/2018-19/03	5 units	652500
2	Solar LED Street Light 12 watts (White- LED light source) Single Arm	BSCL/PDMC /Solar LED Light/2018-19/03	50 units	1631250
3	Solar LED Street Light 12 watts (White- LED light source) double Arm	BSCL/PDMC /Solar LED Light/2018-19/03	30 units	1957500

The tender document is available at e-Procurement website www.eproc.bihar.gov.in and BSCL website www.smartcitybhagalpur.org 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 NIT.

(a)	Date of Start of downloading and submission of tender document on web portal	As per NIT
(b)	Pre-Bid meeting	NA
(c)	Last date and time for submission of e- bids on web portal	As per NIT
(d)	Online technical e-Bid opening date & time	As per NIT
(e)	Online financial e-Bid opening date & time (Only of technically qualified bidders)	As per NIT
(f)	Venue of opening of technical & financial e-Bids	As per NIT

Bhagalpur Smart City Ltd, (BSCL), reserves the right to reject any or all tenders without assigning any reason thereof. The decision of CEO, BSCL will be final and binding.

CEO BSCL

2: Covering Letter:

FROM:-

(Full name and address of the Bidder)

.....
.....

To:

The C.E.O,
Bhagalpur Smart city Ltd (BSCL)
Katchhari Campus, Bhagalpur,
Bihar - 812001, India.

Subject: -Offer in response to tender specification No: BSCL/PDMC /Solar LED Light/2018-19/03

Sir,

We hereby submit our offer in full compliance with terms & conditions of the above tender. A blank copy of the tender, duly signed on each page is also submitted as a proof of our acceptance of all specifications as well as terms/ Conditions.

We confirm that, we have the capability to supply, install and carryout 5 years comprehensive warranty maintenance **more than**Solar High Mast /solar street light single Arm /solar street light double Arm 2019 (W-LED, LI-ION PHEROPHOSPHATE) **in 6 months andnumber in a year.** (Supporting document in proof of capacity should be attached)

The tender is to be uploaded in two separate files named **Part-I for technical Bid & Part-II for Financial Bid** only.

(Signature of Bidder)
With Seal

3. Check list of Annexure

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

S.N.	Annexure No	Particulars	Yes/No, Flag No.
1	Annexure-I (a)	Details of Tender document fees (Demand Draft no, date, amount and bank name)	
	Annexure-I (b)	Details of Earnest money (bank guarantee no. and date, (valid for four months)	
2	Annexure-II	The bidder is a Manufacturing Company/Firm/Corporation Registered in India of SPV Cells /Modules / LI-ION PHEROPHOSPHATE Battery / PV System Electronics (conforming to relevant National / International Standards) OR	
3		a PV System Integrator-- Minimum cumulative experience of at least 500 kWp (A copy of the order and certificate indicating its successful execution to be enclosed)	
	Annexure-III	Following Test Certificates & Reports for components specified in technical bid (Test certificate should have been issued on or after 01 st April 2018)	
		i. SPV Modules	
	III(a)	a) IEC 61215 edition II/ IS 14286 for Crystalline Modules	
	III(b)	b) IEC 61730 Part 1 & 2	
	III(c)	c) STC Performance Report –I V curve	
	III(d)	ii. LI-ION PHEROPHOSPHATE Batteries – MNRE/IEC/BIS authorized test Centre report. (As applicable)	
	III(e)	iii. Balance of System	
		a) LED – LM-80-08; Luminaire- LM-79-08	
	III(f)	b) Luminaries and charge controller housing- IP 65	

S.N.	Annexure No	Particulars	Yes/No, Flag No.
4	Annexure-IV	Test Certificate for the complete Solar Street Lighting System (W-LED, LI-ION PHEROPHOSPHATE battery) from a MNRE/ NABL authorized testing center. (Test Certificate should have been issued on or after 1st April 2018.) (should furnish the report or the product submission proof should before submission of tender from MNRE accredited LAB)	
5	Annexure-V	A copy of valid CST /State GST/ TIN registration certificate	
6	Annexure-VI	Overall Average Annual Turnover of the Company/Firm/ Corporation in the last three financial years (A summarized sheet of turnover of last three Financial Years (2015-16, 2016-17 and 2017-18) certified by registered CA)	
7	Annexure-VII	MNRE accredited off- Grid Channel Partner/Programme Administrator (presently / earlier)	
8	Annexure-VIII	A summarized sheet of cumulative experience of last three Financial Years (2015-16, 2016-17 and 2017-18) in PV systems/power plants certified by registered CA)	
9	Annexure-IX	Bidder's should have experience* of at least 03 years in supply and installation/commissioning of Solar PV street lighting system (stand alone / centralized)Cumulative nos.:>=500 nos.	
10	Annexure-X	Value of a "Single Order" of Installation, commissioned and 5 yrs O & M of Solar PV systems executed by the Bidder (A copy of the order indicating its value and certificate indicating its successful execution) Valued more than Rs. 50 Lakhs	

S.N.	Annexure No	Particulars	Yes/No, Flag No.
11	Annexure- XI	bidder should have at least 3 product tested from MNRE accredited lab after march 2018 (should furnish the report or the product submission proof should before submission of tender from MNRE accredited lab), (solar street light / solar pump / solar home system / solar lantern / electronics)	
12	Annexure- XII	Cumulative Experience of the Bidder in executing contracts Solar Photovoltaic Systems/ Power Plants (Installed & Commissioned) >=500KWp	
13	Annexure- XIII	The bidder has ISO 9001 certification	
14	Annexure- XIV	The bidder has ISO 14001 certification	
15	Annexure- XV	Authorization letter of the Bidder, for the person representing his firm, that he is authorized to discuss and with specific mention of this tender.	
16	Annexure- XVI	Cumulative Experience* of the Bidder in executing.	

*** Please flag the annexure and write flag number in the box.**

Note:- Bids received without supporting documents for the various requirements mentioned in the tender document may be rejected.

