



GOVERNMENTOFINDIA  
CENTRAL PUBLIC WORKS DEPARTMENT  
OFFICE OF THE EXECUTIVE ENGINEER(E)-HYDERABAD,  
CPWD,HYDERABAD-500 095

NOTICE INVITING "e-TENDER"

**NITNo. 196/EE(E)-Hyd/2021-22**

**Name of Work:** Providing 35 KWp Ongrid Solar Photo Voltaic Power Plant at IT Towers, AC Guards, Hyderabad.

Estimated Cost put to Tender: **Rs 23,86,815/-**

**INDEX**

Name of Work: Providing 35 KWp Ongrid Solar Photo Voltaic Power Plant at IT Towers, AC Guards, Hyderabad.

<b>S. No.</b>	<b>Contents</b>	<b>Page No.</b>
1.	Index	2
2.	NOTICE INVITING e-TENDERS	3
3.	Information and instruction for Contractor for tendering	4-7
4.	CPWD-6	8-12
5.	Percentage tender for works (Form CPWD-7) i/c Schedule A to F	13-22
6.	Integrity Pact	23-29
7.	Form of Earnest Money (Bank Guarantee)	30
8.	Earnest Money Deposit Declaration	31
9.	Form for Certificate of Networth from Chartered Accountant	32
10.	Form of Performance Security (Guarantee)	33-34
11.	General Terms and commercial conditions	35-44
12.	Special conditions	45
13.	Technical Specifications	46-59
14.	Schedule 'A'	60-62
15.	List of Approved makes	63-65
16.	COVID-19 guidelines	66-69
17.	Schedule of Work	70-72

Certified that this NIT comprises Pages1 to 72 only.

Executive Engineer (E)-Hyd  
CPWD, Hyderabad

## CENTRAL PUBLIC WORKS DEPARTMENT

## NOTICE INVITING e-TENDERS

The Executive Engineer (E)-Hyderabad, C.P.W.D., 2nd Floor, Nirman Bhavan, Sultan Bazar, Hyderabad-500 095 (Phone No. 040-24657854, email id: eehced1.cpwd@gov.in) on behalf of President of India invites online Percentage rate tenders in two bid system (Eligibility bid and Price bid) from the specialized firms/Agencies in the field of “**SITC of Solar Power Plant**” for the following work:

NIT No. **196/EE(E)-Hyd/2021-22**; Providing 35 KWp Ongrid Solar Photo Voltaic Power Plant at IT Towers, AC Guards, Hyderabad. ECPT:**Rs. 23,86,815/-**, Period of Completion: **60 Days**, Last date and time of submission of bid: upto 15:00 Hrs on **05/01/2022**, Date of opening of Eligibility bid: at 15:30 Hrs. on **05/01/2022**.

The Tender forms and other details can be obtained from the website [www.tenderwizard.com/CPWD](http://www.tenderwizard.com/CPWD) and [www.eprocure.gov.in](http://www.eprocure.gov.in).

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Executive Engineer (E)-Hyd  
CPWD, Hyderabad

**INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR e-TENDERING**

The Executive Engineer (E)-Hyderabad, C.P.W.D., 2nd Floor, Nirman Bhavan, Sultan Bazar, Hyderabad-500 095 (Phone No. 040-24657854, email id: [eeehced1.cpwd@gov.in](mailto:eeehced1.cpwd@gov.in)) on behalf of President of India invites online Percentage rate tenders in two bid system (Eligibility bid and Price bid) from the specialized firms/Agencies in the field of “**SITC of Solar Power Plant**” for the following work:

S. No.	Description	Details
1	NIT No.	<b>196/EE(E)-Hyd/2021-22</b>
2	Name of Work and Location	Providing 35 KWp Ongrid Solar Photo Voltaic Power Plant at IT Towers, AC Guards, Hyderabad.
3	Estimated cost put to tender	Rs. <b>23,86,815/-</b>
4	Earnest Money Deposit (EMD)	EMD submission exempted. Declaration to be submitted.
5	Period of completion	60 Days
6	Last date & time of submission of bid, EMD declaration, e-tender processing fee and other Documents	Upto 15:00 Hrs on <b>05/01/2022.</b>
7	Time & date of opening of Bid ( Eligibility Bid )	at 15:30 Hrs Hours on <b>05/01/2022.</b>

1. The firms/ contractors who fulfill the following requirements shall be eligible to participate in tender. Joint Ventures are not accepted.
  - (a) Firms who have successfully completed Similar Works as below during last 7 years ending previous day of last date of submission of bids:
 

**Three** similar works each costing not less than **Rs. 9.55 Lakhs**  
(or)  
**Two** similar works each costing not less than **Rs 14.32 Lakhs**  
(or)  
**One** similar work costing not less than **Rs. 19.09 Lakhs**

Similar work shall mean “**SITC of Roof top Solar Power Plant**”

**Note-1:** Components of work executed other than those included in definition of similar work shall be deducted while calculating cost of similar work. Bidder shall submit abstract of cost of work in support of this.

**Note-2:** For the purpose, “Cost of work” shall mean gross value of the completed work including the cost of materials supplied by the Government/Client, but excluding those supplied free of cost. This should be certified by an officer not below the rank of Executive Engineer / Project Manager or equivalent.

**Note-3:** The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated

from the date of completion to previous day of last date of submission of tenders.

- (b) Should have a Networth Certificate : Networth Certificate for **Rs. 3.58 Lakhs** issued by certified Chartered Accountants (Form "B-1" attached).
  - (c) Should have registration for GST (Scanned copy of GST Registration shall be uploaded)
  - (d) Self-attested copies of completion certificate(s) issued by the officer of the client department, not below the rank of Executive Engineer or equivalent. The completion certificate must clearly indicate:-
    - i. Name of Work
    - ii. Stipulated date of start and actual date of completion.
    - iii. Gross value of work done.
    - iv. That the work has been completed satisfactorily.
    - v. Full address of the client, officer issuing certificate and location where work is executed.
2. The intending bidder must read the terms and conditions of CPWD-6 carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.
  3. Information and Instructions for bidders posted on website shall form part of bid document.
  4. The bid document consisting of specifications and the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website [www.tenderwizard.com/CPWD](http://www.tenderwizard.com/CPWD) or [www.cpwd.gov.in](http://www.cpwd.gov.in) free of cost.
  5. Bidders are advised to keep visiting the above-mentioned web-sites from time to time (till the deadline for bid submission) for any updates in respect of the tender documents, if any. Failure to do so shall not absolve the applicant of his liabilities to submit the applications complete in all respect including updates thereof, if any. An incomplete application may be liable for rejection.
  6. ~~Earnest Money in the form of Treasury Challan or Demand Draft or Pay order or Bankers Cheque or Deposit at Call Receipt or Fixed Deposit Receipt drawn in favour of Executive Engineer (E), HCED-I, C.P.W.D., Hyderabad 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. This undertaking of EMD declaration shall also be uploaded to the e-tendering website by the intending bidder upto the specified bid submission date and time.~~

~~A part of earnest money is acceptable in the form of bank guarantee also. In such case, minimum 50% of earnest money or Rs. 20 lakh, whichever is less, shall have to be deposited in shape prescribed above, and balance may be deposited in shape of Bank Guarantee of any scheduled Bank having validity for six months or more from the last date of receipt of bids which is to be scanned and uploaded by the intending bidders.~~

7. Copy of Enlistment Order / Certificate of work experience / other documents as specified in the press notice shall be scanned and uploaded to the e-tendering website within the period of bid submission. However, certified copy of all the scanned and uploaded documents as specified in press notice shall have to be submitted by the lowest bidder only within a week physically in the office of tender opening authority.
8. Online bid documents submitted by intending bidders shall be opened whose EMD undertaking and other documents scanned and uploaded are found in order.
9. The bid can only be submitted after depositing e-tender Processing Fee as applicable in favour of ITI Limited through their e-gateway by credit/debit card, internet banking or RTGS/NEFT facility.

The contractor already registered on the e-tendering portal will have option to continue by paying tender processing fee upto one year from the date of registration, or to switchover to (new) registration without tender processing fee any time. All new registrations from 01.04.2015 will be without tender processing fee.

