

## I N D E X

**Name of Work : Providing & Fixing 37 KWp ongrid Solar Photovoltaic Power Plant with necessary installations at Lakshmi Bai College , Ashok Vihar , Delhi.**

S. No.	Description	Page No.
1.	Index	1
2.	PART – A Informations and Instructions for contractors for e Tendering CPWD 6 and 7, integrity pact and performance security, bank guarantee bond.	2
3.	Information And Instructions For Bidders For E-Tendering Forming Part Of Bid Document	3-6
4.	Brief Particulars of The Work (Section – I)	7
5.	Information and instructions for bidders for e-tendering to be posted on website (Section – II)	8-10
6.	Form CPWD-6 – Notice Inviting Tenders	11-15
7.	Receipt of Deposition of EMD	16
8.	Forms CPWD-7	17-18
9.	Performa of Schedules (A to F)	19-23
10.	Integrity Pact	24-30
11.	Letter of Transmittal, Form-A, Form-B, Form-B-1, Form-C, Form-C-1, Form-D and Form-D-1	31-36
12.	Form of performance security bank guarantee bond (Annexure-A to B)	37-39
13.	Affidavit (Annexure-C & D)	40-41
14.	PART - B Additional Terms And Conditions & Special Conditions Technical Specifications	42-57
15.	Central Public Works Department Standard Operating Procedures (SOPs) and Guidelines for Construction Sites for COVID-19 Outbreak	58-60
16.	Lists Of Acceptable Makes	61
17.	PART - C Technical Bid	62
18.	Schedule - "B", "C", "D", "E"	63-69
19.	PART - D Price Bid	70
20.	Schedule of quantities	71

**NIT No. 02-3<sup>rd</sup>Call/EE(E)/NWED/PWD/2021-22** containing **71** Pages is hereby approved for **Rs. 22,59,220/-** (Rupees Twenty Two Lac Fifty Nine Thousand Two Hundred and Twenty Only)

**Sr. Draughtsman (E)**  
North West Elect Division

**Assistant Engineer (E)-P**  
North West, Elect. Divn. PWD

**Executive Engineer (E)**  
North West, Elect. Divn., PWD  
ISBT, Kashmere Gate,  
Delhi-110006

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I = NIL		
O = NIL		

**PART –A**  
**INFORMATIONS AND INSTRUCTIONS FOR**  
**CONTRACTORS FOR E- TENDERING CPWD**  
**6 AND 7, INTEGRITY PACT AND**  
**PERFORMANCE SECURITY, BANK**  
**GUARANTEE BOND.**

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I = NIL		
O = NIL		

**INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR e-TENDERING FORMING PART OF  
BID DOCUMENT**

The Executive Engineer (E) North West, Elect. Div., PWD, ISBT, Kashmere Gate, Delhi-110006 (Tel No. : 011 23863892) on behalf of the President of India invites percentage rate bids from **OEM/Specialized firms in Two bid system [(i) PQ Criteria & Technical Bid and (ii) Financial Bid]** for the following work :-

S. No.	NIT No.	Name of work & Location	Estimated cost put to bid (Rs.)	Earnest Money	Period of Completion	Last date & time for submission of bid (Technical bid & Financial bid), copy of receipt of deposition of original EMD and other document as specified in NIT	Date & Time of opening of PQ and Technical bid	Time Period allowed for submission of originals of all the scanned and uploaded documents except EMD as specified in NIT by the lowest bidder.
1	2	3	4	5	6	7	8	9
1	02-3 <sup>rd</sup> Call /EE(E)/NWED/PWD/2021-22	Providing & Fixing 37 KWp ongrid Solar Photovoltaic Power Plant with necessary installations at Lakshmi Bai College , Ashok Vihar , Delhi.	Rs. 22,59,220/-	Rs. 45,184/-	45 (Forty Five) Days	13-07-2021 upto 03:00 PM	13-07-2021 upto 03:30 PM	Within 7 (seven) days of opening of financial bid. If the last day happened to be holiday then next working day.

1. **Contractors (Solar Plant Manufacturer) who fulfill the following requirements shall be eligible to apply. Joint Ventures, Consortium and special purpose authorization are not accepted.**

- (a) Should have satisfactorily completed the similar works as mentioned below during the last Seven years prior to the month of 31 March 2021 and ongoing works.
  - (i) Three similar works each costing not less than **Rs. 9.04 Lacs** with capacity of Solar Power Plant not less than **30 KWp**

or

two similar works each costing not less than **Rs. 13.56 Lacs** with capacity of Solar Power Plant not less than **30 KWp**

or

one similar work costing not less than **Rs. 18.07 Lacs** with capacity of Solar Power Plant not less than **30 KWp.**

**Similar work shall mean works of “SITC of ongrid solar photovoltaic power plant”** The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated from the date of completion to previous day of last day of submission of bids.

C = NIL	SDM (E)                      AE (E)-P,                      EE(E), North West Elect. Div	Page   3
I = NIL		
O = NIL		

- (b) Should have had Average Annual Financial Turnover of **Rs. 13.56 Lacs** on construction works during the last three years ending 31<sup>st</sup> March 2020 (FORM - A). (Scanned copy of Certificate from CA to be uploaded)
  - (c) Should not have incurred any loss (profit after tax should be positive) in more than two years during available last five consecutive balance sheet, duly audited and certified by the Chartered Accountant (Form – A).
  - (d) Should have a solvency of the amount equal to 40% of Estimated Cost put to tender or Net worth Certificate of Minimum **10% of** the Estimated Cost put to tender issued by certified Chartered Accountant (Form 'B' or Form- 'B1')
  - (e) The OEM/Specialized firms shall comply with BIS standards, duly certified by the manufacturer itself.
  - (f) The manufacturer shall be compliant to the Public Procurement (Preference to Make In India), Order 2017 (as amended from time to time) issued by the Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce and Industry.
  - (g) The experience of successful completion of similar works shall be as per CPWD Works Manual/SoP.
  - (h) The manufacturer shall furnish an undertaking regarding availability of spares for the entire expected life of the Photovoltaic Solar System i.e. 5 to 25 years.
  - (i) The complete Solar panel installation including its components, safety devices, various types of controls etc., testing, inspection, operation & maintenance shall conform to relevant Codes, Standards, code of practices, guidelines, safety rules, inspection manual(s), rules issued by Bureau of Indian Standards, as amended up to the last date of receipt of tenders and as per technical specification and relevant BIS / IEC mentioned in terms and condition of NIT.
  - (j) Quality standards shall conform to latest IS/ISO-9001:2015 and other relevant technical specification codes mentioned in the NIT.
  - (k) The down time of installed System being maintained by the manufacturer shall not be more than 8 hours (average) in case of minor faults and 3 days (average) in case of major faults during the last one financial year. c
2. The intending bidder must read the terms and conditions of CPWD-6 carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.
  3. This information and instructions for bidders posted on website shall form part of bid document.
  4. The bid document consisting of Plans, Specifications, Schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website [www.govtprocurement.delhi.gov.in](http://www.govtprocurement.delhi.gov.in) free of cost.
  5. **Earnest Money Deposit**
  - 5.1 **(For CPWD enlisted contractors of appropriate class in composite category / Non CPWD enlisted contractors)**  
The bid can only be submitted after deposition of **Earnest Money Deposit Declaration** which shall be scanned and uploaded to the e-Tendering website within the period of bid submission.
  - 5.2 **(For other work experienced firm)**  
The bid can only be submitted after deposition of original EMD either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission and uploading the mandatory scanned documents such as Demand draft or Pay order or Bankers Cheque or Deposit at call Receipt or Fixed Deposit Receipts and Bank Guarantee of any scheduled Bank towards **EMD in favour of Executive Engineer (E), PWD EMD M-353, Delhi**, receipt for deposition of original EMD to division office of any Executive Engineer (including NIT issuing EE/AE), CPWD and other documents as specified. (at point no. 16 below)
  6. Those contractors not registered on the website mentioned above, are required to get registered beforehand. If needed they can be imparted training on online bidding process as per details available on the website.
  7. The intending bidder must have valid class-III digital signature to submit the bid.

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I = NIL		
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8. On opening date, the contractor can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.
9. Contractor can upload documents in the form of JPG format and PDF format.
10. **Certificate of Financial Turn Over:** At the time of submission of bid contractor may upload Affidavit/ Certificate from CA mentioning Financial Turnover of last 3 years or for the period as specified in the bid document and further details if required may be asked from the contractor after opening of technical bids. There is no need to upload entire voluminous balance sheet.
11. Contractor must ensure to quote rate of each item. The column meant for quoting rate in figures appears in pink colour and the moment rate is entered, it turns sky blue. In addition to this, while selecting any of the cells a warning appears that if any cell is left blank the same shall be treated as "0". Therefore, if any cell is left blank and no rate is quoted by the bidder, rate of such item shall be treated as "0" (ZERO). However, If a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above/below on the total amount of the tender or any section / sub head in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.
12. When bids are invited in two bid system and if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted then the bid submitted earlier shall become invalid.
13. PQ cum Technical bids shall be opened first on the due date and time as mentioned above. The date and time of opening of Financial bids of contractors who qualifies in the Technical Bid shall be communicated to them at a later date after evaluation of eligibility & Technical bids.
14. Pre-Bid conference shall be held in the **O/o Executive Engineer (E) North West, Elect. Div., PWD, ISBT, Kashmere Gate, Delhi-110006** at **11:00 hours on 06-07-2021** to clear the doubt if any of intending bidders. If further pre bid conferences are required for complete and effective interactions, the date and time of same will be communicated at the end of the pre bid meeting. When bids are invited in two bid system
15. The department reserves the right to reject any prospective Applications/ bids without assigning any reason thereof and to restrict the list of qualified contractors to any number deemed suitable by it, if too many bids/applications satisfying the laid down criteria are received.
16. **List of Documents to be scanned and uploaded within the period of bid submission:**
  - a) i) Earnest Money Deposit Declaration (**For CPWD enlisted contractors / For Non CPWD enlisted contractors**) (See point no. 5.1 at page no. 3 of NIT)  
ii) Original EMD (**other work experienced firm**) (See point no. 5.2 at page no. 3 of NIT)
  - b) Copy of receipt for deposition of original EMD to division office of any EE,CPWD.
  - c) Certificates of Work Experience signed not below the rank of Executive Engineer or equivalent **as per CPWD Works Manual / SoP**. (Form – C or Form C1)
  - d) Certificate of Financial Turnover from CA (**Form A**).
  - e) Solvency equal to 40% of Estimated Cost put to tender or net worth Certificate of 10% of the estimated cost put to tender issued by certified Chartered Accountants. (Form – B or Form B1)
  - f) The OEM/Specialized firms shall comply with BIS standards, duly certified by the manufacturer itself.
  - g) The manufacturer shall be compliant to the Public Procurement (Preference to Make In India), Order 2017 (as amended from time to time) issued by the Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce and Industry.\
  - h) The experience of successful completion of similar works shall be as per CPWD Works Manual/SoP.
  - i) (i) The manufacturer shall furnish an undertaking regarding availability of spares for the entire expected life of the Photovoltaic Solar System i.e. 5 to 25 years.  
(ii) The complete Solar panel installation including its components, safety devices, various types of controls etc., testing, inspection, operation & maintenance shall conform to relevant Codes, Standards, code of practices, guidelines, safety rules, inspection manual(s), rules issued by Bureau of Indian Standards, as amended up to the last date of receipt of tenders and as per technical specification and relevant BIS / IEC mentioned in terms and condition of NIT.

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I = NIL		
O = NIL		

(iii) Quality standards shall conform to latest IS/ISO-9001:2015 and other relevant technical specification codes mentioned in the NIT.

(iv) The down time of installed System being maintained by the manufacturer shall not be more than 8 hours (average) in case of minor faults and 3 days (average) in case of major faults during the last one financial year.

- j) GST registration Certificate of the State in which the work is to be taken up, if already obtained by the bidder.
- k) Acknowledgement of latest GST return filed (after 1<sup>st</sup> January 2021).
- l) Technical Schedule – B
- m) Technical Schedule – C
- n) Technical Schedule – D
- o) Technical Schedule – E
- p) Schematic Line Diagram of Solar Plant.

If the bidder has not obtained GST registration in the State in which the work is to be taken up, or as required by GST authorities then in such a case the bidder shall scan and upload following undertaking along with other bid documents.

**“If work is awarded to me, I/we shall obtain GST registration Certificate of the State, in which work is to be taken up within one month from the date of receipt of award letter or before release of any payment by CPWD, whichever is earlier, failing which I/We shall be responsible for any delay in payments which will be due towards me/us on a/c of the work executed and/or for any action taken by CPWD or GST department in this regard.**

The contractors of composite category are mainly enlisted for execution of building work, internal and External Electrical Works and E&M services like HVAC, Fire Fighting, Fire Alarm, Sub-station, DG Set and related items, However, they shall not be eligible for tenders for exclusive work of horticulture lifts, Road, Furniture and other specialized works. ~~If NIT approving authority feels that the work is of special or secret nature requiring specialized equipment and skill, then restricted tenders can be called as per para 4.5.1 of CPWD Works Manual 2019. Similarly, tenders of specialized nature/tenders with specialized component of works shall be called as per para 3.1.3 of CPWD Works Manual 2019.~~

Instruction to bidders may be modified suitably by NIT approving authority.

**Executive Engineer (E)**  
North West, Elect. Divn., PWD  
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I = NIL		
O = NIL		

**SECTION-I**  
**BRIEF PARTICULARS OF THE WORK**

**1. Salient details of the work for which bids are invited are as under :**

**Name of work : “ Providing & Fixing 37 KWp ongrid Solar Photovoltaic Power Plant with necessary installations at Lakshmi Bai College , Ashok Vihar , Delhi. .**

**Estimated cost : Rs. 22,59,220/-**

**Period of completion: 45 (Forty Five) Days.**

2. The work site is situated at **Lakshmi Bai College , Ashok Vihar , Delhi.**

3. General Features and major components of work are as under:-

**Providing & Fixing 37 KWp ongrid Solar Photovoltaic Power Plant with necessary installations at Lakshmi Bai College , Ashok Vihar , Delhi. .**

4. Work shall be executed according to: (i) GCC 2020 (General condition for CPWD Work – CPWD Form 7) incorporating amendment up to last date of submission of bid

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C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   7
I = NIL		
O = NIL		

**SECTION-II**  
**INFORMATION AND INSTRUCTION FOR BIDDERS**

**1. General**

- 1.1** Letter of transmittal and forms for deciding eligibility are given in Section III.
- 1.2** All information called for in the enclosed forms should be furnished against the relevant columns in the forms. If for any reason, information is furnished on a separate sheet, this fact should be mentioned against the relevant column. Even if no information is to be provided in a column, a “nil” or “no such case” entry should be made in that column. If any particulars/query is not applicable in case of the bidder, it should be stated as “not applicable”. The bidders are cautioned that not giving complete information called for in the application forms or not giving it in clear terms or making any change in the prescribed forms or deliberately suppressing the information may result in the bid being summarily disqualified. Bids made by telegram or telex and those received late will not be entertained.
- 1.3** References, information and certificates from the respective clients certifying suitability, technical knowledge or capability of the bidder should be signed by an officer not below the rank of Executive Engineer or equivalent.
- 1.4** The bidder may furnish any additional information which he thinks is necessary to establish his capabilities to successfully complete the envisaged work. He is, however, advised not to furnish superfluous information. No information shall be entertained after submission of eligibility criteria document unless it is called for by the Employer.
- 1.5** Deleted

**2. Definitions:**

- 2.1** In this document the following words and expressions have the meaning hereby assigned to them.
- 2.2** Employer: Means the President of India, acting through the **Executive Engineer (E), North West, Elect. Div., PWD ISBT, Kashmere Gate, Delhi-110006.**
- 2.3** Bidder: Means the individual, proprietary firm, firm in partnership, limited company private or public or corporation.
- 2.4** “Year” means “Financial Year” unless stated otherwise.

**3. Method of application:**

- 3.1** If the bidder is an individual, the application shall be signed by him above his full type written name and current address.
- 3.2** If the bidder is a proprietary firm, the application shall be signed by the proprietor above his full typewritten name and the full name of his firm with its current address.
- 3.3** If the bidder is a firm in partnership, the application shall be signed by all the partners of the firm above their full typewritten names and current addresses, or, alternatively, by a partner holding power of attorney for the firm. In the later case a certified copy of the power of attorney should accompany the application. In both cases a certified copy of the partnership deed and current address of all the partners of the firm should accompany the application.
- 3.4** If the bidder is a limited company or a corporation, the application shall be signed by a duly authorized person holding power of attorney for signing the application accompanied by a copy of the power of attorney. The bidder should also furnish a copy of the Memorandum of Articles of Association duly attested by a Public Notary.

**4. Final decision making authority.**

The employer reserves the right to accept or reject any bid and to annul the process and reject all bids at any time, without assigning any reason or incurring any liability to the bidders.

**5. Particulars provisional**

The particulars of the work given in Section I are provisional. They are liable to change and must be considered only as advance information to assist the bidder.

