

GOVERNMENT OF INDIA
OFFICE OF
THE EXECUTIVE ENGINEER (ELECT.)
INDORE CENTRAL ELECTRICAL DIVISION
CENTRAL P.W.D., INDORE



NOTICE INVITING TENDER

N.I.T. NO. **20/EE(E)/ICED/2021-22 (2nd Call)**

NAME OF WORK : **Supply, Installation, Testing and Commissioning of ongrid Solar Photovoltaic Power Plant at User Guest House Building ,UGC-DAE, CSR, Housing Complex , Indore.**

ESTIMATED COST
PUT TO TENDER : **Rs. 3,62,696 /-**

TIME ALLOWED : **01 (One) Month**

Certified that this N.I.T. contains Total page Marked as 1 to 44 excluding this and Index page, including nil correction slip.

**Executive Engineer(E)
ICED, CPWD, Indore**

INDEX

NAME OF WORK : Supply, Installation, Testing and Commissioning of ongrid Solar Photovoltaic Power Plant at User Guest House Building ,UGC-DAE, CSR, Housing Complex , Indore.

SL. No.	CONTENTS	PAGE NO.
1.	Information & Instruction for contractor for e-Tendering.	1 to 11
2.	Notice Inviting Tender (Form CPWD-6).	12 to 15
3.	Integrity Pact.	16 to 22
4.	Item RateTender for works (Form CPWD-7/8).	23 to 31
5.	Additional Terms and Condition .	32 to 37
6.	Technical Specifications	38-43
6.	Schedule of Quantities.	44

This N.I.T. is approved for **Rs. 3,62,696/- (Rs. Three lakhs Sixty Two Thousand Six Hundred and Ninty Six Only)** Vide NIT No: **20/EE(E)/ICED/2021-22 (2nd Call).**

ANNEXURE 20A.5.1

INFORMATION AND INSTRUCTIONS FOR CONTRACTORS FOR

e-TENDERING FORMING PART OF NIT AND TO BE POSTED ON WEBSITE

(Applicable for inviting open tenders)

The Executive Engineer (E) Indore Central Elect. Division, Central P. W. D, C.I.A Building, Residency Area, Indore-452001 (M.P.) on behalf of of the President of India invites online bids from specialized firms/contractors of repute in two bid system for the following work:

S. No.	NIT No.	Name of work & Location	Estimated cost put to tender	Earnest Money	Period of Completion	Last date & time of submission of tender	Time & date of opening of Pre Qualification.	Time & date of opening of tender
1.	20/EE(E)/ICED/2021-22 (2 nd Call)	Supply, Installation, Testing and Commissioning of ongrid Solar Photovoltaic Power Plant at User Guest House Building ,UGC-DAE, CSR, Housing Complex , Indore.	Rs. 3,62,696/-	-	1(One) Months	04 -01-2022 upto 3.00 p.m.	04-01-2022 upto 3.30 p.m.	

Contractors who fulfil the following requirements shall be eligible to apply. Joint ventures are not accepted

1. (a) Experience of having successfully completed similar works during the last 7 years ending last day of previous to the one in which tenders are invited :-
 - (i) Three similar completed works each of value not less than **Rs. 1.45 Lacs**
OR
 - (ii) Two similar completed works each of value not less than **Rs. 2.18 Lacs**
OR
 - (iii) One similar completed work of value not less than **Rs. 2.90 Lacs**

The value of executed works shall be brought to current level by enhancing the actual value of work at simple rate of 7% per annum, calculated from the date of completion of work to the date of receipt of Pre-qualification application.

“Similar work means “S/I/T/C of Solar Power Panel”.

The value of all above 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 last date of completion to previous month to the one in which tenders are called.

- (b) Should have had Average Annual Financial Turnover of **Rs. 1.81 Lakh** on construction works during the last five years ending 31st March .2021. (Scanned copy of Certificate from CA to be uploaded) In case Balance Sheet and Profit & Loss statement for the F.Y. 2020-21 not finalized, consider the last F.Y. 2019-20

- (c) Should not have incurred any loss in more than two years during the last five years available consecutive balance sheet ending 31st March 2021. In case Balance Sheet and Profit & Loss statement for the F.Y. 2020-21 not finalized, consider the last F.Y. 2019-20
- (d) Networth of 10% /Solvency Certificate of minimum 40% of the estimated cost put to tender issued by certified Chartered Accountants.(on the format prescribed in form B or B-1)
- (e) The binding capacity of the contractor should be equal to or more than the estimated cost of the work put to tender. The binding capacity shall be worked out by the following formula:-
Binding Capacity = $\frac{A}{N} - B$ Where; A = Maximum turnover in construction work executed in any one year during the last five years taking into account the completed as well as works in progress. The value of completed works shall be brought to current costing level by enhancing at simple rate of 7% per annum (as mentioned in para 8.1 of Annexure-24).
N = Number of years prescribed for completion of work for which bids has been invited.
B= Value of existing commitments and ongoing works to be completed during the period of completion of work for which bids have been invited.
2. 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:-
- (a) Name of Work
(b) Stipulated date of start and actual date of completion.
(c) Gross value of work done.
(d) That the work has been completed satisfactorily.
(e) Full address of the client, officer issuing certificate and location where work is executed.
(f) Schedule of work/Agreement copy.
3. The lowest tenderer is submit, along with the performance guarantee after the acceptance of tender, an undertaking from the OEM regarding :
- (a) Authorization certificate for audio video , conferencing system, switching & control equipment
(b) The OEM is unconditionally support the lowest tenderer technically throughout the execution of contract as well as for Maintenance/ Comprehensive Maintenance Contract for the useful life of the system, and
(c) OEM is provide all the spares required for healthy functioning of the equipment for at least seven years from the date of supply of equipment.

4 .Evaluation criteria

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

4.1.1 The initial criteria prescribed in para **1(a),(b),(c),(d),(e)** above in respect of experience of eligible similar works completed, loss, Net worth Certificate/solvency certificate and financial turn over and bidding capacity etc. will first be scrutinized and the bidder's eligibility for the work be determined.

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

(a) Financial strength (Form 'A',B /'B-1')	Maximum 20 marks
(b) Experience in eligible similar nature of work during last seven years (Form 'C')	Maximum 20 marks
(c) Performance on works (Form 'D') - Time over run	Maximum 20 marks
(d) Performance on works (Form 'D') - Quality	Maximum 40 marks

Total 100 marks

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

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

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

5. The intending bidder must read the terms and conditions of **CPWD-6** carefully. He should only submit his bid if he consider himself eligible and he is in possession of all the documents required.
6. This information and instructions for bidders posted on website shall form part of bid document.
7. The bid document consisting of Plans, Specifications, Schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website **www.tenderwizard.com/ CPWD** or **www.cpwd.gov.in** free of cost.
- ~~8. But the bid can only be submitted after deposition of original EMD either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission and uploading the mandatory scanned documents such as Demand draft or Pay order or Bankers Cheque or Deposit at call Receipt or Fixed Deposit Receipts and Bank Guarantee of any scheduled Bank towards EMD in favour of Executive Engineer as mentioned in NIT, receipt for deposition of original EMD to division office of any Executive Engineer (including NIT issuing EE/AE), CPWD and other documents as specified.~~
9. 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. **Certificate of Financial Turn Over:** At the time of submission of bid contractor may upload Affidavit/Certificate from **CA** mentioning Financial Turnover of last 5 years or for the period as specified in the bid document and further details if required may be asked from the contractor after opening of technical bids. There is no need to upload entire voluminous balance sheet.
14. Contractor must ensure to quote rate of each item. The column meant for quoting rate in figures appears in pink colour and the moment rate is entered, it turns sky blue.