Those contractors not registered on the website mentioned above, are required to get registered beforehand. If needed they can be imparted training on online bidding process as per details available on the website

10. The intending bidder must have valid class-III digital signature to submit the bid.
11. On opening date, the contractor can login and see the bid opening process. After opening of bids, he will receive the competitor bid sheets
12. Contractor can upload documents in the form of JPG format and PDF format.
13. Contractor must ensure to quote the percentage above/below /at par. Therefore, if the cell percentage is left blank, the amount shall be computed as "0" (ZERO). Bidder has to take care of this point. The rates quoted by the tenderer, shall be firm and inclusive of all the prevailing taxes and GST etc.
14. The eligibility (Pre-qualification) 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 eligibility bid shall be communicated to them at a later date.
15. 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.
16. If any information furnished by the applicant is found incorrect at a later stage, he shall be liable to be debarred from tendering/taking up of works in CPWD. The department reserves the right to verify the particulars furnished by the applicant independently.
17. The prospective bidder shall use all information relating to the Tender which is obtained, whether in writing, pictorially form in connection with the Tender and other commercial information of a confidential nature exclusively for the purpose of Tender and not for any other purposes.

18. The bid submitted shall become invalid if;
- i. The bidder is found ineligible.
  - ii. The bidder does not upload EMD declaration.
  - iii. The bidder does not upload all the documents (including GST registration) as stipulated in the bid document including the undertaking of EMD.
  - iv. If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest tenderer in the office of tender opening authority

**List of Documents to be scanned and uploaded within the period of bid submission:**

- i. Bidder to upload Earnest Money Deposit Declaration (**To be given on Ten Rupees Non-Judicial Stamp paper duly notarized.**)
- ii. Certificates of Work Experience.
- iii. Networth Certificate (Form "B-1" attached).
- iv. 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 documents.

"If work is awarded to me, I/we shall obtain GST registration certificate of the State in which the work is to be taken up, within seven days 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 account of the work executed and / or for any action taken by CPWD or GST department in this regard.

Executive Engineer (E)-Hyd  
CPWD, Hyderabad

**CPWD 6 for e-Tender**

The Executive Engineer (E)-Hyderabad, C.P.W.D., 2nd Floor, Nirman Bhavan, Sultan Bazar, Hyderabad-500 095 (Phone No. 040-24657854, email id: eehced1.cpwd@gov.in) on behalf of President of India invites online Percentage rate tenders in two bid system (Eligibility bid and Price bid) from the specialized firms/Agencies in the field of **“SITC of Solar Power Plant”** for the following work: “Providing 35 KWp Ongrid Solar Photo Voltaic Power Plant at IT Towers, AC Guards, Hyderabad.”

1.1 The work is estimated to cost **Rs 23,86,815/-**. This estimate however is given merely as a rough guide.

1.1.1 The authority competent to approve NIT for the combined cost and belonging to the major discipline will consolidate NITs for calling the bids. He will also nominate Division which will deal all matters relating to the invitation of bids.

For composite bid, besides indicating the combined estimated cost put to bid, should clearly indicate the estimated cost of each component separately. The eligibility of bidders will correspond to the combined estimated cost of different components put to bid.

Intending bidder is eligible to submit the bid provided he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority of having satisfactorily completed similar works of magnitude specified below:-

1.2.1 Firms / Contractors who fulfill the following requirements shall be eligible to apply. Joint ventures are not accepted.

(a) The Firms / Contractors should have satisfactorily completed the works as mentioned below during the last Seven Year sending previous day of last date of submission of bids.

**Three** similar works each costing not less than **Rs. 9.55 Lakhs**

(or)

**Two** similar works each costing not less than **Rs 14.32 Lakhs**

(or)

**One** similar work costing not less than **Rs. 19.09 Lakhs**

Similar work shall mean **“SITC of Roof top Solar Power Plant”**

**Note-1:** Components of work executed other than those included in definition of similar work shall be deducted while calculating cost of similar work. Bidder shall submit abstract of cost of work in support of this.

**Note-2:** For the purpose, “Cost of work” shall mean gross value of the completed work including the cost of materials supplied by the Government/Client, but excluding those supplied free of cost. This should be certified by an officer not below the rank of Executive Engineer / Project Manager or equivalent.

**Note-3:** The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated from the date of completion to previous day of last date of submission of tenders.



- (b) Should have a Networth Certificate : Networth Certificate for **Rs. 3.58 Lakhs** issued by certified Chartered Accountants (Form “B-1” attached)
- (c) Should have registration for GST (Scanned copy of GST Registration shall be uploaded).
- (d) The specialized firm shall enclose attested copies of
- (e) completion certificate issued by the officer of client department not below the rank of Executive Engineer or equivalent along with the application. The completion certificate shall clearly indicate:
1. Name of Work
  2. Value of completed work
  3. Date of completion of work
  4. Performance of work
  5. Penalty, if any, levied for delay in completion of work or any other reason
2. The time allowed for carrying out the work will be **60 Days** from the date of start as defined in schedule “F” or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.
4. The site for the work is available.
5. The bid document consisting of ~~plans~~, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents, except Standard General Conditions Of Contract Form, can be seen from website [www.tenderwizard.com/CPWD](http://www.tenderwizard.com/CPWD), <http://eprocure.gov.in> or [www.cpwd.gov.in](http://www.cpwd.gov.in) free of cost.
6. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of bid as notified.
7. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of bid as notified.
8. The bid can only be submitted **after depositing e-tender Processing Fee as applicable in favour of ITI Limited through their e-gateway by credit/debit card, internet banking or RTGS/NEFT facility.**

The contractor already registered on the e-tendering portal will have option to continue by paying tender processing fee upto one year from the date of registration, or to switch over to (new) registration without tender processing fee any time. All new registrations from 01.04.2015 will be without tender processing fee.

9. This Undertaking of EMD declaration shall also be uploaded to the e-tendering website by the intending bidder up to the specified bid submission date and time.

~~Apart of earnest money is acceptable in the form of bank guarantee also. In such case, minimum 50% of earnest money or Rs.20lac, whichever is less, shall have to be deposited in shape prescribed above, and balance may be deposited in shape of Bank Guarantee of any scheduled Bank having validity for six months or more from the last date of receipt of bids which is to be scanned and uploaded by the intending bidders.~~

Copy of Enlistment Order / Certificate of work experience / other documents as specified in the press notice shall be scanned and uploaded to the e-tendering website within the period of bid submission. However, certified copy of all the scanned and uploaded documents as specified in press notice shall have to be submitted by the lowest bidder only within a week physically in the office of tender opening authority.

Online bid documents submitted by intending bidders shall be opened whose EMD undertaking and other documents scanned and uploaded are found in order.

The bid submitted shall be opened at 15:30 Hrs on **05/01/2022**.

10. The bid submitted shall become invalid if;
- i) The bidder is found ineligible.
  - ii) The bidder does not uploaded EMD declaration.
  - iii) The bidder does not upload all the documents (including GST registration) as stipulated in the bid document including the undertaking of EMD.
  - iv) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest tenderer in the office of tender opening authority.
11. The Contractor, whose bid is accepted, will be required to furnish performance guarantee of 3% (Three Percent) of the bid amount within the period specified in Schedule 'F'. This guarantee shall be in the form of cash (in case guarantee amount is less than Rs.10000/-) or Deposit at Call receipt of any scheduled bank/ Banker's Cheque of any scheduled bank/ Demand Draft of any scheduled bank/ Pay order of any Scheduled Bank of any scheduled bank (incase guarantee amount is less than Rs.1,00,000/-) or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F' including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The earnest money deposited along with bid shall be returned after receiving the aforesaid performance guarantee.
- The contractor whose bid is accepted will also be required to furnish either copy of applicable license/ registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board and Programme Chart (Time and Progress) within the period specified in Schedule F.

## 12. The description of the work is as follows:

“Providing 35 KWp Ongrid Solar Photo Voltaic Power Plant at IT Towers, AC Guards, Hyderabad”

Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A 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.

