

GOVERNMENT OF INDIA
OFFICE OF
THE EXECUTIVE ENGINEER (ELECT.)
C.P.W.D., JABALPUR



NOTICE INVITING TENDER

N.I.T. No. : 12/EE(E)/Jabalpur/2026-27

NAME OF WORK : Providing 7 kWp solar power generation at SIB, Satna.

**ESTIMATED COST
PUT TO TENDER** : **Rs. 4,02,758/-**

EARNEST MONEY : **Rs. 8,055/-**

TIME ALLOWED : 45 Days

**Assistant Engineer (E)
CPWD, Jabalpur.**

INDEX FOR e-TENDERING

Name of work : Providing 7 kWp solar power generation at SIB, Satna.

S. No.	Description	Page Nos.
1	Front Page	01
2	Index	02
3	Information & Instruction for contractor for e-Tendering & List of Document.	03-07
4	Proforma 1criteria for Evaluation of the Performance of Contractors for pre eligibility	8-14
5	Form-A, Form-B, Form- B1, Form-C, Form C1, Form- C3, Form-D1, Form-E & Form-F	15-23
6	Format of EMD Receipt	24-24
7	NIT CPWD-6	25-28
8	CPWD-7 & Schedule F	29-36
9	Form of Earnest Money Bank Guarantee	37-38
10	Commercial, Additional & Technical Terms and Condition, specification & makes	39-77
11	Annexure -I of PG Submission	78-79
12	Schedule of works	80-81

Certified that this Bid documents contains pages **01 TO 81** excluding front and back cover page.

**Assistant Engineer (E)
CPWD, Jabalpur**

**INFORMATION AND INSTRUCTIONS FOR CONTRACTORS FOR e-TENDERING
FORMING PART OF NIT AND TO BE POSTED ON WEBSITE**

The Executive Engineer(E), CPWD, Jabalpur (Ph:- 0761-2997054) invites on behalf of President of India online **Percentage rate Bids From the Eligible Contractors as per OM No. DG/Enlist. Rules-2026/Misc/01 Dated – 31/12/2025, enlisted in CPWD in the appropriate class in Building & Road (erstwhile Composite/ Building/ Infrastructure) Category /Manufacturer OEM/ specialized agencies in two bid system for the following work:-**

Sl.	NIT No.	Name of work & Location	Estimated cost put to tender	Earnest Money	Period of Completion	Period of submission /uploading of eligibility and financial bids	Time & date of opening of Eligibility/ Technical bid	Time & date of opening of Financial bid
1	2	3	4	5	6	7	8	9
	12/EE(E)/Jabalpur/ 2026-27	Providing 7 kWp solar power generation at SIB, Satna.	₹ 4,02,758/-	₹ 8,055/-	45 Days	up to 3.00 PM 13.07.2026	03:30 PM on 13.07.2026	

1. Contractors who fulfill the following requirements shall be eligible to apply. Joint ventures are not accepted.
[1(b), 1(c) & 1(d) are not applicable for CPWD enlisted contractors of appropriate class. 1(a) & 1(e) are applicable for CPWD enlisted contractors also].
 - a. Should have satisfactorily completed the works as mentioned below during the last Seven years ending last day of the month previous to the one in which tenders are invited.
 - (1) Three similar works each costing not less than **Rs. 1.61 Lakhs**, or
 - (2) Two similar works each costing not less than **Rs. 2.42 Lakhs** or
 - (3) one similar work costing not less than **Rs. 3.22 Lakhs**
 Similar work shall mean works of “Supply Installation testing and commissioning of “Solar Power Generation system”. The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated from the date of completion to previous day of last day of submission of tenders.
 - b. Should have had Average Annual Financial Turnover of **Rs. 1.21 Lakhs** on construction works during the last three years ending 31st March 2025 (Scanned copy of Certificate from CA with Unique Document Identification Number (UDIN) to be uploaded). The value of annual turnover figures shall be brought to the current value by enhancing the actual turnover figures at simple rate of 7% per annum. (OM No. DG/SOP 2022/07 dated 09.11.2022)
 - c. Profit/loss : The bidder Should not have incurred any loss (profit after tax should be positive) in more than two years during available last five consecutive balance sheet (standalone financial statement), duly certified and audited by the Chartered Accountant year ending 31st March 2025.
 - d. Should have a Banker's Certificate from a commercial Bank for **Rs 1.61 Lakhs** or Net Worth certificate from CA with Unique Document Identification Number (UDIN) of minimum 10 % amount of ECPT i.e. **Rs. 0.40 Lakhs** (Scanned copy of original to be uploaded).

- e. Should have bidding capacity equal to or more than the estimated cost of the work put to tender. The bidding capacity shall be worked out by the following formula:

$$\text{Bidding Capacity} = \{[A \times N \times 1.5] - B\}$$
Where,
A = Maximum turnover in construction works executed in any one year during the last seven 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 a simple rate of 7% per annum.
N = Number of years prescribed for completion of work for which bids have 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. The intending bidder must read the terms and conditions of CPWD-6 carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.
 3. The information and instruction for bidders posted on web site shall form part of bid document
 4. The bid document consisting of Plans, Specifications, Schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website <https://etender.cpwd.gov.in> or www.cpwd.gov.in free of cost.
 5. 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 Insurance Surety Bonds, Account Payee Demand draft or Banker's Cheque or Fixed Deposit Receipts or/ and Bank Guarantee including e- Bank Guarantee (for balance amount as prescribed) from any of the Commercial Bank towards EMD in favor 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.
 6. Those contractors who are not registered or have not updated their profile on the website mentioned above, are required to get registered/update their profile beforehand. The necessary training materials including the videos with step to step process are available on download section of <https://etender.cpwd.gov.in>
 7. The intending bidder must have valid class-III digital signature certificate with encryption key (combo type) to perform any operations/transactions on the e-tendering portal / website and the bidder should download and install the em-signer on their system as per instruction available on download section of <https://etender.cpwd.gov.in>
 8. On opening date, the contractor can login and see the opening process. After opening of bids he will receive the competitor bid sheets.
 9. Contractor can upload documents in the form of JPG format and PDF format.
 10. Certificate of Financial Turn over : At the time of submission of bid contractor may upload affidavit/Certificate from CA mentioning financial Turn Over of Last 7 years or for the period as specified in the bid document and further details if required may be asked from the contractor after opening of technical bids. There is no need to upload entire voluminous balance sheet.
 11. ~~Contractor must ensure to quote rate of each item. The column meant for quoting rate in figures appears in yellow colour and the moment rate is entered, it turns sky blue.~~
In addition to this, while selecting any of the cells a warning appears that if any cell is left blank the same shall be treated as "0". Therefore, if any cell is left blank and no rate is quoted by the bidder, rate of such item shall be treated as "0" (ZERO).

However, if a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above/below on the total amount of the tender or any section / sub head in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.

12. The Technical Bid shall be opened first on due date and time as mentioned above. The time and date of opening of financial bid of contractors qualifying the technical bid shall be communicated to them at a later date.
- ~~13. Pre Bid conference shall be held in the chamber of Executive Engineer (E) Jabalpur, CPWD at 12:00 (Noon) on to clear the doubt of intending bidders, if any.~~
14. 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.
15. The department reserves the right to reject any prospective application without assigning any reason and to restrict the list of qualified contractors to any number deemed suitable by it, if too many bids are received satisfying the laid down criterion.
16. The bids for the work shall remain open for acceptance for a period of 75 (Seventy Five) Days from the date of opening of eligibility bids.

