



भारतसरकार
GOVERNMENT OF INDIA
केंद्रीयलोकनिर्माणविभाग
CENTRAL PUBLIC WORKS DEPARTMENT

PERCENTAGE RATE N. I. T.

N.I.T. No: 52/EE(E)-CHENNAI-I/2026-27/CPWD/CHN

Name of Work: SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair.

Estimate Cost : Rs. 42, 12, 450/-

Earnest Money : Rs. 84, 249/-

Performance Guarantee : As mentioned in Schedule "E"

Security Deposit : 2.5% of tendered value.

Time Allowed : 06 (Six) Months.

Certified that this NIT contains 01 to 88 Pages only

This NIT for amounting to Rs. 42, 12, 450/- (Rupees Forty Lakh Fifty Four Thousand Four Hundred and Seventy Only) is hereby approved.

Assistant Engineer (E) (P)

Executive Engineer (E&M)

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PART-A

TECHNICAL BID ELIGIBILITY CRITERIA

**GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT
NOTICE INVITING TENDER**

The Executive Engineer (E), Chennai Electrical Division-I, CPWD, Chennai-06 invites on behalf of President of India, online Percentage rate tender from CPWD Enlisted Contractors of appropriate class as well as eligible specialized agencies in **Two bid system** for the work of – **“SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair.**

1. 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 of **Rs. 42, 12, 450/-**. This estimate cost, however, is given merely as a rough guide.
- 1.2 Intending bidders is eligible to submit the tender 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 tender documents:

1.2.1. Conditions for CPWD registered contractors:

- (i) The CPWD registered contractors of appropriate class shall associate with a specialized agency which has the experience of similar nature of works as mentioned below during the last 7 years ending last day of the month previous to the one in which applications / tenders are invited. Such works should be certified by an officer not less the rank of Executive Engineer/ Project Manager or equivalent.

If the agency has the experience as per below criteria, they themselves can execute the work.

Three similar works each of value not less than **Rs. 16.85 Lakhs**

Or

Two similar works each of value not less than **Rs. 25.28 Lakhs**

Or

One similar work of value not less than **Rs. 33.70 Lakhs**

Similar work shall mean “SITC of rooftop solar PV 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 the last date of submission of bid.

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 Earnest Money Deposit/Performance Guarantee”. (Scanned copy to be uploaded at the time of submission of bid).

1.2.2. Conditions for Specialized Agencies:

- (a) The agency should have satisfactorily completed the similar nature of works as mentioned below during the last 7 years ending last day of the month previous to the one in which applications / tenders are invited, such works should be certified by an officer not less the rank of Executive Engineer/ Project Manager or equivalent.

Three similar works each of value not less than **Rs. 16.85 Lakhs**
Or

Two similar works each of value not less than **Rs. 25.28 Lakhs**

Or
One similar work of value not less than **Rs. 33.70 Lakhs**

Similar work shall mean “SITC of rooftop solar PV 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 the last date of submission of bid.

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 Earnest Money Deposit/Performance Guarantee”. (Scanned copy to be uploaded at the time of submission of bid).

- (b) Should have had Average Annual Financial Turnover of **Rs. 12, 64, 000/-** on construction works during the last three years ending 2024-2025. (Scanned copy of Certificate from CA with Unique Document Identification Number (UDIN) to be uploaded). The value of annual turnover figures shall be brought to the current value by enhancing the actual turnover figures at simple rate of 7% per annum.
- (c) Should not have incurred any loss (profit after tax should be positive) in more than two years during the last five years ending 2024-2025
- (d) Should have a Banker's Certificate from a commercial Bank for **Rs. 16, 85, 000/-** or Net Worth certificate from CA with Unique Document Identification Number (UDIN) of minimum 10 % amount of ECPT (Scanned copy of original to be uploaded).

- 2 Agreement shall be drawn with the successful bidders 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**. 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 **06 (Six) 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 bid documents.
- 4 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 2023 for Construction works Form can be seen on website **<https://etender.cpwd.gov.in> or www.cpwd.gov.in free of cost.**
- 5 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.
- 6 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.
- 7 Earnest Money in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or bank Guarantee (for balance amount as prescribed) from any of the Commercial banks (drawn in favour of **Executive Engineer (E), CCED- III, CPWD, Chennai**) 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 of any Commercial 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. In such cases 50% of earnest money or Rs. 20 lakh whichever is less, will have to be deposited in shape prescribed above and balance can be accepted in form of Bank Guarantee issued by a Commercial Bank.
The earnest money given by all the tenderers except the lowest tenderer shall be refunded immediately after the expiry of stipulated bid validity period or immediately after acceptance of the successful bidder, whichever is earlier.
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.

The bid submitted shall be opened at 15:30 Hours on 21. 09. 2026

- 8 The bid submitted shall become invalid and e-Tender processing fee shall not be refunded if:
 - 8.1 The bidder is found ineligible.

- 8.2 The bidder does not upload scanned copies of all the documents stipulated in the bid document.
 - 8.3 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.
 - 8.4 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 bidder.
- 9 The contractor whose bid is accepted will be required to furnish performance guarantee **as mentioned in Schedule “E”**, within the period specified in Schedule F. This guarantee shall be in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt or Bank Guarantee from any of the Commercial Banks 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.
- 10 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 subsoil (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 bidder 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 bidder 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.
- 11 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.
- 12 Canvassing whether directly or indirectly, in connection with bids is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable for rejection.
- 13 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.

- 14 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 Chief 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.
 - 15 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.
17. The bids for the work shall remain open for acceptance for a period of **75 (seventy five)** days from the date of opening of technical bids in case bids are invited in 2 or 3 bid system. Further
- (i) If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department within 7 days after last date and time (24 hours basis) 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.
If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department after expiry of 7 days after last date and time (24 hours basis) 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.
 - (ii) Withdrawal of the tender, by the tenderer, shall only be made through e-tender portal, any other method i.e, through letter/e-mail etc. shall not be considered.
 - (iii) In case of forfeiture of earnest money as prescribed in para (i) and (ii) above, the bidders shall not be allowed to participate in the rebidding process of the same work.
18. 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 or other Standard C.P.W.D. Form as applicable

19. For Single Components Bids: -

19.1.1 The cost of bid document and Earnest Money will be fixed with respect to the combined estimated cost put to tender for the bid.

19.1.2 The bid document will include following three components:

Part-A: - CPWD-6, CPWD-7 including schedule A to F for the Single component of the work, Standard **General Conditions of Contract 2023 for Construction works** as amended/ modified up to date.

Part-B: - General conditions, specifications applicable to major component(E&M) of the work.

Part-C: - Schedule of Quantities for **E & M Work** Schedule of Quantity for percentage rate Tender.

19.1.3 The bidder must associate himself, with agencies as per NIT conditions

19.1.4 The main contractor has to associate with 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).

19.1.5 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.

19.1.6 The main contractor has to enter into MoU with agency(s) associated by him. Copy of such MoU shall be submitted to EE 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 new contractor associated by him..

20. The intending bidders are required to update their profile in CPWD e-tender portal their bids well in advance of last date of submission of tender. Any issue related to updating profile / uploading tender can be resolved through the Concerned Executive Engineer/ Assistant Engineer (**Ph. No.044-28280021, email id: eeeced1@gmail.com, ERP help line no. 18001803286**) or email id: cpwd.support@techmahindra.com The e-tendering bidders are also advised not to wait to raise any issues till the last date of submission of bid in their own interest.

Executive Engineer (E)

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

The Executive Engineer (E), Chennai Electrical Division-I, CPWD, Chennai-06 invites on behalf of President of India, online Percentage rate tender from CPWD Enlisted Contractors of appropriate class as well as eligible specialized agencies in **Two bid system** for the following work:

Sl. No	NIT No.	Name of Work & Location	Estimated cost put to bid	Earnest Money	Stipulated Period of completion	Last date & time of submission of bid, copy of receipt of deposition of original EMD, and other documents as specified in the NIT	Time and date of opening of Technical bid
1	52/EE(E)-CHENNAI-I/2026-27/CPWD/CHN	“SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair.”	Rs. 42,12,450/-	Rs. 84, 249/-	6 Months	Upto: 15:00 Hrs On 21. 09. 2026	15:30 Hrs On 21. 09. 2026

ELIGIBILITY CRITERIA:

Conditions for CPWD registered contractors:

1. The CPWD registered contractors of appropriate class shall associate with a specialized agency which has the experience of similar nature of works as mentioned below during the last 7 years ending last day of the month previous to the one in which applications / tenders are invited. Such works should be certified by an officer not less the rank of Executive Engineer/ Project Manager or equivalent.

If the agency has the experience as per below criteria, they themselves can execute the work.

Three similar works each of value not less than **Rs. 16.85 Lakhs**

Or

Two similar works each of value not less than **Rs. 25.28 Lakhs**

Or

One similar work of value not less than **Rs. 33.70 Lakhs**

Similar work shall mean “SITC of Rooftop solar PV 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 the last date of submission of bid.

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 Earnest Money Deposit/Performance Guarantee”. (Scanned copy to be uploaded at the time of submission of bid).

2. Conditions for Specialized Agencies:

- (a) The agency should have satisfactorily completed the similar nature of works as mentioned below during the last 7 years ending last day of the month previous to the one in which applications / tenders are invited, such works should be certified by an officer not less the rank of Executive Engineer/ Project Manager or equivalent.

Three similar works each of value not less than **Rs. 16.85 Lakhs**

Or

Two similar works each of value not less than **Rs. 25.28 Lakhs**

Or

One similar work of value not less than **Rs. 33.70 Lakhs**

Similar work shall mean “SITC of Rooftop solar PV 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 the last date of submission of bid.