(Signature of Bidder)
With Seal

4. Particulars of tender

1.	tender no.	BSCL/PDMC /Solar LED Light/2018-19/03
2.	Particulars of the work	Design, Supply, Installation, Commissioning and 05 years warranty with comprehensive maintenance of Solar high Mast lighting systems/solar led street light single arm/double arm (W-LED light & LI-ION PHEROPHOSPHATE battery based) at the identified sites by (BSCL)
3.	Period of work	6 Months
4.	Last date and time of uploading of tender on E-Proc website	As per NIT
5.	Pre-bid meeting	NA
6.	Period of validity of rates for acceptance	As per NIT
7.	Date and Time of opening of tender (Technical bid.)	As per NIT
8.	Date and Time of opening of tender (Financial bid.)	As per NIT
9.	Place of opening of tender	Nagar Nigam campus, Bhagalpur

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 1.1.1 of Section-I should be submitted through e-Procurement website [http://. www.eproc.bihar.gov.in](http://www.eproc.bihar.gov.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 BSCL's office then the due date for opening of e-Bids shall be the following working day at the appointed time and place.
5. All the required documents including Price Schedule/BOQ should be uploaded by the e-Bidder electronically in the PDF/XLS format. All the enclosures should be scanned and uploaded with bid.

(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	
9	Name and address of the Indian/foreign Collaboration if any	
10	Have anything/extra other than price of items (as mentioned in price Schedule) been written in the price schedule.	
11	Have the Bidder to pay arrears of income tax? If yes up to what amount?	
12	Have the Bidder ever been debarred By any Govt. Deptt. / Undertaking for undertaking any work?	
13	Supply capacity within 06 Months (Nos.)	
14	Supply capacity in a Year (Nos.)	
15	Details of offer (please mention number of pages and number of Drawings in the hard copy)	
16	Reference of any other information attached by the tenderer (please Mention no. of pages & no. of drawings)	

(Signature of Bidder)
with Seal

6. DECLARATION BY THE BIDDER

REGARDING tender NO. BSCL/PDMC /Solar LED Light/2018-19/03

I/We _____ (hereinafter referred to as the Bidder) being desirous of tendering for the work under the above mentioned 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 tender document,

DO HEREBY DECLARE THAT

1. The Bidder is fully aware of all the requirements of the tender document and agrees with all provisions of the tender document.
2. The Bidder is capable of executing and completing the work as required in the tender.
3. The Bidder accepts all risks and responsibilities directly or indirectly connected with the performance of the tender.
4. The Bidder has no collusion with other Bidders, any employee of BSCL 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 BSCL or any of its employees, but only by the 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 BSCL.
8. The information and the statements submitted with the 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 similar type of work by BSCL and or Government undertaking/ Department.
11. This offer shall remain valid for acceptance for 120 days from the date of opening of financial bid of tender.
12. The Bidder gives the assurance to execute the tendered work as per specifications terms and conditions.
13. The Bidder confirms the capability to supply, install and carryout 5 years comprehensive warranty maintenance of **more than Solar high mast Systems/Street light Single Arm /Double Arm (W-LED light source and LI-ION PHEROPHOSPHATE battery based) in 06 (Six) Months and ...numbers in a year.**

(Signature of Bidder)
with SEAL

PART-2 : INSTRUCTION TO BIDDERS

SECTION 1: THE TENDER DOCUMENT

1.1 CONTENT OF tender DOCUMENT

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

PART-A

Part-I

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

Part – 2 : Instruction to Bidders

- | | |
|------------|-----------------------------------|
| Section -1 | Contents of tender document |
| Section -2 | Eligibility condition |
| Section-3 | Preparation of tender |
| Section-4 | Submission of tender |
| Section -5 | 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 – B:

Financial Bid

The Bidder is expected to examine all instructions, forms, terms and specifications as mentioned in the tender document. Failure to furnish all information required by the 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 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. BSCL 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 tender Documents may contact BSCL in writing or by Fax at the BSCL's mailing address indicated in the Invitation for tender. All are requested to remain updated with the website. No separate reply/ intimation will be given elsewhere. Verbal clarifications and information's given by the BSCL or its employees or its representatives shall not be in any way entertained
Enquiries/clarifications may be sought by the Bidder from:

C.E.O,
Bhagalpur Smart City
Bhagalpur Municipal Corporation Campus
Katchhari Campus, Bhagalpur, Bihar - 812001, India..

Phone:
Fax:
Email: info@smartcitybhagalpur.org
Website: smartcitybhagalpur.org

1.4 AMENDMENT OF TENDER DOCUMENTS

At any time prior to the submission of the tender the BSCL may for any reason, whether at its own initiative or in response to a clarification requested by the Bidder, modify the tender documents by amendments. Such document shall be made available on websites: <http://www.Smartcitybhagalpur.org>; and www.eproc.bihar.gov.in. All are requested to remain updated with the website. No separate reply/ intimation will be given elsewhere.

SECTION 2: ELIGIBILITY CONDITIONS

Eligibility Conditions for Bidders

1. Minimum Eligibility Conditions:

☐ The Bidder should be

A Registered Manufacturing Company/Firm/ Corporation in India of **SPV Cells / Modules Or LI-ION PHEROPHOSPHATE Battery Or PV System Electronics or LED Lights** (Conforming to relevant National /International Standards)

OR

A PV System Integrator (earlier /present) empaneled as channel partner accredited by the MNRE for off grid and decentralized solar application under JNNSM with MNRE.

☐ Bidder should have Test . SPV Modules

a) IEC 61215 edition II/ IS 14286 for Crystalline Modules(b) IEC 61730 Part 1 & 2
STC Performance Report –I V curve

LI-ION PHEROPHOSPHATE Batteries – MNRE /IEC/BIS authorized test center report
LED – LM-80-08; Luminaire- LM-79-08
Luminaries and charge controller housing- IP 65

☐ Overall Average Annual Turnover of the Company/Firm/ Corporation in the last three financial years should be equal or more than 1 Cr. (A summarized sheet of turnover of last three Financial Years (2015-16, 2016-17 and 2017-18) certified by registered CA)

☐ Bidder's should have experience* of at least 03 years in supply and installation/commissioning of Solar PV street lighting system (stand alone / centralized) Cumulative nos.: >=500 nos (In any government organization)

☐ The Bidder should have valid CST /State GST/ TIN registration certificate.