Further

- (i) If any tenderer withdraws his tender or makes any modification in terms and conditions of the tender which is not acceptable to the department within 7 days after last date of submission of bids, then the Government shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the earnest money as absolutely irrespective of letter of acceptance for the work is issued or not.
 - (ii) If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department after expiry of 7 days after last date of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
 - (iii) In case of forfeiture of earnest money as prescribed in para (i) and (ii) above, the bidders shall not be allowed to participate in the re-bidding process of the same work.
17. This Notice Inviting Bid shall form a part of the contract document. The successful bidder /contractor, on acceptance of his bid by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:-
- a) The Notice Inviting Bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the bid as uploaded at the time of invitation of bid and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence & negotiation leading there to.
 - b) Standard C.P.W.D. Form 7 amended up-to correction slips issued up to a day Previous to the last date of receipt of tender or other Standard CPWD Form as applicable

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

S.No.	List of Document
1	Copy of receipt for deposition of original EMD issued from division office of any Executive Engineer (including / NIT issuing EE/AE), CPWD.
2	Earnest Money in the form of Insurance Surety Bonds, Account Payee Demand Draft or Banker's Cheque or Fixed Deposit Receipt (FDR), or Bank Guarantee including e-Bank Guarantee (for balance amount as prescribed) from any of the Commercial Bank drawn in favor of Executive Engineer, JCD, CPWD, Jabalpur shall be scanned and uploaded to the e-Tendering website within the period of bid submission. The Original EMD should be deposited either in the office of Executive Engineer inviting bids of division office or any Executive Engineer, CPWD within the period of bid submission. The EMD receiving Executive Engineer (including NIT issuing EE / AE) shall issue a receipt of

	deposition of earnest money deposit to the bidder in a prescribed format (enclosed) uploaded by the tender inviting EE in the NIT.
3	Copy of Enlistment Order of CPWD Contractor in Building and Road Category of appropriate class (for CPWD enlisted contractors)
4	Letter of Transmittal (Not applicable for approved & eligible CPWD Buildings & Roads category contractors)
5	Certificate of Financial Turnover from CA (Form – A). (Not applicable for approved & eligible CPWD Buildings & Roads category contractors)
6	Banker's Certificate (Form – B) or Net Worth Certificate (Form – B1). (Not applicable for approved & eligible CPWD Buildings & Roads category contractors)
7	Details of Eligible Similar Nature of Works (Form – C).
8	Details of Projects Under Execution (Form – C1).
9	Calculation of Bidding Capacity (Form – C3)
10	Structure and Organization Form (Form – E) (Not applicable for approved & eligible CPWD Buildings & Roads category contractors)
11	GST Registration Certificate of the State in which the work is to be taken up, if already obtained by the bidder. If the bidder has not obtained GST registration in the State in which the work is to be taken up, or as required by GST authorities then in such a case the bidder shall scan and upload following undertaking along with other bid documents. “If work is awarded to me, I/we shall obtain GST registration Certificate of the State, in which work is to be taken up, within one month from the date of receipt of award letter or before release of any payment by CPWD, whichever is earlier, failing which I/We shall be responsible for any delay in payments which will be due towards me/us on a/c of the work executed and/or for any action taken by CPWD or GST department in this regard.”
12	Valid Electrical Contractor License or undertaking that they will either obtain valid electrical license at the time of execution of electrical work or associate contractor having valid electrical license of appropriate class.
13	Undertaking by Contractor on his letter head in the following format: “In case, I/We become first lowest tenderer and I/We are not eligible agency as per eligibility criteria; I/We will associate eligible agency fulfilling eligibility criteria as per NIT and will submit documents as required within 15 days of issue of letter of intent otherwise department may take action against me/us as per clause-3 of the applicable GCC of the agreement and may forfeit performance guarantee absolutely. I/We shall also fulfil all the formalities for association of the specialized agencies as per the conditions mentioned in the “Special Conditions for Association of Specialized Agencies”.
14	Undertaking by contractor on his Letter-Head in the following format: “I / We declare that I / We have not been Debarred / Blacklisted by Central Government /State Government.”
15	Certificate of ERP Training (Office Memorandum No. DG/Enlist. Rules-2023/ 10 dated 22.04.2024) For approved & eligible CPWD Buildings & Roads category contractors: The existing enlisted contractor of CPWD either himself or his authorized representative shall take compulsory ERP (Enterprise Resource Planning) training through any of the CPWD Regional Training Institutes (RTIs) at Delhi, Mumbai, Chennai and Kolkata, National CPWD Academy (NCA) Ghaziabad, Training arranged by Graduates of ERP "Train the Trainers Programme" conducted by NCA, Ghaziabad or through any other special training arranged by ERP unit of CPWD before 30.06.2024. Training will be valid only when participants are registered in LMS (Learning Management System) of ERP and certificate is issued through LMS of ERP. From 01.07.2024, the enlisted contractor will not be allowed to participate in tendering process without uploading the

	certificate of above training.
	For SOLAR Manufacturers (OEM), Specialized Firms: In case of non-enlisted contractors being first lowest in any of the tender then either himself or his authorized representative shall take compulsory ERP (Enterprise Resource Planning) training through any of the CPWD Regional Training Institutes (RTIs) at Delhi, Mumbai, Chennai and Kolkata, National CPWD Academy (NCA) Ghaziabad, Training arranged by Graduates of ERP "Train the Trainers Programme" conducted by NCA, Ghaziabad or through any other special training arranged by ERP unit of CPWD within two months from the date of issue of Intent Letter. Training will be valid only when participants are registered in LMS (Learning Management System) of ERP and certificate is issued through LMS of ERP. Failure to do so, a recovery of Rs. 2,000/- per week shall be made from the R/A bill without any show cause notice in this regard.

18. Documents to be submitted at the time of submission of Performance Guarantee by the lowest tenderer:

- i.) Authorization certificate from OEM.
- ii.) Undertaking from OEM for this work for unconditional support technically throughout the execution of work and useful life of the system.
- iii.) Undertaking from OEM for this work, providing all spares required for healthy functioning of the equipment for at least seven years from the date of supply of equipment.
- iv.) The contractor has to submit the complete Technical Specification of Solar Power Generation System for approval as per NIT criteria.

Assistant Engineer (E)
CPWD, Jabalpur

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 100% marks for twice the minimum eligibility criteria				
(ii)	Solvency Certificate 4 marks	(ii) 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) as per Assessment in Form D1. (40 marks)		
Completed works (max. 25 marks)	On going works (max. 15 marks)	(Total marks assessed)

Section – I
Brief particulars of the work

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

S.No.	Name of work	Estimated Cost	Period of Completion
1	Providing 7 kWp solar power generation at SIB, Satna.	Rs. 4,02,758/-	45 Days

2. The work is situated at – SIB, Satna

General features and major components of the work are as under: SITC of 3kWp Solar power Generation System at Type V Quarter.

3. Work shall be executed according to General Conditions of Contract for Central P.W.D. Works available separately at printer's outlets. The bidder may obtain the address of the outlets from the Executive Engineer.

Section – II

1.0 General :

Information & instruction for Bidders

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

2.0 Definitions :

- 2.1 In this document the following words and expressions have the meaning hereby assigned to them.
- 2.2 Employer: Means the President of India, acting through the Assistant Engineer
- 2.3 Bidder: Means the individual, proprietary firm, firm in partnership, limited company private or public or corporation.
- 2.4 "Financial year" unless stated otherwise

3.0 Method of application:

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

4.0 Final decision making authority.

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

5.0 Particulars provisional

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

6.0 Site visit

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

7.0 Initial Criteria for eligibility

7.1 The Bidder should have satisfactorily completed similar works during the last Seven years ending last date of the month previous to the one in which tenders are invited. For this purpose cost of work shall mean gross value the completed work including cost of material supplied by the Government/Client but excluding those supplied free of cost. This should be certified by an officer not below the rank of Executive Engineer/Project Manager or equivalent.

(i) Three similar works each costing not less than Rs. 1.61 Lakh similar or complete two works each costing not less than Rs. 2.42 Lakh or complete One similar work costing not less than Rs. 3.22 Lakh. The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated from the date of completion to previous day of last date of submission of tenders.

Similar work shall mean works of “Solar Power Generation System”

~~(ii) For EPC tenders under Mode I/II only (Applicable for CPWD enlisted contractors also). One completed work costing not less than Rs. 1.38 Lakh technology as proposed by bidder in the letter of transmittal. This work can be part of eligible work at 7.1(i) above or as a separate work.~~

7.2 The bidder should have had Average Annual Financial Turnover of Rs. 1.21 Lakh on Civil/Electrical construction work during the last three consecutive years as per the balance sheets duly audited by Chartered Accountant Year in which no turnover is shown would also be considered for working out the average. The value of annual turnover figures shall be brought to current value by enhancing the actual turnover figure at simple rate of 7% per annum.