In addition to this, while selecting any of the cells a warning appears that if any cell is left blank the same shall be treated as "0". Therefore, if any cell is left blank and no rate is quoted by the bidder, rate of such item shall be treated as "0" (**ZERO**).
- However, If a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above/below on the total amount of the tender or any section / sub head in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.
- ~~15. Pre Qualification Bid shall be opened first on due date and time as mentioned above and then successful bidder are qualified for Price bid. The Technical Bid shall be opened on due date and time as mentioned above. The time and date of opening of financial bid of contractors qualifying the technical bid shall be communicated to them at a later date ./ /2021 to clear the doubt of intending bidders, if any.~~
16. When bids are invited in three stage system and if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted then the bid submitted earlier shall become invalid.
17. 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.

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

- I Proforma for Earnest Money Deposit Declaration
- II Certificates of Work Experience.
Certificate of Financial Turnover from CA.
- II(a) Form A ,Form B/ FormB-1, Form C , ,Form D , Form E and letter of transmittal.
- III TDS certificate for the work done .
- IV Any other Document as specified in the NIT.
- VII Affidavit as per provisions of clause 1.2.3 of CPWD-6.
- VIII . Copy of PAN card.
- IX Address with Phone No./Mobile No. and email-ID of bidder
- X Certification of GST Registration.

PROFORMA - 1

CRITERIA FOR EVALUATION OF THE PERFORMANCE OF CONTRACTORS FOR PRE-ELIGIBILITY

	Attributes		Evaluation				
(a)	Financial strength	(20 marks)					
	(i) Average annual turnover	16 marks	(i) 60% marks for minimum eligibility criteria				
	(ii) Solvency Certificate	4 marks	(ii) 100% marks for twice the minimum eligibility criteria or more				
			In between (i) & (ii) - on pro-rata basis				
(b)	Experience in similar class of works	(20 marks)	(i) 60% marks for minimum eligibility criteria				
			(ii) 100% marks for twice the minimum eligibility criteria or more				
			In between (i) & (ii) - on pro-rata basis				
(c)	Performance on works (time over run)	(20 marks)					
	Parameter	Calculation For points	Score		Maximum Marks		
	If TOR =		1.00	2.00	3.00	>3.50	20
	(i) Without levy of compensation		20	15	10	10	
	(ii) With levy of compensation		20	5	0	-5	
	(iii) Levy of compensation not decided		20	10	0	0	
	TOR = AT/ST, where AT=Actual Time; ST=Stipulated Time in the Agreement plus (+) justified period of Extension of Tim						
	Note: Marks for value in between the stages indicated above is to be determined by straight line variation basis.						
(d)	Performance of works (Quality)	(40 marks)					
	(i) Outstanding		40				
	(ii) Very Good		30				
	(iii) Good		20				
	(iv) Poor		0				

INFORMATION REGARDING ELIGIBILITY LETTER OF TRANSMITTAL

From:

To

Sir,

The Executive Engineer

Subject: Submission of bids for the work of

Having examined the details given in the bid document for the above work, I/we hereby submit the relevant information.

1. I/we hereby certify that all the statement made and information supplied in the enclosed forms A to H and accompanying statement are true and correct.
2. I/we have furnished all information and details necessary for eligibility and have no further pertinent information to supply.
3. submit the requisite certified Net Worth certificate and authorize the Executive Engineerto approach the Net worth certificate to confirm the correctness thereof. I/we also authorize Executive Engineer to approach individuals, employers, firms and corporation to verify our competence and general reputation.
4. I/we submit the following certificates in support of our suitability, technical knowledge and capability for having successfully completed the following eligible similar works:

Name of work
 Certificate from

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

Enclosures: Seal of bidder

Date of submission:

Signature(s) of Bidder(s).

**FINANCIAL
INFORMATION (FORM 'A')**

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

Financial years				
-----------------	--	--	--	--

- (i) Gross Annual Turn Over on construction works.
 - (ii) Profit/Loss.(**standalone finance statement and consolidated financial statement both**)
- II. Financial arrangements for carrying out the proposed work. Signature of Chartered Accountant with Seal

Signature of Bidder(s)

**FORM 'B'
FORM OF BANKERS' CERTIFICATE FROM A SCHEDULED BANK**

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

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

(Signature)For the Bank

NOTE:

- (1) Bankers certificates should be on letter head of the Bank, sealed in cover addressed to tendering authority.
- (2) In case of partnership firm, certificate should include names of all partners as recorded with the Bank.

FORM "B-1"**FORM FOR CERTIFICATE OF NET WORTH FROM CHARTERD ACCOUNTANT**

"It is to certify that audited balance sheet and profit & loss account during the financial year 2020-21(In case Balance Sheet and Profit & Loss statement for the F.Y. 2020-21 not finalized, consider the last F.Y. 2019-20), 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 the Chartered Accountant

.....
Name of the Chartered Accountant

.....
Membership No. ICAI

Date and Seal

FORM 'C'

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

S. No.	Name of work/project And Location	Owner or sponsoring organization	Cost of work in crores of rupees	Date of commencement as per contract	Stipulated date of completion	Actual date of completion	Litigation/ arbitration cases pending/ in progress with details*	Name and address/ Telephone Number of officer to Whom Reference may be Made	WHETHER THE WORK WAS DONE ON BACK TO BACK BASIS YES/ NO
1	2	3	4	5	6	7	8	9	10

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

Signature of Bidder(s)

FORM 'D'**PERFORMANCE REPORT OF WORKS****REFERRED TO IN FORMS "C"**

1. Name of work/project & location
2. Agreement no.
3. Estimated cost
4. Tendered cost
5. Date of start
6. Date of completion
 - (i) Stipulated date of completion
 - (ii) Actual date of completion
7. Amount of compensation levied for delayed completion, if any
 - (a) Whether case of levy of compensation for delay has been decided or not
Yes/No
 - (b) If decided, amount of compensation levied for delayed completion, if any
8. Amount of reduced rate items, if any
9. Performance Report

(1) Quality of work	Outstanding/Very Good/Good/Poor
(2) Financial soundness	Outstanding/Very Good/Good/Poor
(3) Technical Proficiency	Outstanding/Very Good/Good/Poor
(4) Resourcefulness	Outstanding/Very Good/Good/Poor
(5) General Behaviour	Outstanding/Very Good/Good/Poor

Dated:

Executive Engineer or Equivalent

FORM 'E'
STRUCTURE & ORGANISATION

- 1 Name & address of the bidder
- 2 Telephone no./Telex no./Fax no.
- 2(a) Email ID for Official correspondence.
- 3 Legal status of the bidder (attach copies of original document defining the legal status) :
 - i. An Individual
 - ii. A proprietary firm
 - iii. A firm in partnership
 - iv. A limited company or Corporation

- 4 Particulars of registration with various Government Bodies (attach attested photocopy)

Organization /Place of registration	Registration No.
1.	
2.	
3.	

- 5 Names and titles of Directors & Officers with designation to be concerned with this work.
- 6 Designation of individuals authorized to act for the organization
- 7 Has the bidder, or any constituent partner in case of partnership firm, Limited Company /Joint Venture ever been convicted by the court of law? If so, give details.
- 8 In which field of E & M Engineering construction the tenderer has specialization and interest?
Any other information considered
- 9 necessary but not included above.

Signature of bidder(s)



Proforma for Earnest Money Deposit Declaration

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

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

Signature of the contractor(s)

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

1. Percentage Rate tenders are invited on behalf of the President of India from approved and eligible Specialized agency for the following work :

Name of Work -: Supply, Installation, Testing and Commissioning of ongrid Solar Photovoltaic Power Plant at User Guest House Building ,UGC-DAE, CSR, Housing Complex , Indore.