13. The competent authority on behalf of the President of India does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidders shall be summarily rejected.
14. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable to be rejected.
15. The competent authority on behalf of President of India reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.
16. The contractor shall not be permitted to bid for works in the CPWD Circle (Division in case of contractors of Horticulture /Nursery category) responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazetted officer in the Central Public Works Department or in the Ministry of Urban Development. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.
17. No Engineer of Gazetted rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the prior permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the

permission of the Government of India as aforesaid before submission of the bid or engagement in the contractor's service.

18. The bid for the works shall remain open for acceptance for a period of **75 Days (Seventy Five Days)** from the date of opening of Eligibility/Technical bid.  
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 the validity period of tender or
  - ii) If after the award of work, the tendered fails to sign the contract or to submit performance guarantee before the deadline defined in the tender document.
  - iii) The tendered shall be suspended for one year and shall not be eligible to bid for CPWD tenders from date of issue of suspension order.
19. This notice inviting bid shall form a part of the contract document. The successful bidder/contractors, 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.

Executive Engineer (E)-Hyd,  
CPWD, Hyderabad

**GOVERNMENT OF INDIA**  
**CENTRAL PUBLIC WORKS DEPARTMENT**

STATE: Telangana.  
BRANCH: E & M

ZONE : Hyd Region  
DIVISION : EE(E)-HYD

**Percentage Rate Tender & Contract for Works**

(A) Tender for the work of :-

Name of Work:- Providing 35 KWp Ongrid Solar Photo Voltaic Power Plant at IT Towers, AC Guards, Hyderabad.

To be submitted online upto 15:00 Hrs on **05/01/2022**.

To be opened in presence of tenderers who may be present at 15:30 Hrs on **05/01/2022** in the office of the Executive Engineer (E)-Hyderabad, CPWD, Hyderabad.

Issued to ..... Tender document made available Online

Signature of the Officer issuing the documents.

Designation: Executive Engineer (E)-Hyderabad, CPWD, Hyderabad

Date of issue. **29/12/2021**. As per INFORMATION AND INSTRUCTIONS FOR BIDDERS

**T E N D E R**

I/We have read and examined the notice inviting tender, schedule, A, B, C, D, E & F. Specifications applicable. Drawings & Designs, General Rules and Directions, Conditions of Contract, clause 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 documents 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 Conditions of contract and with such materials as are provided for, by, and in respects in accordance with, such conditions so far as applicable.

I/We agree to keep the bid open for **75 Days** from the date of opening of bid and not to make any modifications in its terms and conditions.

A sum of ~~Rs.0~~ is here by forwarded in Receipt Treasury Challan/Deposit at call Receipt of a Scheduled Bank/fixed deposit receipt of schedule bank/demand draft of a Scheduled bank / Bank Guarantee issued by a schedule bank, as earnest money. If I/we, fail to furnish the prescribed performance guarantee within prescribed period. I/we agree that the said President of India or his successors in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/we fail to commence work as specified, I/we agree that President of India or his successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely, otherwise the said earnest money shall be retained by him towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered, up to maximum of the percentage mentioned in schedule "F" and those in excess of that limit at the rates to be determined in accordance with the provision contained in clause 12.2 and 12.3 of the tender form. Further I/we agree that in case of forfeiture of ~~Earnest money or both earnest money & 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 of the State.

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

Dated .....

Signature of Contractor

Postal Address #

Witness : #

Address: #

Occupation : #

**ACCEPTANCE**

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

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

- i) \*
- ii) \*
- iii)\*

For & on behalf of the President of India.

Signature .....

Dated \*.....

Designation .....

## SCHEDULES FOR WORKS

**SCHEDULE "A"** Schedule of quantities (Enclosed)

**SCHEDULE "B"** Schedule of materials to be issued to the contractor.

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S.No.	Description of item	Quantity	Rates in figures & words at which the	Place of
				material will be charged to the contractor
				Issue

---

1	2	3	4	5
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-----NIL-----

**SCHEDULE "C"**

Tools and plants to be hired to the contractor

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Sl. No.	Description	Hire charges per day	Place of issue
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1	2	3	4
---	---	---	---

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-----NIL-----

**SCHEDULE "D"**

General conditions and requirements /documents for the work, if any, specification of work, if any etc.

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As attached.

**SCHEDULE „E"**

1. Reference to General Conditions of contract. General Conditions of Contract-2020 Construction Work for CPWD amended up to the last date of submission of online tender.

Name of work:- Providing 35 KWp Ongrid Solar Photo Voltaic Power Plant at IT Towers, AC Guards, Hyderabad.

- |                             |                                 |
|-----------------------------|---------------------------------|
| (b) Estimated cost of work: | <b>Rs. 23,86,815/-</b>          |
| (c) Earnest money:          | <b>Rs. 0</b>                    |
| (d) Performance guarantee:  | <b>3%</b> of tendered amount.   |
| (e) Security Deposit:       | <b>2.5%</b> of tendered amount. |



**SCHEDULE „F“**

General Rules & Directions: General Conditions of Contract-2020 Construction Work for CPWD with up to date amendments (As on Date of opening of price bid) shall be read with NIT.

Officer inviting tender **Executive Engineer(E)-Hyd/CPWD/ Hyderabad.**

Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3. **100%**

**Definitions:**

2(v) Engineer-in-Charge	<b>Executive Engineer (E)-Hyd CPWD, Hyderabad.</b>
2(viii) Accepting Authority	<b>Executive Engineer (E)-Hyd CPWD, Hyderabad.</b>
2(x) Percentage on cost of materials and labour to cover all overheads and profits.	<b>15%</b>
2(xi) Standard schedule of Rates:	<b>DSR</b>
2(xii) Department:	<b>Central Public Works Department</b>
9(ii) Standard CPWD contract form:	<b>CPWD form 7/8 as modified and corrected up to last date of receipt of bid</b>

**Amendments up to last date of submission of online tender shall be read with NIT**

**Clause1**

- |  |               |
|--|---------------|
| (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 including provident fund code No if applicable or Proof of applying thereof from the date of issue of letter of acceptance. | <b>7 Days</b> |
| (ii) Maximum allowable extension with late fee @ 0.1% per day of Performance Guarantee amount beyond the period provided in (i) above  | <b>3 Days</b> |

**Clause 2**

Authority for fixing compensation under clause 2	<b>Chief Engineer-Hyderabad, CPWD, Hyderabad.</b>
--	---

Whether Clause 2A shall be applicable. **No**

**Clause 5**

Number of days from the date of issue  
of letter of acceptance for reckoning date of start.

**7 Days****Table of Milestones:**

<b>S. N O.</b>	<b>Description of Milestone (Physical)</b>	<b>Time allowed in days (from the date of start)</b>	<b>Amount to be with held in case of non-achievement of milestone. ( % of tendered amount of respective Electrical component )</b>
<b>1</b>	<b>Submission of Layout drawings and Technical Data Sheets including obtaining technical feasibility from Electricity department.</b>	<b>07 days</b>	<b>2%</b>
<b>2</b>	<b>Supply of all Equipment including solar modules, cablesetc</b>	<b>30 days</b>	<b>2%</b>
<b>3</b>	<b>Installation, testing, Commissioning&amp; Handing over with Net metering arrangement</b>	<b>60 Days</b>	<b>1%</b>

Time allowed for execution of work

**60 Days**

Authority to reschedule Milestones

**Executive Engineer (E)-Hyd  
CPWD, Hyderabad**

Authority to give fair and reasonable extension of  
time for completion of work .

**Executive Engineer (E)-Hyd  
CPWD, Hyderabad**

**Clause 7**

Gross work to be done together with net payment/  
adjustment of advances for material collected, if any,

-NA-

since the last such payment for being eligible to  
interim payment

-----NIL-----

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

**Clause 10CA** - Whether clause 10CA shall be applicable Not Applicable

**Clause 10CC** - Whether clause 10CC shall be applicable **No**

<b>Materials covered under this clause</b>	<b>Nearest Materials (other than cement, reinforcement bars and structural steel) for which All India Wholesale Price Index to be Followed</b>	<b>Base Price of all the materials covered under clause 10CA*</b>
<b>-----Not applicable-----</b>		

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

Schedule of component of other Materials, Labour, POL etc. for price escalation.

