

Name of Work:- Construction of Building at Coy/BOP Hqrs. Pektola under Bn. Hqrs. SSB, Araria (Bihar).

SH: - Providing Solar roof top 10KWp Off Grid Plant equipment.

NIT No: 07/NIT/EE (E)/BED/CPWD/2021-22

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Certified that this NIT contains 1 to 34 pages.

**Executive Engineer (E),
Bhagalpur Electrical Division
CPWD, Bhagalpur**

Name of Work:-

**Construction of Building at Coy/BOP Hqrs. Pektola under Bn. Hqrs. SSB, Araria (Bihar),
Frontier Hqrs. Patna.**

SH: - Providing Solar roof top 10KWp Off Grid Plant equipment.

This Bid document consists of :

Technical Cum Eligibility Bid / Price Bid

Technical Cum Eligibility Bid to be opened on 17.02.2022 at 03:30 PM

Central Public Works Department

Notice Inviting e-tender

The Executive Engineer (E), Bhagalpur Electrical Division, CPWD, Bhagalpur invites online percentage rate e-tender on behalf of President of India from “Specialized Agencies” in two bid system for the following work. (E-mail ID: - bgp-eebcd@cpwd.gov.in)

NIT No.: **07/EE(E)/BED/CPWD/2021-22**

Name of Work:-

**Construction of Building at Coy/BOP Hqrs. Pektola under Bn. Hqrs. SSB, Araria (Bihar) ,
Frontier Hqrs. Patna.**

SH: - Providing Solar roof top 10KWp Off Grid Plant equipment.

Estimated Cost: Rs. 13,91,945/-

Earnest Money: 27,839/-

Period of completion: 03 Months

Last date & time of submission of bid: 17.02.2022 at 03:00 PM

The bid forms and other details can be obtained from the website www.tenderwizard.com/CPWD ,
<http://etender.cpwd.gov.in> or www.cpwd.gov.in.

INFORMATION AND INSTRUCTIONS FOR BIDDER FOR e-TENDERING

The Executive Engineer (E), Bhagalpur Electrical Division, CPWD, Bhagalpur invites online percentage rate e-tender on behalf of President of India from “Specialized Agencies” in two bid system for the following work. (E-mail ID: - bgp-eebcd@cpwd.gov.in)

Sl. No.	NIT No.	Name of work & Location	Estimated cost put to bid	Earnest Money	Period of Completion	Last date & time of submission of bid, copy of declaration and other document as specified in the press notice	Time and date of opening of bid
1	2	3	4	5	6	7	8
1	07/EE(E)/BED/CPWD/2021-22	Construction of Building at Coy/BOP Hqrs. Pektola under Bn. Hqrs. SSB, Araria (Bihar) Frontier Hqrs. Patna. SH: - Providing Solar roof top 10KWp Off Grid Plant equipment.	Rs.13,91,945.00	Rs. 27,839.00	03 Months	17.02.2022 Up to 03:00 PM	17.02.2022 at 03:30 PM

1. Eligibility criteria: - Specialized Firms must fulfill the following minimum eligibility criteria as defined below:-

- a) Should have satisfactory completed the similar the works as mentioned below during the last Seven years ending Previous day of last date of submission of bids.

Three similar completed works each costing of value not less than Rs. 5.56 lakhs

OR

Two similar completed works each costing of value not less than Rs. 8.35 Lakhs

OR

One similar completed works each costing of value not less than Rs. 11.13 Lakhs.

Similar work shall mean “**Providing Solar roof top 10KWp off Grid Power Generation system**”.

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 last date of receipt of applications for bids.

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. Information and instructions for bidders posted on website shall form part of bid document.

4. The intending bidder must have valid Class-III digital signature to submit the bid.
5. Earnest Money 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 favor of “**Executive Engineer, Bhagalpur Project Division-I, CPWD, Bhagalpur**” 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 (anywhere in India)* within the period of bid submission. The EMD receiving Executive Engineer (including NIT issuing EE) 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.
6. 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 can be seen and downloaded from website www.tenderwizard.com/CPWD.
7. **The contractors already registered on the e-tendering portal will have option to continue by paying tender processing fee up to one year from the date of registration, or to switch over to (new) registration without tender processing fee any time. All new registrations from 01/04/2015 will be without tender processing fee.**
8. Those contractors not registered on the website mentioned above, are required to get registered beforehand. If needed they can be imparted training on online tendering process as per details available on the website.
9. On opening date, the contractor can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.
10. Contractor can upload documents in the form of **JPG format and PDF format**.
11. Contractor must ensure to quote rate of each item. The column meant for quoting rate in figures appears in **yellow colour** and the moment rate is entered, it turns in to **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**).
12. The department reserves the right to reject any prospective application without assigning any reason and to restrict the list of qualified contractors to any number being suitable by it, if too many bids are received satisfying the laid down criteria.
13. 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.
14. SC/ST contractor enlisted under Class V category are exempted from processing fee payable to ITI.