**6. Site Visit**

C = NIL	SDM (E)                      AE (E)-P,                      EE(E), North West Elect. Div	Page   8
I = NIL		
O = NIL		

The bidder is advised to visit the site of work, at his own cost, and examine it and its surroundings to himself collect all information that he considers necessary for proper assessment of the prospective assignment.

## 7. Initial Criteria for eligibility

**7.1** The Bidder should have satisfactorily completed Similar works during the last Seven years and ongoing works as well ending previous day of last date of submission of tenders as below. For this purpose cost of work shall mean gross value the completed work including cost of material supplied by the Government/Client but excluding those supplied free of cost. This should be certified by an officer not below the rank of Executive Engineer/Project Manager or equivalent. Three similar works each costing not less than **Rs. 9.04 Lacs** with capacity of Solar Power Plant not less than **30 KWp** or two similar works each costing not less than **Rs. 13.56 Lacs** with capacity of Solar Power Plant not less than **30 KWp** or one similar work costing not less than **Rs. 18.07 Lacs** with capacity of Solar Power Plant not less than **30 KWp**.

**Similar work shall mean works of “SITC of on grid solar photovoltaic power plant”**

The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7 % per annum; calculated from the date of completion to previous day of last date of submission of tenders

**7.2** The bidder should have had Average Annual Financial Turnover of **Rs. 13.56 Lacs** on Civil/Electrical construction work during the last three consecutive years Balance sheets duly audited by Chartered Accountant. Year in which no turnover is shown would also be considered for working out the average.

**7.3** The bidder should not have incurred any loss (profit after tax should be positive) in more than two years during available last five consecutive balance sheets, duly certified and audited by the Chartered Accountant.

**7.4** The bidder should have a solvency of the amount equal to 40% of Estimated Cost put to tender or Net worth Certificate of Minimum **10% of** the Estimated Cost put to tender issued by certified Chartered Accountant (Form ‘B’ or Form- ‘B1’).

**7.5** The bidder should have sufficient number of Technical and Administrative employees for the proper execution of the contract. The bidder shall have to submit a list of these employees stating clearly how these would be involved in this work within 15 days of award of work .

\* May be struck off for works with estimated cost more than Rs. 25 Crores.

## 8. Evaluation criteria

**8.1** The detailed submitted by the bidders will be evaluated in the following manner:

8.1.1 The initial criteria prescribed in para 7.0 above in respect of experience of eligible similar works completed, loss, Net Worth and financial turn over etc. will first be scrutinized and the bidder’s eligibility for the work be determined.

8.1.2 The bidders qualifying the initial criteria as set out in para 7.0 above will be evaluated for following criteria by scoring method on the basis of details furnished by them.

- |  |   |                  |
|--|---|------------------|
| a) Financial strength (Form 'A' & 'B')   | - | Maximum 20 marks |
| b) Experience in eligible similar nature of work during last seven years (Form 'C') and ongoing works as well (Form C-1) | - | Maximum 20 marks |
| c) Performance on works (Form 'D') - Time over run   | - | Maximum 20 marks |
| d) Performance on works (Form D-1 completed work 25 Marks on going works 15 Marks Quality)                               | - | Maximum 40 marks |

**Total 100 Marks**

To become eligible for short listing the bidder must secure at least fifty percent marks in each (Section a, b, c & d) and sixty percent marks in aggregate.

The department, however, reserves the right to restrict the list of such qualified contractors to any number deemed suitable by it.

Note : The average value of performance of works for time over run and quality shall be taken on the basis of performance report and eligible similar works.

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   9
I = NIL		
O = NIL		

**9. Financial information**

Bidder should furnish the Annual financial statement for the last five year in( Form “A”) Solvency (Form ‘B’) and Net Worth Certificate in (Form “B-1”)

**10. Experience of similar works**

**10.1** Bidder should furnish the

List of eligible similar nature of works successfully completed during the last seven years prior to the month of 31 March 2021in (Form “C”) and on going works as well (Form “C-1”)

**11. Organisation information**

Bidder is required to submit the information in respect of his organization in Forms “E”

**12. Letter of transmittal**

The bidder should submit the Letter of Transmittal attached with the document.

**13. Opening of Price bid**

After evaluation of applications, a list of short listed agencies will be prepared. Thereafter the financial bids of only the qualified and technically acceptable bidders shall be opened at the notified time, date and place in the presence of the qualified bidders or their representatives.

**14. Award Criteria**

**14.1** The employer reserves the right, without being liable for any damages or obligation to inform the bidder, to:

- a) amend the scope of work and value of contract.
- b) Reject any or all the applications without assigning any reason.

**14.2** Any effort on the part of the bidder or his agent to exercise influence or to pressurize the employer would result in rejection of his bid. Canvassing of any kind is prohibited.

**Executive Engineer (E)**

North West, Elect. Divn., PWD  
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C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   10
I = NIL		
O = NIL		

## CPWD - 6 FOR E- TENDERING

1. Percentage Rate Bids are invited on behalf of President of India from **OEM/Specialized firms in Two bid system [(i) PQ Criteria & Technical Bid and (ii) Financial Bid]** for the work of **Providing & Fixing 37 KWp ongrid Solar Photovoltaic Power Plant with necessary installations at Lakshmi Bai College , Ashok Vihar , Delhi. .**

The enlistment of the contractors should be valid on the last date of submission of bids. In case the last date of submission of bid is extended, the enlistment of contractor should be valid on the original date of submission of bids.

- 1.1 The work is estimated to cost **Rs. 22,59,220/-**. This estimate, however, is given merely as a rough guide.
- 1.1.1 The authority competent to approve NIT for the combined cost and belonging to the major discipline will consolidate NITs for calling the bids. He will also nominate Division which will deal with all matters relating to the invitation of bids. For composite bid, besides indicating the combined estimated cost put to bid, should clearly indicate the estimated cost of each component separately. The eligibility of bidders will correspond to the combined estimated cost of different components put to bid.
- 1.2 **Intending bidders is eligible to submit the bid provided he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority, of having satisfactorily completed similar works of magnitude specified below:- Criteria of eligibility for submission of bid documents :**
- 1.2.1 Conditions for Non-CPWD registered contractors only, if bids are also open to non-CPWD contractors. For works estimated cost upto tendering limit of class -1 composite category Contractor (However, for Horticulture and Furniture etc. discipline, it may be modified as per bidding limit of CPWD class I contractors of respective discipline as the case may be)
- Three similar works each costing not less than **Rs. 9.04 Lacs** with capacity of Solar Power Plant not less than **30 KWp** or two similar works each costing not less than **Rs. 13.56 Lacs** with capacity of Solar Power Plant not less than **30 KWp** or one similar work costing not less than **Rs. 18.07 Lacs** with capacity of Solar Power Plant not less than **30 KWp** satisfactorily completed the similar works as during the last Seven years prior to the month of 31 March 2021 and ongoing works.

**Note:-**

For works costing above tendering limit of class –II composite category contractors but upto tendering limit of Clause-I composite category Contractor ( However, for Horticulture and Furniture discipline, it may be modified as per bidding limit of CPWD class II and CPWD Class I contractors respectively of respective discipline as the case may be) when bids are open to non-CPWD contractors also, then class II contractors of CPWD registered shall also be eligible if they satisfy the eligibility criteria specified in 1.2.1 above.

- 1.2.2 Criteria of eligibility for CPWD as well as non-CPWD contractors,
- For works estimated to cost above the tendering limit of class -1 composite category Contractor (However for Horticulture and Furniture discipline, it may be modified as per bidding limit of CPWD class I contractors of respective discipline as the case may be.) Three similar works each costing not less than **Rs. 9.04 Lacs** with capacity of Solar Power Plant not less than **30 KWp** or two similar works each costing not less than **Rs. 13.56 Lacs** with capacity of Solar Power Plant not less than **30 KWp** or one similar work costing not less than **Rs. 18.07 Lacs with** capacity of Solar Power Plant not less than **30 KWp** satisfactorily completed the similar works during the last Seven years prior to the month of 31 March 2021 and ongoing works.

The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum, calculated from the date of completion to the last date of submission of bid. This is applicable for 1.2.1 as well as 1.2.2

**To become eligible for issue of bid, the bidders shall have to furnish an affidavit as under:-**

I/We undertake and confirm that eligible similar works(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then

C = NIL	SDM (E)                      AE (E)-P,                      EE(E), North West Elect. Div	Page   11
I = NIL		
O = NIL		

I/we shall be debarred for bidding in CPWD in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee. (Scanned copy to be uploaded at the time of submission of bid)

- 1.2.3 When bids are invited from non CPWD contractors and CPWD class II contractors as per provisions of clause 1.2.1 above, it will be mandatory for non CPWD contractors and CPWD class-II contractors to upload the work experience certificate(s) and the affidavit as per the provisions of clause 1.2.2. But for such bids, Class-I contractors of CPWD are eligible to submit the bids without submission of work experience certificate and affidavit. Therefore, CPWD class-I contractors shall upload two separate letters for experience certificate and affidavit that these documents are not required to be submitted by them. Uploading of these two letters is mandatory otherwise system will not clear mandatory fields.
2. Agreement shall be drawn with the successful bidders on prescribed Form No. CPWD 7/8 (or other Standard Form as mentioned) which is available as a Govt. of India Publication and also available on website [www.cpwd.gov.in](http://www.cpwd.gov.in). Bidders shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
3. The time allowed for carrying out the work will be **45 (Forty Five) Days** from the date of start as defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.
4. The site for the work is available.

**OR**

The site for the work shall be made available in parts as specified below:-

.....  
(ii) The architectural and structural drawing for the work is available

or

The architectural and structural drawings shall be made available in phased manner, as per requirement of the same as per approved programme of completion submitted by the contractor after award of work.

5. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions of Contract Form can be seen on website [www.tenderwizard.com/CPWD](http://www.tenderwizard.com/CPWD) or [www.cpwd.gov.in](http://www.cpwd.gov.in) free of cost.
6. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of bid as notified.
7. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of bid as notified.
8. When bids are invited in three stage system and if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted then the bid submitted earlier shall become invalid.

**9. Earnest Money Deposit**

**9.1 (For CPWD enlisted contractors of appropriate class in composite category)**

The bid can only be submitted after deposition of **Earnest Money Deposit Declaration** which shall be scanned and uploaded to the e-Tendering website within the period of bid submission.

**9.2 (For Non CPWD enlisted contractors / other work experienced firm)**

Earnest Money of **Rs. 45,184/-** in the form of Treasury Challan or Demand Draft or Pay order or Banker's Cheque or Deposit at Call Receipt or Fixed Deposit Receipt (drawn in favour of **Executive Engineer (E), PWD EMD M-353, Delhi**) shall be scanned and uploaded to the e-Tendering website within the period of bid submission. The original EMD should be deposited either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission. The EMD receiving Executive Engineer (including NIT issuing EE/AE) shall issue a receipt of deposition of earnest money deposit to the bidder in a prescribed format (enclosed) uploaded by tender inviting EE in the NIT. A part of earnest money is acceptable in the form of bank guarantee also. In such case, minimum 50% of earnest money or Rs. 20 lac, whichever is less, shall have to be deposited in shape prescribed above, and balance may be deposited in shape of Bank Guarantee of any scheduled bank having

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validity for six months or more from the last date of receipt of bids which is to be scanned and uploaded by the intending bidders. Copy of Enlistment Order and certificate of work experience and other documents as specified in the press notice shall be scanned and uploaded to the e-Tendering website within the period of bid submission. However, certified copy of all the scanned and uploaded documents as specified in press notice shall have to be submitted by the lowest bidder only along with physical EMD of the scanned copy of EMD uploaded within a week physically in the office of tender opening authority. Online bid documents submitted by intending bidders shall be opened only of those bidders, whose original EMD deposited with any division of CPWD and other documents scanned and uploaded are found in order.

- 9A The contractors registered prior to 01.04.2015 on e-tendering portal of CPWD shall have to deposit tender processing fee at existing rates, or they have option to switch over to the new registration system without tender processing fee any time. The bid submitted shall be opened at 03:30 PM on ..... .
10. The bid submitted shall become invalid and e-Tender processing fee shall not be refunded if:
- The bidder is found ineligible.
  - The bidder does not upload scanned copies of all the documents stipulated in the bid document.
  - If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest bidder in the office of bid opening authority.
  - If a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above/below on the total amount of the tender or any section / sub head in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.
11. The contractor whose bid is accepted will be required to furnish performance guarantee of 3% (Three Percent) of the bid amount within the period specified in Schedule F. This guarantee shall be in the form of cash (in case guarantee amount is less than Rs. 10000/-) or Deposit at Call receipt of any scheduled bank/Banker's cheque of any scheduled bank/Demand Draft of any scheduled bank/ Pay order of any Scheduled Bank of any scheduled bank (in case guarantee amount is less than Rs. 1,00,000/-) or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F', including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The earnest money deposited along with bid shall be returned after receiving the aforesaid performance guarantee. The contractor whose bid is accepted will also be required to furnish either copy of applicable licenses/ registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board including Provident Fund Code No. If applicable and also ensure the compliance of aforesaid provisions by the sub contractors, if any engaged by the contractor for the said work within the period specified in Schedule F.
12. The description of the work is as follows:  
Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidders shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidders shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidders implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.
13. The competent authority on behalf of the President of India does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidders shall be summarily rejected.
14. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable for rejection.
15. The competent authority on behalf of President of India reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.

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I = NIL		
O = NIL		

16. The contractor shall not be permitted to bid for works in the CPWD Circle (Division in case of contractors of Horticulture/Nursery category) responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazetted officer in the Central Public Works Department or in the Ministry of Urban Development. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.
17. No Engineer of Gazetted Rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the prior permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the bid or engagement in the contractor's service.
18. The bids for the work shall remain open for acceptance for a period of 30 (thirty) days from the date of opening of bids in case of single bid system and 75 (seventy five) days from the date of opening of technical bids in case bids are invited on 2 or 3 bid system. Further
- 18.1 If any tenderer withdraws his tender or makes any modification in terms and conditions of the tender which is not acceptable to the department within **07 (Seven) days after last date of submission of bids**, then the government shall without prejudice to any other right or remedy, be at liberty to forfeit 50% of the earnest money absolutely **irrespective of letter of acceptance for the work is issued or not**.
- 18.2 If any tenderer withdraw his tender or makes any modification in terms and conditions of the tender which is not acceptable to the department after expiry of **07 (Seven) days after last date of submission of bids** then the government shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money absolutely **irrespective of letter of acceptance for the work is issued or not**.
- 18.3 In case forfeiture of earnest money as prescribed in para 18.1 and 18.2 above, the bidders shall not be allowed to participate in the rebidding process of the same work.
19. This notice inviting Bid shall form a part of the contract document. The successful bidder/contractor, on acceptance of his bid by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:- (a) The Notice Inviting Bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the bid as uploaded at the time of invitation of bid and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto. (b) Standard C.P.W.D. Form 7/8 or other Standard C.P.W.D. Form as applicable.
20. **For Composite Bids**
- 20.1.1 ~~The Executive Engineer in charge of the major component will call bids for the composite work. The cost of bid document and Earnest Money will be fixed with respect to the combined estimated cost put to tender for the composite bid.~~
- 20.1.2 ~~The bid document will include following three components:~~
- ~~**Part A:** CPWD 6, CPWD 7/8 including schedule A to F for the major component of the work, Standard General Conditions of Contract for CPWD 2014 as amended/ modified up to .....~~
- ~~**Part B:** General / specific conditions, specifications and schedule of quantities applicable to major component of the work.~~
- ~~**Part C:** Schedule A to F for minor component of the work (competent authority under clause 2 and clause 5 shall be same authority as mentioned in schedule A to F for major components), General/specific conditions, specifications and schedule of quantities applicable to minor component(s) of the work.~~
- 20.1.3 ~~The bidders must associate himself, with agencies as per NIT conditions 20.1.4 The eligible bidders shall quote rates for all items of major component as well as for all items of minor components of work.~~
- 20.1.4 ~~After acceptance of the bid by competent authority, the EE in charge of major component of the work shall issue letter of award on behalf of the President of India. After the work is awarded, the main contractor will have to enter into one agreement with EE in charge of major component and has also to sign two or more copies of agreement depending upon number of EE's/DDH in charge of minor components. One such signed set of agreement shall be handed over to EE/DDH in charge of minor component(s). EE of major component will operate Part A and Part B of the agreement. EE/DDH in charge of minor component(s) shall operate Part C alongwith Part A of the agreement.~~
- 20.1.5 ~~Entire work under the scope of composite bid including major and all minor components shall be executed under one agreement.~~

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I = NIL		
O = NIL		

- 20.1.6 — Security Deposit will be worked out separately for each component corresponding to the estimated cost of the respective component of works.
- 20.1.7 — The main contractor has to associate agencies for specialized component(s) conforming to eligibility criteria as defined in the bid document and has to submit detail of such agency(s) to Engineer-in-charge of relevant component(s) within prescribed time. Name of the agency(s) to be associated shall be approved by Engineer-in-charge of relevant component(s).
- 20.1.8 — In case the main contractor intends to change any of the above agency/agencies during the operation of the contract, he shall obtain prior approval of Engineer in charge of relevant specialized component(s). The new agency/agencies shall also have to satisfy the laid down eligibility criteria. In case Engineer in charge is not satisfied with the performance of any agency, he can direct the contractor to change the agency executing such items of work and this shall be binding on the contractor.
- 20.1.9 — The main contractor has to enter into MoU with agency(s) associated by him. Copy of such MoU shall be submitted to EE/ DDH in charge of each relevant component as well as to EE in charge of major component. In case of change of associate contractor, the main agency(s) has to enter into MoU/agreement with the contractor associated by him.
- 20.1.10 — Running payment for the major component shall be made by EE of major discipline to the main contractor. Running payment for minor components shall be made by the Engineer in charge of the discipline of minor component directly to the main contractor.
- 20.1.11A. — The composite work shall be treated as complete when all the components of the work are complete. The completion certificate of the composite work shall be recorded by Engineer in charge of major component after record of completion certificate of all other components.
- 20.1.11B. — Final bill of whole work shall be finalized and paid by the EE of major component. Engineer(s) in charge of minor component(s) will prepare and pass the final bill for their component of work and pass on the same to the EE of major component for including in the final bill for composite contract.