Component of Civil - Xm.....% 70%  
**(Except material covered under clause 10CA)**  
 Electrical construction materials expressed as percent of total value of work

Component of Labour expressed as percent of total value of work Y.....% 30%

Component of POL expressed as percent of total value of work Z.....% NIL

Specifications to be followed:

C.P.W.D. General Specification as amended upto date, Additional Conditions, General Conditions of Contract and Technical Specifications

Clause 12

Type of work:-

**Construction**

12.2 & 12.3 Deviation limit beyond which clause 12.2 & 12.3 shall apply for electrical work & cabling. **100%**

12.5 Deviation limit beyond which clause 12.2 & 12.3 shall apply for foundation work. **Not Applicable**

### Clause 16

Competent Authority for deciding reduced rates. **Chief Engineer-Hyderabad  
CPWD, Hyderabad.**

### Clause 18

List of mandatory machinery, tools & plants to be deployed by the contractor at site:  
**As required for timely execution of work.**

**Clause-25 : Constitution of Dispute Redress Committee (DRC) As per clause 25 GCC 2014.**

**CHIEF ENGINEER-HYDERABAD, CPWD, HYDERABAD.**

a) FOR TOTAL CLAIMS UPTO 25 LAKHS

<b>Dispute Redressal Committee</b>			
<b>Chairman</b>	<b>Member</b>	<b>Member</b>	<b>Presenting Officer</b>
Superintending Engineer (Works cum TLQA), O/o ADG-RH	Executive Engineer(C), Office of CE-Hyderabad, CPWD	Executive Engineer(E), Warangal	Executive Engineer in charge of the work

b) FOR TOTAL CLAIMS MORE THAN 25 LAKHS

<b>Dispute Redressal Committee</b>			
<b>Chairman</b>	<b>Member</b>	<b>Member</b>	<b>Presenting Officer</b>
Chief Engineer-Vijayawada, CPWD	Superintending Engineer (Works cum TLQA), O/o ADG-RH	Superintending Engineer, Warangal	Executive Engineer in charge of the work

**Clause 32:****Requirement of Technical Representative(s) and Recovery Rate**

Sl.No.	Minimum Qualification of Technical Representative	Discipline	Designation (Principal Technical / Technical Representative)	Minimum Experience	Number	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 32	
						Figures	Words
1)	<b>Graduate Engineer</b>  <b>OR</b>  <b>Diploma Engineer</b>	<b>E&amp;M</b>	<b>Principal Technical Representative</b>	<b>2 years</b>  <b>5 years</b>	<b>01(one)</b>	<b>15000/-</b>	<b>Fifteen thousand only</b>

**NOTE:.**

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

Diploma Holder with minimum 10 years relevant experience with a reputed construction company 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.

**Clause 42**

- (i) Schedule/Statement for determining theoretical: Not Applicable quantity of cement and bitumen on the basis of Delhi schedule of Rate 2007 printed by C.P.W.D.
- (ii) Variations permissible on theoretical quantities
- a) Cement for works with estimated cost put to bid not more than Rs.5Lakh. : Not Applicable
- b) Bitumen for all works : Not Applicable
- c) Steel Reinforcement and structural steel sections for each diameter, section and Category : Not Applicable
- d) All other material : Not Applicable

RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION

Sl. No.	Description of item	Rates in figures and words at which recovery shall be made from the Contractor	
		Excess beyond Permissible Variation	Less use beyond the Permissible Variation
.....Not Applicable.....			

**INTEGRITY PACT**

To,

.....,  
.....,  
.....

**Sub: NIT No. 196/EE(E)-Hyd/2021-22**

Name of Work: Providing 35 KWp Ongrid Solar Photo Voltaic Power Plant at IT Towers, AC Guards, Hyderabad.

Dear Sir,

It is hereby declared that CPWD is committed to follow the principle of transparency, equity and competitiveness in public procurement.

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

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

Yours faithfully

Executive Engineer (E)-Hyd,  
CPWD, Hyderabad

**INTEGRITY PACT**

To,

Executive Engineer (E)-Hyderabad,  
CPWD, Hyderabad-500 095

Sub: Submission of Tender for the Work: Providing 35 KWp Ongrid Solar Photo Voltaic Power Plant at IT Towers, AC Guards, Hyderabad.

Dear Sir,

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

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

I/We confirm acceptance and compliance with the Integrity Agreement in letter and spirit and further agree that execution of the said Integrity Agreement shall be separate and distinct from the main contract, which will come into existence when tender/ bid is finally accepted by CPWD. I/We acknowledge and accept the duration of the Integrity Agreement, which shall be in the line with Article1of the enclosed Integrity Agreement.

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

Yours faithfully

(Duly authorized signatory of the Bidder)



## INTEGRITY AGREEMENT

This Integrity Agreement is made at.....on this.....day of...2021

BETWEEN

President of India represented through **Executive Engineer (E)-Hyderabad**, (Name of Division) CPWD, Hyderabad-500095..... (Hereinafter referred as the (Address of Division)

“Principal/Owner”, which expression shall unless repugnant to the meaning or context thereof include its success or sand permitted assigns)

AND

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

through.....(Hereinafter referred to as the (Details of duly authorized signatory) “Bidder/Contractor” and which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

Preamble

WHEREAS the Principal/ Owner has floated the Tender (NIT No..../EE(E)-Hyd/2021-22 (hereinafter referred to as“Tender/ Bid”)and intends to award, under laiddown organizational procedure, contract for

(Name of work)

(Providing 35 KWp Ongrid Solar Photo Voltaic Power Plant at IT Towers, AC Guards, Hyderabad)

Hereinafter referred to as the “Contract”.

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

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

NOW, Therefore, in consideration of mutual covenants contained in this Pact, the parties here by agree as follows and this Pact witnesses as under:

## Article1: Commitment of the Principal/Owner

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

## Article2: Commitment of the Bidder(s)/ Contractor(s)

- 1) It is required that each Bidder/ Contractor (including their respective officers, employees and agents) adhere to the high esthetical standards, and report to the Government/ Department all suspected acts of fraud or corruption or Coercion or Collusion of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.
- 2) The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:
  - a) The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/ Owner"s employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.
  - b) The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitive or to cartelize in the bidding process. Competitiveness or to cartelize in the bidding process.

- c) The Bidder(s)/ Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(s)/ Contractor(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Principal/ Owner as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- d) The Bidder(s)/ Contractor(s) of foreign origin shall disclose the names and addresses of agents/ representatives in India, if any. Similarly Bidder(s)/ Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/ representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/ parallel tender for the same item.
- e) The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.
- 3) The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 4) The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice means a willful misrepresentation or omission of facts or submission of fake/ forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/ or to influence the procurement process to the detriment of the Government interests.
- 5) The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may be fall upon a person,his/ her reputation or property to influence their participation in the tendering process).

### Article 3: Consequences of Breach

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

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

- 2) Forfeiture of EMD/ Performance Guarantee/ Security Deposit: If the Principal/ Owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contractor terminated/ determined the Contractor has accrued the right to terminate/ determine the Contract according to Article3(1), the Principal/ Owner apart from exercising any legal rights that may have accrued to the Principal / Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Guarantee and Security Deposit of the Bidder/ Contractor.
- 3) Criminal Liability: If the Principal/Owner obtains knowledge of conduct of a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of IPC Act, or if the Principal/Owner has substantive suspicion in this regard, the Principal/Owner will inform the same to law enforcing agencies for further investigation.

#### Article 4: Previous Transgression

- 1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.
- 2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Principal/ Owner.
- 3) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/Owner may, at its own discretion, revoke the exclusion prematurely.

#### Article 5: Equal Treatment of all Bidders/Contractors/Subcontractors

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

#### Article 6-Duration of the Pact

This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 60 Days after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded

If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged/determined by the Competent Authority, CPWD.

## Article 7-Other Provisions

- 1) This Pact is subject to Indian Law, place of performance and Jurisdiction is the Headquarters of the Division of the Principal/Owner, who has floated the Tender.
- 2) Changes and supplements need to be made in writing. Side agreements have not been made.
- 3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by board resolution.
- 4) Should one or several provisions of this Pact turnout to be in valid;the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intensions.
- 5) It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement / Pact, any action taken by the Owner/Principal in accordance with this Integrity Agreement/ Pact or interpretation thereof shall not be subject to arbitration.