☐ Minimum 10 projects of 10 kw or 5 projects of 20 kw (ON / OFF GRID in any government organization)

☐ Bidder should have at least 3 product tested from MNRE accredited lab after march 2017 (should furnish the report or the product submission proof should before submission of tender from MNRE accredited lab), (solar street light / solar pump / solar home system / solar lantern / electronics)

☐ The bidder has ISO 9001 and ISO 14001 certification

☐ Value of a "Single Order" of Installation, commissioned with 5 yrs O & M of Solar PV systems executed by the Bidder (A copy of the order indicating its value and certificate indicating its successful execution) Valued more than Rs. 50 Lakh.

☐ **Cumulative Experience*** of the Bidder in executing contracts **Solar Photovoltaic Systems/ Power Plants (Installed & Commissioned) >=500KWp**

2. Other Eligibility Conditions

The “Financial bids” of only those bidders shall be opened, who qualify in “Minimum Eligibility Conditions” as above

- Bidder is required to have a service network in Bihar. The details of such service network need to be provided .L1 and Selected Bidder(s) who do not currently have a service network in Bihar will be required to open a service center in Bihar within 30 days of issue of Letter of Award.
- The list of projects commissioned should have been commissioned prior to date of tender, indicating whether the project is grid-connected, along with a scanned copy of the Commissioning Certificate and Work Order from the Client/Owner shall be submitted online.
- Bidder is required to submit list of projects completed as per this RFP as part of Technical Bid
- The Bidder should upload affidavit/ certificate from CA mentioning financial turnover of last three years along with the Technical Bid of this RFP. In addition, the Bidder shall submit copy of audited financial statements with profit and loss account for the last three years.
- The Bidder should submit a notarized affidavit on Indian Non judicial stamp paper that the Bidder has never been blacklisted by any organization

SECTION 3: PREPARATION OF TENDER

3.1 LANGUAGE OF BID AND MEASURE

- 3.1.1 The tender prepared by the Bidder and all correspondence and documents relating to the bid exchanged by the Bidder and BSCL 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 tender prepared by the Bidder shall comprise the following components

- (a) Covering letter as provided in tender document.
- (b) General particulars of bidder, as provided in tender document.
- (c) Declaration by The Bidder, as provided in 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 Annexures as provided in tender document
- (e) A blank copy of the in tender document signed on each page, as a confirmation by the Bidder to accept all technical specifications / commercial conditions along with all necessary enclosures.
- (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 tender

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 and duties, custom duty, excise duty, service tax, sales tax, C.S.T., local taxes, Trade Tax/GST, Income Tax, Surcharge on income tax etc. if any. A Bidder shall be entirely responsible for all taxes, duties, license fees, etc. All taxes payable as per Government income tax & service tax norms will be payable by the Bidder. TDS will be deducted from the payment of the Bidder as per the prevalent laws and rules of Government of India and Government of Bihar 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 BSCL 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 its subsidiary bank. Bank Guarantee shall be in favor of "C.E.O Bhagalpur Smart City Ltd.". The aforesaid Bank Guarantee shall be furnished prior to the execution of agreement.

3.6 PERIOD OF VALIDITY OF TENDER

- 3.6.1 Validity of the offer should be 6 months from the date of opening of the financial bid of the tenders. Without this validity the tenders will be rejected.
- 3.6.2 In exceptional circumstances; the BSCL will solicit the Bidder's consent to an extension of the period of validity. The request and the response there of, 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)

- 3.7.1 The bidder shall furnish, from a nationalized bank, or its subsidiary banks will issue part of its bid, bid security as mentioned in NIT. The Demand Draft shall be valid for a period of **6 months from the opening of technical bid.**
- 3.7.2 Any bid not secured with the tender fee and earnest money will be rejected by the BSCL as non-responsive.
- 3.7.3 No Interest shall be payable on the amount of earnest money and the same will be released, after the tenders have been decided, to those Bidders who fail to get the contract.
- 3.7.4 The tender security (earnest money) may be forfeited:
 - a) If a Tenderer withdraws its tender during the period of tender validity specified by the Bidder in the 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 TENDER

- 3.8.1 The bid must contain the name, residence and places of business of the persons making the 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 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 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 tender.

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 tender.

(Signature of Bidder)
with SEAL

SECTION: 4: UPLOADING OF TENDER

- 4.1 Uploading of tender : The bid shall be uploaded online as per guide lines of e-proc Bihar
- 4.1.1 The tender must be complete 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-1 (part-A) should contain technical specification, brochure literature etc. All parts of tender documents except financial bid should be uploaded as per e-procurement mode in due date and time. Scanned copy of Requisite earnest money in the form of Bank Guarantee should be enclosed.
- 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-II except price.
- 4.1.4 The original copy of uploaded document i.e. First part-1 (Part-A) is to be submitted by Post /courier/by hand to BSCL office before opening of technical bid.
- 4.2 EXPENSES OF AGREEMENT: A formal agreement for a period of 01 (one) year shall be entered into between BSCL 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 tenderer in the date; time and address specified in the NIT/ tender documents.

(Signature of Bidder)
with SEAL

SECTION 5: TENDER OPENING AND EVALUATION

5.1 OPENING OF tender

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

- 5.1.1 First part-I (part-A) uploaded having tender specification no. and super scribed as Technical bid” shall be opened at the time and date mentioned in the tender notice by BSCL’s representatives in the presence of Bidders, who choose to be present.
- 5.1.2 Second part-II (Part-B) containing Financial Bid shall be opened (after obtaining clarifications and establishing technical suitability of the offer) as per schedule. Second part of only those Bidders shall be opened whose first part (part-B) shall be found commercially clear and technically suitable.