**Sr. Draughtsman (E)**  
North West Elect Division

**Assistant Engineer (E)-P**  
North West, Elect. Divn. PWD

**Executive Engineer (E)**  
North West, Elect. Divn., PWD  
ISBT, Kashmere Gate,  
Delhi-110006

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I = NIL		
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**PROFORMA FOR EARNEST MONEY DEPOSIT DECLARATION**

**(Only for CPWD enlisted contractors of appropriate class in composite category / For Non CPWD enlisted contractors)**

Whereas, I/We..... (name of agency) have submitted bids for the work of **Providing & Fixing 37 KWp ongrid Solar Photovoltaic Power Plant with necessary installations at Lakshmi Bai College , Ashok Vihar , Delhi.**

**I/We hereby submit following declaration in lieu of submitting Earnest Money Deposit.**

1. If after the opening of tender, I / We withdraw or modify my/our bid during the period of validity of tender, (including extended validity of tender) specified in the tender documents.
2. If after the award of work, I/we fail to sign the contract or to submit performance guarantee before the deadline defined in the tender documents,

I/we shall be suspended for one year and shall not be eligible to bid for CPWD tenders from date of issue of suspension order.

Signature of Contractor (s)

**PROFORMA FOR RECEIPT OF DEPOSITION OF ORIGINAL EMD**

**(For other work experienced firm)**

**Receipt No..... Date.....**

1. Name of work: **Providing & Fixing 37 KWp ongrid Solar Photovoltaic Power Plant with necessary installations at Lakshmi Bai College , Ashok Vihar , Delhi.**
2. NIT No: **02-3<sup>rd</sup>Call /EE(E)/NWED/PWD/2021-22**
3. Estimated Cost: **Rs. 22,59,220/-**
4. Amount of Earnest Money Deposit: **Rs. 45,184/-**
5. Last date of submission of bid: **Up to 03:00 PM on 13-07-2021\***  
(\* To be filled by EE while uploading NIT on Website)

1. Name of contractor: .....
  2. Form of EMD: .....
  3. Amount of Earnest Money Deposit: .....
  4. Date of submission of EMD: .....
  5. Contact No.: .....
- (# To be filled by EMD receiving EE)

Signature, Name and Designation of EMD  
receiving officer (EE/AE(P)/AE/AAO)  
along-with office stamp

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I = NIL		
O = NIL		

**PUBLIC WORKS DEPARTMENT  
GOVERNMENT OF NCT DELHI**

<b>STATE : DELHI</b> <b>BRANCH : E &amp; M</b> <b>ZONE : PWD NORTH (M)</b>	<b>CIRCLE : NORTH WEST (M)</b> <b>DIVISION : NWED</b> <b>SUB DIVISION : PWD, SUB-DIVN-II (NW)</b>
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**PERCENTAGE RATE TENDER & CONTRACT FOR WORKS**

1. Tender for the work of: - **“Providing & Fixing 37 KWp ongrid Solar Photovoltaic Power Plant with necessary installations at Lakshmi Bai College , Ashok Vihar , Delhi.”**

(i) To be submitted *Online* by 03:00 PM on .....\*\*..... to **The Executive Engineer (E), North West, Elect. Div., PWD ISBT, Kashmere Gate, Delhi-110006 at web site: <https://govtprocurement.delhi.gov.in>**

(ii) To be opened in presence of bidders who may be present *either at the place of opening of tenders (electronically) or can visualize to process online* at 03.30 PM. on ..... in the office of **Executive Engineer (E), PWD EMD M-353, Delhi**

*Released to website:*

**<https://govtprocurement.delhi.gov.in> at Tender I.D. No. ....\*\***

Signature of officer *releasing* the documents .....\*\*

Designation : **Executive Engineer (E), PWD EMD M-353, Delhi**

Date of Release: .....\*\*

**TENDER**

I/We have read and examined the notice inviting tender, schedule A, B, C, D, E & F applicable specifications, Drawings & Designs, General Rules and Directions, Conditions of Contract, Clauses of Contract, Special Conditions, Schedule of Rate & other documents and Rules referred to in the condition of contract and all other contents in the tender document for the work.

I/We hereby bid for the execution of the work specified for the President of India within the time specified in Schedule "F", viz., schedule of quantities and in accordance in all respects with the specifications, designs, drawings and instructions in writing referred to in Rule-1 of General Rules and Directions and in Clause-11 of the Conditions of contract and with such materials as are provided for, by, and in respects in accordance with, such conditions so far as applicable.

I/We agree to keep the bid open for **Seventy Five (75) days from the date of opening of PQ cum Technical Bid** and not to make any modifications in its terms and conditions.

\*\* *To be filled in by the Executive Engineer*

A sum of Rs.....\*/-is hereby forwarded in the form of Treasury Challan or Demand Draft or Pay order or Banker's Cheque or Deposit at Call Receipt or Fixed Deposit Receipt of any Scheduled Bank drawn in favour of **Executive Engineer (E), PWD EMD M-353, Delhi** and Rs. ....\*/- in the shape of Bank Guarantee issued by a Scheduled Bank as earnest money. If I/ We, fail to furnish the prescribed performance guarantee within prescribed period, I/We agree that the said President of India or his successors in office shall, without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence the work as specified, I/We agree that President of India or his successors in office shall, without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely, otherwise the said earnest money shall be retained by him towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered, upto maximum of the percentage mentioned in Schedule "F" and those in excess of that limit at the rates to be determined in accordance with the provision contained in clause 12.2 and 12.3 of the tender form.

Further, I/we agree that in case of forfeiture of Earnest Money or both Earnest Money and Performance Guarantee as aforesaid, I/we shall be debarred for participation in the re-tendering process of the work.

I/We undertake and confirm that eligible similar work(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I/We shall be debarred for

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I = NIL		
O = NIL		

tendering in CPWD in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee.

I/We hereby declare that I/We shall treat the tender documents, drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived there from to any person other than a person to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety of the state.

Dated .....\*

Witness:

Address:

Occupation:

.....\* to be filled in by contractor

\*

Signature of Contractor

Postal Address....\*

}

\*

### ACCEPTANCE

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of the President of India for a sum of Rs.....\*\*\*(Rupees.....\*\*.....).

The letters referred to below shall form part of this contract Agreement: -

- i)

ii)

iii)

}

.....\*\*

For & on behalf of the President of India

Signature.....\*\*

Dated .....\*\*

Designation:

**Executive Engineer (E)**  
 North West, Elect. Divn., PWD  
 ISBT, Kashmere Gate,  
 Delhi-110006

(\*\* to be filled by EE)

C = NIL	SDM (E)                      AE (E)-P,                      EE(E), North West Elect. Div	Page   18
I = NIL		
O = NIL		

## PROFORMA OF SCHEDULES

### SCHEDULE 'A'

Schedule of Quantities: Attached at Page No. 71

### SCHEDULE 'B'

Schedule of materials to be issued to the contractor.

Sl. No.	Description of Item	Quantity	Rates in figures & words at which the material will be charged to the contractor	Place of Issue
1	2	3	4	5
-NIL-				

### SCHEDULE 'C'

Tools and Plants to be hired to the contractor

Sl. No.	Description	Hire charges per day	Place of issue
1	2	3	4
Not Applicable			

### SCHEDULE 'D'

Extra schedule for specific requirements / documents  
for the work, if any : Attached as Terms and conditions

### SCHEDULE 'E'

Reference to General Conditions of Contract:-

{ General Conditions of Contract for CPWD works-2020 and amendments amended/modified up to date (available on CPWD web site) }

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I = NIL		
O = NIL		

<b>Name of work</b>	:	<b>Providing &amp; Fixing 37 KWp ongrid Solar Photovoltaic Power Plant with necessary installations at Lakshmi Bai College , Ashok Vihar , Delhi.</b>
<b>Estimate cost of Work</b>	:	<b>Rs. 22,59,220/-</b>
<b>Earnest Money</b>	:	<b>Earnest Money Deposit Declaration or Rs. 45,184/- (to be returned after receipt of Performance Guarantee)</b>
<b>Performance guarantee</b>	:	<b>3% of tendered value</b>
<b>Security Deposit</b>	:	<b>2.5% of the tendered value</b>

#### **SCHEDULE 'F'**

#### **General Rules & Directions :-**

<b>Officer Inviting Tender</b>	:	<b>Executive Engineer (E), North West, Elect. Div., PWD ISBT, Kashmere Gate, Delhi-110006</b>
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Maximum percentage for quantity of items of works to be executed beyond which rates are to be determined in accordance with Clause 12.2 & 12.3 : **See details under Clause 12 of this NIT**

#### **Definitions :**

2(v)	Engineer-in-Charge	:	<b>Executive Engineer (E), North West, Elect. Div., PWD ISBT, Kashmere Gate, Delhi-110006</b>
2(viii)	Accepting Authority	:	<b>Executive Engineer (E), North West, Elect. Div., PWD ISBT, Kashmere Gate, Delhi-110006</b>
2(x)	Percentage on cost of materials and labour to cover all overheads and profits.	:	<b>15%</b>
2(xi)	Standard Schedule of Rates	:	<b>DSR 2016 and Market Rate</b>
2(xii)	Department	:	<b>PWD (NCT Delhi)</b>
9(ii)	Standard CPWD contract Form	:	<b>CPWD form 7 – (2020 Edition) and amendments amended/modified up to date (available on CPWD web site)</b>

#### **Clause 1**

1(i)	Time allowed for submission of Performance Guarantee, Programme chart (Time and Progress) and applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board or proof of applying thereof from the date of issue of letter of acceptance	:	<b>7 Days</b>
1(ii)	Maximum allowable extension With late fee @ 0.1% per day of Performance Guarantee amount beyond the period as provided in (i) above.	:	<b>3 Days</b>

#### **Clause 2**

Authority for fixing compensation under clause 2	:	<b>Superintending Engineer (E), North Zone, MSO Building, PWD, Delhi.</b>
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C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   20
I = NIL		
O = NIL		

**Clause 2 A**

Whether clause 2A shall be applicable? : No

**Clause 5**Number of days from the date of issue of : 10 Days  
letter of acceptance for reckoning date of start**Mile Stone(s) as per table given below**

Sl. No.	Description of Milestone (Physical)	Time allowed in days (from date of start)	Amount to be with-held in case of non achievement of mile stone
1	Drawing Approval	15 Days	1 % of the tendered value of the work will be withheld for failure of each mile stone.
2	Supply of materials	15 days	1 % of the tendered value of the work will be withheld for failure of each mile stone.
3	Installation of Solar Pannel	15 days	1 % of the tendered value of the work will be withheld for failure of each mile stone.
4	Testing, obtaining inspectorate license commissioning and handing over of entire Dumb Waiter	15 days	1 % of the tendered value of the work will be withheld for failure of each mile stone.

Time allowed for execution of work. : 45 (Forty Five) Days

**Authority to decide:**

(i) Extension of time:

**Executive Engineer (E), North West, Elect. Div.,  
PWD ISBT, Kashmere Gate, Delhi-110006**

(ii) Rescheduling of mile stones

**Superintending Engineer (E), North Zone, MSO  
Building, PWD, Delhi.**

(iii) Shifting of date of start in case of delay in handing over of site

**Superintending Engineer (E), North Zone, MSO  
Building, PWD, Delhi.****Clause 6, 6A**

Clause applicable (6 or 6A)

: The clause 6A applicable for the work, whose  
Estimated cost put to tender is Rs. 15 Lakh &  
above**Clause 7**Gross work to be done together with net :  
payment/adjustment of advances for  
material collected, if any, since the last such  
payment for being eligible to interim  
payment.

11.00 lakh

**Clause 7 A****Whether Clause 7A shall be applicable****Yes****Clause 10A**List of testing equipment to be provided by :  
the contractor at site lab**As per scope of work and as per direction  
of Engineer-in-Charge****Clause 10B(ii)**Whether Clause 10 B (ii) & 10 B (iii) shall be :  
applicable?

NA

**Clause 10C**Component of labour expressed as percent :  
value of work

NA

**Clause 10CA**

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I = NIL		
O = NIL		

Materials covered under this clause	Nearest Materials (other than cement, reinforcement bars and structural steel) for which All India Wholesale Price Index to be followed	Base Price of all the materials covered under clause 10 CA *	
		Base Rate	Corresponding Period
NA			

#### Clause 10CC

Clause 10CC to be applicable in contracts with stipulated period of completion exceeding the period shown in the next column. : Not Applicable

#### Clause 11

Specifications to be followed for execution of work : CPWD General Specifications for Electrical Works 2013 with up to date correction slips, terms and conditions, additional conditions attached.

#### Clause 12

##### Type of Work

12.2 & 12.3 Deviation limit beyond which clauses 12.2 & 12.3 shall apply for building work. : 100%

12.5 (i) Deviation Limit beyond which clauses 12.2. & 12.3 shall apply for foundation work. (except items mentioned in earth work sub head in DSR related items) : NA

(ii) Deviation limit for items mentioned on earth work subhead of DSR and related items. : NA

#### Clause 16

Competent Authority for deciding reduced rates : Superintending Engineer (E), North Zone, MSO Building, PWD, Delhi.  
(The total value of quantities of items at agreement rate for which the Superintending Engineer or the official as defined above accepts substandard work in a contract does not exceed 5% of the contract value. In case total value of such items exceeds 5% prior approval of Chief Engineer would be necessary)

#### Clause 18

List of mandatory machinery, tools & plants to be deployed by the contractor at site : As per scope of work and direction of Engineer-in-Charge

#### Clause 25

Constitution of Dispute Redressal Committee (DRC)

- (A) For total claims more than Rs. 25 Lac :
1. Chairman..... : Chief Engineer (Health)
  2. Member Secretary..... : Director, Office of Pr. CE(M)
  1. Member ..... : SE (North Zone)

The SE, in-charge of the work shall present case before DRC but shall not have any part in decision making.

- (B) For total claims up to Rs. 25 Lac :
1. Chairman ..... : Director, Office of Pr. CE(M)
  2. Member Secretary..... : EE(Plg.), North Maintenance Circle
  2. Member ..... : EE(N-W) Bldg.

Executive Engineer, in-charge of the work shall present the case before DRC but will not have any part in decision making.

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   22
I = NIL		
O = NIL		

**Clause 32 (i)**

Requirement of technical representative (s) and recovery rate(s).

Sl. No.	Minimum Qualification of Technical Representative	discipline	Designation(Principal Technical/ Technical Representative)	Minimum Experience	Number	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 36(i)	
						Figure (Rs.)	Words
1	Graduate Engineer Or Diploma Engineer	Electrical	Principal Technical Representative	2 Years Or 5 Years	1	20,000/- each per month	Rs. Twenty thousand per month
					1		

Assistant Engineers retired from Government services that are holding Diploma will be treated at par with graduate Engineers.

**Clause 42**

- i) (a) Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates 2016 printed by CPWD : **NA**
- ii) Variations permissible on theoretical quantities:- : **NA**

**RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION**

S.No.	Description of Item	Rates in figures and words at which recovery shall be made from the contractor.	
		Excess use beyond Permissible Variations	Less use up to the permissible variation of design mix
NA			

**Executive Engineer (E)**  
North West, Elect. Divn., PWD  
ISBT, Kashmere Gate,  
Delhi-110006

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   23
I = NIL		
O = NIL		

## INTEGRITY PACT

To,

.....  
.....  
.....

Sub: NIT No. .... for the work : **Providing & Fixing 37 KWp ongrid Solar Photovoltaic Power Plant with necessary installations at Lakshmi Bai College , Ashok Vihar , Delhi.**

Dear Sir,

It is here by declared that PWD is committed to follow the principle of transparency, equity and competitiveness in public department.

The subject Notice Inviting of Tender (NIT) is an invitation to offer made on the condition that the Bidder will sign the integrity Agreement, which is an integral part of tender/bid documents, failing which the tender/bidder will stand disqualified from the tendering process and the bid of the bidder would be summarily rejected.