## Article 8-LEGAL AND PRIOR RIGHTS

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

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

(For and on behalf of Principal/ Owner)

Executive Engineer (E)-Hyd,  
CPWD, Hyderabad

(For and on behalf of Bidder/ Contractor)

WITNESSES:

1.

(signature, name and address)

2.

(signature, name and address)

Place:

Dated:

## FORM OF EARNEST MONEY (BANK GUARANTEE)

WHEREAS, contractor.....(Name of contractor) (Hereinafter called "the Contractor") has submitted his tender dated.....(Date) for the work".....(Name of Work) (Hereinafter called "the Tender").

KNOW ALL PEOPLE by these presents that we.....(Name of bank) having our registered office at.....(Hereinafter called "the Bank") are bound to

.....(Name and division of Executive Engineer) (Hereinafter called "the Engineer-in-charge") for the sum of Rs. ....(Rs. in words).....) only for which payment, well and truly, to be made to the said Engineer-in-Charge, the Bank binds itself, his successors and assigns by these presents.

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

of.....20....THE CONDITIONS of this obligation are:

- (1) If after tender opening the Contractor withdraws, his tender during the period of validity of tender (including extended validity of tender) specified in the Form of Tender;
- (2) If the contractor having been notified of the acceptance of his tender by the Engineer-in-Charge:
  - (a) Fails or refuses to execute the Form of Agreement in accordance with the Instructions to contractor, if required;
  - OR
  - (b) Fails or refuses to furnish the Performance Guarantee, in accordance with the provisions of tender document and Instructions to contractor,

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

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

DATE.....

SIGNATURE OF THE BANK

WITNESS.....

SEAL

(SIGNATURE, NAME AND ADDRESS)

\*Date to be worked out on the basis of validity period of 7 months from last date of receipt of tender.

**Proforma for Earnest Money Deposit Declaration  
(To be given on Ten Rupees Non-Judicial Stamp paper duly notarized)**

Whereas, I/we ..... (name of agency) ----- have submitted bids for ----- (name of work).....

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

- (1) If after the opening of **bid**, I/we withdraw or modify my/our bid during the period of validity of tender (including extended validity of tender) specified in the tender documents,
- or
- (2) If, after **acceptance of the bid**, I/we fail to submit performance guarantee before the deadline **as** defined in the **NIT/bid document**,

I/we shall be suspended **from bidding, making me/us** ineligible to bid for CPWD tenders **all over India for a period of one year** from the date of issue of the order **stating so and issued under the authority of Executive Engineer of this work.**

Signature of the contractor(s)  
Name of Agency with complete address & email ID

**Note: Executive Engineer shall initiate issue of show cause notice to the contractor who has violated Earnest Money Deposit Declaration within 15 days of violation by the contractor and his decision (to be taken within 45 Days of violation by the contractor) thereof shall be final and binding on the contractor**

**FORM "B-1"****FORM FOR CERTIFICATE OF NETWORTH FROM CHARTERED ACCOUNTANT**

"Its is 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 Net Worth of the company has not eroded by more than 30% in the last three years ending on (the relevant date)."

Signature of Chartered Accountant

.....

Name of Chartered Accountant

.....

Membership No. of ICAI

Date and Seal



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

In consideration of the President of India (hereinafter called "the Government") having offered to accept the terms and conditions of the proposed agreement between.....and..... (Herein after called "the said contractor(s)" for the work..... (Herein after called "the said agreement") having agreed to production of an irrevocable Bank Guarantee for Rs.....Rupees.....only) as a security/ guarantee from the contractor(s) for compliance of his obligations in accordance with the terms and conditions in the said agreement.

1. We.....(*Indicate the name of Bank*).....(Hereinafter referred to as "Bank") hereby undertake to pay to the Government an amount not exceeding Rs.....(Rupees.....)only, on demand by the Government.
2. We.....(indicate the name of Bank) do hereby undertake to pay the amounts due and payable under this Guarantee without any demure, merely on a demand from the Government stating that the amount claimed is required to meet the recoveries due or likely to be due from the said contractor(s). Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.....(Rs.....)only.
3. We, the said bank, further undertake to pay the Government any money so demand not withstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment.
4. We..... (indicate the name of the Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the Government under or by virtue of the said Agreement have been fully paid and its claim satisfied or discharged or till Engineer-in-Charge on behalf of the Government certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said contractor(s) accordingly discharges this guarantee.
5. We.....(indicate the name of Bank) further agree with the Government that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and

conditions of the said Agreement or to extend time of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractor(s) and to forebear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said contractor(s) or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us

6. This guarantee will not be discharged due to the change in the constitution of the Bank or the contractor(s).
7. We..... (Indicate the name of bank) lastly undertake not to revoke this guarantee except with the previous consent of the Government in writing.
8. This guarantee shall be valid upto.....unless extended on demand by Government. Notwithstanding anything mentioned above, our liability against this Guarantee is restricted to Rs.....(Rupees.....)only and unless a claim in writing is lodged with us within six months of the date of expiry or the extended date of expiry of this guarantee, all our liabilities under this guarantee, shall stand discharged.

Dated, the.....Day of.....For.....(Indicate the name of the Bank)

Note:-Performance guarantee shall be valid upto three months after the time period allowed for the work.

## GENERAL, COMMERCIAL AND ADDITIONAL CONDITIONS

### General

- 1.1 This specification covers manufacture, testing as may be necessary before dispatch, delivery at site, all preparatory work, assembly and installation, commissioning putting into operation of E & M installations.
- 1.2 **Location:** Work shall be carried out at **IT Tower, AC Guard, Hyderabad**
- The work shall be executed as per CPWD General Specifications for Electrical Works Part-I (internal) 2013, Part-II (external)1994, and Part-IV(sub-station)2013 as amended upto date, relevant I.E. Rules, BIS/IES and as per directions of Engineer- in-charge. These additional specifications/conditions are to be read in conjunction with above and in case of variations; specifications given in these additional conditions shall apply. However, nothing extra shall be paid on account of these additional specifications and conditions, as the same are to be read 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 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 bidsystem.

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 rejectedforthwith.

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 anyreason.

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.

3.0 Scrutiny/ evaluation of the Tenders (Price Bid) shall be done by the department. In case it is found that the Tenders (Price Bid) of a tenderer is not in line with NIT specifications/requirements, the department reserves the right to reject the price bid of such firm(s) Terms ofpayment

3.1 Payment shall be made on the basis of running account bill as per progress of execution of work. **Stages of payment shall be as per followingon prorate 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 ofwork-10%
- iv) After handing over along with Net Metering arrangement -5%

### 4.0 SecurityDeposit

- (i) The security deposit shall be collected by deductions from the running bills of the contractor at the rate mentionedbelow.

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

## **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 of 3% (Three Percent) of the bid amount within the period specified in Schedule F. This guarantee shall be in the form of cash (in case guarantee amount is less than Rs. 10000/-) or Deposit at Call receipt of any scheduled bank/Banker's cheque of any scheduled bank/Demand Draft of any scheduled bank/Pay order of any Scheduled Bank of any scheduled bank (in case guarantee amount is less than Rs. 1,00,000/-) or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F'. including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The earnest money deposited along with bid shall be returned after receiving the aforesaid performance guarantee.

## **5.3 Refund of Performance Guarantee:**

- (i) 1% of the Performance Guarantee shall be refunded after successful completion of each year of DLP for a period of 5 years.

5.4 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**

AE(E)(P) / EE(E)-HYD

- 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, over head charges, general liabilities/obligations and clearance from Local Bodies. However, the fee for the Local Body inspections shall be borne by the department.
- 6.2 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.
- 6.3 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.
- 6.4 The department will not issue Octroi exemption certificate.
- 6.5 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) from the date of handingover.
- 7.0 **Completeness of Tender**  
All sundry equipment, fittings, unit assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections and all other items which are useful and necessary for efficient assembly and installation of the system shall be deemed to have been included in the tender irrespective of such items are specifically mentioned in the tender documents or not.