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

7.4 The bidder should have a Banker's certificate from a Commercial Bank for Rs. 1.61 Lakh certified by his Bankers. (Not required if applicant is a CPWD registered contractor of appropriate class) or the bidder should submit Net worth Certificate of minimum 10% of ECPT issued by the certified Chartered Accountant (on the format prescribed in form B-1)

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

7.6 Bidding Capacity (applicable for CPWD enlisted contractors also). The bidding capacity of the contractor should be equal to or more than the estimated cost of the work put to tender. The bidding capacity shall be worked out by the following formula:

Bidding Capacity- $[AxNx1.5]-8$)

Where,

A Maximum turnover in construction works executed in any one year during the last seven 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 a simple rate of 7% per annum.

N-Number of years prescribed for completion of work for which bids have been invited.

B=Value of existing commitments of ongoing works during the period of execution of work for which bids have been invited

Notes:

1. The bidder should submit bidding capacity as per Form C-3
2. Bidding capacity is applicable for all the contractors including CPWD enlisted contractors.
3. Bidding capacity formula, for CPWD contractors who are enlisted based on rule 6.1.7 of Enlistment Rules-2024 ie government retired engineer/ architect for three years from the date of issue of enlistment order, is as follows:-
Bidding Capacity = $((A \times N \times 1.5) - B)$

Where

A=Banker certificate figure as submitted by applicant (ie. government retired engineer/ architect) at the time of enlistment for first year of enlistment and subsequent fresh bankers certificate for second and third year respectively. Value of A for first year will be mentioned in the enlistment order by the member secretary of advisory committee for enlisting authority.

N= Number of years prescribed for completion of work for which bids have been invited.

B=Value of existing commitments of ongoing works during the period of execution of work for which bids have been invited. This value is for newly enlisted entity.

Within three years from the date of issue of enlistment order, the newly enlisted entity has to develop its own bidding capacity and thereafter the general bidding capacity formula being used for other entities shall be applicable to it for calculation of bidding capacity.

Newly enlisted entity may like to follow general bidding capacity formula even before period of three years if it so chooses.

4. Bidding capacity, for CPWD contractors who are enlisted based on rules 9.6.3 & 9.6.4 of Enlistment Rules-2024 i.e. new entity based on previously enlisted entity for three years from date of issue of enlistment order, is as follows:-

Annual turnover of newly enlisted entity shall be in proportion to the shareholding of partners/directors in the original enlisted entity at the time of enlistment of the newly enlisted entity.

Within three years from the date of issue of enlistment order, the newly enlisted entity has to develop its own bidding capacity and thereafter the general bidding capacity formula being used for other entities shall be applicable to it for calculation of bidding capacity. Newly enlisted entity may like to follow general bidding capacity formula even before period of three years, if it so chooses. Bidding Capacity for newly enlisted entity based on rules 9.6.3 & 9.6.4 enlistment rules-2024 shall be as follows

$[A \times N \times 1.5) - B)$

Where

A Proportionate share of newly enlisted director/partner in originally enlisted company/firm multiplied by the factor A, as given below. Value of A' will be mentioned in the enlistment order by member secretary of Advisory committee for Enlistment Authority, it will remain same for three years

A Maximum turnover in construction works executed in any one year during the last seven 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 a simple rate of 7% per annum. This value is of originally enlisted entity at the time of enlistment of newly enlisted entity.

N-Number of years prescribed for completion of work for which bids have been invited.

B=Value of existing commitments of ongoing works during the period of execution of work for which bids have been invited. This value is for newly enlisted entity.

~~5. Enlisted entities based on rules 6.1.7, 9.6.3 or 9.6.4 of enlistment rules 2024 can submit MoU from agency having requisite experience for structural system technology if the enlisted entity does not have required experience.~~

8 Evaluation criteria

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

8.1.1 The initial criteria prescribed in para 7.0 above in respect of experience of eligible similar works

completed, loss, Banker's certificate, financial turnover and bidding capacity etc. will first be scrutinized and the bidder's eligibility for the work be determined.

8.1.2 The bidders qualifying the initial criteria as set out in para 7.0 above will be evaluated for following

criteria by scoring method as mentioned in Proforma -1 on the basis of details furnished by them.

(a) Financial strength (Form 'A' & 'B' or B1)	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 'C') - Time over run	Maximum 20 marks
(d) Performance on works (Form 'D1') - 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.

9. Financial information

Bidder Should furnish the Annual financial statement for the last five Years in (Form "A"). Banker's Certificate in (Form "B") or Net worth certificate in (Form "B-1")

10. Experience of Similar works

10.1 Bidder should furnish the list of eligible similar nature of work successfully completed during the

last Seven Year in (Form "C") and ongoing works as well (Form C-1).

10.A. ~~Experience of technology proposed to be used in the work (For EPC tenders under mode I/II~~

~~only)~~

~~Bidder should furnish the detail one work successfully completed during the last seven years using the structural system technology proposed in the letter of transmittal (Form "C-2") along with experience certificate in the Form "D-2"~~

11. Organization information

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

12. Letter of Transmittal

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

13. opening of Price bid

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

14 Award criteria

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

- Amend the scope of work and value of contractor
- Reject any or all the application without assigning any reason

14.2 Any effort on the part of the bidder or his agent to exercise influence or to pressurize the employer.

would result in rejection or this bid canvassing of any kind is prohibited.

**SECTION III
INFORMATION REGARDING ELIGIBILITY
LETTER OF TRANSMITTAL**

To
The Assistant Engineer (Elect)
CPWD, Jabalpur

Subject: Providing 7 kWp solar power generation at SIB, Satna.

Sir,

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 E and accompanying statement are true and correct.
2. I/we have furnished all information and details necessary for eligibility and have no further pertinent information to supply.
3. I/we submit the requisite certified solvency certificate and authorize the Executive Engineer.....to approach the Bank issuing the solvency 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

- ~~5. I/we hereby certify that I/we will use following structural system technology in the work (Applicable for EPC tenders under Mode I/ II only)~~
- ~~6. I/we submit the certificate in support of having successfully completed the following work with the technology proposed to be used in the work (Applicable for EPC tenders under Mode I/ II only)~~
- ~~7. I/we hereby attaching copy of type test report conducted in respect of precast concrete construction system technology proposed to be used in the work (Applicable if precast concrete construction system technology is proposed by bidder for EPC tenders under Mode I/ II only Certificate : It is certified that the information given in the enclosed eligibility bid are correct. It is also certified that I / We shall be liable to be debarred, disqualified / cancellation of enlistment in case any information furnished by me / us is found to be incorrect.~~
- ~~8. I/we hereby submit undertaking on structural stability and soundness as per prescribed format Form 'F'.~~

Certificate : It is certified that the information given in the enclosed eligibility bid are correct. It is also

certified that I/we shall be liable to be debarred disqualified/ cancellation of enlistment in case any information furnished by me/ us is found to be correct.

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 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 financial 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"
BANKER'S CERTIFICATE FROM A COMMERCIAL BANK

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

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

(Signature) For the Bank

NOTE

1. Banker's Certificates should be on letter head of the Bank, 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 CHARTERED ACCOUNTANT

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

Unique Document Identification Number (UDIN)

Signature of Chartered Accountant

Name of Chartered Accountant

Membership No. of ICAI

Date and Seal

FORM 'C'

DETAILS OF ELIGIBLE SIMILAR NATURE OF WORKS COMPLETED DURING 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 Tribunal.

Signature of Bidder(s)

**FORM 'C'-1
PROJECTS UNDER EXECUTION**

S. No.	Name of work/project and location	Owner or sponsoring organization	Cost of work in crores of rupees	Date of Commencement as per contract	Stipulated date of completion	Up-to date percentage progress of work	Slow progress if any and reasons Slow progress if any and	Name and address/ telephone number of officer to whom reference may be made	<i>Remark</i>
1	2	3	4	5	6	7	8	9	10

Signature of Bidder(s)

FORM 'C'-3
Calculation of bidding capacity
Details of existing commitments and ongoing works.

S. No.	Name of work/project and location	Owner or sponsoring organization	Cost of work in crores of rupees	Date of Commencement as per contract	Stipulated date of completion	Upto date percentage progress of work	Remaining work in percentage (100-column 7)	Existing commitment Column 4 x Column 8 /100	Name and address/ of officer to whom reference may be made	Remark
1	2	3	4	5	6	7	8	9	10	

Total (B) =
Maximum turnover in last seven years = Rs.....

Updated value of turnover (A) = Rs.....

No. of years (N) =

Bidding Capacity= $\{[A \times N \times 1.5] - B\}$ =

Certificate:
I certify that all the awarded and ongoing works have been included in the above list.