5.2 CLARIFICATION OF TENDER

- 5.2.1 To assist in the examination, evaluation and comparison of bids the BSCL may at its discretion ask the bidder for a clarification of its bid. The request for clarification and the response shall be in writing.
- 5.3 BSCL 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 BSCL shall have no liability towards any Bidder and no Bidder shall have any recourse to BSCL with respect to the selection process. BSCL shall evaluate the Bids using the evaluation process specified in this document or as amended, at its sole discretion. BSCL’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

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

6.2 Finalization of BID:

- ☐ First the Technical bids shall be opened and evaluated.
- ☐ Then the price bid of technically qualified bidders shall be opened.
- ☐ The lowest rate (L-1) will be the Final rates.
- ☐ **The estimated cost mentioned in the NIT as well as RFS/Tender Document is the maximum project cost of the project. If, the bidder quote higher than the estimated cost mentioned in the NIT as well as RFS/Tender Document the bid will be treated as non-responsive bid.**

6.3 Finalization of Empanelment:

- ☐ The lowest rate (i.e. L-1) received (and in turn approved by the competent authority) would be the "Final Rate".
- ☐ Lowest Rate bidder (L1) should be awarded 100% of the total bid quantity.
- ☐ Training of the users and entrepreneurs/ operators will be arranged by the contractor/ bidder.
- ☐ After work order is placed for work, should be executed within the time schedule stipulated in work order. In case of delay (for any reason other than due to Force Majeure conditions or any extension thereof granted to him by BSCL) a penalty equal to 1.0% of the price of the unperformed services for each week (For the purposes of 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.

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

6.5 BSCL 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.

6.6 BSCL reserves the right to accept and reject bid at any time without any clarification.

6.7 NOTIFICATION OF AWARDING THE CONTRACT :

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

6.8 CONTRACT

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

Signature of Bidder
with seal

PART 3 : GENERAL CONDITIONS OF CONTRACT

- 1.1 In the deed of contract unless the context otherwise requires:-
- 1.2 BSCL shall short list the successful bidder (s) on "Rate Contract" basis after verifying their capacity. The Project shall be executed by BSCL. The successful bidder (s) shall have to sign the Contract with (BSCL).

DEFINITIONS

- 1.2. "BSCL" shall mean The Director of BSCL or his representative and shall also include its successors in interest and assignees. The "Contractor" shall mean (successful bidder) i.e. the person whose tender has been accepted by BSCL and shall include his legal representatives and successors in interest.
- 1.3 The agreement shall be on turn-key basis. The work shall be completed within **06 (six) months** from the date of placement of work order. However "BSCL" 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, "BSCL" will be at liberty to get the work executed from the open market without calling any tender/ tender and without any notice to the contractor/ bidder, at the risk and cost of the contractor/ bidder. Any additional cost incurred by "BSCL" 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, "BSCL" may recover it from the contractor/ bidders' pending claims against any work in "BSCL" or in any lawful manner.
- 1.4 That on the request of the contractor/ bidder and also in the interest of the organization the "BSCL" 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 **3 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 The contractor/ bidder, (i.e. the successful bidder), may operate in Bhagalpur through a single authorized dealer for execution of the orders. It will be the sole responsibility of the contractor/ bidder, to execute orders placed as per time schedule, and to ensure quality parameters, specifications and other requirements provided in the tender document and as per agreement.
- 1.7 In the interest of the work and the programme, agreement executed between the contractor/ bidder and the "BSCL" 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 BSCL) the "BSCL" shall without prejudice to its other remedies under the contract deduct from the contract price as liquidated damage, a sum equivalent to 1.0% of the price of the unperformed services 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. Once the maximum is reached, the "BSCL" may consider termination of the contract. In the case of violation of contract, BSCL 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. BSCL may also invoke performance/security bank guarantee of 10%.

3 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. "BSCL" shall have no liability in this regard.

4 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 "BSCL" in writing. The decision of the competent authority of BSCL in above conditions shall be final.

5 The Judicature at Bhagalpur and Courts subordinate thereto, at Bhagalpur, shall alone have jurisdictions to the exclusion of all other courts.

6 The contractor/ bidder shall not, without the consent in writing of "BSCL", transfer, assign or sublet the work under the contract or any substantial part thereof to any other party.

7 "BSCL" 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 "BSCL".

8 If any question, dispute or difference what so ever shall arises between "BSCL" 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 Chairman or CEO of "BSCL". 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 "BSCL" or the arbitrator directs otherwise

9 "BSCL" may at any time by notice in writing to the contractor/ bidder either stops the work all together or reduces 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 "BSCL", whose decision shall be final and bidding 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 "BSCL" in the presence of "BSCL"'s representative if so desired by "BSCL".

10.2 The "BSCL" 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 "BSCL" required.

10.3 INSPECTION AT WORKS.

10.3.1 The "BSCL", 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 "BSCL" , 15 day's written notice of any material being ready for testing. It shall be mandatory that such notice should reach "BSCL" within 30 days of placement of work order. Such tests shall be on the contractor/ bidder's accounts/ expenses except for the expenses of the inspector. "BSCL" reserves the full rights, to waive off inspection of material.

10.3.3 The contractor/ bidder are required to get the entire lot of the ordered material 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 BSCL will bear the inspector cost at only one manufacturing plant. 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 "BSCL" and issue of dispatch instruction there on 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 "BSCL" 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 "BSCL"
- 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 "BSCL" shall have full liberty to restore the system in working condition. The expenditure so incurred by "BSCL" 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/"BSCL" so desires, the contractor/bidder shall take up annual maintenance of the installed system.
- 11.5 The contractor/ bidder shall maintain the system under annual maintenance contract with the end user.
12. Notice statement and other communication send by "BSCL" 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 essential required for the completion of job (To the satisfaction of BSCL) shall be carried out by the contractor as extra item or which payment shall be made separately at the rates decided by BSCL
14. The work shall be carried out by the contractor/ bidder as per design and drawings approved by "BSCL", wherever, necessary, the contractor/ bidder shall submit relevant designs and drawings for approval of "BSCL", well in advance. Work carried out without "BSCL"'s approval shall not be accepted and the "BSCL" 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 system manual containing instruction manual/ routine maintenance manual and maintenance record of the systems with each unit supplied or installed, this shall be both in English and Hindi language. (The draft of pass book shall be approved by BSCL).

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 trouble shooting 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 "BSCL". **The contractor will also submit a soft and hard copy of photograph of system with UID number (issued by BSCL) written on Pole/box with handing over certificate.**

17. PATENT RIGHT AND ROYALTIES.

The Contractor/ bidder shall indemnify the "BSCL" 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 "BSCL" of the date of each shipment from his works, and the expected date of arrival at the site for the information of the "BSCL" project offices at least 7 days in advance.