- 1.1 The work is estimated to cost **Rs. 3,62,696 /-** This estimate, however, is given merely as a rough guide.
- 1.2 Intending tenderer is eligible to submit the bid provided he fulfill the criteria **eligibility for issue of tender documents.**
2. Agreement shall be drawn with the successful tendered on prescribed Form No. CPWD 7/8 & General Conditions of Contracts for CPWD 2010” which is available as a Govt. of India Publication and also available on website www.cpwd.gov.in Tenderer shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
3. The time allowed for carrying out the work will be **1 Month** from the date of start as defined in schedule ‘F’ or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the tender documents.
4. The site for the work is available: Yes
5. The tender documents 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 for CPWD Works 2020” Form can be seen from website www.tenderwizard.com/CPWD or 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 tender as notified.
7. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of tender as notified.
8. When tenders are invited in three stage system and if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted then the tender submitted earlier shall become invalid.
9. ~~Earnest Money in the form of Treasury Challan or Demand Draft or Pay order or Banker`s Cheque or Deposit at Call Receipt or Fixed deposit receipt drawn in favour of Executive Engineer (E), Indore Central Electrical Division, CPWD, Indore, shall be scanned and uploaded to the e-tendering website within the period of bid submission.~~

- 9.1 ~~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.~~
- 9.2 ~~The original EMD should be deposited either in the **Office of Executive Engineer (E), Indore Central Electrical Division, CPWD, Indore**, or **Division office of any Executive Engineer, CPWD**, within the period of bid submission. **The EMD document shall only be issued from the place in which the office of receiving Division Office is situated.** The EMD receiving Executive Engineer Shall issue a receipt of Deposition of Earnest Money deposit to the bidder in a prescribed format as Annexure I of this NIT. This receipt must be scanned and uploaded by intending bidder with the online tender upto the specified bid submission date and time.~~
- 9.3 ~~e-Tender Processing Fee **Rs. /-** shall be payable to M/s ITI Limited through their e-getway by credit/debit card, internet banking of RTGS/NEFT facility.~~
- (a) **The Contractors registered prior to 01.04.2015 on e-tendering portal of CPWD shall have to deposit tender processing fee at existing rates, or they have option to switch over to the new registration system without tender processing fee any time.**
- 9.4 Copy of enlistment order and certificate of work experience and other documents as specified in the press notice shall be scanned and uploaded to the e-tendering web site 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.
- 9.5 Online bid documents submitted by intending bidders shall be opened only of those bidders, ~~whose EMD deposited with any Division Office of CPWD~~ and other documents scanned and uploaded are found in order. The bid submitted shall be opened at 3:30 PM on due date.
10. The Bid submitted shall become invalid if:
- (i) The bidders is found ineligible.
 - (ii) ~~The bidders does not deposit Original EMD with division office of any Executive Engineer, CPWD (The EMD Document shall only be issued from the place in which the office of receiving division office is situated)~~
 - (iii) The bidder does not upload all the documents such as Enlistment Order of the Contractor , Valid Electrical Licence , service tax registration, VAT registration, Sales Tax Registration as stipulated in the bid document **including the copy of receipt for deposition of original EMD.**
 - (iii) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically the lowest tenderer in the office of tender opening authority.

11. The contractor whose tender is accepted, will be required to furnish performance guarantee of 5% (Five Percent) of the tendered 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 (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.
12. Intending Tenderers are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The tenderer shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a tender by a tenderer implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.
13. The competent authority on behalf of the President of India does not bind itself to accept the lowest or any other tender and reserves to itself the authority to reject any or all the tenders received without the assignment of any reason. All tenders in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the tenderer shall be summarily rejected.
14. Canvassing whether directly or indirectly, in connection with tenderness is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to rejection.
15. The competent authority on behalf of President of India reserves to himself the right of accepting the whole or any part of the tender and the tenderer shall be bound to perform the same at the rate quoted.
16. The contractor shall not be permitted to tender for works in the CPWD Circle (Division in case of contractors of Horticulture/Nursery category) responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazette officer in the Central Public Works Department or in the Ministry of Urban Development. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.

17. No Engineer of gazette rank or other Gazette Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the previous permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the tender or engagement in the contractor's service.
18. The tender for the works shall remain open for acceptance for a period of thirty (30) days from the date of opening of tenders/Ninety days from the date of opening of financial bid in case tenders are invited on 2/3 envelop system (strike out as the case may be) if any tendered withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the tender which are not acceptable to the department, then the Government shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the tendered shall not be allowed to participate in the reentering process of the work.
19. This notice inviting Tender shall form a part of the contract document. The successful tendered/contractor, on acceptance of his tender by the Accepting Authority shall within days from the stipulated date of start of the work, sign the contract consisting of:-
 - a) The Notice Inviting Tender, all the documents including additional conditions, specifications and drawings, if any, forming the tender as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto.
 - b) Standard C.P.W.D. Form 7/8 & "General Conditions of Contract for CPWD Works 2010" Standard CPWD Form as mentioned.

Executive Engineer (E)
ICED, CPWD, Indore

INTEGRITY PACT

To,

Sub: NIT No. 20/EE(E)/ICED/2021-22 (2nd Call) for the work:

Name of Work -: Supply, Installation, Testing and Commissioning of ongrid Solar Photovoltaic Power Plant at User Guest House Building ,UGC-DAE, CSR, Housing Complex , Indore.

Dear Sir,

It is here by 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)
ICED, CPWD, Indore**

To be signed by the bidder and same signatory competent / authorised to sign the relevant contract on behalf of CPWD.

INTEGRITY AGREEMENT

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

.....

BETWEEN

President of India represented through Executive Engineer, ,
(Name of Division)
CPWD, , (Hereinafter referred as the
(Address of Division)

'Principal / Owner', which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

AND

(Name and Address of the Individual/firm/Company)
through(hereinafter 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.) (hereinafter referred to as "Tender/Bid") and intends to award, under laid down organizational procedure, contract for

(Name of work)
hereinafter referred to as the "Contract".

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

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

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

Article 1: Commitment of the Principal / Owner

- 1) The Principal/Owner commits itself to take all measures necessary to prevent corruption and to observe the following principles:
 - (a) No employee of the Principal/Owner, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - (b) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The Principal/Owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the Tender process or 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 herein 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.

Article 2: 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 highest ethical standards, and report to the Government / Department all suspected acts of **fraud or corruption or Coercion or Collusion** of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.

- 2) The Bidder(s) / Contractor(s) 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 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 (with each tender as per Performa enclosed) 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 befall upon a person, his / her reputation or property to influence their participation in the tendering process).

Article 3: Consequences of Breach

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

1) If the Bidder (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 days notice to the contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the Tender process or terminate / determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal / Owner. **Such exclusion may be forever or for a limited period as decided by the Principal/Owner.**

2) Forfeiture of EMD/ Performance Guarantee/ Security Deposit:

If the Principal/Owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contract or terminated/determined the Contract or has accrued the right to terminate/determine the Contract according to Article 3(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 Indian Penal code (IPC)/Prevention of Corruption Act, or if the Principal/Owner has substantive suspicion in this regard, the Principal/Owner will inform the same 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 subcontractors a commitment in conformity with this Integrity Pact. The Bidder / Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Sub-contractors/sub-vendors. The Principal/ Owner will enter into Pacts on identical terms as this one with all Bidders and Contractors.
- 2) 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 12 months after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other 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 **Head quarters of the Division** of the Principal / Owner, who has floated the Tender.
- 2) Changes and supplements need to be made in writing. Side agreements have not been made.
- 3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by board resolution.
- 4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original 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** there of shall not be subject to arbitration.

Article 8- LEGAL AND PRIOR RIGHTS

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

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

(For and on behalf of Principal/Owner)

(For and on behalf of Bidder/Contractor)

WITNESSES:

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

Place: -

Dated:-

**GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT**

Percentage Rate Tender/Item Rate Tender & Contract for Works

Tender for the work of: Supply, Installation, Testing and Commissioning of ongrid Solar Photovoltaic Power Plant at User Guest House Building ,UGC-DAE, CSR, Housing Complex , Indore.