This declaration shall form part and parcel of the Integrity Agreement and signing of the same shall be deemed as acceptance and signing of the Integrity Agreement on behalf of the PWD.

Yours faithfully,

**Executive Engineer (E)**  
North West, Elect. Divn., PWD  
ISBT, Kashmere Gate,  
Delhi-110006

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   24
I = NIL		
O = NIL		

## INTEGRITY PACT (Undertaking by Bidder)

To,

**Executive Engineer (E)**  
North West, PWD Elect. Division  
ISBT, Kashmere Gate,  
Delhi-110006

Sub: Submission of Tender for the work of **Providing & Fixing 37 KWp ongrid Solar Photovoltaic Power Plant with necessary installations at Lakshmi Bai College , Ashok Vihar , Delhi.**

**Dear Sir,**

I/We acknowledge that PWD is committed to follow the principles thereof as enumerated in the Integrity Agreement enclosed with the tender/bid document.

I/We agree that the Notice Inviting Tender (NIT) us an invitation to offer made on the condition that I/We will sign the enclosed integrity Agreement, which is an integral part of tender documents, failing which I/We will stand disqualified from the tendering process. I/We acknowledge that THE MAKING OF THE BID SHALL BE REGARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE of this condition of the NIT.

I/We confirm acceptance and compliance with the Integrity Agreement in letter and spirit and further agree that execution of the said Integrity Agreement shall be separate and distinct from the main contract, which will come into existence when tender/bid is finally accepted by PWD. I/We acknowledge and accept the duration of the Integrity Agreement.

I/We acknowledge that in the event of my/our failure to sign and accept the Integrity Agreement, while submitting the tender/bid, PWD shall have unqualified, absolute and unfettered right to disqualify the tenderer/bidder and reject the tender/bid is accordance with terms and conditions of the tender/bid.

Yours faithfully

(Duly authorized signatory of the Bidder)

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   25
I = NIL		
O = NIL		

To be signed by the bidder and same signatory competent/authorized to sign the relevant contract of behalf of PWD.

## INTEGRITY AGREEMENT

This Integrity Agreement is made at.....on this.....day of.....20.....

### BETWEEN

**President of India represented through the Executive Engineer, North West, Elect. Div., PWD ISBT, Kashmere Gate, Delhi-110006** ..... Hereinafter referred as the 'Principal/Owner', which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

### AND

.....

(Name and Address of the Individual/firm/Company)

Through..... (Hereinafter to as the

(Details of duly authorized signatory)

**"Bidder/Contractor"** and which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

### Preamble

WHEREAS the Principal /Owner has floated the Tender (NIT No.....) (hereinafter referred to as **"Tender/Bid"**) and intends to award, under laid down organizational procedure, contract for ..... (Name of work)

hereinafter referred to as the **"Contract"**.

AND WHEREAS the Principal/Owner values full compliance with all relevant laws of the land, rules, regulations', economic use of resources and of fairness/transparency in its relation with its Bidder(s) and Contractor (s).

AND WHEREAS to meet the purpose aforesaid both the parties have agreed to enter into this Integrity Agreement (hereinafter referred to as **"Integrity Pact"** or **"Pact"**), the terms and conditions of which shall also be read as integral part and parcel of the Tender/Bid documents and Contract between the parties.

NOW, therefore, in consideration of mutual covenants contained in this Pact, the parties hereby agree as follows and this Pact witness as under:

### Article 1: Commitment of the Principal/Owner

- 1) The Principal /Owner commits itself to take all measures necessary to prevent corruption and to observe the following principles:
  - a) No employee of the Principal/Owner, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
  - b) The Principal/Owner will, during the Tender process treat all bidder(s) with equity and reason. The Principal/Owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) could obtain an advantage in relation to the Tender process or the Contract execution.
  - c) The Principal/Owner shall endeavour to exclude from the Tender process any person, whose conduct in the past has been of biased nature.
- 2) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC)/Prevention of Corruption Act, 1988 (PC Act) or is in violation suspicion in this regard, the Principal/Owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.

### Article 2: Commitment of the Bidder(s)/Contractor(s)

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   26
I = NIL		
O = NIL		

- 1) It is required that each Bidder/Contractor (including their respective officers, employees and agents) adhere to the highest ethical standards and report to the Government/Department all suspected acts of **fraud or corruption or Coercion or Collusion** of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.
- 2) The Bidder(s)/Contractor(s) commits himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:
  - a) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/Owner's employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.
  - b) The Bidder(s)/Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.
  - c) The Bidder(S)/Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(S)/Contract(s) will not use improperly, (for the propose of completion or personal gain), or pass on to others, any information or documents provided by the Principal/Owner as part of the business details, including information contained or transmitted electronically.
  - d) The Bidder(s)/Contractor(s) of foreign original shall disclose the names and addresses of agents/representatives of India, if any. Similarly Bidder(s)/Contractor(s) of India Nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender on behalf of one manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.
- 3) The Bidder (s)/Contractor (s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 4) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice **means a willful misrepresentation or omission of facts or submission of fake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justify interest of other and/or to influence the procurement process to the detriment of the Government interest.**
- 5) The Bidder (s)/Contractor (s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may befall upon a person, his/her reputation or property to influence their participation in the tendering process).

### **Article 3: Consequences of Breach**

Without prejudice to any right that may be available to the Principal/Owner under law or the Contract or its established policies and laid down procedures, the Principal/Owner shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/Contractor(s) and the Bidder/Contractor accepts and undertakes to respect and uphold the Principal/Owner's absolute right.

- 1) If the Bidder/Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/Owner after giving 14 days notice to the contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the Tender process or terminate/determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be

C = NIL	SDM (E)                      AE (E)-P,                      EE(E), North West Elect. Div	Page   27
I = NIL		
O = NIL		

determined by the severity of transgression and determined by the Principal/Owner. **Such exclusion may be forever or for a limited period as decided by the Principal/Owner.**

- 2) **Forfeiture of EMD/Performance Guarantee/Security Deposit:** If the Principal/Owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contract or terminated/determine the contract or has accrued the right to terminate/determine the contract according to Article 3(1), the Principal/Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Guarantee and Security Deposit of the Bidder/Contractor.
- 3) **Criminal Liability:** If the Principal/Owner obtains knowledge of conduct of a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of Indian Penal code IPC/Prevention of Corruption Act, or if the Principal/Owner has substantive suspicion in this regard, the Principal/Owner will inform the same law enforcing agencies for further investigation.

#### **Article 4: Transgression**

- 1) The Bidder declares that no previous transgressions occurred in the last **7 years** with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the tender process.
- 2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or action can be taken for banning of business dealing/holiday listing of the Bidder/Contractor as deemed fit by the Principal/Owner.
- 3) If the Bidder/Contractor can prove that he has restored/recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/Owner may, at its own direction, revoke the exclusion prematurely.

#### **Article 5: Equal Treatment of all Bidder(s)/Contractors/Subcontractors**

- 1) The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Sub-contractors/sub- vendors.
- 2) The Principal/Owner will enter into Pacts on identical terms as this one with all Bidder(s) and Contractors.
- 3) The Principal/Owner will disqualify Bidder(s), who do not submit, the duly signed Pact between the Principal/Owner and the bidder, along with the Tender or violate its provisions at any stage of the Tender process, from the Tender process.

#### **Article 6- Duration of the Pact**

This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 12 Months after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other bidder(s), till the Contract has been awarded. If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharge/determined by the Competent Authority, PWD.

#### **Article 7- Other Provisions**

- 1) This Pact is subject to Indian Law, place of performance and jurisdiction is the Head Quarters of the Division of the Principal/Owner, who has floated the Tender.
- 2) Changes and supplements need to be made in writing. Side agreements have not been made.
- 3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by board resolution.

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   28
I = NIL		
O = NIL		

- 4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 5) It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreements / Pact, any action taken by the Owner/Principal in accordance with this **Integrity Agreement/ Pact or interpretation thereof shall not be subject to arbitration.**

**Article 8- LEGAL AND PRIOR RIGHTS**

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender/Contact documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses:

.....  
(For and on behalf of Principal/Owner)

.....  
(For and on behalf of Bidder/Contractor)

**WITNESSES:**

1. ....  
(Signature, name and address)

2. ....  
(Signature, name and address)

Place:

Date:

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   29
I = NIL		
O = NIL		

### **CONSENT LETTER**

I/we, hereby give my/our consent to work as electrical/Civil/Horticulture contractor till the completion of work and I/we will be responsible for necessary action to hand over the work and for rectification of defects and repair during the maintenance period. I/we will execute the work as per CPWD specification and addition conditions of the works.

I/we will also engage suitable engineer for the work as per condition of the work. I further certify that the above particulars pertaining to me are correct.

Contractor Signature

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   30
I = NIL		
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**[ SECTION – III ]**  
**LETTER OF TRANSMITTAL**

[On the Letterhead paper of the Tenderer, or partner Responsible  
Including full Postal address, telephone no., fax no. and E-Mail  
And cable address]

No.....

Date.....

To,

**The Executive Engineer (E),**  
North West, PWD Elect. Division  
ISBT, Kashmere Gate,  
Delhi-110006.

Name of Work: - **Providing & Fixing 37 KWp ongrid Solar Photovoltaic Power Plant with necessary installations at Lakshmi Bai College , Ashok Vihar , Delhi.**

Sir,

Having examined the details given in press Notice and bid document for the above work, I/We hereby submit the relevant information.

1. I / We hereby certify that all the statements made and information supplied in the enclosed forms A,B,C&D (As applicable vide Para 1(B) & (C) and accompanying statement are true and correct.
2. I/We have furnished all information and details necessary for eligibility and have no further pertinent information to supply.

I/We submit the requisite certified Net Worth certificate and authorize the Executive Engineer (E), North West, Elect. Div., PWD, ISBT, Kashmere Gate, Delhi-110006 to approach the Bank issuing the Net Worth certificate to confirm the correctness thereof. I/We also authorize Executive Engineer (E), North West, Elect. Div., PWD, ISBT, Kashmere Gate, Delhi-110006

3. To approach individuals, employers, firms and corporation to verify our competence and general reputation.
4. I/We submit the following certificates in support of our suitability, technical knowledge and capability for having successfully completed the following works:

Sl.No.	Name of Work	Certificate from

The firm should upload letter of transmittal on separate sheet duly stamped and signed. Incase above space is in sufficient.

Enclosures:

Seal of bidder

Date of submission

SIGNATURE(S) OF BIDDERS (S)

C = NIL	SDM (E)                      AE (E)-P,                      EE(E), North West Elect. Div	Page   31
I = NIL		
O = NIL		

**FINANCIAL INFORMATION****I. Financial Analysis –**

- (a) Details to be furnished duly supported by figures in balances sheet / profit & loss account for the last five years duly certified by the Chartered Accountant, as submitted by the applicant to the Income Tax Department (Copies to be attached).
- (b) The information supplied shall be the annual turnover on construction work of the bidder in term of the amount billed to client for each year for work in progress or completed.

<b>Financial Year</b>	<b>2019-20</b>	<b>2018-19</b>	<b>2017-18</b>	<b>2016-17</b>	<b>2015-16</b>
Gross Annual turnover on Construction works					
Profit / Loss **					

**II. Financial arrangements for carrying out the proposed work.**

\* Amount to be filled in all columns \*\* Loss to be shown in with (-) sign

Signature of Bidder(s).

Signature of Chartered Accountant with Seal.

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   32
I = NIL		
O = NIL		

## FORM OF BANKER'S CERTIFICATE FROM A SCHEDULED BANK

This is to certify that to the best of our knowledge and information that M/s / Sh.....  
 having marginally noted address, a customer of our bank are/is respectable and can be treated as good for any engagement upto a limit  
 of Rs.....(Rupees.....).

This certificate is issued without any guarantee or responsibility on the bank or any of the officers.

(Signature) For the Bank

**NOTE:**

- (1) Banker's certificates should be on letter head of the Bank.
- (2) In case of partnership firm, certificate should include names of all partners as recorded with the Bank.

## FORM 'B-1'

## FORM FOR CERTIFICATE OF NET WORTH CHARTERED ACCOUNTANT

It is to certify that to as per the audited balance sheet and profit & loss account during the financial year  
 ....., the Net Worth of M/s..... (Name & Registered Address of  
 individual/firm/company) as on ..... (the relevant date) is Rs. .... after considering  
 all liabilities. It is further certified that the Networth of the company has not eroded by more than 30% in the last  
 three years ending on (the relevant date)."

(Signature) of the CA .....

Name of the CA .....

Membership of ICAI .....

Date & Seal .....

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   33
I = NIL		
O = NIL		

**FORM 'C'****DETAILS OF ELIGIBLE SIMILAR NATURE OF WORKS COMPLETED DURING THE LAST SEVEN YEARS ENDING PREVIOUS DAY OF LAST DAY OF SUBMISSION OF TENDERS**

S. No .	Name of work / project and location	Owner or sponsoring organization	Cost of work in crores of rupees	Date of commencement as per contract	Stipulated date of completion	Actual date of completion	Litigation / Arbitration cases pending / in progress with details *	Name and address / telephone number of officer to whom reference may be made	Whether the work was done on back to back basis Yes/ No
1	2	3	4	5	6	7	8	9	10

**FORM 'C-I'****DETAILS OF ELIGIBLE SIMILAR NATURE OF WORKS UNDER EXECUTION**

S. No .	Name of work / project and location	Owner or sponsoring organization	Cost of work in crores of rupees	Date of commencement as per contract	Stipulated date of completion	Upto date %age progress of work	Slow progress if any & reasons thereof.	Name and address / telephone number of officer to whom reference may be made	Remarks i/c grant of extension of Time with/without levy detail
1	2	3	4	5	6	7	8	9	10

\* Indicate gross amount claimed and amount awarded by the Arbitrator

SIGNATURE OF BIDDER(S)

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   34
I = NIL		
O = NIL		

**PERFORMANCE REPORT OF WORKS REFERRED TO IN FORM "C"**

1. Name of Work/Project & Location
2. Agreement No.
3. Estimated Cost
4. Tendered Cost
5. Value of Actual work done  
(For the purpose of amount of similar work, cost component of EI Work)
6. Date of Start
7. Date of Completion
  - (i) Stipulated Date of Completion
  - (ii) Actual Date of Completion
8. Amount of Compensation levied for delayed completion, if any.
9. Amount of Reduced Rates Items, if any.
10. Performance Report
 

i) Quality of Work	Very Good/Good/Fair/Poor
ii) Financial Soundness	Very Good/Good/Fair/Poor
iii ) Technical Proficiency	Very Good/Good/Fair/Poor
iv) Resourcefulness	Very Good/Good/Fair/Poor
v) General Behavior	Very Good/Good/Fair/Poor

**Dated :**

**Executive Engineer or Equivalent**  
**Address & Phone No. :**

C = NIL	SDM (E)                      AE (E)-P,                      EE(E), North West Elect. Div	Page   35
I = NIL		
O = NIL		

Assessment of Quality for completed as well as ongoing works		Form 'D'-1
<b>Name of Work:-</b> <b>Date of Inspection:-</b> <b>Date of submission of report:-</b>		
<b>A. General Observation &amp; Operational Aspects</b>	<b>Yes/No</b>	
1. Availability of approval from local bodies in case of Construction of Private Buildings		
2. Availability of approved Structural drawings		
3. Observation on seepage/ leakage in the Building		
4. Whether Line & level Maintained		
5. In case of basement, observation on seepage, if any.		
6. Any Structural defects / distress observed. If yes give details		
7. Whether safety measures adopted at site as per CPWD Safety code and or govt. guidelines are adequate or not.		
8. Whether the Welfare facilities provided to labour as per clause 19 H of GCC for CPWD Works/and or govt. guidelines are adequate or not.		
9. Whether AHU getting automatically switched off and fire damps closed in case of fire signal		
10. Whether thimbles used for termination of wires in DBs, EBDs, & Panels?		
<b>B. Quality of Work</b>	<b>Marks Assessed</b>	
1. Quality of plaster / finishing		
2. Quality of R C C / C C Work		
3. Quality of Flooring		
4. Quality of Wood Work		
5. Quality of Steel Work / aluminum Work		
6. Quality of Plumbing and Sanitary Installation		
7. Quality of Waterproofing		
8. Quality of Waterman ship		
9. If cladding done, observation on efficiency/ quality of cladding /Brick work		
10. Quality of internal electrification work		
11. Quality of DBs, EBDs, & Panels?		
12. Quality of E&D equipments, panels & feeder pillar.		
13. Quality of fire alarm system/ fire fighting system		
14. Quality of air Conditioning work.		
15. Quality of Sub-station based on complete live diagram, capacitor panel, power factor, insulating mat, cleanliness, cable termination, earthlings pits, earthling of transformer / DG sets.		
16. Any other aspect (To be elaborated)		
Average marks (To be awarded out of 100 Marks based on average of marks assessed on each attribute mentioned at B above). <b>Note:-</b> <ol style="list-style-type: none"> <li>1. All the above parameters may be considered for assessing the overall quality of work executed by the contractor.</li> <li>2. In case, any attribute is not applicable, the same may not be included in assessment and mentioned are not applicable (N/A)</li> <li>3. The works as assessed above shall be converted on a scale of 25/15 marks for completed/onging works respectively.</li> <li>4. In case of eligible completed works as well as ongoing works being more than one the maximum marks assigned for completed works and ongoing works will be equally distributed among the works</li> </ol>		

**Dated :**

**Executive Engineer or Equivalent**  
**Address & Phone No. :**

**FORM OF EARNEST MONEY (BANK GUARANTEE)**

WHEREAS, contractor, M/s..... (Name of contractor) (here in after called "the contractor") has submitted his tender dated ..... (date) for the work of ..... (name of work) (here in after called "the Tender")

KNOW ALL PEOPLE by these presents that we ..... (name of bank) having our registered office at ..... (hereinafter called "the Bank") are bound unto **Executive Engineer, North West, Elect. Div., PWD ISBT, Kashmere Gate, Delhi-110006**. (Name and division of Executive Engineer) (here in after called "the Engineer-in-Charge") in the sum of Rs. ....../- (Rs. in words ..... ) for which payment well and truly to be made to the said Engineer-in-Charge the Bank binds itself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this ..... day of ..... 20.....