## 8.0 Storage and Custody of Materials

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

## 9.0 Care of the Building

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

## 10.0 Completion Period

- 10.1 The completion period of **60 Days** indicated in the tender documents is for the entire work of planning, designing, approval of drawings etc i/c arrangement of materials & equipments, delivery at site including transportation, installation, testing, commissioning and handing over the entire system to the satisfaction of the Engineer-in-charge.
- 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, from the date of taking over the installation by the department, against unsatisfactory performance and /or break down due to defective design, workmanship or material. The contractor shall stand performance guarantee of solar PV system supplied and installed by them for a period of 60 months from the date of the handing over of the installation. Hence, the performance guarantee deposited at the time of award of work will be released on pro-rata basis ( 1 % after completion of each year ) after successful completion of performance guarantee period of **60 months**. The equipment or components, or any part thereof, so found defective during guarantee period shall be forthwith repaired or replaced free of cost, to the satisfaction of the Engineer-in-charge. In case it is felt by the department that undue delay is being caused by the contractor in

doing this, the same will be got done by the department at the risk and cost of the contractor. If the performance of Solar PV system found unsatisfactory during the guarantee period or contractor repeatedly fails to replace/repair the defective solar PV system within 15 days time after written complaint in this regard, the amount of performance guarantee shall be forfeited absolutely. The decision of the Engineer-in-charge in this regard shall be final & binding on the contractor.

- 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 PowerSupply**

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 intricate.

## **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, rodent 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 Distribution Company (DISCOM) for grid connectivity, complete design, engineering, manufacture, supply, storage, civil work, erection, testing and commissioning of the grid connected rooftop Solar PV project
- 26.0 The support mounting structure / elevated structure & foundation of solar PV modules shall be so designed to withstand 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 . He shall also arrange the visit of structural Engineer to ascertain that existing R.C.C slab is strong enough to take this additional load of mounting structure along with solar PV modules. All co-ordination and necessary fees for approval of drawings shall be paid by the Firm.Nothing extra shall be paid on this account.

**SPECIAL CONDITIONS**

1. The Contractor shall guarantee minimum generation of 1400KWh per annum per KWp of commissioned generation capacity of Solar Power Plant. This shall be subject to the annual de-generation acceptable as per norms / Schedule of work failing which the recovery at Rs 15/- per kWh of less generation shall be effected from the bills payable / Performance Guarantee / Security Deposit of the agency.
2. The trial run of electrical work / equipments shall be carried out by the firm in presence of Engineer-in-charge or his representative at the site as per requirement of department.
3. The Power Purchase Agreement shall be taken up by Client / Engineer-in-charge or his representative (As per case may be) separately with DISCOM. The Contractor shall liaison with the DISCOM for the approval and finalization of the PPA. The necessary documentation shall be done by the contractor.
4. The application for Net Metering / bidirectional meters shall be furnished by the client / department and necessary fees also shall also be paid by the Department. The Contractor shall liaison with the DISCOM for the necessary documentation and obtaining the Net metering arrangement. The agency has to liaison for obtaining the HT Net metering for **Income Tax Tower, AC Guard, Hyderabad**
5. **All equipments and materials to be used in work shall be manufactured in factories of good repute having excellent track record of quality manufacturing, performance and proper after sales service. The Department reserves right to inspect Solar PV Panels at factory/Manufacturers premises during the course of manufacturing at any stage and the department shall be provided with the proof of using the approved make of PV Cells in the manufacturing of solar PV Modules. The Contractor shall intimate the schedule of manufacturing of modules at factory prior to taking up in the production.**

## **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	Income Tax Tower, AC Guard, Hyderabad	35 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 SLPO copper cable to the inverter through the junction boxes. From the inverter, 4 x 16 sq.mm copper cable shall be connected to the AC DB / Panel as approved by the Engineer-in-charge. From the AC DB / Panel, suitable size LT cabling shall be provided upto the sub-station building at no extra cost.

5. The Agency shall liaison and obtain HT Net metering and LT Net Metering at NIPHM Campus, from the Electricity department. Required statutory charge will be paid by the department.
6. The agency shall provide 2 Nos. GI plate earthing for each building and to be connected to the Solar PV Panel, duly laid as per the CPWD Specifications and drawings shall be got approved from the department.
7. The agency shall provide required No. of GI plate earthing for each building for lightning protection with required number of G.I. finials, duly laid as per the CPWD Specifications and drawings shall be got approved from the department.

**TECHNICAL SPECIFICATIONS: -****1. AMBIENT CONDITION & SOLARINSOLATION****LOCATION / SITE DETAILS FOR THE SPV POWER PROJECT**

- Address of site : Income Tax Tower, AC Guard, **Hyderabad**
- Location : Telangana
- Ambient temperature : 45<sup>0</sup>C max., 12<sup>0</sup>C min,

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

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

**2. EQUIPMENTSPECIFICATION****2.1 Solar PV Module (Electrical Features)**

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

- |                          |                            |   |        |
|--------------------------|----------------------------|---|--------|
| <input type="checkbox"/> | Efficiency of cell, Ef,c   | - | >18%   |
| <input type="checkbox"/> | Efficiency of module, Ef,m | - | >16.5% |

SPV module conversion efficiency should be equal to or greater than 18.0% (cell) under STC of 1000w/m<sup>2</sup> and cell operating temp of 250 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 SI. 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, Pmax
- Minimum Power, Pmin

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

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

## 2.2 Solar PV Module (Mechanical Features)

Solar PV Module design shall conform to following Mechanical requirement

- Toughened, antireflective, low iron content, high transmissivity frontglass.
- 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.
- Bypass 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

Suitable number of PV panel structures shall be provided. Structures shall be of flat-plate design either I or L sections or pipe sections. The Solar PV modules shall be erected on a suitable elevated module mounting structures with the heights of module mounting structure shall not be less than 2 m at the front end and 2.8 m at the back end.

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. 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. The minimum thickness of galvanization shall be at least 70 microns. All nuts & bolts shall be made of good quality steel.

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

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

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

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

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

The agency shall provide an elevated structure, wherever required as per site conditions, with G.I. pipe/Angle iron/ Channels as per the drawing duly approved by

the department. The agency shall also obtain the certification from the structural Engineer for withstanding a wind speed of 150 KMPH.

## 2.4 Junction Boxes

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

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

## 2.5 Power Conditioning Unit(PCU):

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

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

Power conditioning unit will comply the following requirements.

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

## **2.6 MODES OF PCU**

### **2.6.1 STANDBY MODE:**

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

### **2.6.2 BASIC SYSTEM OPERATION (FULL AUTOMODE):**

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

### **2.6.3 SLEEP MODE:**

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

### **2.6.4 INVERTER**

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

The typical specification of PCU is listed below:

a.	AC side	As per Tender design
I	Nominal AC Power	35 kWp
ii	Output AC Voltage (as per manufacturer practice)	415V+/- 10%
iii	Frequency	50 Hz
iv	Total harmonic distortion	< 3% at nominal power
v	AC over / under voltage over voltage / under frequency protection.	Yes
vi	Phase Shift (COS Phi)	1
b.	<b>DC Side</b>	
I	PV Power	Min 330 WP
ii	Maximum DC Voltage	800V
iii	MPPT Voltage range	350 V -800V
iv	Maximum DC Current *	
v	DC voltage ripple	<3%
vi	DC over voltage protection	Yes
c.	<b>Other Parameters</b>	
I	Minimum efficiency (CE)	>97%
li	Ambient temperature	0-50° C
lii	Humidity (Non Condensing)	95%
Iv	Degree of protection for enclosure	IP 54
vi	Dimension / Weight	As per Manufactured design.
vii	Noise level	< 65 dBA
viii	Cooling	Natural Air
ix	Input Range	420-850 V DC
x	Power Factor	0.99
Xi	Input / Output cable Termination	Top

Other important Features/Protections required in the INVERTER

- Automatic morning wake-up and night shutdown
- PCU must have the feature to work in tandem with other similar PCUs and be able to be successively switched ON and OFF automatically based on solar radiation variations during the day.
- Mains (Grid) over-under voltage and frequency protection
- **Fool proof protection against ISLANDING.**
- Included authentic tracking of the solar array's maximum power operation voltage (MPPT).