- (i) To be submitted by3:00 PM.....hours on..... 04 -01-2022.....to
.....
- (ii) To be opened in presence of tenderers who may be present at 3.30 pm hours on...
... 04-01-2022..... in the office of.....EE(E)/ICED/CPWD,
Indore.....Issued to.....NIT... 20/EE(E)/ICED/2021-22) (2nd Call)...
Signature of officer issuing the documents
Designation.....
Date of Issue

निविदा TENDER

मैंने/हमने कार्य के लिए निविदा आमंत्रण सूचना, अनुसूची क,ख,ग,घ, ङ, और च, लागू विनिर्देश, नक्शे एवं डिजाइन, सामान्य नियम एवं निर्देश, ठेके के उपबंध, विशिष्ट शर्तों, दर अनुसूची एवं अन्य कागजात तथा ठेके की शर्तों में दिए गए नियम तथा निविदा कागजात में उल्लिखित अन्य बातों को पढ़ व जांच लिया है।

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

मैं/हम, एतद्वारा भारत के राष्ट्रपति के लिए अनुसूची 'च' में विनिर्दिष्ट समय के भीतर विनिर्दिष्ट कार्य, यथा-मात्राओं की अनुसूची तथा सभी संबंधित विनिर्देशों, डिजाइनों, नक्शों के अनुरूप तथा सामान्य नियमावली के नियम-1 और ठेके की शर्तों के खंड-11 में उल्लिखित लिखित अनुदेशों एवं ऐसी सामग्रियों, जो प्रदान की जाती है और उसके संबंध में, ऐसी शर्तें जो लागू हों, के अनुरूप निष्पादन हेतु निविदा देता हूँ/देते हैं ।

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.

हमनिविदाको, इसकेजमाहोने की निर्धारिततारीख से 60दिनो के लिए खुला रखाजाने के लिए सहमतहै।

We agree to keep the tender open for **Sixty (60)** days from the due date of its opening.

~~₹ /..... की धनराशि, धरोहरराशि के रूपमेंनकद / ट्रेजरीचालानरसीद / अनुसूचितबैंक की मांगजमासीद / अनुसूचितबैंक की सावधीजमासीद / अनुसूचितबैंककामिंडड्राफ्ट / अनुसूचितबैंक द्वाराजारीबैंकमार्गटी के रूपमेंइसकेसाथभेजीजाएगी।~~ यदिमैं / हमनिर्धारितनिष्पादनगारंटीकोनिर्धारित समय अवधि मेंप्रस्तुतकरनेमेंअसफलरहतेहैंतोमैं / हम यह मंजूरकरतेहैंकिभारत के उक्तराष्ट्रपति या उनके कार्यालय के उत्तराधिकारीकिसीअन्य अधिकार या उपचारीउपाय परप्रतिकूलप्रभावडालेबिनाउक्त धरोहरराशिजब्तकरने के लिए पूर्णतया स्वतंत्र होंगे। इसकेअलावा, यदिमैं / हमविनिर्दिष्टकार्यप्रारंभकरनेमेंअसफलरहतेहैंतोमैं / हम यह मंजूरकरतेहैंकिभारत के राष्ट्रपति या उनके कार्यालय के उत्तराधिकारीकानूनमेंउपलब्ध किसीअन्य अधिकार या उपचारीउपाय परप्रतिकूलप्रभावडालेबिनाउक्त धरोहरराशि, तथानिष्पादनगारंटीजब्तकरने के लिए पूर्णतया स्वतंत्र होंगेअन्यथाउक्त धरोहरराशिननिविदाकागजात के अनुसारउसमेंनिहित शर्तों व निबंधनों के अनुसारकार्यो के निष्पादन एवंआदिष्टविचलनोंकोअनुसूची 'च' मेंवर्णितप्रतिशत से अनधिक व निविदाप्रपत्र के खण्डों 12.2 व 12.3 मेंनिहितप्रावधानों के अनुसारनिश्चित की जानेवालीदरोंपर उस सीमा से अधिक के विचलनों के करने के लिए उनके द्वाराप्रतिभूति-निपेक्ष के रूपमेंरोकलीजाएगी। इसकेअतिरिक्तमैं / हमसहमतहैंकिबयानाराशि या बयानाराशितथाउपर्युक्तनिष्पादनगारंटीजब्तहोजाने के मामलेमेंमुझे / हमेंकार्य की पुनः निविदाप्रक्रियामेंभागलेने से रोकदियाजाएगा।

A sum of **Rs. /.....** is hereby forwarded in cash/receipt treasury challan / deposit at call receipt of scheduled bank / fixed deposit receipt of scheduled bank / demand draft of a scheduled bank/bank guarantee issued by a scheduled bank as earnest money. If I/We fail to furnish the prescribed performance guarantee withinprescribed 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, upto maximum of the percentage mentioned in Schedule 'F' and those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form. Further, I/we agree that in case of forfeiture of earnest money or both earnest money and performance guarantee as aforesaid, I/We shall be debarred for participation in the re-tendering process of the work.

I/We undertake and confirm that eligible similar work(s) has / have not been got executed through another contractor on back to back basis. Further that, if such aviolation 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.

मैं/हम एतत्द्वारा घोषणाकरतेहैंकिमैं/हमनिविदाकागजातों, नक्शोंऔरकार्य से संबंधितअन्य अभिलेखोंकोगुप्त/गोपनीय कागजात के रूपमें रखेगेंऔरउनसेप्राप्त/लीगईजानकारीकिसीअन्य को, जिन्हेंमैं/हमसूचितकरने के लिए प्राधिकृतहो, से भिन्नकिसीको, नहींबताएंगें या जानकारीकोकिसी ऐसे रूपमेंप्रयोग नहीं करेंगेजोराज्य की सुरक्षा के लिए प्रतिकूलहो।

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 therefrom to any person other than a person to whom I/We am/are authorised to communicate the same or use the information in any manner prejudicial to the safety of the State.

तारीख Dated

टेकेदार के हस्ताक्षर Signature of Contractor
डाक का पता Postal Address

साक्षी Witness :

पता Address:

उपजीविका Occupation :

स्वीकृति ACCEPTANCE

मैं भारत के राष्ट्रपति की ओर से तथा उनके लिए रु.'..... (रूपए')
.....) की राशि के लिए उपर्युक्त निविदा (अधोलिखित पत्रों के अनुसार परिवर्तित) स्वीकार करता हूँ।

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 _____)

नीचे दिए गए पत्र इस ठेका करार का हिस्सा होंगे।

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

- a)
- b)
- c)

Dated:

For & on behalf of President of India

Signature

Designation ... Executive Engineer (E).....

Indore Central Electrical Division

.....CPWD, Indore.....

PROFORMA OF SCHEDULES

(Separate Performa for Civil, Elect. & Hort. Works in case of Composite Tenders)
(Operative Schedules to be supplied separately to each intending tenderer)

SCHEDULE 'A'

Schedule of quantities (as per PWD-3)

SCHEDULE 'B'

Schedule of materials to be issued to the contractor.

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

SCHEDULE 'C'

Tools and plants to be hired to the contractor

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

SCHEDULE 'D'

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

--As per Additional Specifications attached with Schedule----

SCHEDULE 'E'

Reference to General Conditions of contract:- General Conditions of Contract for CPWD works, 2020 as amended upto date.

Name of Work :- Supply, Installation, Testing and Commissioning of ongrid Solar Photovoltaic Power Plant at User Guest House Building ,UGC-DAE, CSR, Housing Complex , Indore.

Estimated cost of work : Rs. **3,62,696 /-**

(i) ~~Earnest Money : Rs --- /-~~ **(To be returned after receiving performance guarantee)**

(ii) Performance Guarantee : 5% of tendered value .