List of Documents to be scanned copy of original and uploaded within the period of tender submission:

1. Certificates of work completion issued by the competent authority.
2. Certificate of Registration of GST in the state of Bihar or Undertaking as per provision in OM No. DG/MAN/353 dated 14/08/2017 and OM No. DG/MAN/374 dated 05/07/2018.
3. Copy of EPF and ESIC registration or undertaking if Not Applicable for EPF and ESIC registration.
4. The Annual financial statement for the last five year in (Form "A").
(CPWD enlisted contractors shall submit valid registration certificate instead of that)
5. Certificate of Profit & Loss Statement of Five years ending 31/03/2021 from CA
(CPWD enlisted contractors shall submit valid registration certificate instead of that)
6. The bidder should submit solvency Certificate of minimum 5.56 Lakhs/- (40% of ECPT) issued by his bankers.
7. The net worth Certificate of minimum ₹ 1.31 Lakhs/- (10% of ECPT) issued by the certified Chartered Accountant (on the format prescribed in form B-1)
(CPWD enlisted contractors shall submit valid registration certificate instead of that)
8. Affidavit as per clause 1.2.3 of CPWD- 6.
9. Earnest Money Deposit Receipt in prescribe Proforma (As per page no. 09)

Executive Engineer (E),
Bhagalpur Electrical Division
CPWD, Bhagalpur

FINANCIAL INFORMATION

(FORM 'A')

I. Financial Analysis – Details to be furnished duly supported by figures in balance sheet/ profit & loss account for the last five financial years duly certified by the Chartered Accountant, as submitted by the applicant to the Income Tax Department (Copies to be attached).

Financial Years	2016-17	2017-18	2018-19	2019-20	2020-21
Gross Annual Turn Over					
Profit/Loss					

II. Financial arrangements for carrying out the proposed work.

Signature of Chartered Accountant with Seal

Signature of Bidder (s)

NIT No: 07/EE(E)/BED/CPWD/2021-22

Form “B-1”

**FORM FOR CERTIFICATE OF NET WORTH FROM CHARTERED
ACCOUNTANT**

“It is to certify that 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 considering all liabilities. It is further certified that the Net Worth of the company has not eroded by more than 30 % in last three years ending on (the relevant date).”

Signature of Chartered Account

.....

Name of Chartered Accountant

.....

Membership No. of ICAI

Date and Seal

Earnest Money Deposit Receipt Format

Receipt of deposition of original EMD

(Receipt No. /Date.....)

Name of Work: - Construction of Building at Coy/BOP Hqrs. Pektola under Bn. Hqrs. SSB, Araria (Bihar), Frontier Hqrs. Patna.

SH: - Providing Solar roof top 10KWp Off Grid Plant equipment.

1. NIT No. 07/EE(E)/BED/CPWD/2021-22
2. Estimated Cost :- 13,91,945.00
3. Amount of Earnest Money :- 27839.00
4. Last date of submission of bid : 17.02.2022

(*To be filled by NIT approving authority/EE at the time of issue of NIT and uploaded with NIT)

Name of Contractor:.....#

1. Form of EMD:.....#
2. Amount of Ernest Money Deposit:.....#
3. Date of submission of EMD.....#

Signature, Name and Designation of
EMD Receiving officer (EE/AE/AAO)
Along with office stamp

(#to be filled by EMD Receiving EE)

Note:

The EMD document shall only be issued from the place in which the office of receiving Division office is situated.

AE(E)

EE(E)

CPWD-6 FOR e-TENDERING

1. Percentage rate tenders are invited on behalf of President of India invites online Percentage rate tenders in Two bid system from the Specialized Agencies who meet eligibility criteria given below in NIT for the following work.

Name of Work:- Construction of Building at Coy/BOP Hqrs. Pektola under Bn. Hqrs. SSB, Araria (Bihar) Frontier Hqrs. Patna.

SH: - Providing Solar roof top 10KWp Off Grid Plant equipment.

~~The enlistment of the contractors should be valid on the last date of submission of tenders.~~

~~In case the last date of submission of tender is extended, the enlistment of contractor should be valid on the original date of submission of tenders.~~

- 1.1 The work is estimated to cost **Rs. 13,91,945/-**. 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 Conditions

- ~~1.2.1 Conditions for Non-CPWD contractors only, if bids are also open to non-CPWD contractors. For works estimated cost up to Rs. 20 Crore (the figure of Rs. 20 Crore may be modified as per bidding limit of CPWD class I/Group A contractors of respective discipline such as Electrical, Horticulture and Furniture etc. as the case may be)~~

Note:-

~~For works costing above Rs. 5 Crore but up to Rs. 20 Crore, (the figure of Rs. 5 Crore and Rs. 20 Crore may be modified as per bidding limit of CPWD class II/ Group B and CPWD Class I/ Group A contractors respectively of respective discipline such as Electrical, Horticulture and Furniture etc. as the case may be) when bids are open to non-CPWD contractors also, then class II contractors of CPWD shall also be eligible if they satisfy the eligibility criteria specified in 1.2.1~~

~~aboveNOT APPLICABLE~~

- ~~1.2.2~~ Criteria of eligibility for CPWD as well as non-CPWD contractors **Specialized Agencies.** (For specialized work).

~~For works estimated to cost above Rs. 20 Crore. (the figure of Rs. 20 Crore may be modified as per bidding limit of CPWD class I/ Group A contractors of respective discipline such as Electrical, Horticulture and Furniture etc. as the case may be)~~

A) Work experience

Three similar works each of value not less than Rs 16.13 Lakhs or two similar work each of value not less than Rs. 24.20 Lakhs or one similar work of value not less than Rs. 32.26 Lakhs in last 7 years ending previous day of last date of submission of bids. (Modified vide OM No. DG/MAN/293 dated 31.10.2013) 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 1.2.2. (Modified vide OM DG/MAN/284 dt. 13.8.2013)

Similar work shall mean works of “**Providing Solar roof top 10KWp Off Grid Plant equipment**”

B) At the time of submission of bid contractor may upload the Annual financial statement for the last five year. (**Form “A”**)

C) An assurance on contractor’s letter head duly signed stating “In case of lowest, I shall submit an undertaking from the OEM of solar panel and inverter both along with PG i.e. within 15 days from the date of issue of letter of intent”

(i) Authorization Certificate

(ii) The OEM shall unconditionally support-technically throughout the execution of contract as well as for maintenance for the useful life of the system.