- Array ground fault detection.
- LCD and piezoelectric keypad operator interface Menu driven Automatic fault conditions reset for all parameters like voltage, frequency and/or black out.
- MOV type surge arresters on AC and DC terminals for over voltage protection from lightning-induced surges.
- INVERTER should be rated to operate at 0–55 deg. Centigrade unless provision for air conditioning is included in INVERTER
- All parameters should be accessible through an industry standard communication link.

### **Protection against lightning**

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

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

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

### **2.6.5 DC distribution board/Array JunctionBox**

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.

#### **2.6.6 Surge protection system**

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

#### **2.6.7 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 FRLS PVC copper cables shall be used. The size of the

AE(E)(P) / EE(E)-HYD



cables between array interconnections, array to junction boxes, junction boxes to DCDB, DCDB to PCU and PCU to main grid (DISCOM) etc shall be so selected to keep the voltage drop and losses to the minimum and all cables are included in the scope of work. For DC connections, the cable shall be of XLPO type Solar cables.

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

**6. Space for Solar Array and Controlroom**

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 salesservice**

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 MOUNTINGSTRUCTURE**

Sl. No	Description	Specification Requirement
1	Material	Hot dip galvanized steel with min. 70 micron galvanizing Or as per manufacturer Standard Capable of with stand wind pressure
2	Thickness of member	Suitable wind Speed of 150 kmph. STAAD analysis to be submitted. (4mm minimum)
3	Over all dimensions	As per manufacturer standard

4	Wind rating	150 Km / hour
5	Tilt angle and adjustment	Tilt angle shall be calculated to provide the maximum annual energy output to take maximum insolation. This shall be decided based on the location of array installation.
6	Pitch of structure	Max. 7 Mtr or as per manufacturer standard
7	Hardwares & fastener	SS 304
8	Foundation	The foundation of the array mounting structure / elevated structure shall be provided with 1:2:4 CC design as certified by the Structural consultant and approved by the department.

## 16. DANGER NOTICE BOARDS

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

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

**Name of work:** -Providing 35 KWp Ongrid Solar Photo Voltaic Power Plant at IT Towers, AC Guards, Hyderabad.

**NITNo.:**

**Name of Contractor:**

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

<b>(B) Solar Inverter</b>		
1	Type	
2	Max. DC Array Input Voltage	
3	DC voltage tolerance	
4	Type of solar charge controller	
5	Switching Device	
6	Continuous inverter output rating	
7	Output wave form	
8	total harmonic distortion	
9	Nominal AC output voltage and frequency	
10.	Output frequency	
11.	Grid frequency tolerance	
12.	Grid frequency synchronization range	
13.	No-Load losses	
14.	Power factor	
15.	PCU efficiency	
16.	Noise level	
17.	Certifications	
18.	Idle current	
19.	Regulation	
20.	Over load features	
21.	Cooling	
22.	Operating Temperature	
23.	Relative Humidity	
24.	LED/LCD display	
25.	Data Monitor and display controls	
26.	Protections	
27.	Enclosure Protection Safety	
28.	Warranty	
<b>(C) Array Junction Box (DCDB)</b>		
1	No. of module in series	
2	No. of module in parallel	
3	Switch gears	
4	Connectors	
5	Wiring	
6	Enclosure Protection	
7	Enclosure	
8	Size	
9	Capacity of each SPV panel and nos.	

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

**(Signature of the Contractor)**

### **MATERIAL AND EQUIPMENT - PREFERRED MAKES**

All materials and equipment shall conform to the relevant standards and shall be one of the preferred makes indicated below

S. No.	Details of Materials / Equipment	Manufacturer's Name
1.	SPV Modules	<ul style="list-style-type: none"> <li>• HHV</li> <li>• Panasonic</li> <li>• Emvee</li> <li>• Renewsys</li> <li>• Waree</li> <li>• REC</li> <li>• Canadian Solar</li> <li>• TATA</li> <li>• BHEL</li> </ul>
2.	Solar Cells	<ul style="list-style-type: none"> <li>• Solar Tech</li> <li>• Motech</li> <li>• Q Cell( Germany)</li> <li>• Eton</li> <li>• Gintech</li> </ul>
3.	Power Conditioning Unit (PCU)	<ul style="list-style-type: none"> <li>• SMA(America)</li> <li>• Kaco</li> <li>• Ingeteam</li> <li>• Delta</li> <li>• Siemens</li> <li>• ABB</li> </ul>
4.	Data logger/System performance	<ul style="list-style-type: none"> <li>• Kaco</li> <li>• SMA(America)</li> <li>• ABB</li> <li>• EnergyRecommence</li> <li>• Schlumberger</li> <li>• Energy Tracking Ilc</li> </ul>
5.	Grid Tied Inverter	<ul style="list-style-type: none"> <li>• Refusol</li> <li>• Schneider-Xentrex</li> <li>• ABB</li> <li>• Kaco</li> </ul>
6.	Junction Box	<ul style="list-style-type: none"> <li>• Hensel</li> <li>• Spelsberg</li> <li>• ABB</li> <li>• Cooper busman</li> </ul>
7.	LT Jointing kit	<ul style="list-style-type: none"> <li>• Rachem</li> <li>• Mahindra</li> <li>• M-Seal</li> <li>• 3M</li> </ul>
8.	Cable glands	<ul style="list-style-type: none"> <li>• Dowells</li> <li>• Comet</li> <li>• Jainson</li> </ul>
9.	Bi-Metallic Cable lugs	<ul style="list-style-type: none"> <li>• Dowells</li> <li>• Comet</li> <li>• Jainson</li> </ul>

10.	ACDB panel	<ul style="list-style-type: none"> <li>• Havells</li> <li>• Geesys</li> <li>• vortex energy</li> </ul>
11.	Energy meter	<ul style="list-style-type: none"> <li>• L&amp;T</li> <li>• Siemens</li> <li>• Schneider</li> <li>• Secure</li> <li>• HPL</li> </ul>
12.	Surge protection	<ul style="list-style-type: none"> <li>• OBO Betterman</li> <li>• ABB</li> <li>• Legrand</li> </ul>
13.	PV module interconnecting connector	<ul style="list-style-type: none"> <li>• Tyco</li> <li>• Cooper busman</li> <li>• MC</li> </ul>
14.	1.1KV grade aluminium & copper conductor, XLPE insulated armoured UG Cables	<ul style="list-style-type: none"> <li>• Havells</li> <li>• Anchor</li> <li>• Finolex</li> <li>• KEI</li> <li>• L&amp;T</li> <li>• Asmon</li> <li>• RR Kabel</li> </ul>
15.	DC cables and wires	<ul style="list-style-type: none"> <li>• Siechem</li> <li>• LAPP</li> <li>• Havells</li> <li>• KEI</li> </ul>
16.	PVC Conduits and accessories (ISI marked)	<ul style="list-style-type: none"> <li>• Avon Plast</li> <li>• Precision</li> <li>• AKG</li> <li>• BEC</li> <li>• GM</li> <li>• Clipsal</li> </ul>
17.	GI Pipes	<ul style="list-style-type: none"> <li>• TATA</li> <li>• JINDAL (HISSAR)</li> <li>• ZENITH</li> <li>• Surya</li> </ul>
18.	Lightning arrestor	<ul style="list-style-type: none"> <li>• Indelec</li> <li>• Star</li> <li>• Erico</li> </ul>
19.	Indicating Lamps, LED type , Push Button	<ul style="list-style-type: none"> <li>• Schneider Electric (MG)</li> <li>• Larsen &amp; Toubro (ESBEE)</li> <li>• Siemens</li> <li>• Vaishno</li> </ul>
20.	Electronic Digital Meters (Networking type)	<ul style="list-style-type: none"> <li>• Konzerv</li> <li>• Larsen &amp; Toubro</li> <li>• Secure</li> <li>• AE</li> <li>• Meco</li> </ul>



21.	PVC insulated XLPE aluminium/ copper conductor armoured MV Cables upto 3300V grade	<ul style="list-style-type: none"> <li>• CCI</li> <li>• Havells</li> <li>• KEI</li> <li>• Gloster</li> <li>• Finolex</li> <li>• NICCO</li> <li>• Universal</li> </ul>
22.	Selector Switch, Toggle switch	<ul style="list-style-type: none"> <li>• Salzer (Larsen &amp; Toubro)</li> <li>• Siemens</li> <li>• Kaycee</li> </ul>
23.	Timer	<ul style="list-style-type: none"> <li>• Siemens</li> <li>• L&amp;T</li> <li>• Schneider Electric – TE</li> <li>• GE</li> <li>• Siemens</li> </ul>
24.	Fire Sealant	<ul style="list-style-type: none"> <li>• Promat</li> <li>• Hilti</li> <li>• Birla – 3 M</li> </ul>
25.	Cat-6A LAN cable	<ul style="list-style-type: none"> <li>• Panduit</li> <li>• Belden</li> <li>• Schneider</li> <li>• Systemax(COMMSCOPE)</li> <li>• Molex</li> <li>• Beldon</li> <li>• Legrand</li> <li>• Extreme</li> </ul>
26.	All other items not covered above	As per approval of the Engineer-in-charge.