THE CONDITIONS of this obligation are:

- (1) If after tender opening, the Contractor withdraws his tender during the period of validity of tender (including extended validity of tender) specified in the Form of Tender;
- (2) If the contractor having been notified of the acceptance of his tender by the Engineer-in-Charge:
  - (a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to contractor, if required;  
OR
  - (b) fails or refuses to furnish the Performance Guarantee, in accordance with the provisions of tender document and Instructions to contractor,  
OR
  - (c) fails or refuses to start the work, in accordance with the provisions of the contract and Instructions to contractor,  
OR
  - (d) fails or refuses to submit fresh Bank Guarantee of an equal amount of this Bank Guarantee, against Security Deposit after award of contract.

We undertake to pay to the Engineer-in-Charge **either** up to the above amount **or part thereof** upon receipt of his first written demand, without the Engineer-in-Charge having to substantiates his demand, provided that in his demand the Engineer-in-Charge will note that the amount claimed by him is due to him owing to the occurrence of one or any of the above conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including the date\* ..... after the deadline for submission of tender as such deadline is stated in the Instructions to contractor or as it may be extended by the Engineer-in-Charge, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

DATE .....

SIGNATURE OF THE BANK WITH SEAL

WITNESS .....

(SIGNATURE, NAME AND ADDRESS)

\* Date to be worked out on the basis of validity period of 6 months from last date of submission of tender.

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   37
I = NIL		
O = NIL		

**FORM OF PERFORMANCE SECURITY (GUARANTEE)**  
**BANK GUARANTEE BOND**

1. In consideration of the President of India (hereinafter called “the Government”) having agreed under the terms and conditions of \_\_\_\_\_ agreement No. \_\_\_\_\_ dated \_\_\_\_\_ made between \_\_\_\_\_ and \_\_\_\_\_ {hereinafter called “the said contractor(s)”} for the work \_\_\_\_\_ (hereinafter called “the said agreement”) having agreed to production of an irrevocable Bank Guarantee for Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) as a security/guarantee from the contractor(s) for compliance of his obligations in accordance with the terms and conditions in the said agreement,  
 We \_\_\_\_\_  
 \_\_\_\_\_ (indicate the name of the Bank)  
 (hereinafter referred to as “the Bank”) hereby undertake to pay to the Government an amount not exceeding Rs. \_\_\_\_\_/- (Rupees \_\_\_\_\_ only) on demand by the Government.
2. We \_\_\_\_\_ do hereby undertake to \_\_\_\_\_ (indicate the name of the Bank)  
 pay the amounts due and payable under this Guarantee without any demure, merely on a demand from the Government stating that the amount claimed is required to meet the recoveries due or likely to be due from the said contractor (s). Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. \_\_\_\_\_/- (Rupees \_\_\_\_\_ only).
3. We, the said bank further undertake to pay to the Government any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal.  
 The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder and the contractor(s) shall have no claim against us for making such payment.
4. We \_\_\_\_\_ further agree that the guarantee \_\_\_\_\_ (indicate the name of the Bank)  
 herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the Government under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till Engineer-in-Charge, on behalf of the Government, certifies that the terms and conditions of the said agreement have been fully and properly carried out by the said contractor(s) accordingly discharges this guarantee.
5. We \_\_\_\_\_ further agree with the Government that \_\_\_\_\_ (indicate the name of the Bank)  
 the Government shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said contractor(s) or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.
6. This guarantee will not be discharged due to the change in the constitution of the Bank or the contractor(s).
7. We \_\_\_\_\_ lastly undertake not to \_\_\_\_\_ (indicate the name of bank) revoke this guarantee except with the previous consent of the Government in writing.
8. This guarantee shall be valid upto \_\_\_\_\_ unless extended on demand by Government. Notwithstanding anything mentioned above, our liability against this Guarantee is restricted to Rs. \_\_\_\_\_/- (Rupees \_\_\_\_\_ only) and unless a claim in writing is lodged with us within Four Months of the date of expiry or the extended date of expiry of this guarantee, all our liabilities under this guarantee shall stand discharged.

Dated the \_\_\_\_\_ day of \_\_\_\_\_

for \_\_\_\_\_  
 (indicate the name of the Bank)

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   38
I = NIL		
O = NIL		

## PERFORMANCE GUARANTEE

- 1) The contractor shall submit an irrevocable PERFORMANCE GUARANTEE of 3% (Three percent of the tendered amount) in addition to other deposits mentioned elsewhere in the contract for his proper performance of the contract agreement, (notwithstanding and/ or without prejudice to any other provisions in the contract) within 15 days of issue of letter of acceptance. This period can be further extended by the Engineer-in-Charge up to a maximum period of 7 days on written request of the contractor stating the reason for delays in procuring the Bank Guarantee to the satisfaction of the Engineer-in-Charge.

This guarantee shall be in the form of Govt. securities or fixed deposit receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the form annexed hereto. In case a fixed deposit receipt of any Scheduled Bank is furnished by the contractor the Govt. as part of the performance guarantee & the Bank is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forth with on demand furnish additional security to the Govt. to make good the deficit.

- 2) A letter of acceptance shall be issued informing the successful tenderer of the decision of the competent authority to accept his tender and to submit the Performance Guarantee within 15 days in any of the prescribed form. On receipt of prescribed performance guarantee, necessary letter to commence the work shall be issued and site of work shall be handed over thereafter. In case of failure by the contractor to furnish the performance guarantee within the specified period, Government shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the earnest money absolutely.
- 3) The Performance Guarantee shall be initially valid upto the stipulated date of completion plus 30 Days beyond that. In case the time for completion of work gets enlarged, the contractor shall get the validity of Performance Guarantee extended to cover such enlarged time for completion of work. After recording of the completion certificate for the work by the competent authority, the performance guarantee shall be returned to the contractor, without any interest.
- 4) The Engineer-in-Charge shall not make a claim under the performance guarantee except for amounts to which the President of India is entitled under the contract (not withstanding and/ or without prejudice to any other provisions in the contract agreement) in the event of :-
- a) Failure by the contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer-in-Charge may claim the full amount of the Performance Guarantee.
- (b) Failure by the contractor to pay President of India any amount due, either as agreed by the contractor or determined under any of the clauses/ conditions of the agreement, within 30 Days of the service of notice to this effect by Engineer-in-Charge.

In the event of the contract being determined or rescinded under provision of any of the clause/ condition of the agreement, the performance guarantee shall stand forfeited in full and shall be absolutely at the disposal of the President of India.

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   39
I = NIL		
O = NIL		

**AFFIDAVIT**

I/We have submitted a bank guarantee for the work:-

\_\_\_\_\_

(name of work).

Agreement No. \_\_\_\_\_

Dated \_\_\_\_\_ from \_\_\_\_\_

( Name of the Bank with full address)

to the Executive Engineer \_\_\_\_\_ (Name of Division) with a view to seek exemption from payment of security deposit/performance guarantee/guarantee money for expansion joint / Electrometric Bearings / Bituminous Macadam/ Dense Bituminous Macadam/ Bituminous Concrete work/ Bitumen Mastic work in cash.

This bank guarantee expires on \_\_\_\_\_

I/We undertake to keep the validity of the bank guarantee intact by getting it extended from time to time at my/our own initiative upto a period of \_\_\_\_\_ months after the recorded date of completion of the work or as directed by the Engineer-in-Charge.

I/We also indemnify the Government against any losses arising out of non-encashment of the bank guarantee, if any.

**Deponent**

**(Signature of Contractor )**

Note:- The affidavit is to be given by the executants before a first class Magistrate.

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   40
I = NIL		
O = NIL		

**AFFIDAVIT**

I/we undertake and confirm that our firm/partnership firm has not been blacklisted and/or debarred by any state/Central Departments/PSUs/Autonomous bodies during the last 7 years of its operations. Further that, if such an information comes to the notice of the department then I/we shall be debarred for bidding in CPWD in future forever. Also, if such an information comes to the notice of department on any day before date of start of work, the Engineer-in-charge shall be free to cancel the agreement and to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee (Scanned copy of this notarized affidavit to be uploaded at the time of submission of bid)

**NOTE: Affidavit to be furnished on a ‘Non-Judicial’ stamp paper worth Rs.100/-**

**Signature of Bidder(s) or an authorized  
Officer of the firm with stamp**

**Signature of Notary with seal**

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   41
I = NIL		
O = NIL		

## **PART - B**

### **SOLAR POWER PLANT**

### **ADDITIONAL TERMS AND CONDITIONS &**

### **TECHNICAL SPECIFICATIONS**

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   42
I = NIL		
O = NIL		

## **GENERAL, COMMERCIAL AND ADDITIONAL CONDITIONS**

### **General**

1. This specification covers manufacture, testing as may be necessary before dispatch, delivery at site, all preparatory work, assembly and installation, commissioning putting into operation of E & M installations.
2. **Location:** Work shall be carried out at **Lakshmi Bai College, Ashok Vihar, Delhi.**
3. The work shall be executed as per CPWD General Specifications for Electrical Works Part-I (internal) 2013, Part-II (external) 1994, and Part-IV (sub-station) 2013 as amended upto date, relevant I.E. Rules, BIS/IES and as per directions of Engineer- in-charge. These additional specifications/conditions are to be read in conjunction with above and in case of variations; specifications given in these additional conditions shall apply. However, nothing extra shall be paid on account of these additional specifications and conditions, as the same are to be read alongwith schedule of quantities for the work.
4. The tenderer should in his own interest visit the site and get familiarize with the site conditions before-tendering.
5. No T&P shall be issued by the Department and nothing extra shall be paid on account of this.
6. The makes/models and Cat. No. etc mentioned in NIT are indicative only. The firms shall be responsible for providing the system fulfilling the specifications, capacity and all other related requirement of system ensuring compatibility between different items of work.
7. The firm shall be required to supply all the items of same make (among the list of approved makes) wherever available to ensure compatibility, proper matching and ease of maintenance.
8. Department reserves the right to accept the upgraded version of various items, if there is technological advancement with reference to these makes/models. The decision of department in this reference shall be final and binding on the firms.
9. The contractor shall discuss with EE(E) or his authorized representative / visit the site before placing the supply order / delivery of materials at site as per actual requirement **as the actual Quantity of materials required may deviate (+/-) from the quantity taken in the schedule of Work/inventory of the agreement.**

### **COMMERCIAL CONDITIONS**

#### **1. Type of contract**

**The work to be awarded by this tender shall be treated as indivisible works contract.**

#### **2. Submission of Tenders:-**

- (i) Percentage rate tender in Two bid system.
  - (ii) Submission and opening of e-tender will be as per details given in the information and instructions for contractors for e tendering posted in the website and CPWD- form 6 for e-tendering forming part of the NIT.
  - (iii) The tenderers are advised not to deviate from the technical specification/ items, commercial terms & Conditions of NIT like terms of payment, guarantee, arbitration clause, escalation etc.
  - (iv) In the price bid, there shall be no conditions whatsoever. In case any tenderer mentions any condition i/c conditional rebates in their price part, tender shall be rejected forth with.
  - (v) The department reserves the right to reject any or all the price bids and call for fresh prices/ tenders as the case may be without assigning any reason.
  - (vi) First the eligibility documents will be opened and evaluated and successful bidders shall be approved and price bids of only eligible bidders qualified in eligibility bid will be opened on the specified date.
3. Scrutiny/ evaluation of the Tenders (Price Bid) shall be done by the department. In case it is found that the Tenders (Price Bid) of a tenderer is not in line with NIT specifications/requirements, the department reserves the right to reject the price bid of such firm(s) Terms of payment
  - 3.1 Payment shall be made on the basis of running account bill as per progress of execution of work. **Stages of payment shall be as per following on prorated basis:-**
    - (i) Against supply of material received at site in good condition-70%

C = NIL				Page   43
I = NIL				
O = NIL	SDM (E)	AE (E)-P,	EE(E), North West Elect. Div	

- (ii) On completion of pro-rata installation-15%
- (iii) On commissioning and completion of work-10%
- (iv) After handing over along with Net Metering arrangement -5%

#### 4.0 **Security Deposit**

- (i) The security deposit shall be collected by deductions from the running bills of the contractor at the rate mentioned below.
- (ii) A sum @ 2.5% of the gross amount of the each running & final bill shall be deducted till the sum deducted will amount to security deposit of 2.5% of the tendered value of the work. Such deductions shall be made and held by government by way of Security Deposit unless the contractor has deposited the amount of security at the rate mentioned in cash or in the form of Government securities or Fixed Deposit Receipts. This is in addition to the performance guarantee that the contractor is required to deposit.
- (iii) The security deposit shall be released after 12 months from the date of handing over of the Solar PV system in complete shape along with net metering arrangement.

#### 5.0 **Performance Guarantee**

- (i) The tender shall guarantee among other things, the following: -
  - a) Quality, strength and performance of the materials used.
  - b) Safe mechanical and electrical stress on all parts under all specified conditions of operation.
  - c) Satisfactory operation during the maintenance period.
- (ii) The contractor whose bid is accepted, will be required to furnish performance guarantee of 3% (Three Percent) of the bid amount within the period specified in Schedule F. This guarantee shall be in the form of cash (in case guarantee amount is less than Rs. 10000/-) or Deposit at Call receipt of any scheduled bank/Banker's cheque of any scheduled bank/Demand Draft of any scheduled bank/Pay order of any Scheduled Bank of any scheduled bank (in case guarantee amount is less than Rs. 1,00,000/-) or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule „F“. including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The earnest money deposited along with bid shall be returned after receiving the aforesaid performance guarantee.

#### (iii) **Refund of Performance Guarantee:**

- a) 1% of the Performance Guarantee shall be refunded after successful completion of each year of DLP for a period of 5 years.
- (iv) Income Tax, GST, labour cess & other statutory deductions etc shall be made at source as per the prevalent laws. The deductions of Security Deposit, Income- Tax, GST etc shall be done after calculation of the above due payments and net payment shall be arrived at accordingly.

#### 6. **Rates**

- a) The rates quoted by the tenderer, shall be firm and inclusive of all taxes including, GST, labour cess, duties, levies, octroi etc and all charges for packing forwarding, insurance, freight and delivery, installation, testing, commissioning etc at site including temporary construction of storage, risks, over head charges, general liabilities/obligations and clearance from Local Bodies. However, the fee for the Local Body inspections shall be borne by the department.
- b) No payment will be made to the contractor for any damage caused by rain, snow fall, floods, dampness, fire, sun or any other natural cause whatsoever during execution of work. The damage to the work due to above reasons, if any shall be made good by the contractor at own cost and no claim on this account shall be entertained.
- c) Some restrictions may be imposed by the Client on the working and/ or movement of labour, materials etc. on account of security reasons. The contractor shall be bound to follow such restrictions/ instructions and nothing extra shall be payable on this account. No claim for idle labour shall be entertained.
- d) The department will not issue Octroi exemption certificate.
- e) The contractor has to carry out Routine maintenance of the Solar Photovoltaic power generation system by checking & routine maintenance the system for satisfactory operation as per manufacturers standards, recording the various electrical parameters in log book, watch & ward for the system for a period of 60 months from the date of handing over i/c fortnightly visit by Engineer

C = NIL	SDM (E)                      AE (E)-P,                      EE(E), North West Elect. Div	Page   44
I = NIL		
O = NIL		

for checking the healthiness of the system i/c repair/replacement of the defective part or to attend the major complaint whenever informed by the Department as per terms & condition attached. (Supply of spare parts shall be included in the scope of the work under guarantee period) from the date of handingover.

#### 7.0 Completeness of Tender

All sundry equipment, fittings, unit assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections and all other items which are useful and necessary for efficient assembly and installation of the system shall be deemed to have been included in the tender irrespective of such items are specifically mentioned in the tender documents or not.

#### 8.0 Storage and Custody of Materials

For storage of sundry materials and erection of equipments, the agency has to make his own arrangements. No separate storage accommodation shall be provided by the department. Watch and ward of the stores and their safe custody shall be the responsibility of the contractor till the final taking over of the installation by the department.