(Signature of Bidder(s))

Form 'D-1'
Assessment of Quality for Completed as well as ongoing works

Name of Work :-

Date of Inspection :-

Date of submission of report :-

A. General Observation & Operational Aspects		Yes/ No
1	Availability of approval from local bodies in case of Construction Private Buildings	
2	Availability of approved Structural drawings	
3	Observation on seepage/ leakage in the Building	
4	Whether Line & level Maintained	
5	In case of basement, observation on seepage, if any	
6	Any Structural defects / distress observed. If yes give details	
7	Whether safety measures adopted at site as per CPWD Safety Code and or govt. guidelines are adequate or not	
8	Whether the Welfare facilities provided to labour as per Clause 19 H of GCC for CPWD Works/and or govt. guidelines are adequate or not	
9	Whether AHU getting automatically switched off and fire dampers closed in case of fire signal?	
10	Whether thimbles used for termination of wires in DBs, EBDs & Panels?	
B. Quality of Work		Marks Assessed
1	Quality of plaster/ finishing	
2	Quality of R C C / C C Work	
3	Quality of Flooring	
4	Quality of Wood Work	
5	Quality of Steel Work / Aluminum Work	
6	Quality of Plumbing and Sanitary Installation	
7	Quality of Workmanship	
8	Quality of Waterproofing	
9	If cladding done, observation on efficiency/ quality of cladding /Brick work	
10	Quality of internal electrification work	
11	Quality of DBs, EBDs & Panels	
12	Quality of E&M equipment's, panels & feeder pillar	
13	Quality of fire alarm system/ fire fighting system	
14	Quality of Air Conditioning work	
15	Quality of Sub-station based on complete live diagram, capacitor panel, power factor, insulating Mat, cleanliness, cable termination, earthing pits, earthing of transformer / DG sets	
16	Any Other aspect (To be elaborated)	

Average Marks (To be awarded out of 100 Marks based on average of marks assessed on each attribute mentioned at B above).

Note:-

1. All the above parameters may be considered for assessing the overall quality of work executed by the contractor.
2. In case, any attribute is not applicable, the same may not be included in assessment and mentioned are not applicable (N/A).
3. The works as assessed above shall be converted on a scale of 25/15 marks for completed / ongoing works respectively.
In case of eligible completed works as well as ongoing works being more than one the maximum marks assigned completed works and ongoing works will be equally distributed among the works.

FORM "E"
STRUCTURE & ORGANISATION

1. Name & address of the bidder
2. Telephone no./Telex no./Fax no.
3. Legal status of the bidder (Scan & upload copies of original document defining the legal status)
 - (a) An Individual
 - (b) A proprietary firm
 - (c) A firm in partnership
 - (d) A limited Company or Corporation
4. Particulars of registration with various Government Bodies (Scan & upload 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
9. In which field of Civil Engineering construction, the bidder has specialization and interest?
10. Any other information considered necessary but not included above.

Signature of Bidder(s)

Form 'F'

Undertaking on structural stability and soundness of already completed buildings and infrastructure projects.

I/we undertake and confirm that any building / infrastructure constructed by our firm /partnership firm/ company has not suffered any failure, making it unfit for intended use, either due to structural design and defects or due to use of sub-standard materials or execution of sub-standard work, poor workmanship or any other reason during the last 25 (twenty five) years.

I/we, further, undertake that if such information comes to the notice of CPWD, then Engineer in-Charge shall be free to terminate the bid/agreement and to forfeit the entire amount of earnest money deposit, performance guarantee and security deposits.

I/we, also undertake that in addition to above, the Engineer in-Charge shall be free to debar us forever from tendering in CPWD.

The decision of Engineer in Charge or any higher authority shall be final and binding.

Signature of _____ Signature of bidder or an authorized
Notary with seal _____ person of the Firm with stamp

Note: Affidavit to be furnished on a 'Non judicial' stamp paper of Rs. 200/- (scanned copy of the notarized affidavit to be uploaded at the time of submission of bid).

20A.14 Information and instruction for Assistant Engineer (E) for e-tendering:

1.

Receipt of deposition of original EMD (Receipt No. / date.....)
1. Name of Work: Providing 7 kWp solar power generation at SIB, Satna. 2. NIT No. 12/EE(E)/Jabalpur/2026-27 3. Estimated Cost Rs. 4,02,758/- 4. Amount of Earnest Money Deposit Rs. 8,055.00 _(drawn in favor of Executive Engineer, Jabalpur Central Division, CPWD, Jabalpur) 5. Last date of submission of bid 13.07.2026.* (To be filled by NIT approving authority/EE at the time of issue of NIT and uploaded along with NIT)
1. Name of contractor# 2. Form of EMD# 3. Amount of Earnest Money Deposit# 4. Date of submission of EMD#
Signature, Name and Designation of EMD receiving officer (EE/AE(P)/AE/AAO) Along with Office Stamp
(* To be filled by EMD receiving EE)

CPWD- 6
Govt. of India
Central Public Works Department
Notice Inviting Tender

1. Percentage rate composite bids are invited on behalf of President of India from approved and eligible Building & Road category contractors of CPWD & Specialized Agency for the work of " **Providing 7 kWp solar power generation at SIB, Satna.**"

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

1.1 The work is estimated to **Cost of Rs. 4,02,758/-** This estimate, however, is given merely as a rough guide.

~~1.1.1 The authority competent to approve NIT for the combined cost and belonging to the major discipline will consolidate NITs for calling the bids. He will also nominate Division which will deal with all matters relating to the invitation of bids. For composite bid, besides indicating the combined estimated cost put to bid, should clearly indicate the estimated cost of each component separately. The eligibility of bidders will correspond to the combined estimated cost of different components put to bid.~~

2. Agreement shall be drawn with the successful bidders on prescribed Form No. CPWD-7 Amended up-to **correction slip issued up to date of receipt of tender** which is available as a Govt. of India Publication and also available on website **www.cpwd.gov.in**. Bidder shall quote his rates as per various terms and conditions of the said form, which will form part of the agreement.

3. The time allowed for carrying out the work will be **45 Days** from the date of start as defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.

4. The site for the work is available.Yes.....

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

The bid document consisting of plans, specifications, the schedule of quantities of various Types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions of Contract Form can be seen from website **https://etender.cpwd.gov.in or www.eprocure.gov.in** free of cost.

6 . After submission of the bid the contractor can re-submit revised bid any number of times but before last date and time of submission of bid as notified.

7. While submitting the revised bid, contractor can revise the quoted rates but before last date and time of submission of bid as notified.

8. When bids are invited in three stage system and if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted then the bid submitted earlier shall become invalid.

9. Earnest Money in the form of **Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (for balance amount as prescribed) from any of the Commercial Banks** (drawn in favor of **Executive Engineer, Jabalpur Central Division, CPWD, Jabalpur**) shall be scanned and uploaded to the e-Tendering website within the period of bid submission. The original EMD should be deposited either in the office of Executive Engineer, inviting bids or Division office of any Executive Engineer, CPWD within the period of bid submission. The EMD receiving Executive Engineer (**including NIT issuing EE/AE**) shall issue a receipt of deposition of Earnest Money deposited to the bidder in a prescribed format (enclosed) given in the NIT uploaded by tender inviting Executive Engineer in the NIT.

This receipt shall also be uploaded to the e-tendering web site by the intending bidder upto The specified bid submission date and time.

A part of earnest money is acceptable in the form of Bank Guarantee also. In such case, minimum 50% of earnest money or Rs. 01 lac, whichever is less, shall have to be deposited in shape prescribed above, and balance may be deposited in shape of Bank Guarantee of any Commercial Bank having validity for a period of 90 days for single bid works & 180 days for two bids system or more from the last date of receipt of bids which is to be scanned and uploaded by the intending bidders.

The earnest money given by all the tenderers except the lowest tenderer shall be Refunded immediately after the expiry of stipulated bid validity period or immediately after acceptance of the successful bidder, whichever is earlier. However, in case of two/ three bid system, earnest money deposit of bidders unsuccessful during eligibility bid evaluation etc. should be returned within 30 days of declaration of result of eligibility bid evaluation.

Copy of Enlistment Order and certificate of work experience and other documents as specified in the press notice shall be scanned and uploaded to the e-Tendering website within the period of bid submission.