19. DEMURRAGE WHARF AGE, 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.

20. 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. Transportation, storage, safety and security of the supplied material, issuance of road permit etc. shall be the sole responsibility of the contractor/bidder.

22. TERMINATION FOR INSOLVENCY

“BSCL” 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 “BSCL”.

23. TERMINATION FOR CONVENIENCE

The “BSCL”, 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 “BSCL”.

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 “BSCL” 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 fax 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, custom duty, excise duty, service tax, sales tax, C.S.T., local taxes, Income Tax, Surcharge on income tax etc. if any. Supplier/ contractor/ bidder shall be entirely responsible for all taxes, duties, license fees, etc. All taxes payable as per Government income tax & service tax 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. 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 Bihar in this regard.

27. OTHERS:

27.1 All the LED's use in luminary should have same characteristics.

27.2 I-V curve of the each module technical details such as Voc, Isc, FF, cell efficiency and Pmax etc shall be supplied along-with each consignment and copy should be sent to “BSCL” Office for records.

27.3 The Contractor/ bidder in consultation with concerned Project Officer of “BSCL” will conduct training programme for users, focusing on main features, operation and maintenance of the systems.

27.4 The Contractor/ bidder shall continue to provide spare parts after the expiry of warranty period at the users cost. If the contractor/ bidder fail to continue to supply spare parts and services to users “BSCL” shall take appropriate action against the Contractor/ bidder.

27.5 After successful supply/commissioning of the system and training, the system will be handed over to the person designated by the BSCL.

27.6 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.

28. PAYMENTS:

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

- i) 50% of the ordered value after the supply of the complete system at site and duly certified by the concerned authority of "BSCL" as per the technical specification and terms and conditions specified in the contract.
- ii.) 35% of the ordered value after establishing of service center, installation and commissioning of the system along with the summary of Joint Commissioning & handing over certificate, indicating bill of material and successful commissioning duly countersigned by the designated officer and end user.
- iii) The balance 15% payment to be released @3% at the end of each year for 5 years, on satisfactory performance and timely submission of quarterly performance report. However this can be released immediately after installation and commissioning of the system against bank guarantee of 10 % valid respectively for 5 years O & M.

29. In case of any ambiguity in interpretation of any of the provisions of the tender, the decision of "BSCL" shall be final.

(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 High Mast Lighting System** (W-LED light source and LI-ION PHEROPHOSPHATE battery based) including 05 years comprehensive warranty maintenance in various sites of various Locations of Bhagalpur as per the following specifications.

GENERAL TECHNICAL SPECIFICATION:

A Solar PV White- LED High Mast Light consist of white LED luminary of 4*12 Watt (LED + Driver) as per configuration along with solar PV modules and LI-ION PHEROPHOSPHATE 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 LED HIGH MAST LIGHT

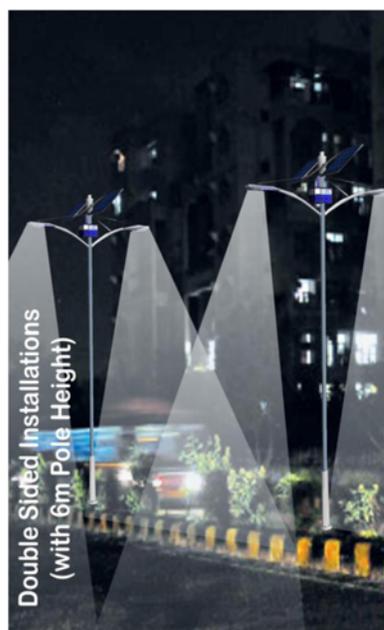
PV Module	Only indigenous modules shall be used in the Project. SPV module aggregate capacity 300 Wp (75 Wp X 4 Nos.) at 16.4 +_ 0.2 Volt under STC. Module Voc minimum of 21V. Panel efficiency > 15 %
Battery	LI-ION PHEROPHOSPHATE PeO4 batteries of aggregate capacity 30 AH (i.e. 4Nos.)
Light Source	12 Watts X 4 no.s
Light Out put	White colour (colour temperature 5500-6500 K). Lumen efficacy of LED- min 120 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.
Average duty Cycle	Dusk to dawn



A Solar PV White- LED Street Light Double Arm consist of white LED luminary of 2*12 Watt (LED + Driver) as per configuration along with solar PV modules and LI-ION PHEROPHOSPHATE 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 LED STREET LIGHT DOUBLE ARM

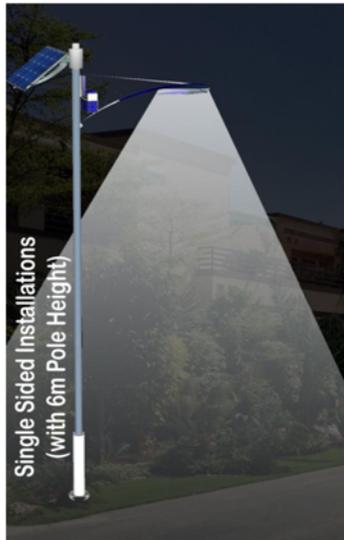
PV Module	Only indigenous modules shall be used in the Project. SPV module aggregate capacity 150 Wp (75 Wp X 2 Nos.) at 16.4 +_ 0.2 Volt under STC. Module Voc minimum of 21V. Panel efficiency > 15 %
Battery	LI-ION PHEROPHOSPHATEPeO4 batteries of aggregate capacity 30 AH (i.e. 2Nos.)
Light Source	12 Watts X 2 no.s
Light Out put	White colour (colour temperature 5500-6500 K). Lumen efficacy of LED- min 120 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.
Average duty cycle	Dusk to dawn



A Solar PV White- LED Street Light Single Arm consist of white LED luminary of 1*12 Watt (LED + Driver) as per configuration along with solar PV modules and LI-ION PHEROPHOSPATE 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 LED STREET LIGHT SINGLE ARM