(iii) Security Deposit : 2.5% of Gross Amount.

SCHEDULE 'F'

GENERAL RULES & DIRECTIONS : Officer inviting tender **Executive Engineer (E) ICED,CPWD, Indore**

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

Definitions:

(i) Engineer-in-Charge **E.E.(E),ICED,CPWD, Indore.**

(ii) Percentage on cost of materials and Labour to cover all overheads and profits: 15%

(iii) Standard Schedule of Rates **D.S.R. 2018**

(iv) Standard Schedule of Rates **D.S.R. 2019** Item for Solar Photovoltaic Power Plant.

(v) Standard CPWD Contract Form GCC 2020, CPWD Form 7/8 modified & Corrected up to **Date**

Clause 1

(i) Time allowed for submission of Performance Guarantee from the date of issue of letter of acceptance 07 days

(ii) Maximum allowable extension with late Fee @0.1% per day of performance guarantee beyond the period provided in (i) above :- 03 Days

Clause 2

Authority for fixing compensation under clause 2 **S.E. ICC,CPWD, Indore**

Clause 2A

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 **10** days

Mile stone(s) as per table given below:-

S.No.	Description of Milestone (Physical)	Time allowed in days (from date of start)	Amount to be with-held in case of non achievement of mile stone.
1	-----NIL-----		
2			
3			
4			
5			

Time allowed for execution of work **1(One) Month**

Authority to decide:

- (i) Extension of time **E.E.(E)** (Engineer in Charge or Engineer in Charge of Major Component in case of Composite Contracts, as the case may be)
- (ii) Rescheduling of mile stones
(Superintending Engineer in Charge or Superintending Engineer in Charge of Major Component in case of Composite Contracts, as the case may be)

Clause 6, 6A

Clause applicable - (6 or 6A) :- **6A**

Clause 7

Gross work to be done together with net payment /adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment Rs. **1 Lac.**

Clause 7 (A) Whether Clause 7A shall be applicable - **N/A**

Clause 10A

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

1..... 2. 3.....

4..... 5. 6.....

Clause 10B(ii)

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

Clause 10C

Component of labour expressed as percent of value of work = **15** %

Clause 10CA

S.No.	Material covered under this clause	Nearest Materials (other than cement, reinforcement bars and the structural steel) for which All India Wholesale Price Index to be followed	Base Price of all Materials covered under clause 10 CA*
1	-----N.A.-----		
2			
3			
4			

* Base price of all the materials covered under clause 10 CA is to be mentioned at the time of approval of NIT.

Clause 10CC

Clause 10 CC to be applicable in contracts with stipulated period of completion exceeding the period shown in next column **18** months -- Nil--

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

Component of civil (except materials covered under clause 10CA) /Electrical construction Materials expressed as percent of total value of work. - Xm%	}	--N.A.--
Component of Labour - expressed as percent of total value of work. Y%		
Component of P.O.L. - expressed as percent of total value of work. Z%		

Clause 11

Specifications to be followed for execution of work **Part-I 2013 (Int.) Part-II (1995) (Ext.) Part - IV (2013)**

Substation.

Clause 12

12.2. & 12.3 Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for building work **100%**

12.5 Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for foundation work **N.A.**

Clause 16

Competent Authority for deciding reduced rates. **S.E.(E)ICC,CPWD, Indore**

Clause 18

List of mandatory machinery, tools & plants to be deployed by the contractor at site:-

1. 2. 3.
 4. 5. 6.
 7. 8. 9.

Clause 25 : Place of Arbitration :- To be decided by Competent authority at the time of appointment of Arbitration .

For Total Claim upto Rs. 25.00 Lakhs

Designation	Constitution of Dispute Redressal Committee (DRC)
Chairman	SE, Indore Central Circle , CPWD, Indore
Member	Executive Engineer , ICD-I, CPWD, Indore
Member	Executive Engineer , ICD-II, CPWD, Indore
Presenting Offer	Executive Engineer (E), ICED, CPWD, Indore

Any litigation in court shall be filed within Indore only.

Clause 36 (i)

Requirement of Technical Representative(s) and recovery Rate

S.No.	Minimum Qualification of Technical Representative	Discipline	Designation (Principal Technical/ Technical Representative)	Minimum Experience	Number	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 36(i)	
						Figures	Words
1	Graduate Engineers Or Diploma Engineers	Elect.	Principal Technical Representative	2 Years	1 No.	Rs 15000/-	Rs. Fifteen Thousand Only
		Elect.		5 Years	1 No.		

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

Clause 42

(i) (a) Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates printed by C.P.W.D. ---N.A.--

(ii) Variations permissible on theoretical quantities:

(a) Cement

For works with estimated cost put to tender not more than Rs. 5 lakh. 3% plus/minus.

For works with estimated cost put to tender more than Rs.5 lakh. 2% plus/minus.

(b) Bitumen All Works 2.5% plus & only & nil on minus side.

(c) Steel Reinforcement and structural steel sections for each diameter, section and category 2% plus/minus

(d) All other materials. Nil

RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION

S.No.	Description of Item	Rates in figures and words at which recovery shall be made from the Contractor	
		Excess beyond permissible variation	Less use beyond permissible variation.
1	Cement	-----N.A.-----	
2	Steel Reinforcement		
3	Structural Sections		
4	Bitumen issued free		
5	Bitumen issued at stipulated fixed price.		

Commercial and Additional Conditions

1.0 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 Electrical installations.

1.2 Location:

Work shall be carried out at **UGC at Indore**

1.3 The work shall be executed as per CPWD General Specifications for Electrical works part-I(internal) 2013, Part-II(external)1994, and Part-IV(sub-station)2013 as amended upto date, relevant I.E. Rules, BIS/IES and as per directions of Engineer-in- charge. These additional specifications/conditions are to be read in conjunction with above and in case of variations; specifications given in these additional conditions shall apply. However, nothing extra shall be paid on account of these additional specifications and conditions, as the same are to be read alongwith schedule of quantities for the work.

1.4 The tenderer should in his own interest visit the site and get familiarize with the site conditionsbefore tendering.

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

2 Commercial conditions

2.1 Type of contract

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

2.2 Submission of Tenders: -

2.2.1 The tender consist in two parts:

a) Part-I – Eligibility Bid

b) Part -II – Price bid

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.

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 The pre bid meeting will be held in the office of EE(E), ICED, CPWD, Indore on * . Necessary clarification required by the department shall have to be furnished by the tenderer within the time given by the department for the same. The tenderer will have to depute his representative to discuss with the officer(s) of the department as and when so desired. In case, in the opinion of the department a tenderer is taking undue long time in furnishing the desired clarifications, his bid will be rejected without making any reference.~~

2.2.5

After obtaining clarifications from all the tenderers, the department may modify the technical & commercial condition/ specifications if required, and will intimate the tenderers whose technical cum commercial bids are acceptable.

2.2.6 The part-II of the tender i.e. price bid will be opened by the Executive Engineer(E) in the presence of the representatives of the tenderers who wish to be present.

2.2.7 In the price bid, there shall be no conditions whatsoever. In case any tenderer mentions any condition i/c conditional rebates in their price part, tender shall be rejected forthwith.

2.2.8 A tenderer will also not be allowed to withdraw or modify any condition at a time after the P.Q. bids have been accepted and the decision to open the price bid has been taken by the department.

2.2.9 The department reserves the right to reject any of all the price bids and call for fresh prices/ tenders as the case may be without assigning any reason.