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 Earnest Money Deposit/ Performance Guarantee”. (Scanned copy to be uploaded at the time of submission of bid).

- (b) Should have had Average Annual Financial Turnover of **Rs. 12, 64, 000/-** on construction works during the last three years ending 2024-2025. (Scanned copy of Certificate from CA with Unique Document Identification Number (UDIN) to be uploaded). The value of annual turnover figures shall be brought to the current value by enhancing the actual turnover figures at simple rate of 7% per annum.
- (c) Should not have incurred any loss (profit after tax should be positive) in more than two years during the last five years ending 2024-2025
- (d) Should have a Banker's Certificate from a commercial Bank for **Rs. 16, 85, 000/-** or Net Worth certificate from CA with Unique Document Identification Number (UDIN) of minimum 10 % amount of ECPT (Scanned copy of original to be uploaded).
3. The intending bidder must read the terms and conditions of CPWD-6 carefully. He should only submit his bid if he consider himself eligible and he is in possession of all the documents required.
4. Information and Instructions for bidders posted on website shall form part of bid document.
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 can be seen and downloaded from website <https://etender.cpwd.gov.in> or www.cpwd.gov.in **free of cost**.
6. But 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 as aforesaid.
7. Those contractors not registered or have not updated their profile on the website mentioned above, are required to get registered / update their profile beforehand. The necessary training

materials including the videos with step to step process are available on download section of <https://etender.cpwd.gov.in>.

8. The intending bidder must have valid class-III digital signature certificate with encryption key (combo type) to perform any operations/transactions on the e-tendering portal / website and the bidder should download and install the eMsigner on their system as per instructions available on download section of <https://etender.cpwd.gov.in>.
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. Certificate of Financial Turn Over: At the time of submission of bid contractor may upload Affidavit/Certificate from CA mentioning Financial Turnover of last 7 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.
12. Contractor must ensure to quote rate in the prescribed column(s) meant for quoting rate in figures appears in yellow 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 bidder 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 bidder.
13. The Technical Bid shall be opened first on due date and time as mentioned above. The time and date of opening of financial bid of contractors qualifying the technical bid shall be communicated to them at a later date.
 14. The decision of rejection of technical bid alongwith reasons of rejections shall be uploaded on ERP portal by tender inviting authority. The aggrieved bidder can make appeal against the decision, on ERP portal within 48 hours of uploading of decision of rejection of technical bid.
After receipt of appeal from the aggrieved bidder, the tender inviting authority shall upload the decision on the appeal preferably within 3 working days and in no case the financial bid shall be opened without disposal of appeal and uploading the same on ERP portal.
- ~~15. Pre Bid conference shall be held in the chamber ofatonat to clear the doubt of intending bidders, if any.~~
16. 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 deemed suitable by it, if too many bids are received satisfying the laid down criterion.

A. List of documents to be scanned and uploaded by CPWD enlisted contractors within the period of bid submission

- i) Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or bank Guarantee including e-Bank Guarantee of any commercial Bank against EMD (drawn in favour of **Executive Engineer (E), CCED- III, CPWD, Chennai**).
- ii) Valid CPWD Enlistment order of the registered contractors in appropriate class in works category.
- iii) Form-C: Details of eligible similar nature of works completed by the **CPWD enlisted contractors** during the last seven years ending previous day of last day of submission of tenders.
- iv) Form-D or Completion Certificate : Work experience certificates for eligible completed works mentioned in **Form-C: - The performance report in the format of 'Form-D' OR Completion certificate , issued by an officer not less the rank of Executive Engineer/Project Manager or equivalent.**
- v) GST registration Certificate of the state in which the work is to be taken up, if already obtained by the bidder. 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 document.
"If work is awarded to me, I/we shall obtain GST registration certificate as applicable, 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".
- vi) Form-F: Copy of receipt of deposition of original EMD to division office of any EE, CPWD.
- vii) FORM-G: Affidavit for not executing the works as back-to-back basis.
- viii) Form - H: Affidavit for Non-black listing.
- ix) Form- I: Declaration about site inspection.
- x) ERP Training certificate
- xi) Valid Electrical contractor licence or undertaking that they will either obtain valid electrical licence at the time of execution of electrical work or associate with the contractor having valid electrical licence of appropriate class.
Note: All Affidavits /Undertakings should show the NIT No., and also be continuous and if it is coming in more than one page then, all the pages should have Affidavit / stamp certificate number, with signature and date on all pages.

List of Documents to be submitted after acceptance of Bid.

Licenses / Registrations or Proof of applying for labour Licenses, registration with EPFO, ESIC & BOCW Welfare Board

B. List of documents to be scanned and uploaded by the Specilized Agency within the period of bid submission

- i) Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or bank Guarantee including e-Bank Guarantee of any commercial Bank against EMD (drawn in favour of **Executive Engineer (E), CCED- III, CPWD, Chennai**).
- ii) Scanned copy of valid Registration certificate of Firms, if any.
- iii) Letter of transmittal.
- iv) "Form A" - Financial Information.
- v) "Form B" - Banker's Certificate from a Commercial Bank.

OR

"Form B-1" - Form for Certificate of Net Worth from Chartered Accountant.

- vi) Form C- Details of eligible similar nature of works completed by the specialized agency during the last seven years ending previous day of last day of submission of tenders.
- vii) Form C-1- Details of similar nature of Ongoing works.
- viii) Form-D or Completion Certificate : Work experience certificates for eligible completed works mentioned in **Form-C: - The performance report in the format of 'Form-D' OR Completion certificate , issued by an officer not less the rank of Executive Engineer/Project Manager or equivalent.**
- ix) Form E - structure & organization
- x) GST registration Certificate of the state in which the work is to be taken up, if already obtained by the bidder. 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 document.
"If work is awarded to me, I/we shall obtain GST registration certificate as applicable, 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".
- xi) Form-F: Copy of receipt of deposition of original EMD to division office of any EE, CPWD.
- xii) FORM- G: Affidavit for not executing the works as back-to-back basis.
- xiii) Form-H: Affidavit for Non-black listing.
- xiv) Form-I: Declaration about site inspection.
- xv) ERP Training certificate or upload following undertaking:

"I shall take compulsory ERP training through any of the CPWD Regional Training Institutes (RTIs) at Delhi, Mumbai, Chennai & Kolkata, National CPWD Academy (NCA), Ghaziabad or through any other special training arranged by ERP unit of CPWD within two months from the date of issue Intent letter."

Training will be valid only when non-enlisted contractor is registered in LMS of ERP & certificate is issued through LMS of ERP. Failure to do so, a recovery of Rs 10000/- per week shall made from the RA bill without giving any show cause notice in this regard".

- xvi) Valid Electrical contractor licence or undertaking that they will either obtain valid electrical licence at the time of execution of electrical work or associate with the contractor having valid electrical licence of appropriate class.

Note: All Affidavits /Undertakings should show the NIT No., and also be continuous and if it is coming in more than one page then, all the pages should have Affidavit / stamp certificate number, with signature and date on all pages.

List Of Documents to be submitted after acceptance of Bid.

Licenses / Registrations or Proof of applying for labour Licenses, registration with EPFO, ESIC & BOCW Welfare Board

Section-III**LETTER OF Transmittal**

To

Executive Engineer (E),
Chennai Electrical Division-I, CPWD
Shastri Bhawan, Nungambakkam
Chennai.

Name of work: “SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair.”

N.I.T. No: 52/EE(E)-CHENNAI-I/2026-27/CPWD/CHN

Sir,

Having examined details given impress Notice and bid document for the above work, I/we here by submit the relevant information.

1. I/We hereby certify that all the statements made and information supplied in the enclosed forms 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.
3. I/we submit the requisite certified Net worth Certificate and authorize the **Executive Engineer(E), CED-I, CPWD** to confirm the correctness there of. I/we also authorize **Executive Engineer (E), CED-I, CPWD** 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 eligible similar works:

Sl. No.	Name of Work	Certificate From

Certificate

It is certified that the information given in the enclosed eligibility bid are correct. It is also certified that I/We shall be liable to be debarred, disqualified/cancellation of enlistment in case any information furnished by me/us found to be incorrect.

Enclosures:**Date of Submission**

Seal of bidder
Signature (s) of Bidder (s)

FORMS

FORM-A**FINANCIAL INFORMATION****NIT No: 52/EE(E)-CHENNAI-I/2026-27/CPWD/CHN****Name of Work: “ SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair ”****Name of the firm/Bidder.....:**

- I** Financial Analysis-Details to be furnished duly supported by figures in balance sheet /profit & loss account for the last five years duly certified and audited by the Chartered Accountants, as submitted by the applicant to the Income Tax Department (Copies to be attached).
- II** Financial arrangements for carrying out the proposed work.

Sl. No	Particulars	Financial Years				
		2020-21	2021-22	2022-23	2023-2024	2024-2025
i)	Gross Turnover of construction works					
ii)	Profit / Loss (stand alone finance statement and consolidated financial statement both)					

Signature of Chartered Accountant with Seal SIGNATURE OF BIDDER(S)

FORM-B**BANKER'S CERTIFICATE FROM A COMMERCIAL BANK**

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

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

(Signature) For the Bank

NOTE: In case of partnership firm, certificate should include names of all partners as recorded
with the Bank.

FORM B-1**FORM FOR CERTIFICATE OF NETWORTH 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 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).”

Unique Document Identification Number (UDIN)

Signature of Chartered Accountant.....

Name of Chartered Accountant.....

Membership No.of ICAI.....

Date and Seal.....

FORM-C**DETAILS OF ELIGIBLE SIMILAR NATURE OF WORKS COMPLETED
DURING IN LAST SEVEN YEARS****NITNo: 52/EE(E)-CHENNAI-I/2026-27/CPWD/CHN****Name of Work: “SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair.”**

Name of the firm /Bidder.....