#### 9.0 Care of the Building

Care shall be taken by the contractor while handling and installing the various equipments and components of the work to avoid damage to the building. He shall be responsible for repairing all damages and restoring the same to their original finish at his cost. He shall also remove at his cost all unwanted and waste materials arising out of the installation from the site of work.

#### 10. Completion Period

- a) The completion period of **45 Days** indicated in the tender documents is for the entire work of planning, designing, approval of drawings etc i/c arrangement of materials & equipments, delivery at site including transportation, installation, testing, commissioning and handing over the entire system to the satisfaction of the Engineer-in-charge.
- b) The Contractor shall be responsible for handing over the Inventory of entire system in operational to the Client/Department to the satisfaction of the Engineer-in-Charge before recording of completion Certificate & making the final payment.

#### 11. Guarantee

- a) All equipment shall be guaranteed for a period of 60 months, from the date of taking over the installation by the department, against unsatisfactory performance and /or break down due to defective design, workmanship or material. The contractor shall stand performance guarantee of solar PV system supplied and installed by them for a period of 60 months from the date of the handing over of the installation. Hence, the performance guarantee deposited at the time of award of work will be released on pro-rata basis ( 1 % after completion of each year ) after successful completion of performance guarantee period of **60 months**. The equipment or components, or any part thereof, so found defective during guarantee period shall be forthwith repaired or replaced free of cost, to the satisfaction of the Engineer-in-charge. In case it is felt by the department that undue delay is being caused by the contractor in doing this, the same will be got done by the department at the risk and cost of the contractor. If the performance of Solar PV system found unsatisfactory during the guarantee period or contractor repeatedly fails to replace/repair the defective solar PV system within 15 days time after written complaint in this regard, the amount of performance guarantee shall be forfeited absolutely. The decision of the Engineer-in-charge in this regard shall be final & binding on the contractor.
- b) The tenderer shall guarantee among other things the following:
  - i) Quality, strength and performance of the materials used as per manufacturers standards.
  - ii) Safe mechanical and electrical stress on all parts under all specified conditions of operation.

#### 12.0 Power Supply

Arrangement of electric power supply (Three Phase/Single Phase) at a single point as required to carry out the work for successful installation, testing and commissioning of the system will be provided by the department. However, distribution of electric supply to carry out the work at different locations shall lie in the scope of the contractor.

#### 13. Acceptable Makes of Various Equipments

- a) The acceptable makes of various equipments/components/accessories have been indicated in "List of Preferred Makes". The tenderer shall work out the cost of the offer on this

C = NIL				Page   45
I = NIL				
O = NIL	SDM (E)	AE (E)-P,	EE(E), North West Elect. Div	

basis. Alternate makes are not acceptable.

- b) The firm will be required to procure material directly from the manufacturer /authorized dealers to ensure genuineness & quality and as per the approved makes only. Proof in this regard shall be submitted by the contractor.

**14.0** The successful tenderer should furnish well in advance three copies of detailed instructions and manuals of manufacturers for all items of equipments regarding installation, adjustments operation and maintenance including preventive maintenance trouble shooting together with all the relevant data sheets, spare parts catalogue etc all intricate.

**15. Extent of work**

- i) The work shall comprise of entire labour including supervision and all materials necessary to make a complete installation and such tests and adjustments and commissioning, as may be required by the department.

The term complete installation shall not only mean major items of the plant and equipments covered by specifications but all incidental sundry components necessary for complete execution and satisfactory performance of installation with all layout charts whether or not those have been mentioned in details in the tender documents in connection with this contract as this is a turnkey job.

- ii) In addition to supply, installation, testing and commissioning of complete installation, following works shall be deemed to be included within the scope of work to be executed by the tenderer as this is a turnkey job.

- a) Minor building works necessary for installation of equipments, foundation, making of opening in walls or in floors and restoring them to their original condition / finish and necessary grouting etc as required.
- b) The contractor shall not damage the existing water proofing while working on the terrace floor. Any damage caused to the water proofing/terrace flooring shall be made good at no extra cost.
- c) All supports for cables and MS channels for erection of panels etc as are necessary.
- d) Getting Local Body inspection done & obtaining approval for energizing the installation if required. However, necessary fees for inspection shall be borne by the Department.
- e) Small wiring, inter-connection etc inclusive of all materials and accessories, necessary to comply with the regulations as well as proper and trouble free operation of the equipment.
- f) Closing of the cable entry points in sub-station/D.G Set room/buildings to arrest seepage of water, rodents etc.
- g) Tools and tackles required for handling and installation.
- h) Necessary testing equipments for commissioning.
- i) Watch and Ward of materials and/or installation and equipments till their handling over to the department.
- j) Provision of supports/clamps for equipments, cables etc wherever required.
- k) Arrangement of networking on requirement.

**16. Inspection and Testing**

- a) All the tests certificate of the equipments are required to submit along with delivery of material.
- b) Copies of all documents of routine and type test certificates of the equipment, / cable carried out at the manufacturers premises shall be furnished to the Engineer-in-charge and consignee.
- c) After completion of the work in all respects the contractor shall offer the installation for testing and operation.

**17. Compliance with Regulations and Indian Standards**

- a) All works shall be carried out in accordance with relevant regulation, both statutory and those specified by the Indian standards related to the works covered by this specification. In particular, the equipment and installation will comply with the following:

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   46
I = NIL		
O = NIL		

- i. Factories Act
  - ii. Indian Electricity Rules
  - iii. BIS & other standards as applicable
  - iv. Workmen's compensation Act
  - v. Statutory norms prescribed by local bodies, Power supply co., etc
- b) Nothing in this specification shall be construed to relieve the successful tenderer of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with currently applicable statutory regulations and safety codes.
- c) Successful tenderer shall arrange for compliance with statutory provisions of safety regulations and departmental requirements of safety codes in respect of labour employed on the work by the tenderer. Failure to provide such safety requirement would make the tenderer liable for penalty of Rs. 500/- for each default. In addition, the department will be at liberty to make arrangement for the safety requirements at the cost of tenderer and recover the cost thereof from him.

#### 18.0 Indemnity

The successful tenderer shall at all times indemnify the department, consequent on this works contract. The successful tenderer shall be liable, in accordance with the Indian Law and Regulations for any accident occurring due to any cause and the contractor shall be responsible for any accident or damage incurred or claims arising there from during the period of erection, construction and putting into operation the equipments and ancillary equipment under the supervision of the successful tenderer in so far as the latter is responsible. The successful tenderer shall also provide all insurance including their party insurance as may be necessary to cover the risk. No extra payment would be made to the successful tenderer on account of the above.

#### 19.0 Erection Tools

No tools and tackles either for unloading or for shifting the equipments for erection purposes would be made available by the department. The successful tenderer shall make his own arrangement for all these facilities.

#### 20.0 Cooperation with Client/Occupants

The successful tenderer shall coordinate with occupants and client to carry out the work with least disturbance and shut down shall be taken after consultation with client department.

#### 21.0 Painting

This shall include cost of painting of the entire installation, wherever required.

#### 22.0 Maintenance

Sufficient trained and experienced staff shall be deputed to meet any exigencies of work during the guarantee period of Five year from the handing over of the installation.

#### 23.0 Interpreting specifications

In interpreting the specifications, the following order of decreasing importance shall be followed in case of contradictions:

- a) Schedule of quantities
- b) Technical specifications
- c) General, Commercial and Additional Conditions
- d) Drawing (if any)
- e) MNRE Guidelines
- f) CPWD General specifications
- g) Relevant BIS codes or other international code in case BIS code is not available.

#### 24.0 Warranty:

25 Years performance warranty shall be provided by manufacturer on SPV modules with degradation in performance maximum 10% after 10 years and 20% after 25 years as per industrial standard warranty conditions on complete system from the date of commissioning of the system. If SPV modules do not perform satisfactorily as above then the manufacturer of the solar PV modules shall make proper check of the quality of material and should replace the unsatisfactorily solar PV modules with free of cost.

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   47
I = NIL		
O = NIL		

- Otherwise department may take action to debar the manufacturer for CPWD works and may intimate to MNRE to take suitable action against such defaulting manufacturer.
- 25.0 The scope of work for the bidder include obtaining No Objection Certificate (NOC) from Distribution Company (DISCOM) for grid connectivity, complete design, engineering, manufacture, supply, storage, civil work, erection, testing and commissioning of the grid connected rooftop Solar PV project
  - 26.0 The support mounting structure / elevated structure & foundation of solar PV modules shall be so designed to withstand, wind speed. The contractor shall arrange vetting/approval of the Structural drawing of mounting Structure/elevated structure for solar PV modules from Qualified structural Consultant/ IIT / NIT . He shall also arrange the visit of structural Engineer to ascertain that existing R.C.C slab is strong enough to take this additional load of mounting structure along with solar PV modules. All co-ordination and necessary fees for approval of drawings shall be paid by the Firm. Nothing extra shall be paid on this account.
  - 27.0 The scope of work include fixing of solar modules and plates at different locations in college building in partly manner.
  - 28.0 All the units installed at different location will be connected and synchronized in existing solar system with necessary interconnections by suitable size copper cables and testing.
  - 29.0 Solar panels will be installed at various locations in college building and necessary PCU units may be more than one as per requirement at site and agency will provide PCU units as per requirement of client.
  - 30.0 The solar plant system will be integrated site existing solar system in college building and all necessary integration work will be in scope of agency and nothing extra will be paid to the agency for this work.
  - 31.0 Size and height of structural work for solar plant will decided and approved by Engineer-in-Charge and structure height may differ at alternate location in college building and will be in scope of work of agency for which nothing extra will be paid.
  - 32.0 Agency should ensure all the interconnections with suitable size cables and IP 65 rating junction boxes. All the cabling work will be carried out in galvanized cable trays with suitable fixation or on surface with proper saddling work, for which nothing extra will be paid.
  - 33.0 Data monitoring system for solar power plant system will be installed by agency to check and ensure suitable power generation by individual solar plant units.
  - 34.0 All individual solar plant units which are to be installed at different locations should be earthed properly and necessary interconnections should be made at each individual location.

**Sr. Draughtsman (E)**  
North West Elect Division

**Assistant Engineer (E)-P**  
North West, Elect. Divn. PWD

**Executive Engineer (E)**  
North West, Elect. Divn., PWD  
ISBT, Kashmere Gate,  
Delhi-110006

C = NIL	SDM (E)                      AE (E)-P,                      EE(E), North West Elect. Div	Page   48
I = NIL		
O = NIL		

## **SPECIAL CONDITIONS**

1. The Contractor shall guarantee minimum generation of 1400KWh per annum per KWp of commissioned generation capacity of Solar Power Plant. This shall be subject to the annual de-generation acceptable as per norms / Schedule of work failing which the recovery at Rs 15/- per kWH of less generation shall be effected from the bills payable / Performance Guarantee / Security Deposit of the agency.
2. The trial run of electrical work / equipments shall be carried out by the firm in presence of Engineer-in-charge or his representative at the site as per requirement of department.
3. The Power Purchase Agreement shall be taken up by Client / Engineer-in- charge or his representative (As per case may be) separately with DISCOM. The Contractor shall liaison with the DISCOM for the approval and finalization of the PPA. The necessary documentation shall be done by the contractor.
4. The application for Net Metering / bidirectional meters shall be furnished by the client / department and necessary fees also shall also be paid by the Department. The Contractor shall liaison with the DISCOM for the necessary documentation and obtaining the Net metering arrangement. The agency has to liaison for obtaining the HT Net metering for **Lakshmi Bai College , Ashok Vihar , Delhi. Also contractor shall liaison with DISCOM agency for necessary documentation and connection of new solar power plant system with existing not metering arrangement as per DISCOM agency requirements.**
5. All equipments and materials to be used in work shall be manufactured in factories of good repute having excellent track record of quality manufacturing, performance and proper after sales service. The Department reserves right to inspect Solar PV Panels at factory/Manufacturers premises during the course of manufacturing at any stage and the department shall be provided with the proof of using the approved make of PV Cells in the manufacturing of solar PV Modules. The Contractor shall intimate the schedule of manufacturing of modules at factory prior to taking up in the production.

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I = NIL		
O = NIL		

## **TECHNICAL SPECIFICATIONS**

### **SCOPE OF WORK**

1. The scope of work involves design, supply, installation, testing and commissioning of complete Solar PV system as per BOQ and these specifications. The drawings along with detailed design and equipment datasheet shall be submitted for approval before starting the work. The work shall be carried out as per designs approved by the Department. The contractor shall submit the design of SOLAR PV system for each building immediately after the award of work.
2. The tentative capacity of Solar PV system is given below for guidance. **The power generated is intended to be used in the same building or nearby building or for the entire campus.** The LT Power Cabling shall be laid accordingly.

S. No.	Name of Building	Proposed Approx. Solar Power plant Capacity
1	Lakshmi Bai College , Ashok Vihar , Delhi.	37 KWp

**NOTE:** The Quantities given might increase or decrease as per the actual layout and design. The Capacity of each building may vary and shall be on actual basis. The inverter capacity and other accessories shall be decided upon final approval of the layout and capacities by the Engineer in charge.

3. The Solar PV module shall be installed on the existing roof / ground area / parking area and elevated structure as per the site conditions and as per the drawing approved by the Engineer-in-charge.
4. The agency shall connect the output of the SPV module with suitable size copper cable to the inverter through the junction boxes. From the inverter, suitable size copper cable shall be connected to the AC DB / Panel as approved by the Engineer-in-charge. From the AC DB / Panel, suitable size LT cabling shall be provided upto the sub-station building at no extra cost.
5. The Agency shall liaison and obtain HT Net metering and LT Net Metering at Lakshmi Bai College Ashok Vihar Delhi, from the Electricity department. Required statutory charge will be paid by the department. **Also contractor shall liaison with DISCOM agency for necessary documentation and connection of new solar power plant system with existing not metering arrangement as per DISCOM agency requirements**
6. The agency shall provide 2 Nos. GI plate earthing for each building each individual solar plant and to be connected to the Solar PV Panel, duly laid as per the CPWD Specifications and drawings shall be got approved from the department.
7. The agency shall provide required No. of GI plate earthing for each building each individual solar plant for lightning protection with required number of G.I. finials, duly laid as per the CPWD Specifications and drawings shall be got approved from the department.

### **TECHNICAL SPECIFICATIONS: -**

#### **1. AMBIENT CONDITION & SOLAR INSOLATION**

##### **LOCATION / SITE DETAILS FOR THE SPV POWER PROJECT**

- Address of site : Lakshmi Bai College , Ashok Vihar , Delhi.
- Location : Ashok Vihar, Delhi
- Ambient temperature : 35<sup>0</sup>C max., 08<sup>0</sup>C min, Humidity 33%
- Latitude : 28.6918
- Longitude : 77.1675

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I = NIL		
O = NIL		

**CONTRACTORS ARE ADVISED TO VISIT THE SITE BEFORE QUOTING THE RATES. OTHERWISE IT WILL BE ASSUMED THAT THE PARTY HAS ALREADY VISITED THE SITE BEFORE QUOTING THE TENDER.**

Bidders shall seek from relevant database / source, all the data pertaining to the ambient conditions like temperature, humidity, wind load, rain, weather condition and historical solar radiation etc., pertaining to the site location and optimize the design accordingly. All design calculations and installation details shall be submitted after the award of work.

## **2. EQUIPMENTSPECIFICATION**

### **a) Solar PV Module (Electrical Features)**

Solar PV module array will be made by utilizing Poly/mono Crystalline high efficiency Silicon Solar PV cells. Minimum power output guarantee offered for the SPV Module shall not be less than 25 years. Individual solar module rating will not be less than 330 Wp at Standard test conditions. Each Solar PV module offered shall meet following min.requirement.

- ☐ Efficiency of cell,  $E_{f,c}$  - >18%
- ☐ Efficiency of module,  $E_{f,m}$  - >16.5%

SPV module conversion efficiency should be equal to or greater than 18.0% (cell) under STC of 1000w/m<sup>2</sup> and cell operating temp of 25°C and AM 1.5 radiation. Modules must qualify to relevant IEC standards Part I and II for safety qualification testing.

Note: I-V curve of each PV module with Sl. Nos. should be submitted along with modules. Solar PV modules shall conform to IEC-61215 standards. Documentary evidence towards IEC- 61215 certification shall be submitted after award of work. Minimum following parameters should be provided:

- ☐ Maximum Power,  $P_{max}$
- ☐ Minimum Power,  $P_{min}$
- ☐ Open Circuit Voltage,  $V_{oc}$
- ☐ Short Circuit Current,  $I_{sc}$
- ☐ Voltage at Max Power  $V_{mp}$
- ☐ Current at Max power  $I_{mp}$
- ☐ Fill Factor, FF
- ☐ Efficiency of cell,  $E_{f,c}$
- ☐ Efficiency of module,  $E_{f,m}$

Necessary I-V curves at 25°C, 45°C, 60°C and at NOCT are required to be furnished after award of work offers to provide PV module warranty of 20 years with no more than 10% degradation in performance/output over 20 years (0.5% every year).

The rated output power of any supplied module shall not have negative tolerance.