3.0 Terms of payment

3.1 Payment shall be made on the basis of running account bill as per progress of execution of work.

Stage of

- i) On pro-rata supply of item received at site in good condition 75%
- ii) On completion of pro-rata installation 15%
- iii) On commissioning and completion of work 10%

4.0 Security Deposit

Security Deposit shall be deducted from each running bill and the final bill to the extent of @2½% of the gross amount payable subject to a maximum amount of 2.5% of the tendered value. The security deposit shall be released on the expiry of guarantee period stipulated in the contract i.e. Two years after completion of work. Bank guarantee will not be accepted as security deposit.

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 successful tenderer shall submit an irrevocable performance guarantee of 5% of the tendered amount in addition to other deposits mentioned elsewhere in the contract for his proper performance of the contract agreement within specified days of issue of letter of acceptance of tender. This guarantee shall be in the form of government securities or fixed deposit receipts or guarantee bonds of any scheduled bank or the State bank of India in the specified format. This bank guarantee shall be kept valid up to the stipulated date of completion and beyond till the recording of completion certificate for the work by the competent authority.

5.3 Income Tax, work contract tax, labour cess & other statutory deductions etc shall be made at source as per the prevalent laws. The deductions of Security Deposit, Income-Tax, Works Contract Tax etc shall be done after calculation of the above due payments as per clauses 3.1 to 3.3 and net payment shall be reduced accordingly.

6.0 Rates

6.1 The rates quoted shall be inclusive of all taxes and duties, no extra shall be paid on this account.

6.2 The department will not issue Octroi exemption certificate.

6.3 The contractor has to carry out maintenance as per manufacturer's standards for a period of 12 months from the date of handing over. Nothing extra shall be paid on this account.

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

8.0 Storage and Custody of Materials

For storage of sundry materials and erection equipments or else 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

The completion period of **Three Months** indicated in the tender documents is for the entire work of planning, designing, approval of drawings etc 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.

11.0 Guarantee

11.1 All equipments shall be guaranteed for a period of 2 years, from the date of taking over the installation by the department, against unsatisfactory performance and /or break down due to defective design, workmanship or material. The equipments 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. The decision of the Engineer-in-charge in this regard shall be final & binding on the contractor.

11.2 The tender shall guarantee among other things, the following: -

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

12.0 Power Supply

Arrangement of Electric supply (Three Phase/Single Phase) as required to carry out the work for successful commissioning of the system **is to be arranged by the contractor**. Department will not pay anything extra on this account. This shall be in the scope of successful firm.

13.0 Water Supply

Arrangement of Water supply for testing & for successful installation & completion of the system shall be in the scope of successful firm without any extra cost.

14.0 Acceptable Makes of Various Equipments

The acceptable makes of various equipments/components/accessories have been indicated in "Acceptable Makes". The tenderer shall work out the cost of the offer on this basis. Alternate makes are not acceptable.

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

16.0 Extent of work

16.1 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.

17.0 Works to be done by the Department

Unless otherwise mentioned in the tender specifications the following works shall be carried out by the department.

- i) To make the site available for the work.. The contractor should select such equipment for installation as can be properly installed in the spaces shown in specification drawings. While no guarantee can be given minor modification required by the contractor if mentioned in the tender or intimated immediately after the receipt of tender shall be carried out if structurally possible.
- ii) Provision of storage space at site during the contract period free of cost.

18.0 Exclusion and work to be done by other agencies:

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

- a) Major dismantling of any existing building work.

19.0 Inspection and Testing

19.1 All the tests certificate of the equipments are required to submit alongwith delivery of material.

19.2 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.

19.3 After completion of the work in all respects the contractor shall offer the installation for testing and operation.

20.0 Validity

Tenders shall be valid for acceptance for a period of **60 days** from the date of opening.

21.0 Compliance with Regulations and Indian Standards

21.1 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

21.2 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.

21.3 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.

22.0 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.

23.0 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.

24.0 Cooperation with other agencies

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

24.1 The work will be carried out with least disturbance during shifting & shut down taken in consultation with the client department.

25.0 Verification of correctness of equipment at Destination

The contractor shall have to produce all the relevant records to certify that the genuine equipments from the manufacturers has been supplied and erected.

26.0 Painting

This shall include cost of painting of the entire installation.

27.0 Maintenance

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

27.2 The maintenance, routine as well as preventive, for one year from the date of taking over the installation as per manufacturers recommendation shall be carried out on quarterly basis.

28.0 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) Drawing (if any)
- d) General specifications
- e) Relevant BIS or other international code in case BIS code is not available.

29.0 Warranty:

The solar power plant carries a Five (5) years' warranty against any manufacturing defects, as per existing warranty policy. Solar photovoltaic modules carry a performance warranty against excess of 20% degradation in Twenty Five (25) years as per existing warranty policy.

30.0 Use of Contract Documents and Information:

The programme Implementing Agency shall follow the specification, plan, drawing, pattern as mutually agreed or information furnished by or on behalf of the purchaser in connection therewith, and share with the persons engaged by the Programme Implementing Agency in execution of the contract. The Programme Implementing Agency shall not, without the Purchaser's prior written consent, make use of any document of information except for purposes of performing the contract.

31. The scope of work for the bidder include obtaining No objective Certificate (NOC) from Distribution Company for grid connectivity, complete design, engineer manufacture, supply, storage, civilwork, erection, testing and commissioning of the grid connected rooftop Solar PV project.

32. The Scope for net metering as per norms of MPEB Company should be included with following feature and liasing / meter charges shall be paid by agency and nothing extra shall be paid on this account.

- a) Purchasing of 3 Phase Net Meter
- b) Net Meter Agreement
- c) Application registration
- d) Meter testing Charge
- e) Meter Installation

**Executive Engineer (E)
ICED, CPWD, Indore.**

TECHNICAL SPECIFICATIONS:-

Solar PV system shall consist of following equipments/ components.

- Solar PV modules consisting of required number of crystalline PV modules.
- Mounting structures and civil structures.
- Earthing and lightening protections.
- IR/UV psrotected PVC pipes and accessories.

1. SOLAR PHOTOVOLTAIC MODULES:

(i) The PV modules used shall be made in India.

The PV modules must be Tire 1 and conform to the latest edition of IEC/ equivalent BIS Standards for PV module design qualification and type approval: **Crystalline Silicon Terrestrial PV Modules:** IEC 61215-2016, IEC 61730- 2016, IEC 61701, UL 1703, MCS, JET, CEC, CEC-Aus, IEC 62716, IEC 62759, **IEC 62804**, IEC 62782, IEC 60068-2- 68, IEC 61853, IS 14286, IS 61730, *****Mechanical load test as per IEC & UL Pa5400 Pa-front; 2400 –back.

(ii) The Photovoltaic modules shall be tested & approved by IEC authorised test centres as per relevant and latest IEC standards.

(iii) The module shall have warranty of 25 years with 20% degradation in performance as per industrial standard warranty conditions.

(iv) Each PV module shall have RF Identification Tag (RFID). The RFID can be inside or outside the module laminated, but must be able to withstand harsh environmental conditions. It must contain the following Information;

Name of the manufactures of PV Modules and solar cells.

Month and year of the manufacturer (separately for solar cells and modules).

I-V Curve for the module

Peak wattage, Im, Vm, Voc, Isc and FF for the module.

Unique Serial No. And Model No. of the Module.

(v) The solar photo-voltaic module of $\geq 330\text{Wp}$ power output under STC to be provided with high efficiency of more than 15% multi or mono crystalline silicon **solar cells**.

(vi) The Toughened glass shall have surface **anti-reflective coating** (ARC) to help to absorb more light in all weatherconditions.

(vii) It should have rugged design to withstand tough environmental conditions and high wind speeds (over 150 km/h).It shall perform satisfactorily in relative humidity upto 95% and temperature between **-10 deg C and 80 degC**, **Maximum system voltage: 1000 V**, **Maximum test load (+): 5400 Pa (550 kg/m²)**, **Design load (-): wind 163 kg/m² (1600 Pa)**, **Maximum test load (-): 244 kg/m² (2400 Pa)**

(viii) PV modules must be designed 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.