(iii) OEM shall provide all the spares required for healthy functioning of the equipment for coming seven years from the date of supply of equipment’s.

(a) Performance guarantee / warranty against manufacturing defects of solar module to give minimum 90% of rated output for 10 years and to give minimum 80% of rated output for 25 (twenty five) years.

(b) Minimum Five years performance guarantee /warranty to overload 150% for one minute against manufacturing defect of PCU.

D) The bidder should submit Net worth Certificate of minimum ₹4, 03,300/- issued by the certified Chartered Accountant (on the format prescribed in form B-1).

E) Certificate of registration for GST/ Undertaking as per provision of Sr. No. 3 of OM No. DG/MAN/374 dated - 05/07/2018.

F) Should not have incurred any loss in more than two years during the last five years ending 31st March 2021.

G) Affidavit as per clause 1.2.3 of CPWD- 6.

1.2.3. 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 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 Performance Guarantee. **(Scanned copy to be uploaded at the time of submission of bid)**

~~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.~~

- 1.3 The work is estimated to cost **Rs.13.91.945/-**. This estimate, however, is given merely as a rough guide.
2. Agreement shall be drawn with the successful tenderer on prescribed Form No. CPWD – 7 (or other Standard Form as mentioned) which is available as a Govt. of India publication and also available on website www.cpwd.gov.in or <http://etender.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 **03 Months** 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 tender documents.
4. The site for the work is available.
5. The tender 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 from the web Site www.tenderwizard.com/CPWD or www.cpwd.gov.in or www.eprocure.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 tender 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 tender 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 tender submitted earlier shall become invalid.

9. ~~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 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.~~
- (i) Copy of Enlistment Order 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 within a week physically in the office of tender opening authority.** Online bid documents submitted by intending bidders shall be opened of those bidders, ~~whose original EMD deposited with any division office of CPWD and other documents scanned and uploaded are found in order.~~
10. The bid submitted shall become invalid and e-Tender processing fee shall not be refunded if:
- i) The bidder is found ineligible.
- ~~(i) The bidder does not deposit original EMD with division office of any Executive Engineer, CPWD (The EMD document shall only be issued from the place in which the office of receiving division office situated).~~
- ~~(ii) The bidder does not upload all the documents as stipulated in the bid document including the copy of receipt for deposition of original EMD.~~
- ~~(iii) 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 tenderer in the office of tender opening authority.~~
- ~~(iv) 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 tender.~~
11. The contractor, whose tender is accepted, will be required to furnish performance guarantee of 3% (Three Percent) of the tendered amount in favor of “**The Executive Engineer, Bhagalpur Project Division-I, CPWD, Bhagalpur Name of Bank:- State Bank of India Main branch, Bhowesh Bhawan, Khanjarpur, Bhagalpur, IFSC code-SBIN0000037, Account Number:- 39342128582, Branch code:-00037, TAN No:- PTNE01228D**” 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 contractor shall be suspended for one year and shall not be eligible to bid for CPWD Tender from date of issue at suspension order.**
- The contractor whose bid is accepted will also be required to furnish either copy of applicable licenses/registrations or proof of applying for obtaining labor licenses, registration with EPFO, ESIC and BOCW Welfare Board and Program Chart (time and progress) within the period specified in Schedule F. An undertaking shall be given if applicable.**

12. Intending Tenderers are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders 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 tender. A tenderer 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 tenderer 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 tender by a tenderer 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 tender and reserves to itself the authority to reject any or all the tenders received without the assignment of any reason. All tenders in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the tenderer shall be summarily rejected.
14. Canvassing whether directly or indirectly, in connection with tenderers is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to 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 tender and the tenderer shall be bound to perform the same at the rate quoted.
16. The contractor shall not be permitted to tender 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 gazette 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 previous 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 afore said before submission of the tender or engagement in the contractor's service.
18. The tender for the works shall remain open for acceptance for a period of **Thirty (30) days** from the date of opening of tenders. If any tenderer withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the tender which are not acceptable to the department, then the Government shall, without prejudice to any other right or remedy, be at liberty to suspended for one year and shall not be eligible to bid for CPWD Tender from date of issue at

Suspension order. Further the tenderer shall not be allowed to participate in the retendering process of the work.

19. This notice inviting Tender shall form a part of the contract document. The successful tenderer /contractor, on acceptance of his tender 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 Tender, all the documents including additional conditions, specifications and drawings, if any, forming part of the tender as uploaded at the time of invitation of tender 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 or other Standard C.P.W.D. Form as applicable.

**Executive Engineer (E),
Bhagalpur Electrical Division
CPWD, Bhagalpur**

**GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT
Percentage Rate Tender & Contract for Works**

Tender for the work of **Construction of Building at Coy/BOP Hqrs. Pektola under Bn. Hqrs. SSB, Araria (Bihar) Frontier Hqrs. Patna. SH: - Providing Solar roof top 10KWp Off Grid Plant equipment.**

- (i) To be uploaded by **03:00 PM** on **17.02.2022** to upload at www.tenderwizard.com/cpwd
-
- (ii) Price bid to be opened in presence of eligible tenderers who may be present at **03:30 PM** on **17.02.2022** in the office of EE (E), Bhagalpur, CPWD, Bhagalpur.