S.No.	Details	
1.	Name of work/project and location	
2.	Owner or sponsoring organization	
3.	Cost of work in Rs. in Crores of Rupees	
4.	Date of commencement as per contract	
5.	Stipulated date of completion	
6.	Actual date of completion	
7.	*Litigation/arbitration cases pending/ in progress with details	
8.	Name and Address (Postal & E-mail) / telephone number of officer to whom reference may be made	
9.	Whether the work was done on back to back basis. Yes/ No	

* Indicate gross amount claimed and amount awarded by the Arbitration Tribunal.

SIGNATURE OF BIDDER(S)
WITH STAMP

FORM C-1**DETAILS OF ELIGIBLE SIMILAR NATURE OF ON-GOING WORKS**

NITNo: 52/EE(E)-CHENNAI-I/2026-27/CPWD/CHN

Name of Work: “SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair.”

Name of the firm /Bidder.....

S.No.	Details	
1.	Name of work/project and location	
2.	Owner or sponsoring organization	
3.	Cost of work in Rs.in Crores	
4.	Date of commencement as per contract	
5.	Stipulated date of completion	
6.	Upto date percentage progress of work	
7.	Slow progress if any and reasons there of	
8.	Name and Address (Postal & E-mail) / telephone number of officer to whom reference may be made	
9.	Remarks	

SIGNATURE OF BIDDER(S)

WITH STAMP

FORM-D**WORK EXPERIENCE/PERFORMANCE REPORT OF WORKS REFERRED TO IN
FORM-C****Name of the Agency :****Name and address of the client :****Details of works executed by :**

1	Name of work with brief particulars	
2	Agreement No.	
3	Date of Commencement of work	
4	Stipulated date of completion	
5	Actual date of completion	
6	Details of compensation levied for delay, if any	
7	Tender Amount	
8	Gross amount of the work completed	
9	Name & Address of the authority	
10	Did the contractor go for arbitration? If yes, Total amount of claim	
	Total amount awarded	
11	Performance Report	
	Quality of work (Indication grading)	Outstanding / Very Good/ Good/ Poor
	Technical proficiency	Outstanding / Very Good/ Good/ Poor
	Financial soundness	Outstanding / Very Good/ Good/ Poor
	Resourcefulness	Outstanding / Very Good/ Good/ Poor
	General Behaviour	Outstanding / Very Good/ Good/ Poor

Dated:

(Authorized Signatory)

Place:

Executive Engineer or Equivalent Rank

FORM-E**STRUCTURE & ORGANIZATION****NITNo: 52/EE(E)-CHENNAI-I/2026-27/CPWD/CHN****Name of Work: “SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair”**

1.	Name & Address of the bidder		
2.	Telephone No./Email ID/Telex No./Fax No.		
3.	Legal status of the bidder (Attach copies of original document defining the legal status).		
	a)	An Individual	
	b)	A proprietary firm	
	c)	A firm in partnership	
	d)	A limited company or Corporation	
4.	Particulars of registration with various Government bodies (attach attested photo-copy).		
	ORGANIZATION/ PLACE OF REGISTRATION		REGISTRATION NO.
	1.		
	2.		
	3.		
5.	Names and Titles of Directors & Officers with designation to be concerned with this work.		
6.	Designation of individuals authorized to act for the organization.		
7.	Has the bidder or any constituent partner in case of partnership firm/ limited company/ joint venture, ever been convicted by the court of law? If so, give details.		
8.	In which field of Civil Engineering Construction, the bidder has specialization and interest?		
9.	Any other information considered necessary but not included above.		

Signature of bidder(s) with stamp

FORM-F**Receipt of deposition of original EMD**

(Receipt No. / date)
Name of Work: “SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair”. 1.NIT No: 52/EE(E)-CHENNAI-I/2026-27/CPWD/CHN 2. ECPT : Rs. 42, 12, 450/- 3.Amount of Earnest Money Deposit: Rs. 84, 249/- 4. Last date of submission of bid: upto 15:00 Hrs on 21. 09. 2026 (***To be filled by Tender inviting authority/NIT approving authority at the time of issue of NIT and uploaded along with NIT)
Name of Contractor# Form of EMD # Amount of Earnest Money Deposit # Date of submission of EMD.....# Name of Payee: Executive Engineer (E), CCED-III, CPWD, Chennai-600040 Signature, Name and Designation of EMD receiving officer along with Office stamp (# To be filled by EMD receiving EE/DDH)

FORM-G**(For CPWD as well as Non-CPWD Contractors)****AFFIDAVIT**

NAME OF WORK: “SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair.”

N.I.T. No: 52/EE(E)-CHENNAI-I/2026-27/CPWD/CHN

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 Earnest Money Deposit/ Performance Guarantee. (Scanned copy to be uploaded at the time of submission of Bid.)

Name & Signature of Contractor

FORM-H
AFFIDAVIT

Name of Work: “SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair.”

NIT No: 52/EE(E)-CHENNAI-I/2026-27/CPWD/CHN

I/we undertake and confirm that our firm/partnership **firm has not been blacklisted** by any state/Central Departments/PSUs/Autonomous bodies during the last 7 years of its operations. Further that, if such information comes to the notice of the department then I/we shall be debarred for bidding in CPWD in future forever. Also, if such 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 and date

FORM-I**DECLARATION ABOUT SITE INSPECTION**

To

The Executive Engineer,
Chennai Electrical Division-I,
CPWD, Chennai-6.

NIT No: 52/EE(E)-CHENNAI-I/2026-27/CPWD/CHN

Name of work: "SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair."

Dear Sir,

It is hereby declared that as per **CPWD-6 FOR e-BIDDING**, I/ We the bidder inspected and examined the subject site and its surrounding and satisfy myself / ourselves as to the nature of the ground and sub-soil (so far as is practicable), the forms and nature of the site./ ourselves before submitting the bid, the accommodation which may require and all necessary information as to risks, contingencies and other circumstances which may influence or affect our bid have been obtained. I/We the bidder shall have full knowledge of the site and no extra charge consequent upon any misunderstanding or otherwise shall be claimed in later date.

I /We bidder shall be responsible for arranging and maintaining at 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 me/us implies that I / We have read this notice and all other contract documents and has made myself /ourselves aware of the scope and specifications of the work to be done and local conditions and other factors having a bearing on the execution of the work.

Yours faithfully

(Duly authorized signatory of the bidder)

On non-judicial stamp paper of minimum Rs. 100

(Guarantee offered by Bank to CPWD in connection with the execution of contracts) Form of Bank Guarantee for Performance Guarantee /Security Deposit / Mobilization Advance

1. Where as the Executive Engineer..... (name of division) CPWD on behalf of the President of India (here in after called “The Government”) has invited bids under.....(NIT number)..... dated.....for.....(Name of work) The Government has further agreed to accept irrevocable Bank Guarantee for Rs.....(Rupees only) valid upto.....(Date)*.....as **Earnest Money Deposit** from. (Name and Address of contractor)..... (Here in after called “the contractor”) for compliance of his obligations in accordance with the terms and conditions of the said NIT.

OR’*

Where as the Executive Engineer.....(Name of division), CPWD on behalf of the President of India (here in after called “The Government”) has entered into an agreement bearing number.....with..... (name And address of the contractor).....(here in after called “the Contractor”) for execution of work.....(name of work).....

The Government has further agreed to accept an irrevocable Bank Guarantee for Rs.....(Rupees.....only) valid upto.....(date). As **Performance Guarantee / Security Deposit / Mobilization Advance** from the said Contractor for compliance of his obligation since accordance with the terms and conditions of the agreement.

2. We, (indicate the name of the bank) (here in after referred to as “the Bank”), hereby undertake to pay to the Government an amount not exceeding Rs.... (Rupees. only) on demand by the Government within 10 days of the demand.

3. We,(indicate the name of the Bank), do here by undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Government stating that the amount claimed is required to meet there coveries due or likely to be due from the said Contractor. 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).
4. We,.....(indicate then name of the Bank),further undertake to pay
The Government any money So demanded not with standing any dispute or disputes raised by the contractor in any suit or proceeding pending before any Court or Tribunal, our liability under this Bank Guarantee being absolute and un equivocal. The payment so made by us under this Bank Guarantee shall be a valid discharge of our liability for payment there under and the Contractor shall have no claim against us for making such payment.
5. We,.....(indicate the name of the Bank)....., further agree that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligation here under to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor from time to time or to postpone for anytime or from time to time any of the powers exercise able by the Government against the said contractor and to for bear 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 or for any for bearance, act of omission on the part of the Government or any indulgence by the Government to the said Contractor or by any such matter or thing what so ever which under the law relating to sure ties would, but for this provision, have effect of so relieving us
6. We, (indicate the name of the Bank), further agree that the Government at its option shall been titled to enforce this Guarantee against the Bank as a principal debtor at the first instance without proceeding against the Contractor and not with standing any security or other guarantee the Government may have in relation to the Contractor's liabilities.
7. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.
8. We,.....(indicate the name of the Bank).....,undertaken otto Revoke this guarantee except with the consent of the Government in writing.
9. This Bank Guarantee shall be valid up to unless extended on demand by

the Government. Not with standing 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 the date of expiry or extended date of expiry of this guarantee, all our liabilities under *this* guarantee shall stand discharged.

Date:.....

Witnesses:.....

1. Signature.....

(Authorized signatory) Name and address Name

Designation Staff code no.Bank seal

2. Signature.....

Name and address

*Date to be worked out on the basis of validity period of 30 days where only financial bid sare invited and 75 days for two/ three bid system from the date of submission of tender.**in paragraph 1, strike out the portion not applicable. Bank Guarantee will be made either for earnest money or for performance guarantee/security deposit/mobilization advance, as the case may be.

**GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT**

STATE : Tamil Nadu
BRANCH : B & R
ZONE : CE (Chennai)

CIRCLE : -----
DIVISION : CED-I
SUB- DIVISION : -----

Percentage Rate Tender & Contract for Works

Tender for the work of: - **“SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair.”**

- (i) Last date and time of submission of e-tenders shall be upto **15:00 Hrs on 21. 09. 2026**
- (ii) To be opened in presence of tenderers who may be present at **15:30 Hrs on 21. 09. 2026** in the **office of the Executive Engineer, CED-I, CPWD, Chennai**

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, General Conditions of Contract 2023 for Maintenance works with amendments up to the last date of submission of tenders, 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 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 General Conditions of Contract 2023 for Maintenance works with amendments up to the last date of submission of tenders, 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 tender open for **(75) Seventy five days** from the date of opening of Technical bid **in case tender are invited in two bid system** and not to make any modifications in its terms and conditions.

I/We have deposited EMD for the prescribed amount of **Rs. 84, 249/-** in the office of concerned Executive Engineer as per the bid document.

A copy of earnest money deposit receipt of prescribed amount deposited in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker’s Cheque or Bank Guarantee (as prescribed) issued by a commercial Bank, is scanned and uploaded (strike out as the case may be). 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 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 Earnest Money or 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 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 & integrity of the State.

Dated.....

Signature of Contractor

Witness:

Postal Address

Address:

Occupation:

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.....*

(Rupee.....*.....
.....
.....).

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*

* to be filled by EE

**Executive Engineer (E&M)
CED-I, CPWD, Chennai**

PROFORMA OF SCHEDULES

SCHEDULE 'A'

Schedule of Quantities as per form PWD-3 -----

Attached

SCHEDULE 'D'

Extra schedule for specific requirements /document for the work, if any.

1. General / specific conditions, specifications.

SCHEDULE 'E'

Reference to General Conditions of Contract:

**GCC/2023 for
Construction works as
modified and corrected
upto previous day of
submission of Tender**

Name of Work: "SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair."

Estimated cost of work : **Rs. 42, 12, 450/-**

Earnest Money : Rs. 84, 249/-

(i)	Performance Guarantee:	(a) 5 % of tendered value or Estimated Cost Put to Tender (ECPT) (Whichever is higher) (b) Where the tendered amount is less than eighty percent (80%) of the Estimated Cost Put to Tender (ECPT), the Performance Guarantee, in addition to the requirement under (a) above, shall be increased by an amount equal to the difference between eighty percent (80%)
(ii)	Security Deposit :	2.5% of tendered value

SCHEDULE 'F'

GENERAL RULES & DIRECTIONS

Officer inviting tender:

Executive Engineer, CED-I,
Central Public Works Department,
Chennai-600006

Definitions:

2(v)	Engineer-in-Charge	Chennai Electrical Division-I, CPWD, Chennai-600006 or his successors thereof
2(viii)	Accepting Authority	Chennai Electrical Division-I, CPWD, Chennai-600006 or his successors thereof
2(x)	Percentage on cost of materials and Labour cover all to overheads and profits	15%
2(xi)	Standard Schedule of Rates	Delhi Schedule of Rate 2025 (E&M) with amendments up to date of submission of bid
2(xii)	Department	Central Public works Department (CPWD)
9(ii)	Standard CPWD Contract Form GCC	GCC 2023 for Construction works as modified and corrected upto previous day of submission of Tender

Clause 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.	7 (Seven) days
(ii)	Maximum allowable extension with late fee @ 0.1% per day of Performance Guarantee amount beyond the period provided in (i) above	3 (Three) days with late fee @ 0.1% per day of the PG amount (no refundable)

Clause 2

a)	Authority for fixing compensation under clause 2	Chief Engineer, Chennai, CPWD or his successor thereof
----	--	--

Clause 5

	Number of days from the date of issue of letter of acceptance for reckoning date of start	10 (Ten) days or date of handing over of site whichever is later
--	---	--

Mile stone(s) for work as per table given below

S.No.	Description of Milestone (Physical)	Time allowed in days (from the date of start)	Amount to be withheld in case of non-achievement of milestone. (% of tendered amount of respective Electrical component)
1.	Submission of drawings & Specifications for approval	30 days	0.5 %
2.	Supply of Solar PV Modules, PCU, Mounting structure, equipment & complete with cabling panels, wiring etc.	75 days	1.5 %
3.	Installation of Whole Solar PV system.	150 days	1.5 %
4.	Testing and commissioning.	165 days	1 %
5	Handing over of complete installations.	180 days	0.5 %

Authority to decide:

(i) Authority to convey the decision of shifting of milestone and Extension of time	Executive Engineer, Chennai Electrical Division-I, CPWD, Chennai or his successor thereof
(ii) Authority to decide Rescheduling of mile stones and extension of time	Chief Engineer, Chennai, CPWD or his successor thereof
(iii) Shifting of date of start in case of delay in handing over of site	Chief Engineer, Chennai, CPWD or his successor thereof

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 area	10 days
Part B	Portions with encumbrances	NIL	Not Applicable
Part C	Portions dependent on work of other agencies	NIL	Not Applicable

Clause 6: Electronic Measurement Book (EMB) through ERP portal.

(i) Mode of Measurement : EMB through ERP portal

Note: In case of any difficulty in implementing in EMB the Engineer-in-Charge shall permit CMB with recorded reasons intimating to the NIT approving authority.

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. 10 .00 lakhs or part thereof as per discretion of Engineer-in-charge.
---	--

Clause 7A

Whether Clause 7A shall be applicable	Yes
---------------------------------------	-----

No Running Account Bill shall be paid for the work till the applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board, whatever applicable are submitted by the contractor to the Engineer-in Charge.

Clause 7B Payment to third party

If the exigencies of the work so demand, the engineer-in-charge may allow payment to a third party, who is creditor to the contractor, after fulfilling the following Conditions.

- a) The contractor gives an authority letter addressed to the engineer-in-charge on a non-judicial stamp paper of Rs.100 in the format given below.

I/We authorize the **Executive Engineer, Chennai Electrical Division-I, CPWD, Chennai** to pay directly on my/our behalf to (name of the third party) an amount of Rs.....(Rupees.....in words) for the work done or supplies made by(Name of the Third Party) . I/we shall be responsible for the quality and quantity of the same under the provisions of agreement number.....

Signature of the contractor

- b) **The total payment to third party (or parties) shall not exceed 10% of the agreement cost of the work.**

Clause 8

Competent Authorities to inspect and issue part / final completion certificate	Executive Engineer, Chennai Electrical Division-I, CPWD, Chennai or his successor there of
---	--

Clause 8A

Authority to decide compensation on Account - if contractor fails to submit completion plans	Executive Engineer, Chennai Electrical Division-I, CPWD, Chennai or his successor there of
--	--

Clause 10A

List of testing equipment to be provided by the contractor at site lab.

As per Site requirement

Clause 10B (ii) - Mobilization Advance:

Whether Clause 10 B (ii) shall be applicable	No
--	-----------

Clause 10C -

Labour component	Not Applicable
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Clause 10CC -

Not Applicable

Clause 11

	Electrical work: a) CPWD General Specifications for Elect works Part I-Internal -2023 b) CPWD Specification for Elect works Part II-External -2023 c) CPWD Specification for Elect works Part-III -Lifts & Escalators - 2003 d) CPWD Specification for Elect works Part-IV-substation-2013 e) CPWD Specification for Elect works Part-V-wet riser and sprinkler systems- 2020 f) CPWD Specification for Elect works Part-VI-Fire Detection and Alarm System – 2018 g) CPWD Specification for Elect works Part VII-DG sets -2013 (with amendments/corrections up to the last date of submission of tender)
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Clause 12:**Type of Work :****Original work****Deviation in Completion Cost:**

The completion cost shall, in no case exceed, 1.5 times the contract amount (as per DG/CON/ Construction 2023/03 dtd. 06.12.2023)

12.2(C):

Deviation Limit beyond which clauses 12.2 (c) shall apply for all items.	100%
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Clause 25:

Clause16	Competent Authority for Deciding reduced rates:	
	For E&M items of work	Chief Engineer, Chennai, CPWD, or his successor thereof
Clause18	List of mandatory machinery, tools & plants to be deployed by the contracot at site: -	As per Site Requirement
Clause19C	Authority to decide penalty for each default:	Executive Engineer (E), Chennai Electrical Division-I, CPWD, Chennai
Clause19D	Authority to decide penalty for each default:	Executive Engineer (E), Chennai Electrical Division-I, CPWD, Chennai
Clause19G	Authority to decide penalty for each default:	Executive Engineer (E), Chennai Electrical Division-I, CPWD, Chennai
Clause19K	Authority to decide penalty for each default:	Executive Engineer (E), Chennai Electrical Division-I, CPWD, Chennai

Clause 32: Requirement of Technical Representatives and Recovery Rates:**Requirement of Technical Representatives and recovery Rate**

Sl. No	Requirement of Technical Staff		Minimum Experience (Years)	Designation of Technical staff	Rate at which recovery shall be made from the contractor in the event of not fulfilling
	Qualification	Number (of Major + Minor Component)			
1	Graduate Engineer or Diploma Engineer	1	2 or 5 respectively	Project Manager cum Planning/quality/site/billing Engineer	Rs.15,000/- Per month per person

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% of requirement of degree engineers.

Notice for appointment of Arbitrator

To

The Chief Engineer, Chennai.

.....