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

// Contractor //

Executive Engineer (E)-Hyd

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

The following standard operating procedures and guidelines shall be followed:

**A. General Guidelines:**

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

13. A doctor will be present periodically (at least once a week) at site on allotted time for any medical assistance.
14. Appropriate signage at construction site spelling out safety practices in the language which is understood by all.
15. Hospital/clinics in the nearby area, which are authorized to treat COVID- '19 patients, should be identified and list should be available at Site all the time.
16. For any confusion, clarification and update, everyone should approach designated authority or rely on authentic source.
17. Rumours shall be discouraged and offenders be warned.
18. An isolation room shall be created at site.

### **B. Guidelines for Workers:**

1. On day 0, before resuming the work on site post lockdown period, mandatory medical check-up will be arranged for all workers. The workers coming from outside will be quarantined for a period of at least 15 days. Only medically fit workers will be deployed at site and medical assistance will be arranged for unfit workers. Medical check-up camp should be arranged every month.
2. The labours staying at site will not be allowed to go outside. All the essential items will be made available to labours at site only. If necessary, the workers can go out wearing PPEs, after informing supervisor. Similarly, no outside labour will be allowed at site without following proper procedure and instructions.
3. Start time on site will be staggered to avoid congestion at the entry gates. Number of workers working at a particular time / place will be reduced by making arrangements for different shifts / areas. Accordingly, additional staff such as security guards, supervisors etc. will be deployed.
4. As in most cases, workers reside at the Sites, hence there is no need for any travel. For Workers staying outside, (which are always nearby) special transportation facility will be arranged without any dependency on the public transport system.
5. During attendance, training and other sessions, social distancing guidelines will be followed along with provision of no-touch attendance.
6. Workers should not shake hands when greeting others and while working on the site.
7. Workers shall avoid contact with sick people and avoid going to site if they are feeling sick, have fever, cough or shortness of breath. In such case, supervisor should be informed immediately.
8. Workers with such symptoms should not come to site and should be placed in isolation and medical assistance will be provided on immediate basis.
9. Mandatorily wear face masks while working on site. While not wearing masks, worker shall cover his mouth and nose with tissues.

10. Cough/sneeze should be done in the crook of one's arm and your elbow.
11. Avoid large gatherings or meetings of 10 people or more. Stay at least 6 feet away from others on job sites and in gatherings, meetings, and training sessions.
12. Not more than 2 persons (depending on size) will be allowed to travel in lifts or hoists. Use of staircase for climbing should be encouraged.
13. Workers should clean hands frequently by washing them with soap and water for at least 20 seconds. When hand washing isn't possible, alcohol based hand sanitizer with greater than 60% ethanol or 70% isopropanol should be used.
14. Workers should not share their belongings like food, water bottles, utensils, mobile phones etc. with others.
15. The utensils should be washed properly post use at designated place.
16. Post work, workers should change their clothes before leaving the site and clothing should not be shook out.
17. Avoid touching eyes, nose, or mouth with unwashed hands.

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

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

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

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

<b>Schedule of work</b>						
<b>Name of work:</b> Providing 35 KWp Ongrid Solar Photo Voltaic Power Plant at IT Towers, AC Guards, Hyderabad.						
<b>S.No</b>	<b>DSR 18 /MR</b>	<b>Description of items</b>	<b>Qty.</b>	<b>Rate</b>	<b>Unit</b>	<b>Amount</b>
1	MR	Supply, Installation, Testing and Commissioning of on grid Solar Photovoltaic Power Plant conforming to MNRE specifications as amended, consisting of Mono / Poly Crystalline silicon solar cells, net metering facility, necessary protections, earthing, mounted on Aluminium/ GI structure ( GI Round Pipe or Square pipe of standard length (front leg 600mm height and rear leg 1200mm height for suitable angle of inclination to attain maximum power point tracking) of suitable strength for Elevated structure with following components complete as required: (Including 5 years warranty and maintenance as per terms and conditions)				
		a) Solar Photovoltaic Module of capacity 330 Wp or above, manufactured in India, conforming to IS 14286/IEC 61215, IS/IEC 61730-Part-1, IS/IEC 61730-Part-2. Solar Photovoltaic Module conversion efficiency shall not be less than 16.5%. PV modules used in solar power plants/ systems must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.				
		b) Power Conditioning Unit (PCU) of 350-800 VDC Input voltage range and 400 V AC, three phase, 4wire, 50Hz+/- 2.5Hz, output voltage suitable to generate AC Power with efficiency not less than 97%, total harmonic distortion less than 3% and suitable for ambient temperature from 0 to 50 degree.				

		c)The PCU shall adjust the voltage and frequency level to suit the Grid Voltage Frequency. c) Data Monitoring System complete with accessories. d) Fixing of Array junction box & Main junction box with IP 65 protection and termination arrangement for incoming and outgoing cable along with glands,lugs and other accessories etc.as required. e) Lightning and surge voltage protection.				
		f) Connections & Interconnections by supplying & fixing required size XLPE insulated copper conductor 1.1kV grade armoured power and control cables between solar modules, main power cable to grid supply PCU unit along with supplying & fixing of necessary supporting channel / conduits, lugs and other accessories etc. as required.				
		Note: (The building height is of approximate 15 metres)	35	64709	KWp	2264815.00
2	MR	Fabrication, supply, installation of elevated array mounting structure to suit the existing site conditions, made of suitable size GI pipes/C channels/Angle iron, GI sections, bolts & nuts along with all required accessories etc. and structure for the P.V panels as required. (The structure shall be designed to withstand minimum wind velocity of 150 KMPH, the design and drawings shall be vetted by structural consultant and got approved from the department)				
		Note: (Item shall be paid for the actual additional escalated height beyond the standard height of Solar structure as included vide Item No. 1 of schedule of work.)	1000	122	Kg	122000.00
				<b>Total</b>	<b>Rs.</b>	<b>2386815.00</b>
				<b>Say Rs.</b>		<b>2386815.00</b>

// Contractor //

Executive Engineer (E)-Hyd



**Central Public Works Department**



**N.I.T. No: 196/EE(E)-Hyd/2021-22**

**Name of work:-** Providing 35 KWp Ongrid Solar Photo Voltaic Power Plant at IT Towers, AC Guards, Hyderabad

**ABSTRACT OF COST**

Name of the Contractor				
Sl.No.	Name of component	Estimated cost	Percentage above or below the estimated cost	% in Figures
1	Electrical	<b>2386815.00</b>		
	Grand Total			

**Important Note:**

1. The Estimated Cost Put to Tender has been worked out by DSR 2018 items and considering the Market Rates for NSR items.
2. The tenderer is required to quote a single consolidated Percentage only above/below Estimated Cost to cover all the rates of all the items. This column should not be left blank, otherwise the tender shall be treated as INVALID.
3. The Percentage shall be typed only in figures upto 2 (two) places of decimal along with algebraic sign.
4. The tenderer shall enable the macros before entering the figures, to see the quoted percentage and amount in words.
5. If the Percentage quoted both in words and figures are not clear, or if the rate is not quoted in Percentage, the offer will be treated as INVALID.

/ Contractor /

Executive Engineer (E)-Hyd