TENDER

I/We have read and examined the notice inviting tender, schedule, A, B, C, D, E & F Specifications applicable, 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 conditions of contract and all other contents in the tender document for the work.

I/We hereby tender 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 respect with the specifications, designs, drawing 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 respect of accordance with, such conditions so far as applicable.

I/We agree to keep the tender open for **Thirty (30) days** from the due date of its opening in case of single bid system **Sixty (60) days** from the date of opening of technical bid in case tenders are invited on 2/3 bid system for specialized work and not to make any modification in its terms and conditions.

A sum of **Rs. Nil** is hereby forwarded in cash/receipt treasury Challan / deposit at call receipt of a Scheduled bank / Fixed deposit Receipt of Scheduled Bank / Demand Draft of a Scheduled Bank/Bank Guarantee issued by a Scheduled Bank as Earnest Money.

A copy of earnest money in receipt treasury challan/deposit at call receipt of a scheduled bank /fixed deposit receipt of scheduled bank/demand draft of a scheduled bank/bank guarantee issued by a scheduled bank is scanned and uploaded. 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 suspend for one year and shall not be eligible to bid for CPWD Tender from date of issue at suspension. Further, If I/We fail to commence work as specified, I/We agree that President of India or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to suspend for one year and shall not be eligible to bid for CPWD Tender from date of issue at suspension. Further, If I/We fail to commence work as specified, I/We agree that President of India or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said performance guarantee absolutely. The said Performance Guarantee shall be a guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to 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 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 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 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: -

Signature of Contractor

Witness: -

Address: -

Occupation: -

Postal Address: -

ACCEPTANCE

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for an 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:-

- (a)
- (b)
- (c)

For & on behalf of President of India

Signature

.....

Dated:

Designation:

**Executive Engineer (E),
Bhagalpur Electrical Division
CPWD, Bhagalpur**

PROFORMA OF SCHEDULES**SCHEDULE ‘A’**

Schedule of quantities (as per PWD-3) as per schedule of work attached.

SCHEDULE ‘D’

Extra schedule for specific requirements/document for the work, if any: -Additional Conditions & Specifications attached

SCHEDULE ‘E’

Reference to General Conditions of contract	: General conditions of contract for CPWD works-2020 with amendment issued up to Date of submission of tender.
Name of Work	: Construction of Building at Coy/BOP Hqrs. Pektola under Bn. Hqrs. SSB, Araria (Bihar) Frontier Hqrs. Patna. SH: - Providing Solar roof top 10KWp Off Grid Plant equipment.
Estimated cost of work	: Rs. 13,91,945/-
(i) Earnest Money	: Rs. Nil
(ii) Performance Guarantee	: 3% of tendered value
(iii) Security Deposit	: Nil

SCHEDULE ‘F’

(GENERAL RULES & DIRECTIONS) :

**Officer inviting tender : Executive Engineer (E),
BED, CPWD, Bhagalpur**

Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with **Clauses 12.2 & 12.3.** : See below.

Definitions

2(v) Engineer -in- Charge	: Executive Engineer (E), BED, CPWD, Bhagalpur
2(viii) Accepting Authority	: Executive Engineer (E), BED, CPWD, Bhagalpur

- 2(x)** Percentage on cost of materials and Labour to cover all overheads and profits : **15%**
- 2(xi)** Standard Schedule of Rates : **Market Rate / DSR - 18**
- 2(xii)** Department : **Central Public Works Department.**
- 9(ii)** Standard CPWD Contract Form GCC 2019, CPWD Form 7/ 8 as modified & corrected upto 17.07.2020 : **GCC 2020, CPWD Form 7 modified & Corrected up to date of submission of tender.**

Clause 1

- (i)** Time allowed for submission of Performance Guarantee, program chart (Time and progress) and applicable labour licences, registration with EPFO, ESIC and BOCW Welfare Board or proof of applying thereof from the date of issue of letter of acceptance : **10 days**
- (ii)** Maximum allowable extension with late fee @ 0.1% per day of Performance Guarantee amount beyond the period provided in (i) above : **10 days (With late fee @ 0.1% per day of performance guarantee amount).**

Clause 2

- Authority for fixing compensation under clause- 2 : **Chief Engineer, CPWD, Patna.**

Clause 3A

- Whether Clause 3A shall be applicable : **No**

Clause 5

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

Clause 6 A

- Whether clause 6A shall be applicable : **6A Applicable**

Sl. No.	Description of Milestone	Time Allowed in days (from date of start)	Amount to be with-held in case of non-achievement of milestone
NOT APPLICABLE			

- Time allowed for execution of work : **03 Months**
Authority to decide
- (i) Extension of time : Executive Engineer (E), BED,
CPWD, Bhagalpur
- (ii) Rescheduling of mile stones : Executive Engineer (E), BED,
CPWD, Bhagalpur
- (iii) Shifting of date of start in case of delay in handing over of site : Executive Engineer (E), BED,
CPWD, Bhagalpur

PROFORMA OF SCHEDULES Clause 5 Schedule of handing over of site

Part	Portion of site	Description	Time Period for handing over Reckoned from date of issue of letter of intent.
Part A	Portion without any hindrance	Full	Same Day
Part B	Portions with encumbrances		
Part C	Portions dependent on work of other agencies		

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

: **Rs. 5 Lakhs (₹Five Lac)**

Clause 7 A

Whether clause 7A shall be applicable

: **Yes**

Clause 10A

List of materials to be provided by the contractor at his own expense.