However, certified copy of all the scanned and uploaded documents as specified in e-Tender shall have to be submitted by the lowest bidder only within a week physically in the office of tender opening authority.

Online bid documents submitted by intending bidders shall be opened only of those bidders, whose original 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 03.30 PM on 13.07.2026

10. The bid submitted shall become invalid and e-Tender processing fee if applicable shall not be refunded if:

- (i) The bidder is found ineligible.
- (ii) The bidder does not deposit original EMD with Division office of any Executive Engineer, CPWD.
- (iii) The bidder does not upload scanned copies of all the documents, stipulated in the Bid document.
- (iv) If any discrepancy is noticed between the documents as uploaded at the time Of submission of bid and hard copies as submitted physically by the lowest bidder In the office of bid opening authority.
- (v) If a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above / below on the total amount of the tender or any section /sub head in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.

11. The contractor whose bid is accepted will be required to furnish performance guarantee of 5% (Five Percent) of the bid amount within the period specified in Schedule F. This guarantee shall be in the form of Insurance surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt or Bank Guarantee from any of the Commercial Banks in accordance with the prescribed form.

In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F' including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The Earnest Money deposited along with bid shall be returned after receiving the aforesaid performance guarantee. The contractor whose bid is accepted will also be required to furnish either copy of applicable licenses / registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board including Provident Fund Code No. if applicable and also ensure the compliance of aforesaid provisions by the subcontractors, if any, engaged by the contractor for the said work and Programme Chart (Time and Progress) within the period specified in Schedule F.

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

“SITC of 3kWp Solar power Generation System at Type V Quarter.”

Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidder shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidder implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.

13 The competent authority on behalf of the President of India does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidders shall be summarily rejected.

14. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable for rejection.

15. The competent authority on behalf of President of India reserves to himself the right of accepting the whole or any part of the bid and the bidder shall be bound to perform the same at the rate quoted.

16. The contractor shall not be permitted to bid for works in the CPWD Circle (Division in case of contractors of Horticulture/Nursery category) responsible for award and execution of contracts, in which his near relative is posted as Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any Gazetted Officer in the Central Public Works Department or in the Ministry of Housing & Urban Affairs. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.

17. No Engineer of Gazetted Rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the prior permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the bid or engagement in the contractor's service.

18. The bids for the work shall remain open for acceptance for a period of 75 (Seventy Five) Days from the date of opening of eligibility bids.

Further

(i) If any tenderer withdraws his tender or makes any modification in terms and conditions of the tender which is not acceptable to the department within 7 days after last date of submission of bids, then the Government shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the earnest money as absolutely irrespective of letter of acceptance for the work is issued or not.

(ii) If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department after expiry of 7 days after last date of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.

(iii) In case of forfeiture of earnest money as prescribed in para (i) and (ii) above, the bidders shall not be allowed to participate in the re-bidding process of the same work.

19. This Notice Inviting Bid shall form a part of the contract document. The successful bidder /contractor, on acceptance of his bid by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:-

- c) The Notice Inviting Bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the bid as uploaded at the time of invitation of bid and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence & negotiation leading there to.
- d) Standard C.P.W.D. Form 7 amended upto correction slips issued up to a day Previous to the last date of receipt of tender or other Standard CPWD Form as applicable.

20. Jurisdiction of Courts or seat of arbitration

The Court of the place from where the letter of award of work has been issued shall have the jurisdiction to decide any dispute arising out of or in respect of the contract. Similarly seat of Arbitration will be the place from where the letter of award of work has been issued.

21. CPWD does not have funds of its own and it carries out the works of client departments from their funds (deposit, budgetary, authorization). The CPWD is making payments to the contractors after getting budget / authorization / deposit from various Ministries / Client Departments. The payment to the contractor can be done only on availability of funds for that work from client department and in case of delay in getting funds from Ministry / Client Department, CPWD will not be responsible for delay in payment and no any extra compensation on this account shall be granted apart from specified elsewhere in this document. The contractor has to quote his tender accordingly considering this aspect.

22. The intending bidders are required to update their profile in CPWD e-tender portal and to upload their bids well in advance of last date of submission of tender. Any issue related to updating profile / uploading tender can be resolved through the concerned Executive Engineer (Phone No.:- 0761-2997054, e- mail Id :-bhoeee-jced@cpwd.gov.in) or ERP help line No. 18001803286 or e-mail Id-cpwd.support@techmahindra.com. The e-tendering bidders are also advised not to wait to raise any issues till the last date of submission of bid in their own interest.

Assistant Engineer (E)
CPWD, Jabalpur

**GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT**

Tender for the work of :- **“Providing 7 kWp solar power generation at SIB, Satna.”**

To be uploaded by Assistant Engineer (E), CPWD, Jabalpur 17:00 hours on 03.07.2026 to/upload at 15:00 on 13.07.2026

To be opened in presence of tenderers who may be present at Executive Engineer (E), CPWD, Jabalpur 15:30 hours on 13.07.2026 in the office of Assistant Engineer (E), CPWD, Jabalpur

निविदा T E N D E R

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 शर्तें, दर अनुसूची एवं अन्य कागजात तथा ठेके की शर्तों में दिये 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' विनिर्दिष्ट समय के अन्दर विनिर्दिष्ट कार्य, यथा-मात्राओं की अनुसूची तथा विनिर्देशों, डिजाइनों, नक्शों के अनुरूप तथा सामान्य नियमावली के नियम-1 और ठेके की शर्तों के खंड-11 में उल्लिखित लिखित अनुदेश 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.

हम निविदा की खोले जाने की निर्धारित तारीख से **पचहत्तर (75) दिन** के लिये खुला रखने तथा इसकी शर्तों एवं निबंधनों में, किसी प्रकार का परिवर्तन ना करने के लिए सहमत है।

I/We agree to keep the tender open for **Seventy Five (75) days** from the due date of opening of Bid and not to make any modification in its terms and conditions.

मैंने/हमने बोली दस्तावेज के अनुसार संबंधित कार्यपालक अभियंता के कार्यालय में निर्धारित राशि के लिए ईएमडी जमा कर दी है।

I/We have deposited EMD for the prescribed amount in the office of concerned Assistant Engineer as per the bid document.

एक वाणिज्यिक बैंक द्वारा जारी बीमा जमानत बांड, अदाता खाता डिमांड ड्राफ्ट, सावधि जमा रसीद, बैंकर चेक या बैंक गारंटी (जैसा निर्धारित है) के रूप में जमा की गई निर्धारित राशि की बयाना राशि जमा रसीद की एक प्रति स्कैन की जाती है और अपलोड की जाती है (जैसा भी मामला हो बाकी काट दें)। यदि मैं/हम निर्धारित निष्पादन गारंटी को निर्धारित समय अवधि में प्रस्तुत करने में असफल रहते हैं तो मैं/हम यह मंजूर करते हैं कि भारत के उक्त राष्ट्रपति या उनके कार्यालय के उत्तराधिकारी किसी अन्य अधिकार या उपचारी उपाय पर प्रतिकूल प्रभाव डाले बिना उक्त धरोहर राशि जब्त करने के लिए पूर्णतया स्वतंत्र होंगे। इसके अलावा, यदि मैं/हम विनिर्दिष्ट कार्य प्रारम्भ करने में असफल रहते हैं, तो मैं/हम यह मंजूर करते हैं कि भारत के राष्ट्रपति या उनके कार्यालय के उत्तराधिकारी कानून में उपलब्ध किसी अन्य अधिकार या उपचारी उपाय पर प्रतिकूल प्रभाव डाले बिना उक्त निष्पादन गारंटी जब्त करने के लिए पूर्णतया स्वतंत्र होंगे। उक्त निष्पादन गारंटी निविदा कागजात के अनुसार उसमें निहित शर्तों व निबंधनों के अनुसार कार्यों के निष्पादन एवं आदिष्ट विचलनों को अनुसूची 'च' में वर्णित प्रतिशत से अनधिक व निविदा प्रपत्र के खंडों 12.2 व 12.3 में निहित प्रावधानों के अनुसार निश्चित की जाने वाली दरों पर उस सीमा से अधिक के विचलनों के करने के लिए उनके द्वारा गारंटी होगी।

A copy of earnest money deposit receipt of prescribed amount deposited in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (as prescribed) issued by a Commercial Bank, is scanned and uploaded (strike out as the case may be). If I/We, fail to furnish the prescribed performance guarantee within prescribed period, I/We agree that the said President of India or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to

commence work as specified, I/ We agree that President of India or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said performance guarantee absolutely. The said Performance Guarantee shall be a guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form.