Subject: Notice for appointment of Arbitrator for adjudication of disputes relating to agreement Number.....

Dear Sir,

In terms of **clause 25 (Arbitration Clause)** of the aforesaid agreement, particulars of which are given below, I/we hereby give you notice to appoint an arbitrator for adjudication of disputes mentioned below:

1. Name of applicant
2. Whether applicant is Individual/Prop. Firm/Partnership Firm/Ltd. Co.
3. Full address of the applicant
4. Name of the work and contract number in which arbitration sought
5. Name of the Division which entered into contract
6. Contract amount
7. Date of contract
8. Stipulated date of start of work
9. Stipulated date of completion of work
10. Actual date of completion of work (if completed)
11. Total number of claims made
12. Total amount claimed
13. Date of intimation of final bill (if work is completed)
14. Date of payment of final bill (if work is completed)
15. Amount of final bill (if work is completed)
16. Date of reference made to SDG/ADG for conciliation, if applicable:
17. Date of termination of conciliation proceedings:
18. I/We hereby give consent for appointment of Arbitrator of MoHUA or the CPWD empanelled Arbitrator Waiver agreement as per Appendix –XIX is enclosed

Or

I/We do not give consent for appointment of Arbitrator of MoHUA or the CPWD empanelled Arbitrator.

I/We certify that the information given above is true to the best of my/our knowledge.

I/We enclose following documents.

1. Statement of claims with amount of claims.
2. * Agreement of Waiver of Section 12(5) of the Arbitration and Conciliation Act. 1996 in Appendix-XIX

(Strikeout if not applicable)

Yours faithfully,

**(Signature of the applicant)
(only the person/authority who signed
the contract should sign here)**

APPENDIX-XIX**Agreement towards waiver of Section 12(5) of Arbitration & Conciliation Act 1996**

1. Whereas certain disputes have arisen between M/s
(Claimants) and M/s (Respondents) relating to agreement
No.....
2. And whereas the parties are aware that Shri is on the cadre
of CPWD, presently on deputation as Arbitrator, Ministry of Housing and Urban Affairs,
Government of India / presently a CPWD empanelled Arbitrator.
3. I/We agree for the appointment of Shri as the sole Arbitrator
for adjudication of the disputes, and we hereby waive the applicability of Section 12(5) of
the Arbitration & Conciliation Act, 1996.

(Signature)**(Only the person/authority who signed the contract should sign here)****Name****Date**

(The name of the Arbitrator, Ministry of Housing and Urban Affairs, Government of India or the CPWD empanelled Arbitrator may be enquired form the Engineer-in-charge, if required).

PART-B

PARTICULAR SPECIFICATIONS

&

**SPECIAL CONDITIONS FOR E & M
WORKS**

GENERAL TERMS AND CONDITIONS APPLICABLE FOR ALL E&M COMPONENTS

Name of work: SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair.

GENERAL

- (1.1) The work shall be generally carried out in accordance with tender/bid specifications and the following specifications / rules with up-to-date amendments.
 - (a) CPWD General Specifications for Electrical work Part I Internal – 2023, as amended up to date.
 - (b) CPWD General Specifications for Electrical work Part II External-2023, as amended up to date.
 - (c) CPWD General Specifications for Electrical work Part III (Lifts)-2003 as amended up to date.
 - (d) CPWD General Specifications for Electrical work Part V- 2020 (Wet Riser & Sprinkler System) as amended up to date.
 - (e) CPWD General Specifications Part-VI: 2018 Fire Alarm System as amended up to date.
 - (f) CPWD General Specifications Part-VII-2013 (D.G Sets) as amended up to date.
 - (g) CPWD General Specifications -2024 for HVAC Works as amended up to date.
 - (h) Commercial and Additional conditions for this work.
 - (i) The Indian Electricity Act, 2003, as amended up to date.
 - (j) Indian Electricity Rules 1956 amended up to date.
- (1.2) Order of Preference:
 Should there be any difference or discrepancy between the description of items as given in the Schedule of Quantities, technical specifications for individual items of work (including additional and commercial conditions) and IS Codes etc., the following order of preference shall be followed:
 - (i) Description of Schedule of quantities.
 - (ii) Commercial and Additional conditions for this work.
 - (iii) Drawings.
 - (iv) CPWD General Specifications of that particular work.
 - (v) Relevant IS or any other International code in case IS code is not available. Commercial and Additional conditions of that particular work 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 along with schedule of quantities for the work.
- (1.3) 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 equipment of all E&M components of the tender.
- (1.4) The tenderer should in his own interest visit the site and get familiarize with the site conditions before tendering.
- (1.5) No T&P shall be issued by the Department and nothing extra shall be paid on account of this.

1. COMMERCIAL CONDITIONS

Type of Contract: The work to be awarded by this tender shall be treated as indivisible works contract.

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 etc. shall be done as applicable on the gross payments and net payment shall be paid accordingly.

2. RATES

The rates quoted by the tenderer, shall be firm and inclusive of all taxes (including GST, labour cess etc.), and all charges for packing forwarding, insurance, freight and delivery, installation, testing, commissioning etc. at site including temporary construction of storage, risks, overhead charges, general liabilities/obligations and clearance from CEA. However, the fee for the CEA inspections shall be reimbursed/ borne by the department. EPF & ESI contributions are to be made by the contractor. The department will not issue Octroy exemption certificate.

3. PAYMENT TERMS

The following part payments will be followed if not mentioned particularly:

S. No	Stage of work	Percentage of Rate
a	On initial inspection of material and delivery at site in good condition on pro-rata basis.	70%
b	On completion of installation on pro-rata basis.	15%
c	On completion of testing and commissioning and handing over to the client.	10%
d	At the time of payment of final bill.	5%

4. DEFECT LIABILITY PERIOD

- (5.1) The contractor has to carry out maintenance as per CPWD General Specifications / manufacturer's standards for a period of 12 months or as decided by the Engineer –in – Charge from the date of handing over. Nothing extra shall be paid on this account.
- (5.2) In case of Specialized E&M works if Engineer-in-charge desires, the tenderer should submit the following documents from OEM for that particular minor component
 - a. Authorization certificate.
 - b. The OEM is unconditionally supporting the lowest tenderer technically throughout the execution of contract as well as for Maintenance/Comprehensive Maintenance Contract for the useful life of the system, and
 - c. OEM shall provide all the spares required for healthy functioning of the equipment for at least seven years from the date of supply of equipment.

- (5.3) In case the same item appears more than once in the schedule of work under the same sub head or among the different subhead of works, the lowest rate quoted for that item elsewhere shall be considered for other items also during evaluation of tender.

5. 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 equipment and components of the work shall be deemed to have been included in the tender irrespective of the fact whether such items are specifically mentioned in the tender documents or not.

6. STORAGE AND CUSTODY OF MATERIALS

The agency has to make his own arrangements. No 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/client.

7. CARE OF THE BUILDING:

Care shall be taken by the contractor while handling and installing the various equipment's 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.

8. COMPLETION PERIOD

The completion period indicated in the tender documents is for the entire work of planning, designing, approval of drawings etc., arrangement of materials & equipment's, delivery at site including transportation, installation, testing, commissioning and handing over of the entire system to the satisfaction of the Engineer-in-charge.

9. GUARANTEE

- (10.1) All equipment's shall be guaranteed for a period of 12 months (except LED fittings which shall be guaranteed for minimum 5 years and pumps shall be guaranteed for minimum 2 years), 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 equipment's or components, or any part thereof, so found defective during guarantee period shall be 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. The decision of the Engineer-in-charge in this regard shall be final & binding on the contractor.

- (10.2) The tender shall guarantee among other things, the following:

- a) Quality, strength and performance of the materials used as per manufacturers standards.
- b) Safe mechanical and electrical stress on all parts under all specified conditions of Operation. Satisfactory operation during the maintenance period.

10. POWER SUPPLY

The contractor has to make its own arrangement for power supply required for execution of the work.

11. WATER SUPPLY

The contractor has to make its own arrangement for water supply required for execution of the work.

12. ACCEPTABLE MAKES OF VARIOUS EQUIPMENTS

The acceptable makes of various equipment's/components/accessories have been indicated in "Acceptable Makes" appended with the tender documents. The tenderer shall work out the cost of the offer on this basis. Alternate makes are not acceptable.

13. DATA MANUAL AND DRAWINGS TO BE FURNISHED BY THE TENDERER

After award of work

The successful tenderer would be required to submit the following drawings after award of work for approval as per mile stones of tender.

- a) General arrangement drawing, including detailed shop drawings of all E&M components, conduit size and route layout, Panel Drawing, Light Fitting Distribution Drawing, Fire Alarm and Fire Fighting Layout, VRF AC Distribution Layout and other drawings of all E&M components to be submitted by the agency well in advance to get the approval from the JE(E)/AE(E)/EE (E) and care shall be taken not to avoid any delay in the slab casting for all individual E&M component.
- b) Details of foundations for the equipment's and the weights of assembled equipment's.
- c) Any other drawings necessary for the job.
- d) Reflected Ceiling Plan (RCP) for all floors by incorporating all equipment's likely to come in ceiling/false ceiling shall be submitted for approval before casting of slabs by considering all E&M components.

The successful tenderer should furnish well in advance of start of work, three copies of detailed instructions and manufacturer's manuals of all equipment's regarding installation, operation and maintenance, preventive maintenance & trouble shooting with all the relevant data sheets, spare parts catalogue, etc.