PV Module	Only indigenous modules shall be used in the Project. SPV module aggregate capacity 75 Wp (75 Wp X 1 Nos.) at 16.4 +_ 0.2 Volt under STC. Module Voc minimum of 21V. Panel efficiency > 15 %
Battery	LI-ION PHEROPHOSPATEPeO4 batteries of aggregate capacity 30 AH (i.e. 1Nos.)
Light Source	12 Watts X 1 no.s
Light Out put	White colour (colour temperature 5500-6500 K). Lumen efficacy of LED- min 120 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.
Average duty cycle	Dusk to dawn



MINIMUM TECHNICAL REQUIREMENTS / STANDARDS

1. DUTY CYCLE

2. The Solar PV White- LED High Mast Light system should be designed to operate for dusk to dawn.

3. SPV MODULES:

- Only indigenous modules of reputed brand IEC Tested shall only be used in the project.** Crystalline high power/efficiency cells shall be used in the Solar Photovoltaic module. The power output of the each module shall not be less than 75 Wp at load voltage* 16.4 +- 0.2 Volt under standard test conditions (STC).
* Not applicable for MPPT charge controller.
- ii. The open circuit voltage of the PV modules under STC should be at least 21.0 Volts.
- iii. Crystalline high power/efficiency cell shall be used in the Solar Photovoltaic module. The cell efficiency should not be less than 15% .
- iv. PV module must be warranted for output wattage, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.
- v. The terminal box on the module shall be IP 65 and designed for long life out door operation in harsh environment should have a provision for opening for replacing the cable, if required.
- vi. The offered module shall be in accordance with the requirements of MNRE.
- vii. Latest edition of IEC 61215 edition II / IS 14286 for Crystalline and shall be certified by MNRE authorized test center. The bidder shall submit appropriate certificates.
- viii. PV modules must quality to IEC 61730 Part 1- requirements for construction & Part 2 – requirements for testing, for safety qualification.

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

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

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

4. BATTERY

Battery shall be LI-ION PHEROPHOSPHATE type. The batteries should conform to the latest BIS and IEC standards. A copy of the relevant test certificate for the battery should be furnished. The battery of reputed make Tested by MNRE/ NABL test laboratory for relevant latest BIS /IEC standard) shall only be used.

1. Capacity of the battery shall be not less than 30 AH.
2. Minimum DOD of battery shall be 80%.
3. Battery shall have a design life expectancy of >5 years at 80% DOD at 27°C.
4. Battery terminal shall be provided with covers.
5. Suitable carrying handle shall be provided.
6. Bidder shall mention the design cycle life of batteries at 75%, 50% and 25% depth of discharge at ambient temperature up to 45 degree C.
7. The batteries shall be designed for operating in ambient temperature of site up to 55 degree C.
8. The self discharge of batteries shall be less than 2 % per month of rated capacity at 27 degree C.

9. 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 will not be permitted.
- ii. 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.
- iii. The lamps should be housed in an assembly suitable for outdoor use and shall comply with IP65. The LED housing should be made of pressure die cast aluminum having sufficient area for heat dissipation and heat resistant toughened clear glass/ high quality poly carbonate fitted with pressurized die cast aluminum frame with SS screws. 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 loads disconnect and charge regulation set point.
- iv. High power LED of minimum 1 watt each capacity capable to withstand maximum 1 amp driving current having lens angle greater than 85 X 135 degree shall be used. The LED of reputed make Having LM 79 and LM 80 test report shall only be used.
- vi. The LED efficacy should be more than 120 lumen / watt @ 350 mA, The total luminaire efficacy should not be less than 100 lumens per watt. (Including all losses) i.e the lumens output of each luminaire should not be less than 3000 lumens.
- vii. All LED in circuit must be connected in series only. It must incorporate fail short mechanism in all LEDs
- viii. The LEDs used in the luminaire should have life time more than 50,000 hrs.
- ix. The lumen depreciation of LED shall not be more than 30% even after 50,000 burning hours.
- x. Power consumption of the each LED Luminaire / Lighting unit shall not be more than 12 W (including LED Driver power loss).
- x. The lux level over a 16 meter of radius should not be less than 5% at the point mentioned below in the lux level distribution chart.

- xi. Other Parameters :– better than 3 %– 12 V DC
DC-DC (as per IEC 62384)
70 % Typical
Free from glare and flickering and UV upto 50 deg
convertor efficiency > =90 %
- xii. The connecting wires used inside the luminaries, shall be low smoke halogen free, fire retardant e-beam cable and fuse protection shall be provided at input side.
- xiii. Auto resettable reverse polarity protection shall be provided
- xiii. LED lighting unit shall comply to LM -79-08 and LM -80-08 Standards and copy of test certificate should be submitted.
- xiv. The make, model number, country of origin and technical characteristics of white LEDs used in the lighting system must be furnished.
- xv. The luminaries must have light distribution polar curve. The bidder should submit the polar curve of luminaries in LM 79 report.

10. ELECTRONICS

- I. 1MPPT charge controller to maximize energy drawn from the Solar PV array. The MPPT charger shall be microcontroller based. The MPPT should have four stage charging facilities i.e Bulk, Absorption, Float and Equalization. The auto equalization facilities for every (30+_2 days) and provision to verify it during testing. The PV charging efficiency shall not be less than 90% and shall be suitably designed to meet array capacity. The charge controller shall confirm to IEC 62093, IEC 60068 as per specifications
- II. Protection against polarity reversal of PV array and battery, Over Current, Short Circuit, Deep Discharge, Input Surge Voltage; Blocking diode protection against battery night time leakage through PV Module .
- III. Electronics should operate 21volt and 10 volt and its Euro efficiency should be at least 90 %.
- IV. The system should have protection against battery overcharge and deep discharge conditions. The numerical values of the cut off limits of lower voltage should not be less than 11.1 Volt and over voltage cutoff should be 16.5 V.
- V. Full protection against open circuit, accidental short circuit and reverse polarity should be provided
- VI. Charge controller shall have automatic dusk-dawn circuit based on spv module as sensor for switching on/off the high mast light without manual intervention. The sensor must not get triggered by impulse lighting like lightning flashes and firecrackers.
- VII. The self-consumption of the charge controller shall not be more than 20 mA at rated voltage and rated current.
- VIII. Adequate protection shall also be incorporated under no-load conditions (i.e. when the system is ON & the load (LED Lamp is removed)