(ix) The PV module should be IEC 61215-Ed 2 & 61730-1&2 / UL certified and with MNRE (GOI)-SEC test certificate or from other accredited / approved labs.TheI-V characteristics of all suitable modules as per specifications, to be used in the systems are required to be submitted at the time ofsupply.

(x) Fill factor & efficiency of the solar module should not less than 75% & 15%

2. Module Mounting (Array) Structures:

- a. Design drawings with material selected shall be submitted for prior approval of department before any construction is done.
- b. The module mounting structure to be designed in such a way that it will occupy minimum space without sacrificing the output from suitable number of solar modules in series.
- c. The structure shall be designed to allow easy replacement of any module & shall be in line with the site requirements.
- d. MMS designed for **55M/Sec or 200 km/Hr will get** first preference
- e. Distance between
 - Two modules should not be less than 25 mm,
 - Module and Metal sheet or roof 100 mm,
 - In the case of elevated structure, MMS height should not go beyond 10 feet
- f. The frames and leg assemblies of the mounting structure should be of standard M.S. sections of angle, channel, tubes and any other sections conforming to **IS: 2062**.
- g. These structures should be hot dip galvanized for the long life in external weather conditions.
- h. The mounting structure should be of Fixed Type, Tilt angle suitable to site, Foundation **PCC, Fixing type with SS 304 fastener** with clamp fitted to provide rigidity to the structure.
- i. The array structure shall be grounded properly using Earthing kit.
- j. The frames and leg assemblies of the mounting structure should be of standard M.S. sections of angle, channel, tubes and any other sections conforming to **IS: 2062**.
- k. These structures should be hot dip galvanized (**80-120 micron thick coating**) OR cold form steel sections for module mounting structure & galvanization for cold formed steel that conforms to **IS:277** for the long life in external weather conditions.
- l. Galvanizing should meet **ASTM A-123 hot dipped** galvanizing or equivalent which provides at least spraying thickness of **80 microns on steel as per IS5905**
- m. The mounting structure should be of Fixed Type, Tilt angle suitable to site, Foundation **PCC M-20 (1:1.5:3)**, Fixing type with **SS 304** fastener with clamp fitted to provide rigidity to the structure OR GI
- n. Any Aluminum section used in MMS should be **anodized** with **minimum 18 micron coating** and alloy material should **comply with 6063 T6 standard**.
- o. All elevated/ free mounted/ roof integrated structure must use **AL clamp with EPDM/ Antitheft bolt/ A Raymond clip** to tighten the module.
- p. For roof integrated system riveted or J hook or SDS based fasteners should be used.
- q. For uniform tightening & to avoid over tightening **torque wrench** must be used during INC.
- r. EPC should optimize the tilt & orientation to increase the **ground coverage ratio**.

3. Minor Building Works

- a. Existing terrace space shall be used to install Solar PV array.
- b. The structure for installation of Solar PV array shall be designed to withstand operating environmental conditions for a period of minimum 25 years.
- c. It is required to design the RCC /PCC block support structure (on which PV module will be installed) in such a way that all loads are transferred to the existing columns of the buildings.
- d. Such grid design should be presented to department, which are certified by qualified structural
Available drawing of the building will be provided to the agency on request.
- e. The support structure should be installed in a manner to leave sufficient space for repair and maintenance aspects of the rooftops, particularly for leakages.
- f. **The total load of the structure (when installed with PV modules) on the terrace should be less than 60 kg/m². For structure weight more than 60kg/m².**
- g. Installation of support structure for solar PV mounting should not tamper with the water proofing of roofs. If tampered, it must be restored with proper waterproofing so that there is no leakage.

- h. The support structure design for each building will require approval from department before installation of structure and PV modules.
- i. PV array shall be installed in the terrace space free from **any obstruction and/or shadow**.
- j. PV array shall be installed utilizing maximum terrace space to minimize effects of shadows due to adjacent PV panel rows.
- k. Adequate spacing shall be provided between two panel frames and rows of panels to facilitate personnel protection ease of installation, replacement, cleaning of panels and electrical maintenance.
- l. PV array shall be oriented in the south direction at any suitable tilt angle in order to maximize annual energy yield of the plant.
- m. PV panel frames shall be fixed and grouted to RCC/PCC blocks, which in turn shall be secured to terrace structure in a seamless manner with no impact on waterproofing of the existing terrace structure.
- n. Ample clearance shall be provided in the layout of the inverter and DC/AC distribution boxes for adequate cooling and ease of maintenance.
- o. Civil works if any required for construction of a suitable control room etc. at the site will be provided by the Agency.

4. PCU / INVERTER:

- a. PCU 3-phase with neutral inverter shall be supplied as integrated unit depending upon the size of the solar power system. It should conform to IEC61683 and must additionally conform to the relevant national/ international Electrical Safety Standards IEC60068-2.
- b. The PCU shall be mounted either on a suitable MS stand on the floor or on the wall with proper supports in the control room. All cable entry to and from the PCU shall be fully sheathed to prevent access of rodents, termites or other insects into the PCU from bottom/top of the PCU.
- c. PCU should be communicating on the **Modbus TCP Protocol** and should be provided with Ethernet port(s) for communication. The Modbus register mapping details of the inverter shall be provided to the MPSTDC along with the technical specifications of the PCU in the tender Part-I.
- d. Inverter should work under
 - Ambient temperature range -25...+60°C (-13...+140°F),
 - with derating above 55°C (131°F), -25...+60°C (-13...140°F) with derating above 50°C (122°F),
 - Relative humidity 0...100% condensing,
 - Sound pressure level, typical 50 dBA @ 1 m,
 - Maximum operating altitude without derating 2000 m / 6560 ft,
 - Environmental protection rating IP65, Cooling Natural or forced

The PCU should provide the following minimum Indications (through LEDs & LCD display)

- Inverter ON
- Grid ON
- Inverter under voltage/overvoltage
- Inverter overload
- Inverter over temperature.

Protections:

- Over voltage both at input & output
- Over current both at input & output
- Over/under Grid frequency
- Over temperature
- Short circuit
- Protection against lightning
- Surge voltage induced at output due to external source.

- e) The inverter shall be designed for continuous, reliable power supply as per specifications. The inverter shall have high conversion efficiency from 25 percent load to the full rated load.
- f) Output Sine wave with less than 3% THD from no load to full load at 0.8 Power Factor lag or lead. The efficiency of the inverter shall be more than 94% at full load and more than 80% at partial load (50%-75%). The supplier shall specify the conversion efficiency in the offer.
- g) The inverter shall have internal protection arrangement against any sustained fault in the feeder. The inverter shall have provision for input & output isolation.
- h) Inverter shall be tested for islanding protection performance and should be provided. When the mains power is off, the PCU should also get automatically off so that back-feeding to the grid is not possible.
- i) The software (Plant Manager & PC for remote monitoring through LAN) and hardware **except PC**, required for interfacing the system are to be supplied.
- j) Maximum Power Point Tracker (MPPT) shall be integrated into the PCU to maximize energy drawn from the Solar PV array. The details of working mechanism of MPPT shall be furnished. Each solid-state electronic device shall have to be protected to ensure long life of the inverter as well as smooth functioning of the inverter.
- i) The dimension, weight, foundation, makes details etc. of the PCU / Inverter shall be clearly indicated in the detailed technical document. Good quality & reputed makes having minimum two years of trouble free successful functioning in similar solar PV system should be supplied.
- k) The PCU shall be capable of complete automatic operation, including wake-up, synchronization & shut down
- l) Built-in with data logging to remotely monitor system performance through external PC shall be provided.
- m) Inbuilt Zero export facility/ external device recommended by the inverter manufacturer.**

5. Junction box and distribution boards:

- a) The junction boxes should be dust, vermin & waterproof & made of FRP/ABS/PC/ minimum 1.6 mm thick CRCA sheet plastic for outdoor use and IP 65 rated (for outdoor) / IP 21 (for indoor) and IEC 62208, for long-term use in PV systems. In addition, the direct connection between the strings and the spring clamp connectors should ensure a durable and safe installation.
- b) The junction boxes shall have suitable cable entry points fitted with cable glands of appropriate sizes for both incoming & outgoing cables. Suitable markings shall be provided on the bus bar for easy identification & cable ferrules shall be fitted at the cable.