: **1. Magger
2. Earth Tester
3. Wire Gauge**

Clause 10B (ii)

Whether **Clause 10 B (ii)** shall be applicable

: **No**

Clause 10C

Component of labour expressed as percent of value of work

15%

:

Clause 10 CA

: **No**

Clause 10 CC

Clause 10 CC to be applicable in contracts with stipulated period of completion exceeding the period shown in next column

: **Not Applicable**

Schedule of component of other Materials, Labour, POL etc. for price escalation. Component of civil (except materials covered under **clause 10CA**) /Electrical construction Materials expressed as percentage of total value of work

: **X m NIL %**

Component of Labor

Expressed as percentage of total value of work. : Y NIL%

Component of P.O.L.

Expressed as percentage of total value of work. : Z NIL %

Clause 11

Specifications to be followed for execution of work : **As per CPWD General Specifications for Electrical Works, Part-I Internal (2013), Part-II External (1994).**

Clause 12

Authority to decide deviation up to 1.5 times of tendered amount

12.2. & 12.3

Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for building work : **100% (Thirty Percent)**

12.5

i) Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for foundation work (except items mentioned in earth work subhead in DSR and related items) : N.A.

ii) Deviation Limit for items mentioned in earth work subhead of DSR and related items : N.A.

Clause 16

Competent Authority for deciding reduced rates : **Executive Engineer (E), Bhagalpur Electrical Division**

Clause 18

List of mandatory machinery, tools & plants to be deployed by the contractor at site : **1. Earth Tester
2. Tong Tester
3. Wire Gauge
4. Insulation Tester LT (Megger)
5. Vernier Calipers
6. Hand Gloves
7. Spanner Set
8. Multi meter
9. Hand blower / Vacuum cleaner**

10. Drill Machine
11. Chase Cutting Machine
12. Crimping tool kit
13. Screw driver/ Plier/ Tester wheel
14. Aluminum Self-supporting Ladder – Suitable for internal and external electrical work
15. Chain wrench 2”, 4”, 6”
16. Pipe wrench up to 4”
17. Battery operated torch
18. Temperature Screening IR Thermometer

Clause 19 C Authority to decide penalty for each default :- Engineer-in-charge

Clause 19 D Authority to decide penalty for each default:- Engineer-in-charge

Clause 19 G Authority to decide penalty for each default:- Engineer-in-charge

Clause 19 K Authority to decide penalty for each default:- Engineer-in-charge

Clause 25	
Constitution of Dispute Redressal Committee (DRC)	Competent Authority to appoint DRC.
DRC shall constitute one Chairman and Two members	
Chairman	CE Patna
Member	SE-Works Cum TLQA-PRK O/o ADG, Region-Kolkata
Member	SE(P)- O/o ADG, Region-Kolkata
Presenting Officer	EE (E), in charge of the work, as a party to the dispute, before DRC
Place of Arbitration	ER-HQ-Kolkata

Clause 32

Requirement of Technical Representative(s) and recovery Rate

Sl. No.	Minimum Qualification of Technical Representative	Designation Technical Staff and Discipline	minimum Experience	Number	Rate at which recovery shall be made from the contractor in the event of no fulfilling provision of clause 36(i)	
					Figures	Words
1	Graduate Engineer or Diploma Engineer	Project/site Engineer (Electrical/ Electronics Engineering)	2 Years or 5 Years respectively	1	Rs. 15,000/- per month	Rs. Fifteen thousand per month.

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

~~Diploma holder with minimum 10 year relevant experience with a reputed construction co. can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% requirement of degree engineers.~~

**Executive Engineer (E),
Bhagalpur Electrical Division,
CPWD, Bhagalpur**

Terms and Conditions

Name of Work: - Construction of Building at Coy/BOP Hqrs. Pektola under Bn. Hqrs. SSB, Araria (Bihar) Frontier Hqrs. Patna.

SH: - Providing Solar roof top 10KWp Off Grid Plant equipment.

1.1 This specification covers designing, manufacturing, testing as may be necessary before dispatch, delivery at site, all preparatory work, assembly and installation, commissioning putting into operation of 10 KWp on grid PV solar power generation system

Complete with accessories etc. and final testing system.

- 1.2. The work is to be executed at different Boarder Out Post (BOP)- , BOP Pektola, the tenderer should in his own interest visit the site and get familiarize with the site conditions before tendering.
- 1.3. No T&P shall be issued by the Department and nothing extra shall be paid on account of this.
- 1.4. The work shall be executed as per CPWD General Specifications for Electrical Works Part-I Internal (2013), Part-II (External-1994), Part-IV Sub-Station 2013, as per relevant IE Rules, BIS/IEC /ISMNRE guidelines and certified as per IEC 61215 and qualify IEC 61730 and IEC 61701 amended up to date and as per NIT wherever applicable, as per relevant IS and as per directions of Engineer-in-Charge. All electrical works shall be carried out in accordance with the provisions of Indian Electricity Act, 2003 and Indian Electricity Rules, 1956 as amended up to date.

The technical specifications are to be read in conjunction with above and in case of variations technical specifications of tender document shall apply. Nothing extra shall be paid on account of additional features in the technical specifications as the same to be read along with schedule of quantities for the work. In case of discrepancy between the BOQ, List of Makes, Tech. Specifications, Drawings etc the following order of preference shall be observed:-

1. BOQ
2. List of Makes
3. Technical Specifications
4. Drawings
5. CPWD General Specifications
6. IS/ IEC/International Codes

There will be no deviation regarding technical specifications of the equipment's taken in the tender. However department may consider higher specifications if it meets our requirement.