14. EXTENT OF WORK

- (15.1) The work shall comprise of entire labour including supervision, all materials necessary to make a complete installation, 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 equipment's covered by specifications but all incidental sundry components necessary for complete execution and satisfactory performance of installation with all layout charts whether or not been mentioned in details in the tender document in connection with this contract as this is a turnkey job.
- (15.2) The cables and all other items shall be brought to site only after taking correct measurements as per actual requirement of work. Excess quantities shall not be accepted and paid. i.e., Quantity of item brought to site and used in work as per actual requirement shall only be measured and paid irrespective of quantities of BOQ / work schedule. **The item brought at site and paid, if not used in the project have to be taken back by the contractor and deductions in the payment shall be adjusted in subsequent bills.** The decision of the Engineer-in-charge in this regard shall be final & binding on the contractor.
- (15.3) In addition to supply, installation, testing and commissioning, of all E&M equipment, following works shall be deemed to be included within the scope of work to be executed by the tenderer.
- Minor building works necessary for installation of equipment's, foundation, making of opening in walls or in floors and restoring them to their original condition finish and necessary grouting etc. as required.
 - All necessary supports may be arranged.
 - Testing of PTs/CTs for metering & protection purpose & relay calibration & setting.
 - Getting inspection done & obtaining approval from Central Electrical Authority and local fire authority for energizing the installation. However, necessary fees for inspection shall be borne by the Department.

15. Exclusion and work to be done by other agencies:

The following shall be excluded from the scope of the work:

- Major dismantling of any existing building work.

16. INSPECTION AND TESTING

- (17.1) All major equipment's like Transformers/DG sets/HT/LT panels/HVAC Equipment set (as per the guidelines of **Quality Assurance Policy & Check List of E & M Services/specifications**) shall be offered for initial inspection contractor will intimate the date of testing of equipment's at the manufacturer's works before dispatch. The successful tenderer shall give advance notice of minimum two weeks regarding the dates proposed for such tests to the department's representative to facilitate his presence during testing. The Engineer-in-charge or his representative may witness such testing. The cost of the Engineer's visit to the factory will be borne by the Department. Equipment will be inspected at the manufacturer/ Authorized Dealers premises, before dispatch to the site by the contractor if so desired by the Engineer-in-charge. Engineer-in-charge at his

discretion may waive off inspection at factory /at the manufacturer's works before dispatch.

- (17.2) Copies of all documents of routine and type test certificates of the equipment, carried out at the Manufacturer's premises shall be furnished to the Engineer-in-charge. The decision of the Engineer-in-charge in this regard shall be final & binding on the contractor.
- (17.3) After completion of the work in all respects the contractor shall offer the installation for testing and operation. The contractor should submit all the related documents of completed E&M equipment to the department for further handing over to client department.
- (17.4) All E&M equipment's / materials shall be tested from reputed laboratories as per guidelines of Quality Assurance Policy and check list of E&M Services / Specifications. The laboratories shall be preferably Government labs / Government autonomous body or as approved by the competent authority. However, necessary fees for testing / inspection shall be borne by the agency only.

17. COMPLIANCE WITH REGULATIONS AND INDIAN STANDARDS

- (18.1) 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:

- i) Factories Act.
- ii) Indian Electricity Rules.
- iii) B.I.S. & other standards as applicable.
- iv) Workmen's compensation Act.
- v) Statutory norms prescribed by local bodies like CEA, Power Supply Co., Fire authorities, etc.

- (18.2) After completion of the installation, the same shall be offered for inspection by the representatives of the Central Electricity Authority if required and local fire authority. The contractor will extend all help including test facilities to the representatives of CEA/Local fire authority. The observations of CEA/Local fire authority will be attended to by the contractor. The installation will be commissioned only after getting clearance from CEA/Local fire authority. Contractor should get inspection done & obtain approval from Central electrical Authority and local fire authority.

- (18.3) 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.

18. INDEMNITY:

The successful tenderer shall at all times indemnifies 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 during the period of erection, construction and putting into operation the equipment's and ancillary equipment under the supervision of the successful tenderer to the extent the latter is responsible. The successful tenderer shall also provide all insurance including third 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. ERECTION TOOLS:

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

20. COOPERATION WITH OTHER AGENCIES

The successful tenderer shall co-ordinate with other contractors and agencies engaged in the construction of buildings, if any, and exchange freely all technical information so as to make the execution of this work/contract smooth. No remuneration should be claimed from the department for such technical cooperation. If any unreasonable hindrance is caused to other agencies and any completed portion of the work has to be dismantled and re-done for want of cooperation and coordination by the tenderer during the course of work, such expenditure incurred will be recovered from the successful tenderer if the restoration work to the original condition or specification of the dismantled portion of the work was not undertaken by the tenderer himself. The work will be carried out with least disturbance during shifting & shut down taken in consultation with the client department.

21. INSURANCE AND STORAGE

All consignments are to be duly insured up to the destination from warehouse at the cost of the contractor. The insurance covers shall be valid till the equipment is handed over duly installed, tested and commissioned.

22. VERIFICATION OF CORRECTNESS OF EQUIPMENT AT DESTINATION

The contractor shall have to produce all the relevant records to certify that the genuine equipment's from the manufacturers has been supplied and erected to the satisfaction of the Engineer-in-charge.

23. PAINTING

This shall include cost of painting of the entire installation. The major equipment's like HT panel, transformers, L T panel, bus duct, cable trays, HVAC equipment, etc. shall be factory final finish painted. The agency shall be required to do only touching to the damages caused to the painting during transportation, handling & installation at site, if there is no major damage to the painting. However, hangers, supports etc. of bus trucking& cable tray etc. shall be painted with required shade including painting with two coats of anticorrosive primer paint at site.

24. TRAINING

The scope of works includes the on job technical training of two persons of Department at site as decided by Engineer – in - charge. Nothing extra shall be payable on this account.

25. MAINTENANCE

Sufficient trained and experienced staff shall be made available to meet any exigency of work during the guarantee period of one year from the handing over of the installation.

The maintenance, routine as well as preventive, for one year from the date of taking over the installation as per manufacturer's recommendation.

27. Approval of drawings, makes and models of equipment/materials for all E&M components:

- (27.1) The agency shall submit drawings and details such as makes and models of the equipment's/materials offered by him along with specifications for all E&M components to the Engineer-in-charge of the work, before ordering the equipment/materials for approval of the department.
- (27.2) The Engineer-in-charge shall scrutinize the proposal and approve the makes and models which are acceptable as per the schedule, specifications, conditions of the agreement and inform the agency for procurement.
- (27.3) After approval of the equipment/materials by the department the agency shall procure the equipment/materials from the OEM/authorized distributor/dealer as the case may be.

28. Adequate care that only tested and genuine materials of proper quality are used in work shall be ensured by firm. The firm shall also ensure that:

- a) Material will be ordered & delivered at site only with the prior approval of the department to ensure timely delivery.
- b) As and when the order is placed for the fittings/ fixtures, cables, switchgears, poles, other main items etc, its copy shall be endorsed to the Engineer-in-charge of work.
- c) The contractor will submit makes & brands of electrical fittings wires & cables, conduits and switchgears, rising mains, poles, outdoor fittings etc. of preferred make list as per tender documents for approval of Engineer-In-Charge, whose decision will be final in the matter.
- d) 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 if required by the department.
- e) Inspection at factory or at go down, as required, shall be arranged by the firm for a mutually agreed date.
- f) Delivery of material shall be taken up only with the consent of department, after clearance of the material.
- g) Department shall reserve the right to waive off inspection in lieu of suitable test certificate, at its discretion.
- h) All the materials to be supplied by the contractor shall be procured & brought to site as per requirement at site of work in consultation with department so that these materials are not damaged & their manufacturer's warrantee.

29. Safety Codes & Statutory Regulations:

- A. 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.
- B. 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.1000/- 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.

**GENERAL, COMMERCIAL AND ADDITIONAL CONDITIONS FOR ROOF TOP
SOLAR PLANT**

1.1 General

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.

1.2 Location: Work shall be carried out at CGAE (PBR), Nayagaon, Port Blair.

The work shall be executed as per CPWD General Specifications for Electrical Works Part-I (internal) 2023, Part-II (external) 2023, 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 along with schedule of quantities for the work.

1.3 The tenderer should in his own interest visit the site and get familiarize with the site conditions before tendering.

1.4 No T&P shall be issued by the Department and nothing extra shall be paid on account of this.

1.5 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.

1.6 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.

1.7 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.

1.8 Solar photo voltaic power generation system installed at CGAE (PBR), Nayagaon, Port Blair.

1.9 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.**

2.0 Commercial conditions

2.1 Type of contract

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

2.2 Submission of Tenders:

2.2.1 Percentage rate tender in Two bid system.

2.2.2 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.

- 2.2.3 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.
- 2.2.4 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 forthwith.
- 2.2.5 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.
- 2.2.6 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.
- 3.1** 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)
- 3.2 Terms of payment**
- 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 prorata basis:
- i) Against supply of material received at site in good condition-70%
 - 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 @ 20% on completion of every year for 5 years after submission of Generation Data sheet.

5.0 Performance Guarantee

5.1 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.

5.2 The contractor whose bid is accepted will be required to furnish performance guarantee **as mentioned in schedule E and** within the period specified in Schedule F. This guarantee shall be in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt or Bank Guarantee from any of the Commercial Banks 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 be required to furnish performance guarantee .

5.3 Refund of Performance Guarantee:

Performance Guarantee shall be refunded after successful completion of DLP for a period of 5 years .

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.

6.0 Rates

6.1 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, overhead charges, general liabilities/obligations and

clearance from Local Bodies. However, the fee for the Local Body inspections shall be borne by the department.

- 6.1 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.
- 6.2 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.
- 6.3 The department will not issue Octroi exemption certificate.
- 6.4 The contractor has to carry out Operation & Routine maintenance of the Solar Photovoltaic power generation system by deputing man power for cleaning of solar PV module, checking & routine maintenance the system for satisfactorily operation as per manufacturer's 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 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 of 60 months from the date of handing over.)