इसके अतिरिक्त मैं/हम सहमत हैं कि उपर्युक्त बयाना राशि या निष्पादन गारंटी जब्त हो जाने के मामले में मुझे/हमें कार्य की पुनः निविदा प्रक्रिया में भाग लेने से रोक दिया जाएगा।

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

मैं वचन देता हूँ तथा पुष्टि करता हूँ/हम वचन देते हैं तथा पुष्टि करते हैं कि पात्रता के लिए समान निर्माण कार्य को बैंक टू बैंक आधार पर एक अन्य ठेकेदार द्वारा नहीं करवाया गया है। इसके अलावा यदि इस प्रकार का उल्लंघन विभाग की जानकारी में आता है तो मुझे/हमें भविष्य में केलोनिवि में निविदा देने से हमेशा के लिए वंचित कर दिया जाएगा। साथ ही, यदि कार्य के प्रारंभ होने की तारीख से पहले इस प्रकार का उल्लंघन विभाग की जानकारी में आता है तो भारसाधक इंजीनियर को बयाना राशि जमा से और कार्य निष्पादन गारंटी की समग्र राशि जब्त करने की स्वतंत्रता होगी।

I/We undertake and confirm that eligible similar work(s) has/have not been got executed through another contractor on back-to-back basis. Further that, if such a violation comes to the notice of Department, then I/We shall be debarred for tendering in CPWD in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee.

मैं/हम एतद्वारा घोषणा करते हैं कि मैं/हम निविदा कागजातों, नक्शों और कार्य से संबंधित अन्य अभिलेखों को गुप्त/गोपनीय कागजात के रूप में रखेंगे और उनसे प्राप्त/ली गई जानकारी किसी अन्य को, जिन्हें मैं/हम सूचित करने के लिए प्राधिकृत हों, से भिन्न किसी को, नहीं बताएंगे या जानकारी को किसी ऐसे रूप में प्रयोग नहीं करेंगे जो राज्य की सुरक्षा और अखंडता के लिए प्रतिकूल हो।

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

तारीख Dated #.....

ठेकेदार के हस्ताक्षर Signature of Contractor#

डाक का पता Postal Address#

साक्षी Witness : #

पता Address: #

उपजीविका Occupation : #

To be filled in by the contractor/witness as applicable

स्वीकृति ACCEPTANCE

मैं भारत के राष्ट्रपति की ओर से तथा उनके लिए ₹ '..... (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) *

भारत के राष्ट्रपति की ओर से तथा उनके लिए

For & on behalf of the President of India.

हस्ताक्षर Signature.....*

पदनाम Designation*

तारीख Dated *

PROFORMA OF SCHEDULES

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, 2023 amendment up-to day previous to last date of submission of tender

Name of Work :- Providing 7 kWp solar power generation at SIB, Satna.

Estimated cost of work :- Rs. 4,02,758/-

- (i) Earnest Money :Rs 8,055/- **(To be returned after receiving performance guarantee)**
(ii) Performance Guarantee :5% of tendered value . (Annexure -I as per attached page no. 58 to 59)
(iii) Security Deposit : 2.5% of Gross Amount.

SCHEDULE 'F'

GENERAL RULES & DIRECTIONS: Officer inviting tender Assistant Engineer (E) CPWD, Jabalpur

Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 (c) – **As per Provision against clause - 12**

Definitions:

- 2(vi) भारसाधक इंजीनियर
Engineer-in-Charge Assistant Engineer (E)/ CPWD Jabalpur or his successor there of.
- 2(viii) स्वीकार कर्ता प्राधिकारी
Accepting Authority Assistant Engineer (E)/ CPWD Jabalpur or his successor there of.
- 2(x) अतिरिक्त और लाभों को पूरा करने के लिए श्रम एवं सामग्रियों की लागत पर प्रतिषतता
Percentage on cost of materials and labour to cover all overheads and profits. 15% (Fifteen per cent)
- 2(xi) दरों की मानक अनुसूची
Standard schedule of Rates Delhi Schedule of rate 2025 for internal electrical works with correction slips issued up-to a day previous to last date of receipt of tender.
- 2(xii) विभाग
Department Central Public Works
Department
- 9(ii) मानक के.लो.नि.वि. ठेका फार्म
Standared CPWD contract Form **GCC 2023 construction work and CPWD form 7 and as amended up-to a day Previous to last date of submission of tender**

खण्ड Clause 1

- (i) स्वीकृति पत्र जारी होने की तारीख से निष्पादन गारंटी के प्रस्तुतीकरण के लिए अनुमत समय
Time allowed for submission of performance guarantee **Programme Chart (Time and Progress) and applicable Labour licenses, registration with EPFO, ESIC and BOCW Welfare Board or proof of applying thereof** from the date of issue of letter of acceptance : **05 days**
- (ii) (उपर्युक्त प) में दी गई अवधि के पश्चात् अधिकतम अनुमेय एक्सटेंशन
Maximum allowable extension with late

fee @ 0.10% per day of performance
 guarantee amount beyond
 the period as provided in (i) above : 02 days

खण्ड Clause 2

खण्ड 2 के तहत प्रतिकार निश्चित करने वाला प्राधिकारी
 Authority for fixing compensation under clause 2 : Superintending Engineer CPW
 Jabalpur or his successor there
 Of with the recommendation of
 Assistant Engineer (E) CPWD
 Jabalpur or his successor there of

खण्ड Clause 5

कार्य आरंभ की तारीख की गणना के लिए स्वीकृति पत्र के जारी होने की
 तारीख से दिनों की संख्या
 No. of days from the date of issue of letter of
 acceptance for reckoning date of start : 07 days.

लक्ष्य नीचे दी गई सारणी के अनुसार
Milestone(s) : - as per Table given below

लक्ष्य (मील-पत्थर) सारणी

Table of milestone(s)

No	Discription of Milestone (Physical)	Time allowed in days (From date of start)	Amount to be withheld in case of non-achievement of milestone
1	Submission of technical detail of all the materials i/c Solar Power Generation System and submission of drawing, Single line diagram etc.	0.2 months	1%
2	Supply installation of all material at site i/c Solar Power Generation System System etc.	0.8months	3%
3	Testing commission and handing over of all system	01 Month	1%

NOTE:

1. Withheld amount shall be released if and when subsequent milestone is achieved within respective time specified. However, in case milestones are not achieved by the Bidder for the work, the amount shown against milestone shall be withheld.

कार्य निष्पादित करने के लिए अनुमत्य समय

Time allowed for execution of work
 Authority to decide

01(One) Month

(i) Authority to convey the decision of
 or his

Assistant Engineer (E)/ CPWD Jabalpur

shifting of milestone and extension of time

successor thereof .

(ii) Authority to decide Rescheduling of
 Jabalpur or

Superintending Engineer (E)/ CPWD

milestones and extension of time

his successor there of.

(iii) Shifting of date of start in case of delay
 Jabalpur or

Superintending Engineer (E)/ CPWD

in handing over of site

his successor there of

Clause 5.2

Nature of hindrance Register
 (either Physical or Online)

Online System

खण्ड Clause 6,

Electronic Measurement Book (EMB) through
 CPWD ERP portal
 Mode of Measurement

Yes Aplicable
 EMB

खण्ड Clause 7

अंतरिम भुगतान के लिए पात्र होने के लिए अंतिम ऐसे भुगतान के बाद कुल भुगतान एकत्रित सामग्रियों के अग्रिमों के समायोजन सहित किया जाने वाला कुल कायZ

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.

2 Lakh

Clause7A

Weather clause 7 A shall be applicable

Yes

(No running Account Bill shall be paid for the work till the applicable GST registration, labour licenses, registration with EPFO, ESIC and BOCW Welfare Board, whatever applicable are submitted by the contractor to the Engineer-in-charge)

Clause 8A

Authority to decide compensation on CPWD, account if contractor fails to submit Completion plans

Assistant Engineer (Electrical),

Jabalpur or his successor thereof.
0.1% of Tendered amount

Clause10A

कार्यस्थल प्रयोगशाला में टेकेदार द्वारा उपलब्ध कराये जाने परीक्षण उपकरण की सूची

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

As per direction by Engineer in-

Clause10B(ii)

क्या खण्ड 10 ख ;ii) लागू होगा

Whether clause 10B (ii) shall be applicable

No

Clause10C

Component of labour expressed as Percent of value of work

15%

Clause10CA

Material covered under this clause	Nearest materials (Other than cement, reinforcement bars and structural steel) for which All India Whole Sale Price Index is to be followed.	Base Price of all materials covered under clause 10 CA *
.....NIL.....		