6. Cables and hardware:

- a) **Flexible tinned copper solar grade cables** of appropriate size and voltage rating of 660/1000V to be used in the system and shall conform to IS 694/1554 standards. The cable should have excellent resistance to heat, cold, water, oil, abrasion, UV radiation.
- b) Required sizes of flexible copper cables between array interconnections, array to junction boxes, junction boxes to Inverter and aluminium armored cable from inverter / AC DB to location of proposed Net Meter/ power synchronize point shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use.
- c) Cable Routing/ Marking: All cable/wires are to be routed in a GI cable tray and suitably tagged and marked with proper manner by good quality ferrule or by other means so that the cable is easily identified.
- d) As per site requirement Cable laying through underground / across the road by providing necessary GI pipe is within the scope of work of the tenderer.
- e) The Cable should be so selected that it should be compatible upto the life of the solar PV panels i.e. 25 years.

7. Instrumentation, measurement and monitoring:-

- a. The scope of work shall include for supply and installation of pyrometer, temperature probes for recording the solar panel temperature, anemometer for measuring the wind speed. All these instruments shall be integrated and the data should be logged for viewing on the PC screen. Necessary software also shall be provided for the same.
- b. Data Logging Provision for system monitoring, time and date stamped system data logs for analysis shall be made.
- c. Metering and Instrumentation for display of systems parameters and status indication to be provided.

PV array energy production:

- a. Digital Energy Meters to log the actual value of AC/ DC voltage, Current & Energy generated (each day / cumulatively) by the PV system shall be provided.
- b. **Solar Irradiance:** An integrating Pyranometer (Class II)/ silicon based solar sensor shall be provided, with the sensor mounted in the plane of the array. Readout integrated with data logging system.
- c. **Temperature:** Temperature probes for recording the Solar panel temperature and ambient temperature to be provided complete with readouts integrated with the data logging system
- d. All major parameters available on the digital bus and logging facility for energy auditing shall be available on the PC display.

The following parameters should be accessible via the operating interface display.

- a. AC Voltage
- b. AC Output current.
- c. Output Power
- d. DC Input Voltage.
- e. DC Input Current
- f. Time Active
- g. Time disabled
- h. Time Idle
- i. Temperatures (oC)
- j. Inverter Status.

8. System protections requirements:

Protective function limits (Viz-AC Over voltage, AC Under voltage, over frequency, under frequency, ground fault, PV starting voltage, PV stopping voltage, over voltage delay, under voltage delay, Ground fault delay, PV starting delay, and PV stopping delay).

9. In addition to above, the system shall be provided with the following:

- a) **Earthing:** The structure of the PV arrays will be grounded properly using adequate number of Chemical earthing. All metal casing / shielding of the system shall be thoroughly grounded to ensure safety of the solar systems.
- b) **Lightning and O/V protection:** The SPV systems shall be provided with lightning & over voltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub- system components. The source of over voltage can be lightning, atmosphere disturbances etc.
- c) Earthing for **LPS shall be** done in accordance IS 3043-1986, provided that Earthing conductors shall have a minimum size of 6 mm² copper wire or 10 mm² aluminum wire or 3 mm X 70 mm hot dip galvanized steel flat.
- d) All wiring/cables should be in proper conduit or suitable casing and wires should not be hanging loose.

- e) All connections are to be made through suitable cable/lug/terminals; crimped properly & with use of CableGlands.
- f) Switches / Circuit Breakers / Connectors-safety IS/ IEC 60947 part I, II & III, EN 50521
- g) Fuses to be provided to protect against short circuit conditions.
- h) All the components of the systems viz PV modules, Electronics, etc should have type approval /test certificates **as per MNRE guidelines.**
- i) All components and materials used in the system should be of good quality & conform to the BIS / IEC standards / specifications, wherever available / applicable.
- j) Each system should have number plate with name & logo of the manufacturer and the month / year of installation.
- k) Operation and Maintenance / Instruction Manual (with Do's and Don'ts) to be provided with each system.
- l) Danger boards should be provided as and where necessary as per IE Act./IE rules as amended up to date.

10. List of acceptable makes for various electrical items are as under otherwise makes as per Specified in item of works:-

S.No.	Material	Acceptable Make
1	Solar PV Module	Adani / Havells / TATA Power.
2	Inverter / PCU	Fimer (ABB) / Havells / Ingeteam
3	Array Structure	KOHL / OFSL / Tata
4	Array Junction Box	Hansel / Havells /Fibox
5	Control & Power cable	Havells / RR Kabel /LAPP/Polycab
6	Switch Gear	L&T/Havells/Schneider
7	Chemical Earthing	Universal / Earth Plus / OBO
8	All other materials	Make and sample to be approved by Engineer-incharge before use in work.

Note: Any other material with the approval of Engineer-in-Charge.

Executive Engineer(E)
Indore cent. Elect. Divn.,
C.P.W.D., Indore

Schedule of Work

NAME OF WORK : Supply, Installation, Testing and Commissioning of ongrid Solar Photovoltaic Power Plant at User Guest House Building ,UGC-DAE, CSR, Housing Complex , Indore.

S. No	Description Item	QTY	Unit	Rate	Amount
	Supply, Installation, Testing and Commissioning of ongrid Solar Photovoltaic Power Plant conforming to MNRE specifications as amended, consisting of Mono/Poly Crystalline silicon solar cells, net metering facility, necessary protections, earthing, mounted on Aluminium/GI structure of suitable strength with following components complete as required:- a) Solar Photovoltaic Module of capacity 330 Wp or above, manufactured in India, conforming to IS 14286/IEC 61215, IS/IEC 61730-Part-1, IS/IEC 61730-Part-2. Solar Photovoltaic Module conversion efficiency shall not be less than 16.5%. PV modules used in solar power plants/ systems must be warranted for their output peak wattcapacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.				
	b) Power Conditioning Unit (PCU) of 350-800 V DC Input voltage range and 400 VAC, three phase, 4 wire, 50Hz +/- 2.5 Hz, output voltage suitable to generate AC Power with efficiency not less than 97%, total harmonic distortion less than 3% and suitable for ambient temperature from 0 to 50 degree C. The PCU shall adjust the voltage and frequency level to suit the Grid Voltage Frequency.				
	c) Data Monitoring System complete with accessories.				
	d) Fixing of Array junction box & Main junction box with IP 65 protection and termination arrangement for incoming and outgoing cable along with glands, lugs and other accessories etc. as required.				
	e) Lightning and surge voltage protection.				
	f) Connections & Interconnections by supplying & fixing required size XLPE insulated copper conductor 1.1 kV grade armoured power and control cables between solar modules, main power cable to grid supply PCU unit along with supplying & fixing of necessary channel/conduit lugs and other accessories etc. as required.				
	Note :- (The Scope for net metering as per norms of MPEB Company should be included with following feature and liasening / meter charges shall be paid by agency and nothing extra shall be paid on this account. a) Purchasing of 3 Phase Net Meter b) Net Meter Agreement c) Application registration d) Meter testing Charge e) Meter Installation)	5.940	KWp	61060	362696.40
	Total				362696.40
	SAY				362696.00

**Executive Engineer (E)
ICED, CPWD, Indore.**