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.

10.0 Completion Period

10.1 The completion period of **Six (6) months** 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.

10.2 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.

11.0 Guarantee

11.1 All equipment shall be guaranteed for a period of 60 months (5 Years), 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 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.

11.2 The tenderer shall guarantee among other things the following:

- a) Quality, strength and performance of the materials used as per manufacturers standards.
- b) 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.

13.0 Acceptable Makes of Various Equipments

13.1 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 basis. Alternate makes are not acceptable.

13.2 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 in triplicate.

15.0 Extent of work

15.1 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.

15.2 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.

16.0 Inspection and Testing

- 16.1 All the tests certificate of the equipments are required to submit along with delivery of material.
- 16.2 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.
- 16.3 After completion of the work in all respects the contractor shall offer the installation for testing and operation.

17.0 Compliance with Regulations and Indian Standards

- 17.1 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:
 - 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
- 17.2 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.
- 17.3 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

- 22.1 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. 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 local electricity Distribution Company (TANGEDCO or as applicable) 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 a wind speed 150 km/hr. 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 of so required by the Engineer – in – Charge, the agency 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.

SPECIAL CONDITIONS

1. The Contractor shall guarantee minimum generation of 1200 kWh per annum per kWp of commissioned generation capacity of Solar Power Plant.
2. The trial run of electrical work / equipments shall be carried out by the firm in the 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 **local electricity Distribution Company (TANGEDCO or as applicable)**. The Contractor shall liaison with the **local electricity Distribution Company (TANGEDCO or as applicable)** 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 **local electricity Distribution Company (TANGEDCO or as applicable)** for the necessary documentation and obtaining the Net metering arrangement. The agency has to liaison for obtaining the Net metering.
5. **All equipments and materials to be used in work shall be manufactured in factories of good reput 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.**

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	CGAE (PBR), Nayagaon, Port Blair	30 kWp
	Total proposed Capacity	30 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 / 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 6 sq.mm XLPO. copper cable to the inverter through the junction boxes. From the inverter, 4 x 16 sq.mm IR/UV Protected XLPE insulated copper cable shall be connected to the AC DB / Panel as approved by the Engineer-in-charge. From the AC DB / Panel, the required size of LT cabling shall be provided as per the requirement and approval of Engineer-in-charge.
5. The required LT cubicle Panel at Substation shall have to be provided by the agency with

suitable capacity of incomers and outgoings shall be planned and provided. The agency shall include the cost of the panel in the item itself and nothing extra shall be paid on this account. From the LT panel, Solar power will be fed to the main LT Panel of the Substation.

6. The agency shall provide 2 Nos. GI plate earthing for each installation and to be connected to the Solar PV Panel, using GI strips / copper cable duly laid as per the CPWD Specifications and drawings. This shall be got approved from the department prior to execution.

TECHNICAL SPECIFICATIONS: -

1. AMBIENT CONDITION & SOLAR INSOLATION

LOCATION / SITE DETAILS FOR THE SPV POWER PROJECT

Address of site : CGAE (PBR), Nayagaon, Port Blair

Location : Andaman & Nicobar Islands

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.

SITE DETAILS:

The number of buildings over which the 30 kWp rooftop solar system will be distributed.	The 30 KWp capacity shall be distributed on the rooftop of one or more buildings in CGAE(PBR) , Nayagaon , Port Blair.
The approximate distance from each building's solar plant to the LT panel.	All the buildings are within 300 meters distance from LT Panel.

2. EQUIPMENT SPECIFICATION

2.1 Solar PV Module (Electrical Features)

Solar PV module array will be made by utilizing **Mono/Poly Crystalline/ Mono-PERC/ TOPCON N-type** 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 **540 Wp** at Standard test conditions. Each Solar PV module offered shall meet following min. requirement.

- ☐ **Module conversion efficiency** - **>23%**

SPV module conversion efficiency should be equal to or greater than 23% under STC of 1000w/m² 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 25 years with no more than 10% degradation in performance/output over 10 years.

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

2.2 Solar PV Module (Mechanical Features)

Solar PV Module design will conform to following Mechanical requirement

- Toughened, anti reflective, low iron content, high transmissivity front glass.
- Anodized Aluminium Frame

- Ethyl Vinyl Acetate (EVA) encapsulate
- Silicon edge sealant around laminate
- Tedlar / Polyester tr laminate 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.
- By pass diode.
- Except where specified, the front module surface shall consist of impact resistant, low-iron and high-transmission toughened glass.
- 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

2.3 Module mounting structure

Wherever required, suitable number of PV panel structures shall be provided. Structures shall be of flat-plate design either I or L sections.

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 a wind load of Min. 150 km/hr after grouting & installation. The front end of the solar array must be one meter above the ground. 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.

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 of size not less than 50mm x 50mm x 6mm size. The minimum thickness of galvanization shall be at least 80-100 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 heavy winds.

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 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 of 150 KMPH.

2.4 Junction Boxes

The junction boxes shall be dust, vermin and waterproof and made of GRP/FRP /Power coated Aluminium /cast aluminium alloy. 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.

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 test of key parameters on startup.

2.6.1 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.

2.6.2 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 μ s & maximum surge handling capacity of 30 KA 8/20 μ 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 μ 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

2.6.3 AC Distribution Board (ACDB)

AC DB shall be provided in between PCU and loads.

3. APPROVAL & CLEARANCE

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 IR/UV Protected XLPE insulated 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 (TANGEDCO) 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 Copper 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 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

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

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 MOUNTING STRUCTURE

Sl. No	Description	Specification Requirement
1	Material	Hot dip galvanized steel with min. 80-micron galvanizing Or as per manufacturer Standard Capable of with stand wind pressure as stipulated.
2	Thickness of member	Suitable wind Speed of 150 kmph. STAAD analysis to be submitted.
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 insulation. 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. PLANT METERING / DATA LOGGING

- a) PV array energy production: Digital Meters to log the actual value of AC/ DC Voltage, Current One-way **LT energy meter (Export metering) Class 0.2S ABT Compliant shall be incorporated in the system on the main AC Grid supply complete with electrical switchgear in the main plant.**

17. DANGER NOTICE BOARDS

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

SCHEDULE - A**TECHNICAL PARTICULARS****(TO BE SUBMITTED AT THE TIME OF APPROVAL OF SOLAR PV****EQUIPMENT/MATERIAL)**

Name of work: SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair.

NIT No.: 52/EE(E)-CHENNAI-I/2026-27/CPWD/CHN

Name of Contractor:

S.No.	Details of Particulars	To be filled by tenderer
(A) Solar PV Module		
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	
(B) Solar Inverter		
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	
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	
(C) Array Junction Box (DCDB)		
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.	
	<u>(D) PANEL SUPPORT/MODULE MOUNTING STRUCTURE</u>	
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)

ANNEXURE-A**LIST OF APPROVED MAKE OF MATERIALS FOR USE****Annexure-II**

Annexure A

List of Approved materials (Electrical)		
NOTE: Not withstanding to the approval given in the list, the field staff are requested to observe the following conditions		
1	Equivalent material and finishes of any other make may be used on written request of the contractor, in case of unavoidable circumstances and also if it is established that minimum three brands are not specified below or three brands out of all brands specified below are not available in the market, after written approval of the alternate brand by the NIT approving authority. This substitution shall be subject to cost adjustment in case the substituting brand is available at cheaper rates in market than those mentioned herein above. There shall be no cost adjustment if the substituting brand is costlier in market than those mentioned herein.	
2	In addition, the brands approved as hereunder, should have valid and active BIS certificate as on the date of supply for the work.	
3	Material shall conform to Make in India policy of Government of India as on the date of supply for the work.	
4	Other brands not included in the list below but having BIS certificate on the date of supply for the work shall only be allowed against note (1) above.	
5	In case of non availability of BIS codes for any of the materials incorporated above, the Engineer-in-charge shall send the materials for testing as per the relevant ASTM or EN codes and satisfy himself before using the same in work.	
SOLAR PHOTOVOLTAIC SYSTEM		
S.NO	NAME OF THE PRODUCT	MANUFACTURED BY
1	Manufactures of Solar PV cells and modules	Vikram Solar/ Waaree/ Redren/ Tata/ RenewSys
2	Hybrid Power Conditioning Unit (PCU)	Deye/UTL/SMA / Schneider/ Refusol/ Kaco/ Siemens/ ABB/ Havells/ luminous/ Emerson/ Powerone
3	Data logger/System performance	Kaco / SMA / ABB/ Energy Recommence/ Electro industries/ Energy Tracking IIC/ Schlumberger
4	Junction Box	Hensel/ Spelsberg/ ABB/ Cooper bussmann/ Schneider/ Siemens
5	ACDB panel	Local fabrication approved Engineer-in-charge
6	Energy meter/ Net Meter/ Bidirectional Meter	L&T/ Siemens/ Schneider/ Secure/ HPL/ Any Approved Make of TANGEDCO
7	Surge protection	OBO Betterman/ ABB/ Legrand/ Havells
8	PV module interconnecting Connector	Tyco/ Cooper busman/ MC
9	AC cables and wires	RR Kabel/ Havells / Finolex/ Anchor/ KEI/ Siechem/ Polycab
10	DC cables and wires	Siechem/ LAPP/ TopSolar/ Nexans/ Polycab/ Havells
11	PVC Conduits and accessories (ISI Marked)	Avon Plast/ Precision/ AKG/ Bajaj plast/ GM