- 1.4 The tenderer should, in its own interest, visit the site and get familiarized with the site Conditions before tendering

1.5 Payment Terms:

On account payments for part work (After stipulated and statutory deductions) as assessed by the Engineer-in-Charge for the applicable items in the contract shall be payable at part rate not exceeding the percentage indicated against the stages of work.

S.N.	Stage of work	Percentage of Rate
A	On initial inspection of material and delivery at site in good condition on pro-rate basis.	70%
B	On Completion of installation on pro-rate basis.	15%
C	On Completion of testing and commissioning.	10%
D	At the time of payment of final bill.	5%

Additional Terms and Conditions and Technical Specifications

Solar PV on Grid System

General Description

1. In Solar PV on grid system SPV Mono crystalline modules to be supplied shall have minimum declared efficiency and output of 390-400 Watt peak or more. Number of modules to be supplied shall be worked out accordingly.
2. Stabilized output of the Solar Power Plant should not be less than 10 KWp under Standard Test Condition after one year of operation from date of Commissioning of solar plant.
3. Each module shall have low iron tempered glass front for strength & superior light transmission. It shall also have tough multi-layered polymer back sheet for environmental protection against moisture & provide high voltage electrical insulation.
4. The module frame shall be made of hot dipped Galvanized (*at least 85 microns*) Iron for mounting the PV modules. The thickness of section should not be less than 3 mm. The legs / Columns of the structure shall be self-supported/ standing. The supports shall be design to given required orientation to take maximum ionization, absorb and transfer the mechanical loads to the ground properly.
5. SPV module shall contain Mono crystalline high power silicon solar cells. The solar cell shall have surface anti-reflective coating to help to absorb more light in all weather conditions.
6. The solar modules shall have suitable encapsulation and sealing arrangements to protect the silicon cells from the environment. The arrangement and the material of encapsulation shall be compatible with the thermal expansion properties of the Silicon cells and the module framing arrangement/material. The encapsulation arrangement shall ensure complete moisture proofing during entire life of the solar modules. Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided.
7. The module frame shall be made of corrosion resistant materials having anodized aluminum or as per manufacturer standard.
8. Photo conversion efficiency of SPV Module should be greater than 16.50%. Module shall be made of high transmittance glass front surface giving high encapsulation gain.
9. Module rating is considered under standard test conditions; however Solar Modules shall be designed to operate and perform under site condition including high temperature & dust (sometimes).
10. All materials used shall be having a proven history of reliable, light weight and stable operation in external outdoor applications.
11. The PV module shall perform satisfactorily in humidity up to 100% with temperature between – 40C to + 85C. Since the modules would be used in a high voltage circuit, the high voltage insulation test shall be carried out on each module and a test certificate to that effect provided.
12. The Manufacturers / Contractors should confirm that they are supplying PV module using a RF identification tag (RFID), which must contain the following information. The RFID can be inside or outside the module laminate, but must be able to withstand harsh environmental conditions.
 - i. Name of the manufacturer of PV Module
 - ii. Name of the Manufacturer of Solar cells
 - iii. Month and year of the manufacture (separately for solar cells and module)
 - iv. Country of origin (separately for solar cells and module)
 - v. I-V curve for the module

- vi. Peak Wattage, Im, Vm and FF for the module Unique Serial No and Model No of the module
 - vii. Date and year of obtaining IEC PV module qualification certificate
 - viii. Name of the test lab issuing IEC certificate
 - ix. Other relevant information on traceability of solar cells and module as per ISO 9000 series.
13. 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.
14. 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.

TECHNICAL SPECIFICATION FOR INVERTER

- 1.1** Standard feature to work on 400V 3 Phase 50 Hz AC Grid supply system as well as solar 3 phase Power generation System and 240 V DC Battery Supply Source along with other Features /Protections as required. Solar Open Circuit Voltage (Voc) =450V.
- 1.2** Automatic change over from one mode to other as per priority selection.
- 1.3** Inverter must have the feature to work continuously and to be switched ON and OFF automatically based on solar radiation variations during the day.
- 1.4** Array ground fault detection feature shall be provided.
- 1.5** LCD and piezoelectric keypad operator interface Menu driven Automatic fault conditions reset for all parameters like voltage, current and frequency.
- 1.6** The inverter shall have AC /DC side dis-connector of appropriate rating or else suitable arrangement shall be provided.
- 1.7** Shall be provided with an isolating transformer.
- 2. Electrical safety, Earthing and protection**
- 2.1** Internal Faults: In built protection for internal faults including excess temperature, commutation failure, overload and cooling fan failure is obligatory.
- 2.2** Galvanic Isolation: Galvanic Isolation is required to avoid any DC component being injected into the grid and the potential for AC components appearing at the array.
- 2.3** Over Voltage Protection: Over Voltage Protection against atmospheric lightning discharge to the PV array is required. Protection is to be provided against voltage fluctuations in the grid itself and internal faults in the power conditioner, operational errors and switching transients.
- 2.4** Earth fault supervision: An integrated earth fault device shall have to be provided to detect eventual earth fault on DC side and shall send message to the supervisory system.
- 2.5** Fast acting semiconductor type current limiting fuses at the main bus-bar to protect from the grid short circuit contribution. The INVERTER shall include an easily accessible emergency OFF button located at an appropriate position on the unit
- 2.6** The INVERTER shall include ground lugs for equipment and PV array grounding. The DC circuit ground shall be a solid single point ground connection in accordance with IEC 69042.
- 2.7** All exposed surfaces of ferrous parts shall be thoroughly cleaned, primed, and painted or otherwise

3. Operating Modes:

The following operating modes are to be made available: Night or Sleep mode: Where the inverter is almost completely turned off, with just the timer and control system still in operation, losses should not exceed 1 watt per 5 kilowatt.