### **b) Solar PV Module (Mechanical Features)**

Solar PV Module design shall conform to following Mechanical requirement

- Toughened, antireflective, low iron content, high transmissivity front glass.
- Anodized Aluminium Frame
- Ethyl Vinyl Acetate (EVA) encapsulate
- Silicon edge sealant around laminate
- Tedlar / Polyester trilaminate back surface
- ABS plastic terminal box for the module output termination with gasket to prevent water moisture.
- Resistant to water, abrasion, hail impact, humidity & other environment factor for the worst situation at site.
- Bypass diode.
- Except where specified, the front module surface shall consist of impact resistant, low-iron and high-transmission toughened glass.

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I = NIL		
O = NIL		

- The module frame, if any, shall be made of a corrosion-resistant material which shall be electrolytically compatible with the structural material used for mounting the modules.
- The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall have hinged, weather proof lid with captive screws and cable gland entry points or may be of sealed type and IP65 rated

**c) Module mounting structure**

Suitable number of PV panel structures shall be provided. Structures shall be of flat-plate design either I or L sections or pipe sections. The Solar PV modules shall be erected on a suitable elevated module mounting structures with the heights of module mounting structure. As per actual requirement at site at different locations in college building.

Structural material shall be corrosion resistant and electrolytic ally compatible with the materials used in the module frame, its fasteners, nuts and bolts. Galvanizing should meet ASTM A-123 hot dipped galvanizing or equivalent which provides at least spraying thickness of 80-100 microns on steel as per IS5905, if steel frame is used. Aluminum frame structures with adequate strength and in accordance with relevant BIS/international standards can also be used.

Structures shall be supplied complete with all members to be compatible for allowing easy installation at the ground site.

The structures shall be designed to allow easy replacement of any module & can be either designed to transfer point loads on the ground as per site conditions and design to be approved by CPWD.

Each structure shall have a provision to adjust its angle of inclination to the horizontal as per the site conditions by way of Manual operation.

Each panel frame structure be so fabricated as to be fixed on the ground. The structure should be capable of withstanding, wind load after grouting & installation. Grouting material for SPV structure shall be as per M 15(1:2:4) concrete specification.

The structures shall be designed for simple mechanical and electrical installation. There shall be no requirement of welding or complex machinery at the installation site. If prior civil work or support platform is absolutely essential to install the structures, the Contractor shall clearly and unambiguously communicate such requirements along with their specifications in the bid. Detailed engineering drawings and instructions for such prior civil work shall be carried out prior to the supply of Goods.

The Contractor shall specify installation details of the PV modules and the support structures with appropriate diagrams and drawings. Such details shall include, but not limited to, the following;

- a) Determination of true south at the site;
- b) Array tilt angle to the horizontal, with permitted tolerance;
- c) Details with drawings for fixing the modules;
- d) Details with drawings of fixing the junction/terminal boxes;
- e) Interconnection details inside the junction/terminal boxes;
- f) Structure installation details and drawings;
- g) electrical grounding (earthing);
- h) Inter-panel/Inter-row distances with allowed tolerances; and
- i) Safety precautions to be taken.

The array structure shall support SPV modules at a given orientation and absorb and transfer the mechanical loads to the ground columns properly. All nuts and bolts shall be of very good quality stainless steel. Detailed design and Drawing shall have to be submitted to CPWD for acceptance and approval before execution of work.

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   52
I = NIL		
O = NIL		

**NOTE: The structural design of the complete system should be compatible with the structural strength and load bearing capacity of the site/ ground, design calculations and certificate to this effect shall be provided by a qualified chartered structural engineer.**

The array structure shall be made of hot dip galvanized MS angles. The minimum thickness of galvanization shall be at least 70 microns. All nuts & bolts shall be made of good quality steel.

The work should be completed with supply, fitting fixing of clamps, saddles, nut & bolts etc. While quoting the rate, the bidder may mention the design & type of structure offered. All nuts & bolts shall be made of very good quality steel.

The structure shall be designed to allow easy replacement of any module and shall be in line with site requirements.

The structure shall be designed for simple mechanical and electrical installation. It shall support SPV modules at a given orientation, absorb and transfer the mechanical loads to the ground properly. There shall be no requirement of welding or complex machinery at site.

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

The supplier / manufacturer shall specify installation details of the PV modules and the support structures with appropriate diagrams and drawings.

The agency shall provide an elevated structure, wherever required as per site conditions, with G.I. pipe/Angle iron/ Channels as per the drawing duly approved by the department. The agency shall also obtain the certification from the structural Engineer for withstanding a wind speed.

#### **d) Junction Boxes**

The junction boxes shall be dust, vermin and waterproof and made of FRP / Thermo Plastic. The terminals shall be connected to copper bus bar arrangement of proper size. The junction boxes shall have suitable cable entry points fitted with cable glands of appropriate sizes for both incoming and outgoing cables. Suitable marking shall be provided on the bus bar for easy identification and cable ferrules shall be fitted at the cable termination points for identification.

The junction boxes shall have suitable arrangement for the following:

- Combine groups of modules into independent charging sub-arrays that shall be wired to the controller.
- Provide arrangement for disconnection for each of the groups.
- Provide a test point for each sub-group for quick fault location.
- To provide group array isolation.
- The rating of the JB's shall be suitable with adequate safety factor to inter connect the Solar PV array.
- Metal oxide varistors shall be provided inside the Array Junction Boxes.

#### **e) Power Conditioning Unit (PCU):**

The PCU is a combination of Inverter, AC Charger and data logger all housed in a single unit. Maximum power point tracker (MPPT) shall be integrated into the PCU to maximize energy drawn from the solar PV array. MPPT shall be microprocessor/micro controller based to minimize power losses and maximize energy utilization. The efficiency of MPPT shall not be less than 93%.

PCU shall include self-protective and self-diagnostic features to protect itself and the PV array from damage in the event of PCU component failure.

Power conditioning unit will comply the following requirements.

- 415V AC  $\pm$  5% 50Hz, 3Phase
- Overload capacity – 150% for 60sec.
- Output wave shape: sine wave with <3% total harmonic distortion (THD).
- Adjust the Voltage and Frequency Levels to suit the MAIN LT panel/feeder pillar BUS near the individual building.

#### **f) MODES OF PCU**

##### **i) STANDBY MODE:**

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   53
I = NIL		
O = NIL		

The control system shall continuously monitor the output of the solar power plant until pre-set value is exceeded and that value to be indicated.

**ii) BASIC SYSTEM OPERATION (FULL AUTOMODE):**

The system shall automatically 'wake up' in the morning and begin to export power provided there is sufficient solar energy and the grid voltage and frequency is in range.

**iii) SLEEP MODE:**

Automatic 'sleep' mode shall be provided so that unnecessary losses are minimized at night. The power conditioner must also automatically re-enter standby mode when threshold of standby mode reached.

**iv) INVERTER**

The inverter output shall always follow the grid in terms of voltage and frequency. This shall be achieved by sensing the grid voltage and phase and feeding this information to the feedback loop of the inverter. This control variable then controls the output voltage and frequency of the inverter, so that inverter is always synchronized with the grid. The grid islanding shall be ensured.

**The typical specification of PCU is listed below:**

a.	<b>AC side</b>	<b>As per Tender design</b>
I	Nominal AC Power	37 kWp
ii	Output AC Voltage (as per manufacturer practice	415V+/- 10%
iii	Frequency	50 Hz
iv	Total harmonic distortion	< 3% at nominal power
v	AC over / under voltage over voltage / under frequency protection.	Yes
vi	Phase Shift (COS Phi)	1
b.	<b>DC Side</b>	
I	PV Power	Min 330 WP or above
ii	Maximum DC Voltage	800V
iii	MPPT Voltage range	350 V -800V
iv	Maximum DC Current *	
V	DC voltage ripple	<3%
vi	DC over voltage protection	Yes
c.	<b>Other Parameters</b>	
I	Minimum efficiency (CE)	≥97%
ii	Ambient temperature	0-50° C
iii	Humidity (Non Condensing)	95%
Vi	Degree of protection for enclosure	IP 54
V	Dimension / Weight	As per Manufactured design.
Vi	Noise level	< 65 dBA
Vii	Cooling	Natural Air
viii	Input Range	420-850 V DC
ix	Power Factor	≥0.95
X	Input / Output cable Termination	As per actual requirement at site

Other important Features/Protections required in the INVERTER

- ☐ Automatic morning wake-up and night shutdown
- ☐ PCU must have the feature to work in tandem with other similar PCUs and be able to be successively switched ON and OFF automatically based on solar radiation variations during the day.
- ☐ Mains (Grid) over-under voltage and frequency protection

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I = NIL		
O = NIL		

- ❑ **Fool proof protection against ISLANDING.**
- ❑ Included authentic tracking of the solar arrays maximum power operation voltage (MPPT).
- ❑ Array ground fault detection.
- ❑ LCD and piezoelectric keypad operator interface Menu driven Automatic fault conditions reset for all parameters like voltage, frequency and/or black out.
- ❑ MOV type surge arresters on AC and DC terminals for over voltage protection from lightning-induced surges.
- ❑ INVERTER should be rated to operate at 0–55 deg. Centigrade unless provision for air conditioning is included in INVERTER
- ❑ All parameters should be accessible through an industry standard communication link.

#### **Protection against lightning**

Surge voltage induced at output due to external source Set point pre-selection for VAR control Remote control via telephone modem or mini web server Integrated protection in the DC and three phase system Insulation monitoring of the PV array Ground fault detector – which is essential for large PV generators in view of appreciable discharge current with respect to ground.

Over voltage protection against atmospheric lightning discharge to the PV array is required.

The power conditioner must be entirely self-managing and stable in operation. A self- diagnostic system check should occur on startup. Functions should include a test of key parameters on startup.

#### **DC distribution board/Array Junction Box**

DC distribution board shall be provided in between solar array and PCU. The junction boxes shall be made of FRP / Thermo Plastic with impact resistant transparent cover, waterproof, dust free, vermin with IP65 protection. The terminals shall be connected to copper bus bar arrangement of proper sizes. The junction boxes shall have suitable cable entry points fitted with cable glands of appropriate sizes for both incoming and outgoing cables. Suitable markings shall be provided on the bus bar for easy identification and cable ferrules shall be fitted at the cable termination points for identification. Array junction box shall have suitable reverse blocking diodes of minimum DC blocking voltage of 800 V with suitable arrangement for its connecting. The array box shall also have suitable surge protection.

The junction boxes shall have suitable arrangement for the following: Combine groups of modules into independent charging sub-arrays that shall be wired to the controller. Provide arrangement for disconnection for each of the groups.

Provide a test point for each sub-group for quick fault location. To provide group array isolation.

The rating of the JB's shall be suitable with adequate safety factor to inter connect the Solar PV array.

#### **By pass Diode**

Fuses of suitable rating for Overloading protection of array section.

#### **Surge protection system**

The DIN channel mountable pluggable surge protection shall be installed in a network configuration, consisting of a single block MOV (Metal Oxide Varistor) based surge arrester having nominal surge handling capacity of 15 KA 8/20  $\mu$ s & maximum surge handling capacity of 30 KA 8/20  $\mu$ s to provide protection between (L+, L-, earth). All surge arresters in these network configurations shall be of same manufacturer. The Protection unit shall be based on Single block High Capacity Metal Oxide Varistors (MOV), capable of handling 15 KA 8/20  $\mu$ s surges and shall be able to give an indication in the event module failure and shall be pluggable to facilitate the on-site replacement without disturbing the lines. One extra set of replacement protective device shall be furnished to the job site. Protection shall be manufactured to withstand a maximum continuous operating voltage of not less than 115% of normal RMS system voltage

#### **AC Distribution Board(ACDB)**

AC DB shall be provided in between PCU and loads.

### **3. APPROVAL & CLEARANCE**

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   55
I = NIL		
O = NIL		

All associated activities required for necessary clearances / permissions / approvals / licenses from concerned Electrical authorities so their govt / strategy / Local bodies are in the scope of contractor.

**4. EARTHING AND PROTECTION**

The array structure of the PV plant at roof top shall be grounded properly using adequate number of earthing kits. All metal casing / shielding of the plant shall be thoroughly grounded to ensure safety of the power plant. Earthing shall be in line with IE rules. The earthing & grounding shall also meet the requirement of PV module/cell manufacturer. Detailed specifications have been provided in the Earthing section.

**5. Cable and accessories**

All the cables shall be supplied conforming to IS 694 & shall be of 650 V/ 1.1 kV grade as per requirement. Only FRLS PVC copper cables shall be used. The size of the cables between array interconnections, array to junction boxes, junction boxes to DCDB, DCDB to PCU and PCU to main grid (DISCOM) etc shall be so selected to keep the voltage drop and losses to the minimum and all cables are included in the scope of work. For DC connections, the cable shall be of XLPO type Solar cables.

Bidders are required to mention each size of cables used and should consider their resistance / impedance in the design optimization. Such calculation should be submitted along with the bid. The contractor shall supply all cables, installation accessories, which are required to install and successfully commission the power plant.

**6. Space for Solar Array and Control room**

The bidder shall give the details of array layout before execution for approval.

Bidders are advised to visit the site and conduct a survey for deciding the most suitable layout from the installation & maintenance point of view.

**7. Type tests**

Type test reports of all major equipment (Solar modules & PCU) shall be submitted to the Engineer in Charge. The type test report shall be within 5 years from bid opening date, in absence of which fresh type test shall be done without any extra cost.

**8. Installation and commissioning**

**Detailed project execution program shall be submitted along with the offer. The contractor will be responsible for arranging all tools & plants for installation and commissioning the complete system.**

The contractor shall also submit the erection, testing & commissioning procedure for approval to the owner. These procedures will form integral part of the acceptance report for successful erection and commissioning the system. These reports will be prepared and signed by contractor's representative & representative of Client/CPWD.

**9. Packing, shipping and marking**

The bidder shall be responsible for assuring that all commodities shipped are properly packed and protected to prevent damage or deterioration during shipment, packaging and shipping costs shall be borne by the supplier.

**10. Insurance**

The bidder shall provide insurance coverage ex-factory until commissioning and acceptance for replacement or repair of any part of the consignment due to damage or loss.

**11. Inspection**

All major equipment like solar PV modules shall be inspected by the Engineer- In- Charge or his representative before their dispatch. For other items, the contractor shall obtain the prior approval before dispatch.

The contractor shall obtain approval for all equipment drawings & data sheets from the Engineer- In- Charge before commencement of the manufacturing / procuring / outsourcing.

**12. Training & after sales service**

Training and after sales service is an important component of supply and is included in the scope of work. An explanation of preventative maintenance schedule, plan of operation, scope and implementation of the after sales service shall be imparted to the Operating personnel of the Client/CPWD.

**13. Documentation**

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   56
I = NIL		
O = NIL		

Three sets of installation manual / user manual shall be supplied along with the each power plant. The manual shall include complete system details such as array layout, schematic of the system, inverter details, working principle etc. Step by step maintenance and troubleshooting procedures shall be given in the manuals. The contractor shall supply three sets of soft copies (in CD form) of all documents including drawings and user manual and three sets in hard copy.

**14. Standard to be followed:**

PV Modules IEC 61215/ IEC61730 P-I & P-II

Power Conditioners IEC 61683/ IEC60068-2

Charge Controller/MPPT Units:IEC 62093/ IEC 60068-2 Cables IEC

60189/ IS 694/ IS7098

**15. SPECIFICATIONS FOR PV PANEL SUPPORT/MODULE MOUNTINGSTRUCTURE**

Sl. No	Description	Specification Requirement
1	Material	Hot dip galvanized steel with min. 70 micron galvanizing Or as per manufacturer Standard Capable of with stand wind pressure
2	Thickness of member	Suitable wind Speed of 150 kmph. STAAD analysis to be submitted. (4mm minimum)
3	Over all dimensions	As per manufacturer standard
4	Wind rating	150 Km / hour
5	Tilt angle and adjustment	Tilt angle shall be calculated to provide the maximum annual energy output to take maximum insolation. This shall be decided based on the location of array installation.
6	Pitch of structure	Max. 7 Mtr or as per manufacturer standard
7	Hardwares& fastener	SS 304
8	Foundation	The foundation of the array mounting structure / elevated structure shall be provided with 1:2:4 CC design as certified by the Structural consultant and approved by the department.

**16. DANGER NOTICE BOARDS**

Danger notice boards should be provided as and where necessary as per IE Act / IE rules as amended up to date.