12	GI Pipes	TATA/ JINDAL (HISSAR)/ ZENITH
13	Lightning arrestor	INdelec/ Star/ Erico
14	Indicating Lamps LED type, Push Button	Schneider Electric (MG)/ Larsen & Toubro (ESBEE)/ Siemens/ VaishnoConzerv/ Larsen & Toubro/ Secure
15	CAT 5/6 Cables	Legrand/ Molex/ Finolex/ Commscope/D-Link/ Havells/Panasonic/ Henlay/ Digilink/ Belkin/ Belden/ KEI
16	LT Panel / Meter Panel Boards/Outdoor Feeder Pillar / APFC Panels	Panel builder Having CPRI Test Certificates for successfully testing panels with Bus Bar Rating Equivalent to the highest Bus Bar rating stipulated for panels in the BOQ.
17	Moulded Case Circuit Breaker (MCCB)/ MCB	Seimens/ ABB/ L&T/ Schneider/ Legrand/ Hager
18	Changeover switches	L&T/ ABB/ Schneider/ C&S/ Legrand/ Socomec/ Seimens/ Hager
19	Automatic transfer switch	ABB/ Seimens/ L&T/ Schneider/ Legrand/ Hager
20	Timer switch	Schneider Electric/ Legrand/ Hager/ L&T/ ABB/ Seimens/ C&S
21	Selector switch	Kaycee/ BCH/ L&T Salzer/ Seimens/ Schneider Electric.
22	Potential Transformers / Current Transformers	Automatic Electric /Gilbert & Maxwell / Matrix / Precise / L&T / Kappa / Kalpa / Vyoma Switchgears / Intrans/ Rishabh
23	Digital/ Analog Ammeter/ Voltmeter/ Multifunctional Meters	AE/ Mecon/ Schneider/ L&T/ HPL/ C&S/ Conserve/ Kaycee/ Crompton Greaves/ Scomec (diris)/ Seimens / RISHAB
24	Indicating Lamps (LED type)	Seimens/ Teknik/ L&T/ BCH/ C&S/ ABB/ Schneider/ Kaycee
25	Push Buttons	Seimens/ Teknik/ L&T/ BCH/ C&S/ ABB/ Schneider/ Kaycee
26	Relays	SEGC/ Crompton/ Seimens/ GE/ ABB/ Schneider/ L&T / AREVA
27	HT/ LT Cables (Copper/ Aluminium)	Gloster/ Havells/ Universal/ Finolex/ RPG cables/ RR Cable/ Polycab/ CCI
28	Cable glands/ Lugs	Jainsons/ Comet/ Dowells/ Raychem/ Wago / Elmec / Braco / Grip wel
29	Cable trays (Hot Dip Galvanised)	RMCON/Profab/Indiana/MBM/Legrand/BEC
30	DWC Pipe	Gemini/Rex/Duraline
31	LiFePO4 Lithium Ion Battery	CLN Energy / UTL/Exide/Amara Raja/CATL/BYD/Cygni Energy
32	Any other items	As decided by Engineer-in-charge

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. All makes mentioned above are applicable for all subheads.

PART-C
SCHEDULE OF
QUANTITIES

Schedule of Work (Electrical)

Name of work: - SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair.

Sl. No	Description	Qty	Unit	Rate	Amount
1	Supplying Installation, Testing and Commissioning of on-grid Hybrid Solar Photovoltaic Power Plant conforming to various applicable standards BIS, IEC, MNRE guidelines, the Central Electricity Authority Regulations and CPWD Specifications as amended up to date, consisting of Mono/Poly Crystalline silicon solar cells module, necessary control, protections, earthing, cabling, mounting structure, junction boxes, Hybrid power conditioning units, LiFePO₄ Lithium-ion Battery bank , Real time online web interfaced Data Monitoring System, Distribution panels, grid connecting arrangement, conduits, pipes, cable trays and other accessories etc. as required. (The Scope of Work includes Net metering and Local Electricity board charges)				
	a) High Energy Efficiency 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 23% at STC with temperature coefficient of Pmax better than -0.30% per 0C. 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. Solar Modules shall be designed to operate in relative humidity upto 100% with temperature between -10 0C and +85 0C. Further, each PV module used in any solar power project must have Radio frequency identification tag with information such as name of manufacturer, month and year of manufacturing, country of origin (separately for Solar cell and module), I-V curve, Unique Serial No and Model No of the module, Wattage, Im, Vm and FF, name of test lab issuing IEC certificate.				
	b) Hybrid Power Conditioning Unit (PCU) of 350-800 V DC Input voltage range and 415 V AC, three phase, 4 wire, 50Hz +/- 2.5 Hz, output voltage suitable to generate AC with a variation of 10% at nominal voltage. Power with efficiency not less than 97%, total harmonic distortion less than 3% and suitable for ambient temperature from 0 to 50 0C, Minimum IP-65 for outdoor and Minimum IP 21 for indoor, Built-in				

	meter and data logger, MPPT, switching devices IGBT/MOSFETs and controller Microprocessor /DSP.Cabling between Hybrid inverter / PCU & Battery bank including necessary protections and termination arrangement for cabling along with glands, lugs and other accessories etc. as required Hybrid PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown. The PCU shall be able to withstand unbalanced load conforming to IEC standard with shutdown/standby mode. It must be provided with grid islanding along with manual disconnect pole isolation switch besides automatic disconnection. Minimum protections: Mains Under / Over Voltage, Over current, Over / Under grid frequency, Over temperature, Surge voltage induced at output due to external source, Short-circuit, Lightning, Anti Islanding (for grid synch. Mode) , battery protections and other protections as per applicable standards. LCD/LED display of minimum parameters: DC input voltage, DC current, AC Voltage and current (all 3 phases, in case of 3 phase), Instantaneous & cumulative AC output power, Daily DC energy produced and other parameters applicable standard. Communication interface RS 485 / RS 232.				
	45 KWH battery bank suitable for Solar Power Plant, Battery shall be LiFePO₄ Lithium-ion Battery in ABS Container . The Scope of Work includes required battery racks, DC breaker of suitable rating and interconnecting copper conductor cable of suitable size and connectors and all required accessories etc as required				
	c) Module mounting structure: The roof top solar plant generation units shall be installed by using supporting Aluminium/Galvanized MS structure (mass of zinc coating shall be as per IS4759) . The mounting structure would be designed to sustain wind load and seismic parameter of the site of installation. All the structure shall be design as per applicable BIS code and the material shall also confirm the applicable BIS Code. Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. The suitable arrangements for maintenance and cleaning shall be provided.				
	d) Real time online web interfaced Data Monitoring System complete with accessories for various parameters such as Solar Irradiance, temperature, AC Output Voltage and current, Output Power, Power factor, DC Input Voltage and Current, Time Active, Time disabled, Time Idle, Power produced and other parameters as per standard practices				

e) 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. Each junction box shall be made of GRP/FRP/Powder Coated Aluminium /cast aluminium alloy with full dust, water & vermin proof arrangement with High quality Suitable capacity Metal Oxide Varistors(MOVs) (semiconductor diode with resistant applied voltage)/ surge arrestors and suitable Reverse Blocking Diodes, isolation switches isolate the DC input to Inverter, copper bus bar etc.				
f) Lightning, surge voltage protection, earthing protection and grid islanding.				
g) Cables: Connections & Interconnections by required size IR/UV protected XLPE insulated copper conductor 1.1 kV grade armored power and control cables (ISI Marked) along with supplying & fixing of necessary channel/conduit, GI cable trays, supports, lugs, thimble and other accessories etc. as required.				
Including Connections & Interconnections from Metering panel to MT sheds Hybrid inverter and from inverter to admin block (approximately 200 mtrs) by required size IR/UV protected XLPE insulated copper conductor 1.1 kV grade armored power and control cables(ISI Marked) along with supplying & fixing of necessary channel/conduit, GI cable trays, supports, lugs, thimble and other accessories etc. as required.				
h) DC Distribution Board And AC Distribution Panel Board: IP65, free standing, metal cladded, having copper bus bar, having required protection and control gears, connection-interconnection, etc. as required	30	KWp	140415	4212450.00
Grand Total Rs.				4212450.00

Rs. 42, 12, 450/- (Rupees Forty Two Lakh Twelve Thousand Four Hundred and Fifty Only)

Executive Engineer (E&M)

		<u>Central Public Works Department</u>			
SCHEDULE OF QUANTITIES					
N.I.T. No: 52/EE(E)-CHENNAI-I/2026-27/CPWD/CHN					
Name of work: SITC of grid connected Hybrid Rooftop solar PV system for Newly Constructed MT sheds at CGAE (PBR), Nayagaon, Port Blair.					
SCHEDULE OF QUANTITY					
Name of the Contractor					
Sl.No.	Name of component	Estimated cost (Rs)	Percentage above or below the estimated cost	% in Figures	Total Cost (Rs)
1	2	3	4	5	6
1	Electrical Works	42, 12, 450/-			42, 12, 450/-
	Grand Total	42, 12, 450/-			42, 12, 450/-

1. The Column Nos 4&5 are mandatory to be filled by the bidders/ tenderers. If all these columns are left blank, the tender become invalid.
2. The amount in figures in column No.6 shall appear automatically corresponding to the percentage quoted in column No.4 & 5.
3. The tenderer need to quote the percentage only above or below or at par with the estimated cost to cover all the rates of item covered under the respective packages.
4. The percentage shall be written in 2 (two) place of decimal.
5. If the percentage selection in column No 4 is " At Par", by default the percentage will be considered as "Zero" only. In other words if "At par" is selected in column No.4, then no need to fill column No.5
6. The rate for the payment of each item will be - measured quantity x estimated cost of that particular item x tender percentage corresponding package respectively.

Signature of Contractor

Executive Engineer, CED-I