- a. Standby mode : Where the control system continuously monitors the output of the solar generator until pre-set value is exceeded (typically 10 watts)
- b. Operational or MPPT tracking mode: The control system continuously adjust the voltage of the generator to optimize the power available. The power conditioner must automatically re-enter stand-by mode when input power reduces below the standby mode threshold. Front Panel display should prove the status of the INVERTER, including AC Voltage, Current, Power output & DC Current, Voltage and Power input, pf and fault Indication (if any).
- c. Drawing shall be submitted to the Engineer-in-charge for acceptance and approval before execution of work.
- d. Design drawings with material selected shall be submitted for prior approval of Engineer in-charge. The bidder/manufacturer shall specify installation details of the PV modules and the support structures with appropriate diagram and drawings. The work will be carried out as per design approved by the Engineer-in-charge.

MODULE MOUNTING STRUCTURE (FIXED):

- 1) Galvanized Iron mounting structure cold formed members 3 mm thick with galvanizing coating of 85 microns is to be used as per requirements of this project and maximum nos. of modules is to be installed in min. area.
- 2) The structure design shall be appropriate and innovative and corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nut and bolts. The bidder may choose to offer module mounting structure as per their design fulfilling the detailed in NIT.
- 3) The module alignment & tilt angle shall be calculated to provide the maximum annual energy output to take maximum isolation. This shall be decided based on the location of array installation. Each structure shall have a provision to adjust its angle of inclination to the horizontal as per the site conditions.
- 4) The Ground mounted 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 base properly. It should be less than 60 kg/m²
- 5) The mounting steel structure shall be as per latest BIS 2062 (amended up to date) and galvanization of mounting structure shall be in compliance of BIS 4759 (amended up to date).
- 6) Adequate spacing shall be provided between any two modules secured on PV panel for improved wind resistance. The structure shall be designed to withstand operating environmental conditions for a period of minimum 25 years.
- 7) All fasteners, nut and bolts are made of Stainless steel - SS 304. (1 bolt+2 plain washers+1 spring washers+1 nuts all hot dipped galvanized. The structure shall be strengthened by CC foundation cubical block 400mmx400mmx400mm(nominal size)
- 8) PV modules shall be secured to support structure using screw fasteners and/or metal clamps. Module fasteners/clamps shall be adequately treated to resist corrosion.
- 9) The array structure shall be grounded properly using as per CPWD specifications.
- 10) The support structure & foundation shall be so designed as to be fixed on the ground to withstand speed 150 km/hr for wind zone of the location as given in relevant Indian wind load codes/ standards there shall be no requirement of welding or complex machinery at the installation site.

EARTHING

- a. Each array structure of the SPV shall be grounded properly. The array structure is to be connected to earth pits as per CPWD General Specifications. Junction boxes shall be connected to the main earthing conductor/ electrode.
- b. Earthing system installation shall be in strict accordance with CPWD General Specifications Part-I internal 2013 as amended up to date.
- c. Necessary Test Point provision shall be made for bolted isolating joints of each earthing pit for periodic checking of earth resistance.
- d. Earth resistance of the earth pits shall be tested in presence of the representative of Engineer-in-charge.

LIGHTNING & OVER VOLTAGE PROTECTION

- a. Each array structure of the SPV shall be grounded properly. The array structures are to be connected to earth pits as per CPWD General Specifications. Junction boxes shall be connected to the main earthing conductor/ electrode.
- b. Earthing system installation shall be in strict accordance with CPWD General Specifications Part-I internal 2013 as amended up to date.

BoS Item / component	Applicable IEC/equivalent BIS standard	
	Standard Description	Standard Number
Power conditioner/ Inverters	Efficiency Measurements Environmental Testing	EN61000–6-3 EN 50178
Cables	General test and measuring methods PVC insulated cables for working voltage up to and including 1100 V- Do- UV resistant for outdoor installation	IEC 60189 IS 694 / IS 1554 IS/IEC 69947
Switches/Circuit Breakers/Connectors	General Requirements Connectors - Safety	IS/IEC 60947 part I,II & III EN 50521
Junction Boxes/ Enclosures	General Requirements	IP 65 (for outdoor)/IP 21 (for indoor) IEC 62208
SPV System Design	PV Stand-alone Systems Design verification	IEC 61215 IEC 61730 IEC 61701
Installation Practices	Electrical installation of buildings requirements for SPV power supply systems	IEC 61730