Clause10 CC

खण्ड 10 गग उन संविदाओं पर लागू होगा जिसमें कार्य समापन की अवधि, अगले कालम में दर्शाई गई अवधि से अधिक अनुबंधित है।

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

: Not applicable

Clause 11

कार्य निष्पादन के लिए अनुपालन

CPWD General Specification for Electrical Works Part I Internal – 2023, CPWD General Specification for Electrical Works Part II External – 2023. General Specification for Electrical Works (Part III Lifts & Escalators)-2003. CPWD General Specification for Electrical Works Part IV Substation – 2013. CPWD General Specification for Electrical Works Part V wet riser & sprinkler systems – 2020. CPWD General Specification for Electrical Works Part VII DG Sets – 2013. CPWD General Specification for Fire Alarm Part VI – 2018– & HVAC-2024 amended up to a day previous to last date of receipt of tender

Clause 12

Type of Work	Original Electrical Work
12.2 & 12.3 विचलन सीमा जिसके परे खण्ड 12.2 तथा 12.3 भवन निर्माण कार्य के लिए लागू होंगे Deviation limit beyond which clauses 12.2 & 12.3 shall apply for building work (Other than foundation)	100%
12.5 Deviation limit beyond which clauses 12.2 & 12.3 shall apply for foundation work (except earth work)	NA

Clause 14

Caring out Part work at risk & cost of contractor Applicable

Clause 16

घटी हुई दरे निर्धारित करने की लिए सक्षम प्राधिकारी

Competent Authority for deciding Superintending Engineer, CPWD, Jabalpur. reduced rates or his successor there of up to 5% of the Contractor Value. Superintending Engineer, CPWD, Jabalpur or his successor beyond 5% of Contract Value with prior approval of Additional Director General (Bhopal) CPWD or his successor there of

Clause 18

कार्यस्थल पर ठेकेदार द्वारा लगाये जाने वाली अनिवार्य मशीनरी औजार एवं सयंत्रों की सूची :-

List of mandatory machines, tools and Plants to be deployed by the contractor at site

All tools & plants as required to carry out The electrical work and directed by Engineer in-charge.

Clause 19 C

Authority to decide penalty for each default

Assistant Engineer (E), C.P.W.D, Jabalpur or his successor thereof.

Clause 19 D

Authority to decide penalty for each default

Assistant Engineer (E), C.P.W.D, Jabalpur or his successor there of.

Clause 19 G

Authority to decide penalty for each default Assistant Engineer (E), C.P.W.D, Jabalpur or his successor thereof.

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

Conciliator	Additional Director General (Bhopal), CPWD, Bhopal
Arbitrator Appointing Authority	Superintending Engineer (Jabalpur), CPWD, Jabalpur or his successor there of
Place of Arbitration	To be decided by the Arbitral Tribunal in consultation with both the parties, failing any such agreement, then the Arbitral Tribunal shall decide the Venue

Clause-32 : Requirement of Technical Representative(s) and Recovery Rates**(a) For Electrical Works:**

S.No.	Minimum Qualification of Technical Representative	Discipline	Designation (Technical Staff)	Minimum Experience (Years)	Number	Rate at which recovery shall be made from contractor in the event of non-deployment.	
						Figures	Words
1.	Graduate Engineer or Diploma Engineer	Electrical/ Mechanical	Project Planning /Quality/Site /Billing Engineer	2 or 5 respectively	1	Rs. 15000/- per month per person	Rs. Fifteen thousand per month per person

Clause 38 : 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.		

Assistant Engineer(E)
Central P.W.D., Jabalpur

(On non-judicial stamp paper of minimum Rs. 100)
(Guarantee offered by Bank to CPWD in connection with the execution of contracts)
**Form of Bank Guarantee for Earnest Money Deposit / Performance Guarantee/
Security Deposit/Mobilization Advance**

1. Whereas the Assistant Engineer (name of division) CPWD on behalf of the President of India (hereinafter called "The Government") has invited bids under..... (NIT number) dated for..... (name of work) The Government has further agreed to accept irrevocable Bank Guarantee for Rs. (Rupeesonly) valid up-to (date)* as Earnest Money Deposit from (name and address of contractor) (hereinafter called "the contractor") for compliance of his obligations in accordance with the terms and conditions of the said NIT.

OR

Whereas the Assistant Engineer (name of division), CPWD on behalf of the President of India (hereinafter called "The Government") has entered into an agreement bearing number..... with (name and address of the contractor) (hereinafter called "the Contractor") for execution of work (name of work) The Government has further agreed to accept an irrevocable Bank Guarantee for Rs. (Rupees..... only) valid up-to..... (date) as Performance Guarantee/Security Deposit/Mobilization Advance from the said Contractor for compliance of his obligations in accordance with the terms and conditions of the agreement.

2. We, (indicate the name of the bank) (hereinafter referred to as "the Bank"), hereby undertake to pay to the Government an amount not exceeding Rs. (Rupees only) on demand by the Government within 10 days of the demand.
3. We, (indicate the name of the Bank), do here by undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Government stating that the amount claimed is required to meet the recoveries due or likely to be due from the said Contractor. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. (Rupeesonly)
4. We, (indicate the name of the Bank), further undertake to pay the Government any money so demanded notwithstanding any dispute or disputes raised by the contractor in any suit or proceeding pending before any Court or Tribunal, our liability under this Bank Guarantee being absolute and unequivocal. The payment so made by us under this Bank Guarantee shall be a valid discharge of our liability for payment there under and the Contractor shall have no claim against us for making such payment.
5. We, (indicate the name of the Bank), further agree that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligation here under to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractor and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said Contractor or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said Contractor or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.
6. We, (indicate the name of the Bank), further agree that the Government at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor at the first instance without proceeding against the Contractor and

notwithstanding any security or other guarantee the Government may have in relation to the Contractor's liabilities.

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

Date

Witnesses:

- | | | |
|----|------------------------------------|--|
| 1. | Signature.....
Name and address | Authorized signatory
Name
Designation
Staff Code No.
Bank Seal |
| 2. | Signature.....
Name and address | |

*Date to be worked out on the basis of validity period of 90 days where only financial bids are invited and 180 days for two/three bid system from the date of submission of tender.

**In paragraph 1, strike out the portion not applicable. Bank Guarantee will be made either for earnest money or for performance guarantee/security deposit/mobilization advance, as the case may be.

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 **SIB Satna**.

1.3 The work shall be executed as per CPWD General Specifications for Electrical works part-I (internal) 2023, Part-II (external)2023 as amended up-to date, relevant I.E. Rules, BIS/IES and as per directions of Engineer-in- charge. These additional specifications /conditions are to be read in conjunction with above and in case of variations; specifications given in these additional conditions shall apply. However, nothing extra shall be paid on account of these additional specifications and conditions, as the same are to be read along with schedule of quantities for the work.

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

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

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), CPWD, Jabalpur 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/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. bidshave 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 asthe case may be without assigning any reason.

3.0 Terms of payment

Refer as Commercial and General Condition.

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 12months 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 Panta scanning reports, address /identification tag for Lan wiring, all other items which are useful and necessary for efficient assembly and installation of components of the work shall be deemed to have been included in the tender irrespective of the face 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 01 Month 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 1 year, 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 equipment regarding installation, adjustment 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 equipment 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 along-with 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 75 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:

Factories Act

Indian Electricity Rules

BIS & other standards as applicable

Workmen's compensation Act

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) Description of Schedule of quantities
- b) Particular Specification and Special Condition, if any.
- c) Drawing
- d) CPWD specifications
- e) Indian Standard Specification of B.I.S.
- f.) Manufacturers specifications.