- IX. 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.
- X. All capacitors shall be rated for max. temp of 105° C.
- XI. Resistances shall preferably be made of metal film of adequate rating.
- XII. Device shall have adequate thermal margin should be at least 25 degree below the allowable junction temperature while operating at an ambient temperature of 55 degree C and full load.
- XIII. Fibre 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 IECQ / NABL accredited laboratory for relevant IEC / equivalent BIS standard.
Charge Controller/MPPT Units and Protections		IEC IEC 62093 Equivalent BIS Std.
Storage Batteries	Li- Ion Pherophosphate Battries	Latest BIS / IEC standards
Cables	General Test and Measuring Method	IEC 60189
	PVC insulated cables for working voltage up to and including 1100 V	IS 694/ IS 1554
	UV resistant for outdoor	IS/IEC 69947
	Installation	

Item / System	Applicable BIS /Equivalent IEC Standard Or MNRE Specifications	
Junction Boxes /Enclosures for Inverters/Charge Controllers/Luminaries	General Requirements	IEC 62208 IP 65
LED	LED performance Luminary performance	LM -80-08 LM 79-08

2.4 MECHANICAL HARDWARE

- (i) A galvanized metallic frame structure 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 deep Galvanized Iron Octagonal pole in single length for 7.0 mtr. Height as per specification as under:
 - (a) The Octagonal poles shall be Hot deep galvanized to min 120 microns. The material of pole shall be as per specification of BS EN 100025 , ISO 1461 .
 - (b) The size of the pole shall be min 75 mm at Top side, 150 mm at bottom side with Thickness of 4 mm minimum.
 - (c) The base plate of pole shall be of size 260 X 260 X 18 mm duly welded to pole.
 - (d) Pole should have the arrangement at top for mounting of Solar panel of design capacity with mounting structure at an angle of latitude $\pm 2^{\circ}$ degree.
 - (e) The four LED luminaire shall be mounted on this pole at height of 6.5 meter from pole bottom.
 - (f) The battery either two or four shall also be mounted on this pole at suitable height hence provision should be made accordingly.
 - (g) The pole shall be mounted on suitable RCC foundation at least 1.2 meter deep and 0.5 meter above ground with 4 bolt of min 20 mm size
 - (h) The Nut -Bolts in battery box and panel structures should be proper riveted to ensure the theft.
 - (i) The design and foundation details of the pole shall be got approved from BSCL before execution of work.

(iii) BATTERY BOX :

vented metallic box of 20 SWG thick made of pre coated galvanized ms sheet with 60 microns thickness for housing the storage battery outdoors should be provided with proper lock and key. The boxes should be inscribed with BSCL written on at least two faces. The size of box should be as per battery size (including vent plug/level indicator) providing minimum clearance of 50 mm on all sides. The battery box is to be properly rest/mounted on pole at 03 meters of height from ground level. Louvers for proper ventilation should be provided on one side and back of the battery box. No vent shall be providing on top of battery box. Box should be provided with proper locking arrangement. The edges of box should be turned properly to give smooth edge and good strength. Two wooden battens should be fixed inside the battery box to avoid the electrical contact between battery and box. Components and hardware shall be vandal and theft resistant. All parts shall be corrosion- resistant.

(iv) ELECTRIC CABLE

The electric cable used shall be twin core PVC insulated water and UV resistance copper cable of minimum size 1.5mm.

2.5 OTHER FEATURES

A toll free number (i.e. for EX. 1800 180 0005) of IVRS of BSCL and UID number of computer font size 72 or 13 mm (issued/provided by BSCL) is to be embossed/ punch on pole between 1-1.5 meter above from ground level and in front of battery box 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 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 non compliance etc of agreement will be considered/taken.

2.6 INSTALLATION OF SYSTEM:

The system should be properly installed at site. The SPV module mounting structure along with telescopic octagonal pole should be properly grouted depending upon the location and requirement of the site. The grouting should be such that it should withstand the maximum wind speed /storm of 150 kmph. The pole should be rest on a suitable foundation. (RCC Foundation size 600 mm x600 mm x 1200 mm deep and 500 mm above the ground level. must have 4 nos. foundation bolts of 1000 mm & 20mm dia.) Adequate space should be provided behind the PV module/array for

allowing un-obstructed air flow for passive cooling. Cables of appropriate size should be used to keep electrical losses to a bare minimum. Care should be taken to ensure that the battery is placed with appropriate leveling on a structurally sound surface. The control electronics should not be installed directly above the battery. 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.

2.7 WARRANTY

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

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 BSCL at a suitable place on the main components viz., SPV Panel, Battery, LED Lighting Units to be used in the installation of the solar high mast lighting systems.
- b) The unique system ID number as provided by BSCL shall be embossed or punch or Permanently riveted on each pole and battery box of the system.

PART -5

WARRANTY AND MAINTENANCE

- ② 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).
- ② The mechanical structures, electrical components including battery and overall workmanship of the Solar PV White- LED High Mast Light Systems must be warranted for a minimum of 5 years from the date of commissioning and handing over of the system.
- ② 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.
- ② It is mandatory for the contractor/ bidder to open an authorized service center in the concerned district before the supply/installation of the system.
- ② Necessary maintenance spares for five years trouble free operation shall also be supplied with the system.
- ② 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.
- ② 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 5 days.
- ② A separate Service & Maintenance passbook shall be maintained with each system as per the format provided by BSCL. The deputed personnel shall be in a position to check and test all the components regularly, so that preventive actions, if any, could be taken well in advance to save any equipment from damage. Any abnormal behavior of any component shall be brought to the notice of BSCL for appropriate action.
- ② Normal and preventive maintenance of the Solar PV White- LED High Mast Light, single arm and double arm systems such as cleaning of module surface, tightening of all electrical connections, cleaning & greasing of battery terminals, also the duties of the deputed personnel during quarterly maintenance visits.
- ② During operation and maintenance period of the Solar PV White- LED High Mast, single arm and double arm Light 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.