GUARANTEE / WARRANTY

1. The successful firm shall submit the minimum 5 (Five) years Guarantee /Warranty against manufacturing defects of Solar module and minimum 02 (Two) years for inverter from OEM. All other equipment's shall be guaranteed, against unsatisfactory performance and/or break down due to defective design, workmanship or material, for a period of 12 months from the date of taking over the installation by the department. The equipment's 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 attending the defect/fault removed, the same will be got done by the department at the risk and cost of the contractor. The decision of the Engineer-in-charge in this regard shall be final.
2. Contractor shall warranty that all the equipment and material to be supplied under the contract are new and free from any defects and faults in material, workmanship and manufactured and are of highest grade and consistent with the established and generally excepted standards for the same type of equipment's and material and shall performing full conformity with the specifications and drawing. The contractor shall be responsible for any defect that may develop under the contract conditions and under proper use, arising from faulty material, design or workmanship such as corrosion, inadequate quality and quantity of material to meet equipment requirement, inadequate contact protection, deficiency in circuit design and/ or otherwise and shall remedy such defect sat its own cost when called upon to do so by the purchaser, who shall state in writing in what respect stores is faulty. The contractor shall warrant that if system deficiency are noticed in operation of the system for which software function are involved then the software update for correcting the deficiency shall be supplied free of cost for the purchaser. The warranty shall survive inspection or payment of complaints notified prior to such date twelve months after the stores have been taken over after successful commissioning of the entire equipment / system.
3. If it becomes necessary for the contractor to replace or renew any defective portion/portions of the equipment, so replaced or renewed or until the end of the abovementioned period of twelve month. If any defect is not remedied within a reasonable time the department may proceed to the work at the contractor's risk and expenses, after the contractor was informed by registered letter, without prejudice to any other right which purchaser may against the contractor in respect to such defect.
4. Replacement under warranty shall be made by the contractor free of all charges at site including freight, insurance incidental charges and installation.
5. With respect to parts needed to troubleshoot and maintain installation during the warranty period the contractor shall warranty the delivery of spares for at least Seven years. After this period the contractor shall inform CPWD form where the parts can be procured in case contractor is able to provide.
6. The tenderer shall Guarantee among other things, the followings :
 - (a) Quality, strength and performance of the materials as per manufacturer's standards.
 - (b) Safe mechanical and electrical stress on all parts under all specified conditions of operation.
 - (c) Satisfactory operation during the defect liability guarantee period

The contractor shall use any one of the makes for use in work as below after getting the approval from the Engineer-in-Charge.

Item Description	Make and Model
SOLAR PV MODULES	ADANI- SOLAR / HAVELLS /USHA SHREERAM/ TATA- SOLAR
POWER CONDITIONING UNIT	STATCON ENERGIA/ HAVELLS/EMERSON/POWERONE
SOLAR HYBRID PCU	ADANI/ WAAREE/ TATA/ HAVELLS /USHA SHRIRAM/STATCON/ENERTECH
MCDB & MCB	HAVELLS/L&T/HAGER/LEGRAND/SIMENS /ABB
SPD	HAVELLS/L&T/HAGER/LEGRAND/SIMENS /ABB
AC & DC CABLEB(ALUMINIUM/COPPER)	RR CABLES/ HAVELLS/ FINLOX/ POLYCAB/

Note: - In case make of any equipment or material is not specified in the NIT, the decision of the Engineer-in Charge in this regard will be final.

**Executive Engineer (E),
Bhagalpur Electrical Division
CPWD, Bhagalpur**

SCHEDULE OF WORK

Name of Work: Construction of Building at Coy/BOP Hqrs. Pektola under Bn. Hqrs. SSB, Araria (Bihar) Frontier Hqrs. Patna.
SH: - Providing Solar roof top 10KWp Off Grid Plant equipment.

Sl. No	Description of Item	Qty.	Unit	Rate	Amount
1	Supply, Installation, Testing and Commissioning of 10KWp off grid Solar Photovoltaic Power Plant conforming to MNRE specifications consisting of Mono Crystalline silicon solar cells, necessary protections, earthing for the solar system, mounted on prefabricated GI structure of suitable strength with following components complete as required:- a) Solar Photovoltaic Module of capacity 390 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) Fixing of Array junction box & Main junction box with IP 65 protection and termination arrangement for incoming and outgoing cable along with connectors, Junction Box & AC DB & DC DB with MCB & SPD, glands, lugs and MC4 connectors etc. as required. c) Lightning and surge voltage protection device with connection to earth bus of existing earthing. d) Connections & Interconnections by supplying & fixing required size XLPE insulated copper conductor 1.1 kV grade power and control cables between solar modules, main power cable to grid supply PCU unit along with supplying & fixing of necessary channel/conduit lugs and other accessories etc. as required. e) Grid/main & A.C cable 4X6 sq.mm in CPVC pipe. f) DC Cable 25 sq.mm in CPVC pipe g) Copper Lightning arrestor probe around structure.	1	Set	568643.00	568643.00
2	SITC of 3 Phase 415 volts, 12.5/15 KVA Power Conditioning Unit (PCU) of 350-500 V DC Solar Input voltage range, Battery 240 V DC & 415 V, three phase AC, 4 wire, 50Hz+/- 2.5 Hz , output voltage suitable to generate AC Power with efficiency not less than 90% total harmonics distortion less than 5% pure sine wave and suitable for ambient temperature from -10 degree C to 50 degree C. The PCU shall adjust the voltage and frequency level suitable for 10 KWp OFF-Grid Solar Photovoltaic Power Generation System, equipped with MPPT Charger up to 40A with five year on site warrantee complete as required.	1	Set	341108.00	341108.00
3	Supply Installation testing commissioning of 150AH/12V Solar inverter Battery suitable for operating with Solar system pannel with 5 year of Warranty i/c water level indicator and all accessories and connection , testing, commissioning etc as required.	20	Nos.	19034.00	380680.00

4	Fabrication ITC of suitable size Battery stand made of angle Iron welded frame work suitable for 20 Nos. 150AH Battery i.e painting etc. as required.	1	Set	5000.00	5000.00
5	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	2	Set	11412.00	22824.00
6	Providing and fixing 25 mm X 5 mm copper strip in 40 mm dia G.I. pipe from earth electrode including connection with brass nut, bolt, spring, washer excavation and re-filling etc. as required.	20	Mtr.	1212.00	24240.00
7	Providing and fixing 25 mm X 5 mm copper strip on surface or in recess for connections etc. as required.	50	Mtr.	989.00	49450.00
				Total	1,391,945.00

Executive Engineer (E)
Bhagalpur Electrical Division
CPWD, Bhagalpur