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I = NIL		
O = NIL		

**Central Public Works Department Standard Operating Procedures (SOPs) and Guidelines for  
Construction Sites for COVID-19 Outbreak**

The following standard operating procedures and guidelines shall be followed:

**A. General Guidelines:**

1. Thermal Scanning of everyone entering and exiting a construction site will be done for fever with thermal scanners. If anyone leaves and re-enters the site during the shift, re-screening of the individual will be done prior to re-entry into the work site.
2. PPE and Other material requirement shall be provided as per requirement.
3. Provision for hand wash & sanitizer (touch free recommended) will be made at all entry and exit points and common areas (including at distant locations like higher floors). Everyone will be required to wash & sanitize his/her hands before entering the site and using PPEs. Same procedure to be followed after removing PPEs and exiting the premise. Sufficient quantities of all the items should be available at the site.
4. All Protocol including Emergency Response will be laid out. Periodic tailgate sessions will be arranged to review site protocols in view of highly dynamic scenario ensuring social distancing norms. During these sessions, everyone including workers will be informed about the safety guidelines and important updates. Necessary arrangements for announcements shall be made at every site.
5. Mandatory use of PPEs (face mask, hand gloves and other as applicable) by everyone entering the premise. Re-usable PPEs should be thoroughly cleaned and should not be shared with others.
6. Entire construction site including site office, labour camp, canteens, pathways, toilets, and entry / exit gates will be disinfected on daily basis. Housekeeping team should be provided with necessary PPEs.
7. There will be total Ban on non-essential visitors at sites (including from Head office staff, consultants etc.).
8. There will be strict ban on Gutka, Tambaku, Paan etc. on site and spitting shall be strictly prohibited.
9. Food should be consumed at designated areas only ensuring social distancing.
10. Common sitting arrangements should be removed.
11. Post lunch, waste should be disposed by individual in designated bins and area should remain clean.
12. Areas with a probability of bigger gathering, for eg. cleaning area, toilets etc. should be identified and all arrangements should be made to ensure social distancing.
13. A doctor will be present periodically (at least once a week) at site on allotted time for any medical assistance.
14. Appropriate signage at construction site spelling out safety practices in the language which is understood by all.
15. Hospital/clinics in the nearby area, which are authorized to treat COVID- '19 patients, should be identified and list should be available at Site all the time.

C = NIL	SDM (E)                      AE (E)-P,                      EE(E), North West Elect. Div	Page   58
I = NIL		
O = NIL		

16. For any confusion, clarification and update, everyone should approach designated authority or rely on authentic source.
17. Rumours shall be discouraged and offenders be warned.
18. An isolation room shall be created at site.

**B. Guidelines for Workers:**

1. On day 0, before resuming the work on site post lockdown period, mandatory medical check-up will be arranged for all workers. The workers coming from outside will be quarantined for a period of at least 15 days. Only medically fit workers will be deployed at site and medical assistance will be arranged for unfit workers. Medical check-up camp should be arranged every month.
2. The labours staying at site will not be allowed to go outside. All the essential items will be made available to labours at site only. If necessary, the workers can go out wearing PPEs, after informing supervisor. Similarly, no outside labour will be allowed at site without following proper procedure and instructions.
3. Start time on site will be staggered to avoid congestion at the entry gates. Number of workers working at a particular time / place will be reduced by making arrangements for different shifts / areas. Accordingly, additional staff such as security guards, supervisors etc. will be deployed.
4. As in most cases, workers reside at the Sites, hence there is no need for any travel. For Workers staying outside, (which are always nearby) special transportation facility will be arranged without any dependency on the public transport system.
5. During attendance, training and other sessions, social distancing guidelines will be followed along with provision of no touch attendance.
6. Workers should not shake hands when greeting others and while working on the site.
7. Workers shall avoid contact with sick people and avoid going to site if they are feeling sick, have fever, cough or shortness of breath. In such case, supervisor should be informed immediately.
8. Workers with such symptoms should not come to site and should be placed in isolation and medical assistance will be provided on immediate basis.
9. Mandatorily wear face masks while working on site. While not wearing masks, worker shall cover his mouth and nose with tissues.
10. Cough/sneeze should be done in the crook of one's arm and your elbow.
11. Avoid large gatherings or meetings of 10 people or more. Stay at least 6 feet away from others on job sites and in gatherings, meetings, and training sessions.
12. Not more than 2 persons (depending on size) will be allowed to travel in lifts or hoists. Use of staircase for climbing should be encouraged.
13. Workers should clean hands frequently by washing them with soap and water for at least 20 seconds. When hand washing isn't possible, alcohol based hand sanitizer with greater than 60% ethanol or 70% isopropanol should be used.
14. Workers should not share their belongings like food, water bottles, utensils, mobile phones etc. with others.

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I = NIL		
O = NIL		

15. The utensils should be washed properly post use at designated place.
16. Post work, workers should change their clothes before leaving the site and clothing should not be shook out.
17. Avoid touching eyes, nose, or mouth with unwashed hands.

**C. Guidelines for Material, Tools, Machinery, Vehicles etc:-**

1. Wipe down interiors and door handle of machines or construction vehicles, the handles of equipment and tools that are shared, with disinfectant prior to using.
2. Non-touch waste bin with disposable garbage bag should be installed for waste collection at all common access areas.
3. Proper disposal of garbage should be ensured.
4. At all point of time, easy access to parking should be ensured since public transit is limited.
5. All construction material arriving at site should be left idle for 3 days before use to ensure safe usage.
6. All vehicles and machinery entering the premise should be disinfected by spray mandatorily.

**Emergency protocol in case of detection of symptoms of COVID 19 to be observed by Project Manager of Contractor:-**

7. immediate shift worker to isolation room. inform the Engineer-Incharge CPWD or his Nodal officer.
8. Call for a doctor.
9. Keep worker under observation for a few days in isolation room. In case of doubt act per advice of local doctor.
10. Covid testing shall be arranges as per instruction of Doctor and if so advised by Doctor move worker to Hospital.
11. Prevent rumours and take strict action against those who spread it.

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C = NIL	SDM (E)                      AE (E)-P,                      EE(E), North West Elect. Div	Page   60
I = NIL		
O = NIL		

**(LIST OF APPROVED MAKES)**

**Name of Work :** Providing & Fixing 37 KWp ongrid Solar Photovoltaic Power Plant with necessary installations at Lakshmi Bai College , Ashok Vihar , Delhi.

S. No.	Details of Materials / Equipments	Manufacturer's Name
1.	SPV Modules	<ul style="list-style-type: none"> <li>• Waree</li> <li>• TATA</li> <li>• BHEL</li> <li>• Adani</li> </ul>
2.	Solar Cells	<ul style="list-style-type: none"> <li>• Solar Tech</li> <li>• Motech</li> <li>• Eton</li> <li>• Gintech</li> </ul>
3.	Power Conditioning Unit (PCU)	<ul style="list-style-type: none"> <li>• Kaco</li> <li>• Ingeteam</li> <li>• Delta</li> <li>• Siemens</li> <li>• ABB</li> </ul>
4.	Data logger/System performance	<ul style="list-style-type: none"> <li>• Kaco</li> <li>• ABB</li> <li>• EnergyRecommence</li> <li>• Schlumberger</li> <li>• Energy Tracking IIc</li> </ul>
5.	Grid Tied Inverter	<ul style="list-style-type: none"> <li>• Refusol</li> <li>• ABB</li> <li>• Kaco</li> </ul>
6.	Junction Box	<ul style="list-style-type: none"> <li>• Hensel</li> <li>• Spelsberg</li> <li>• ABB</li> <li>• Cooper busman</li> </ul>
7.	LT Jointing kit	<ul style="list-style-type: none"> <li>• Rachem</li> <li>• Mahindra</li> <li>• M-Seal</li> <li>• 3M</li> </ul>
8.	Cable glands	<ul style="list-style-type: none"> <li>• Dowells</li> <li>• Comet</li> <li>• Jainson</li> </ul>
9.	Bi-Metallic Cable lugs	<ul style="list-style-type: none"> <li>• Dowells</li> <li>• Comet</li> <li>• Jainson</li> </ul>
10.	ACDB panel	<ul style="list-style-type: none"> <li>• Havells</li> <li>• Geesys</li> <li>• vortex energy</li> </ul>
11.	Energy meter	<ul style="list-style-type: none"> <li>• L&amp;T</li> <li>• Siemens</li> <li>• Schneider</li> <li>• Secure</li> <li>• HPL</li> </ul>

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   61
I = NIL		
O = NIL		

12.	Surge protection	<ul style="list-style-type: none"> <li>• OBO Betterman</li> <li>• ABB</li> <li>• Legrand</li> </ul>
13.	PV module interconnecting connector	<ul style="list-style-type: none"> <li>• Tyco</li> <li>• Cooper busman</li> <li>• MC</li> </ul>
14.	1.1KV grade aluminium & copper conductor, XLPE insulated armoured UG Cables	<ul style="list-style-type: none"> <li>• Havells</li> <li>• Anchor</li> <li>• L&amp;T</li> <li>• RR Kabel</li> </ul>
15.	DC cables and wires	<ul style="list-style-type: none"> <li>• Siechem</li> <li>• LAPP</li> <li>• Havells</li> <li>• KEI</li> </ul>
16.	PVC Conduits and accessories (ISI marked)	<ul style="list-style-type: none"> <li>• Avon Plast</li> <li>• Precision</li> <li>• AKG</li> <li>• BEC</li> <li>• GM</li> <li>• Clipsal</li> </ul>
17.	GI Pipes	<ul style="list-style-type: none"> <li>• TATA</li> <li>• JINDAL (HISSAR)</li> <li>• ZENITH</li> <li>• Surya</li> </ul>
18.	Lightning arrestor	<ul style="list-style-type: none"> <li>• Indelec</li> <li>• Star</li> <li>• Erico</li> </ul>
19.	Indicating Lamps, LED type , Push Button	<ul style="list-style-type: none"> <li>• Schneider Electric (MG)</li> <li>• Larsen &amp; Toubro (ESBEE)</li> <li>• Siemens</li> <li>• Vaishno</li> </ul>
20.	Electronic Digital Meters (Networking type)	<ul style="list-style-type: none"> <li>• Conzerv</li> <li>• Larsen &amp; Toubro</li> <li>• Secure</li> <li>• AE</li> <li>• Meco</li> </ul>
21.	PVC insulated XLPE aluminium/ copper conductor armoured MV Cables upto 3300V grade	<ul style="list-style-type: none"> <li>• Havells</li> <li>• Gloster</li> <li>• Finolex</li> <li>• Polycab</li> </ul>
22.	Selector Switch, Toggle switch	<ul style="list-style-type: none"> <li>• Salzer (Larsen &amp; Toubro)</li> <li>• Siemens</li> <li>• Kaycee</li> </ul>
23.	Timer	<ul style="list-style-type: none"> <li>• Siemens</li> <li>• L&amp;T</li> <li>• GE</li> <li>• Siemens</li> </ul>
24.	Fire Sealant	<ul style="list-style-type: none"> <li>• Promat</li> <li>• Hilti</li> <li>• Birla – 3 M</li> </ul>
25.	Cat-6A LAN cable	<ul style="list-style-type: none"> <li>• Belden</li> <li>• Schneider</li> <li>• Molex</li> </ul>

		<ul style="list-style-type: none"> <li>• Beldon</li> <li>• Legrand</li> <li>• Extreme</li> </ul>
26.	All other items not covered above	As per approval of the Engineer-in-charge.

**Note:** For items for which makes of materials are not specified, the same shall be decided by the Engineer – in – charge and the decision taken by the Engineer – in – charge shall be final and binding on the contractor.

**Sr. Draughtsman (E)**  
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C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   <b>63</b>
I = NIL		
O = NIL		

**PART – C**

**TECHNICAL BID**

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   <b>64</b>
I = NIL		
O = NIL		

**SCHEDULE - "B"**

<b>Schedule of departure from specification</b>			
<b>Name of Agency:</b>			
<b>Sl. No.</b>	<b>Reference to clause of specification</b>	<b>Details of departure</b>	<b>Reason for departure</b>
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Certified that barring the departure listed above our offer complies fully with the specification requirements.

Signature of tenderer

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   <b>65</b>
I = NIL		
O = NIL		

**SCHEDULE - "C"**

**LIST OF TECHNICAL LITERATURE & CATALOGUE AND ANY OTHER INFORMATION**

<b><u>Schedule of departure from specification</u></b>			
<b>Name of Agency:</b>			
<b>Sl. No.</b>	<b>Reference to clause of specification</b>	<b>Details of departure</b>	<b>Reason for departure</b>
1			
2			
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Certified that barring the departure listed above our offer complies fully with the specification requirements.

Signature of tenderer

**SCHEDULE - "D"**

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   66
I = NIL		
O = NIL		

**SCHEDULE OF ADDRESS OF MANUFACTURER'S PREMISE AND OF PLACES OF INSPECTION.**

Name of Agency:			
Sl. No.	Details of Item	Maker's Name	Place where equipment be offered for inspection.
1	Solar PV Modules		

Signature of tenderer

**SCHEDULE - E****TECHNICAL PARTICULARS****Name of Contractor:**

S.No.	Details of Particulars	To be filled by tenderer
<b>(A) Solar PV Module</b>		
1	Rated power range output at STC	
2	No. of solar cells in each solar PV module	
3	Voc/Isc	
4	MPP Voltage (Vmpp) V	
5	MPP current (imp) A	
6	Normal operating cell temperature	
7	Operating Temperature range	
8	Module dimensions (LxWxH) Appx.	
9	PV Module type	
10.	Min. efficiency of solar cell	
11.	Solar module frame material	
12.	Weather resistant junction	
13.	Front Glass	
14.	Glass iron content	
15.	glass transmissivity	
16.	Frame	
17.	Encapsulation	
18.	Trilaminate back surface	
19.	By-pass diode	
20.	Standard	
21.	Performance warranty	

<b>(B) Solar Inverter</b>		
1	Type	
2	Max. DC Array Input Voltage	
3	DC voltage tolerance	
4	Type of solar charge controller	
5	Switching Device	
6	Continuous inverter output rating	
7	Output wave form	
8	total harmonic distortion	
9	Nominal AC output voltage and frequency	
10.	Output frequency	
11.	Grid frequency tolerance	
12.	Grid frequency synchronization range	
13.	No-Load losses	
14.	Power factor	
15.	PCU efficiency	
16.	Noise level	
17.	Certifications	
18.	Idle current	

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I = NIL		
O = NIL		

19.	Regulation	
20.	Over load features	
21.	Cooling	
22.	Operating Temperature	
23.	Relative Humidity	
24.	LED/LCD display	
25.	Data Monitor and display controls	
26.	Protections	
27.	Enclosure Protection Safety	
28.	Warranty	
<b>(C) Array Junction Box (DCDB)</b>		
1	No. of module in series	
2	No. of module in parallel	
3	Switch gears	
4	Connectors	
5	Wiring	
6	Enclosure Protection	
7	Enclosure	
8	Size	
9	Capacity of each SPV panel and nos.	

	<b><u>(D) PANEL SUPPORT/MODULE MOUNTING STRUCTURE</u></b>	
1	Material	
2	Thickness of member	
3	Over all dimensions	
4	Wind rating	
5	Tilt angle and adjustment	
6	Peach of structure	
7	Hard wears & fastener	
8	Foundation	

**(Signature of the Contractor)**

**Sr. Draughtsman (E)**  
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C = NIL	SDM (E)                      AE (E)-P,                      EE(E), North West Elect. Div	Page   69
I = NIL		
O = NIL		

# **PART – D**

## **PRICE BID**

C = NIL	SDM (E) AE (E)-P, EE(E), North West Elect. Div	Page   <b>70</b>
I = NIL		
O = NIL		

## SCHEDULE OF QUANTITY

**Name of Work:- : Providing & Fixing 37 KWp ongrid Solar Photovoltaic Power Plant with necessary installations at Lakshmi Bai College , Ashok Vihar , Delhi.**

S.No.	Description of Item	Quantity	Rate	Unit	Amount
1	Supply, Installation, Testing and Commissioning of ongrid Solar Photovoltaic Power Plant conforming to MNRE specifications as amended, consisting of Mono/Poly Crystalline silicon solar cells, net metering facility, necessary protections, earthing, mounted on Aluminium/GI structure of suitable strength & length/height duly mounted in suitable strength with following components complete as required:- a) Solar Photovoltaic Module of capacity 330 Wp or above, manufactured in India, conforming to IS 14286/IEC 61215, IS/IEC 61730-Part-1, IS/IEC 61730-Part-2. Solar Photovoltaic Module conversion efficiency shall not be less than 16.5%. PV modules used in solar power plants/ systems must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years. b) Power Conditioning Unit (PCU) of 350-800 V DC Input voltage range and 400 V AC, three phase, 4 wire, 50Hz +/- 2.5 Hz, output voltage suitable to generate AC Power with efficiency not less than 97%, total harmonic distortion less than 3% and suitable for ambient temperature from 0 to 50 degree C. The PCU shall adjust the voltage and frequency level to suit the Grid Voltage Frequency. c) Data Monitoring System complete with accessories. d) Fixing of Array junction box & Main junction box with IP 65 protection and termination arrangement for incoming and outgoing cable along with glands, lugs and other accessories etc. as required. e) Lightning and surge voltage protection. f) Connections & Interconnections by supplying & fixing required size XLPE insulated copper conductor 1.1 kV grade armoured power and control cables between solar modules, main power cable to grid supply PCU unit along with supplying & fixing of necessary channel/conduit/cable tray , lugs and other accessories etc. as required.	37 KWp	61060.00	KWp	2259220.00
	<b>Total</b>				<b>2259220.00</b>

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C = NIL				Page   71
I = NIL				
O = NIL	SDM (E)	AE (E)-P,	EE(E), North West Elect. Div	