Technical BID		
	Description	To be furnished by the Tenderer
A.	Solar PV Module	
1	Type of Module	
2	Make	
3	Availability of RFID tag	
4	Max power at STC Pmax (W)	
5	Max power voltage Vmp(V)	
6	Max power current Imp(A)	
7	Open circuit voltage Voc (V)	
8	Short circuit current Isc (A)	
9	Load current at 16.4 Volt Iload	
10	Conversion Efficiency	
11	No of cells per module	
12	bypass diodes	
13	Solar module frame material	
14	Module Dimension	
15	Module Weight	
16	Fill factor	
B.	Li- Ion Pherophosphate Battery	
1	Make	
2	Type	
3	Capacity of Battery	
4	Self Discharge	
5	DOD	
6	Design Cycle Life of battery	
7	Charge efficiency	
8	Size & Weight of Battery	
C.	Electronics	
1.	Make	
2.	Charger Type	
3.	PV Charging Efficiency	
4.	Idle current consumption	
5.	Operating voltage	
6.	Temperature compensated set points	
7.	Details of Indicators provided	
8.	Details of Protections provided	
	i. Battery Over charge set value	
	ii. Deep discharge set value	
	iii. Short Circuit	
	iv. Open Circuit	

Technical BID		
	Description	To be furnished by the Tenderer
	v. Reverse polarity	
	vi. Blocking Diode	
	vii. Others	
D.	LED Lighting Unit	
1	Make and material of housing	
2	Power consumption of LED lighting unit	
3	No of LEDs	
4	Wattage of each LED	
5	Driver Consumption	
6	Make and origin of LED	
7	Lumens output	
8	LED DC Current Regulation	
9	Input Voltage	
10	Beam Angle	
11	CRI	
12	ED Efficacy	
13	Luminaire Efficiency	
14	Automatic ON/OFF Timings	
15	Other features (IP 65)	
E.	Module Mounting frame	
1	Material used	
2	Whether Protection against corrosion provided	
3	Angle of inclination to horizontal	
F.	Pole	
1	Material used	
2	Height (Mtr.)	
3	Thickness	
4	Weight of pole	
5	Diameter	
6	Whether pole is Galvanized	
G.	Battery housing	
1	Material	
2	Dimension	
3	Whether Protection against corrosion provided	
4	Air vent and locking arrangement	
H.	Connecting cables / wire	
1	Material and size	
2	Details of Switches (Nos.) Any other Details	

(Signature of Bidder)
with seal

PART II (Financial Bid)

Tender NO. BSCL/Solar High Mast/solar street light single arm /double arm (W-LED, LI-ION PHEROPHOSPHATE) /2019)

FINANCIAL BID

Name of the Firm: -----

Design, Supply, Installation, Commissioning and 5 years Warranty with comprehensive maintenance of Solar PV High Mast Lighting /LED STREET LIGHT SINGLE ARM / DOUBLE ARM System as per Technical specifications, Terms and Conditions of the tender document.

S.NO.	ITEMS	UNIT RATE
1	Design, Supply, Installation, Commissioning and 5 years Warranty with comprehensive maintenance of Solar PV High Mast Lighting System (W-LED light Source and LI-ION PHEROPHOSPHATE battery based) at identified sites of Bhagalpur FOR site as per technical specifications, terms and conditions mentioned in the tender inclusive of all taxes & duties, trade tax/ GST, storage, transportation up to site, insurance etc. and any other job required to properly execute the complete work.	
TOTAL AMOUNT		
S.NO.	ITEMS	UNIT RATE
1	Design, Supply, Installation, Commissioning and 5 years Warranty with comprehensive maintenance of Solar PV LED STREET LIGHT SINGLE ARM (W-LED light Source and LI-ION PHEROPHOSPHATE battery based) at identified sites of Bhagalpur, FOR site as per technical specifications, terms and conditions mentioned in the tender inclusive of all taxes& duties, trade tax/ GST, storage, transportation up to site, insurance etc. and any other job required to properly execute the complete work.	
TOTAL AMOUNT		
S.NO.	ITEMS	UNIT RATE
1	Design, Supply, Installation, Commissioning and 5 years Warranty with comprehensive maintenance of Solar PV LED STREET LIGHT DOUBLE ARM (W-LED light Source and LI-ION PHEROPHOSPHATE battery based) at identified sites of Bhagalpur, FOR site as per technical specifications, terms and conditions mentioned in the tender inclusive of all taxes & duties, trade tax/ GST, storage, transportation up to site, insurance etc. and any other job required to properly execute the complete work.	
TOTAL AMOUNT		

NOTES:

1. Certified that rates quoted above are as per the requirement, specification terms & condition mentioned in the tender document.
2. The rates are inclusive of all taxes & duties, 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 II.
Other document / condition, terms if enclosed will liable to be rejection of bid.

Annexure - I

BHAGALPUR SMART CITY LIMITED (BSCL)

JOINT COMMISSIONING AND HANDING OVER CERTIFICATE /WARRANTEE CARD:

(To be submitted in 3 copies)

It is hereby certified that following system has been supplied, installed, commissioned and handed over to the beneficiary as per following details:-

Sr. No.	Items	Details
1	Name of system	Solar High Mast (W-LED light source and LI-ION PHEROPHOSPHATE battery based)
2	Agreement Number Date	
3	Work Order Number Date	
4	UID number	
5	Name of beneficiary (with mobile number)	
6	District	
7	Block	
8	Gram /Nagar Panchayat /nagnigam	
9	Exact location of installation (land mark)	
10	Date of installation	
11	Warrantee expire on	
12	Name & Address of the Manufacturer/ Supplier of the System	
13	SPV Modules Installed Sr. No Make Model	
14	Battery Sr. No Make Model	
15	Training for operation & maintenance of the systems	Provided/Not Provided
16	Technical literature, operation & maintenance manual in English & Hindi	Provided/Not Provided

(Signature)

Authorized Signatory of
firm
(with seal)

(Signature)

Sr./Project Officer/Incharge -
Project

BSCCL
(With seal)

System unique identification code (UID) provided by BSCCL _____

(In case of complaint dial toll free numberfor complaint lodging.)

Sd/-

C.E.O

Bhagalpur Smart City Limited