ADDITIONAL TERMS & CONDITIONS
(Internal & External Electrical Installation)

1. For electrical works, the bidder should have **valid electrical license from competent authority in the name of the contractor. However, the contractor is allowed to participate in tender with an undertaking that they will either obtain valid electrical license at the time of execution of electrical work or associate contractors having valid electrical license of eligible class.**
2. In case the main contractor himself meets the required eligibility criteria as laid down by the department for any minor component(s) of work, he shall be allowed to execute this minor component(s) after due verification & approval of the Engineer-in-charge of this component.
3. The main contractor if required has to submit the following documents for association of electrical contractor:
 - a) Copy of valid registration with CPWD as on the date of submission of proposal for associate to Engineer-in-charge of this work to establish the eligibility of proposed associate.
 - b) Copy of valid Electrical License with appropriate authority with an undertaking that it shall be get renewed time to time during currency of agreement.
 - c) Willingness letter from the proposed associate.
 - d) ~~Undertaking from proposed associate that all the provisions of integrity Pact applicable on main contractor shall also be applicable on him.~~After approval of the agency for association to the Engineer-in-charge of this component, the main contractor has to enter in agreement with the approved associate contractor for execution of minor component (internal & external electrical installation) as per stipulated technical specification and term & condition of main contract and copy of such agreement shall be submitted to the Engineer-in-charge of this component as well as the Engineer-in-charge of major component.
4. The main contractor/OEM are advised to visit the site of work / all architectural drawings to have an idea of the scope / nature of work. Failure to do so shall not absolve their responsibility to do the work as specified in agreement.
5. ~~In the event of the concerned E&M agency not performing satisfactorily or failure of associate/ sub-contractor to complete the E&M work, the main contractor on the written direction of the department, shall remove the Associate/sub-contractor deployed on the work and shall submit name of new associate who fulfill the conditions mentioned in NIT to execute the leftover work without any loss of time or variation in cost to the department in this regard. Such associates shall also enter into agreement / contract with the main contractor and shall meet all the guarantee for the equipments already supplied for which payment has been released by the Department in part or full.~~
6. ~~If any equipment supplied for the work, during the currency of the earlier associate / sub-contractor and paid in part or full by the department, becomes redundant or not in a position to be installed and commissioned and put to beneficial use, the main contractor shall be liable for replacement of such equipment(s) at no cost to department. Prior approval of Engineer in charge is required for change in associated contractor.~~
7. ~~The main contractor shall not indulge in procurement of items and getting the work done on labour contract with the associate electrical contractor. The whole E&M component shall be executed by the eligible associate electrical contractor on a turnkey basis i.e. procurement of material, engaging labour, execution, testing & commissioning etc. The associate electrical contractor shall submit the completion certificate of E&M work executed by him along with necessary test reports, guarantee bond/certificate, completion plan etc.~~
8. ~~The main contractor shall be responsible and liable for proper and complete execution of all components of work. Main contractor is also responsible to ensure coordination among various associates / sub-contractor to complete the whole scope of work.~~
9. ~~The associate or sub-contractor shall attend the inspection of the work by the Engineer in-Charge of E&M works as and when required.~~
10. All sundry fittings, assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections as required, and all other sundry items which are useful and necessary for proper assembly and efficient working of the various components of the work shall be deemed to have been included in the tender, whether such items are specifically mentioned in the tender documents or not.

11. The several documents forming the contract are to be taken as mutually explanatory to one another, detailed drawings being followed in preference to small scale drawings and figured dimensions in preference to scale and additional/special conditions in preference to general conditions.
12. A reference made to any Indian Standard Specifications in these documents, shall imply reference to the latest version of that standard, including such revisions/amendments as issued by the Bureau of Indian Standards upto last date of submission of tenders. The contractor shall keep at his own cost all such publications of relevant Indian Standards applicable to the work at site.
13. **Works to be done by the contractor:**
Unless and otherwise mentioned in the tender documents, the following works shall be done by the contractor, and therefore their cost shall be deemed to be included in their tendered cost:-
 - (i) Foundations for equipments and components where required, including foundations bolts.
 - (ii) Cutting and making good all damages caused during installation and restoring the same to their original finish.
 - (iii) Sealing of all floor openings provided by him for pipes and cables, from fire safety point of view, after laying of the same.
 - (iv) Painting at site of all exposed metal surfaces of the installation other than pre-painted items like fittings, fans, switchgear/distribution gear items, cubical switchboard etc. Damages to finished surfaces of these items while handling and erection, shall however be rectified to the satisfaction of the Engineer-in-Charge.
 - (v) Testing and commissioning of completed installation.
14. **Storage and Custody of Materials:**
The contractor has to make his own arrangement for the storage of the material at site & necessary watch and ward of the same till handing over of the complete work to the department. No extra payment will be made on this account.
15. **Electric Power Supply and Water Supply:**
Power and water supply shall be arranged by the contractor for the execution of the work.
16. **Tools for handling and Erecting:**
All tools and tackles required for handling of equipments and materials at site of work as well as for their assembly and erection and also necessary test instruments shall be the responsibility of the contractor.
17. **Payment Terms:**
Payment shall be made as per the relevant clauses of form PWD 7/8 forming part of the tender documents.
18. **SECURITY DEPOSIT**
A sum @2.5% of the gross amount of the bill shall be deducted from each running bill of the contractor, till the sum along with the sum already deposited as earnest money amounts to security deposit @ 2.5% of the tendered amount of the work. Such deductions shall be made unless the contractor has deposited the amount of security at the rate mentioned in cash or Government securities or Fixed Deposit Receipts. This is in addition to the performance guarantee that the contractor is required to deposit.
Security deposit shall be released only after the completion of the whole agreement.
19. **Co-ordination with other agencies:**
The work will be carried out in close coordination with the building work and other agencies, so as the work of other agencies are not hindered. Conduits will be laid in the slab within the specified time and it will have to be ensured that the casting of slabs is not delayed for want of laying of conduits. The conduits will also be laid in walls before the Plaster work is undertaken so as to avoid breaking cutting of plaster while making chase for laying of conduits subsequently. The contractor will have to employ adequate labour for carrying out the work. No claim regarding the idle labour for any reason will be entertained by the Department. The main contractor shall be responsible for coordinating the activities of all works and essential progress of works as per milestone and laid down programme.
20. **Care of buildings:**
Care shall be taken by the contractor to avoid damage to the building during execution of his part of the work. 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 costs, all unwanted and waste materials arising out of his work, from the site.

21. Structural Alterations to Buildings:

- a) No structural member in the building shall be damaged/altered, without prior approval from the competent authority through the Engineer-in-charge.
- b) Structural provisions like openings, cutouts, if any, provided by the department for the work, shall be used. If any modifications or fresh provisions are required, such contingent works shall be carried out by the contract at his cost after approval of the engineer-in-charge.
- c) All such openings in floors provided by the department shall be closed by the contractor after installing the cables/conduits/rising mains etc. as the case may be, by any suitable means as approved by the Engineer-in-charge without any extra payment.
- d) All chases required in connection with the electrical works shall be provided and filled by the contractor at his own cost to the original architectural finish of the buildings.

22. Addition to an installation:

Any addition, temporary or permanent, to the existing electrical installation shall not be made without a properly worked out scheme/design by a qualified Electrical Engineer to ensure that such addition does not lead to overloading, safety violation of the existing system.

23. Drawings:

The work shall be carried out in accordance with the drawings and the tender documents and also in accordance with modification thereto from time to time as approved by the Engineer-in-charge.

All wiring diagrams shall be deemed to be 'Drawings' within the meaning of the term as used in Clause 11 of the conditions of contract (PWD 7 or PWD 8). They shall indicate the main switch board, the distribution boards (with circuit numbers controlled by them), the runs of various mains and sub mains and the position of all points with their controls.

- a) All circuits shall be indicated and numbered in the wiring diagram and the points shall be given the same number as the circuit to which they are electrically connected.
- b) After award of the work, the firm will be required to submit the drawings for the proposed work including layout plan, conduit routes etc. Work will be carried out as per the approved drawings.

24. The contractor shall take all safety precautions to avoid accidents by exhibiting caution boards, red flags, red lights and by providing necessary barriers and all other measures required from time to time. The contractor shall be responsible for all damages and accidents due to negligence on his part.

25. The contractor shall give due notices to Municipality, Police and/or other authorities that may be required under the law/rules under force and obtain all requisite permissions/licenses for temporary obstructions/enclosures and pay all charges which may be leviable on account of his execution of the work under the agreement. Nothing extra shall be payable on this account.

26. All tools, plant and machinery provided by the contractor shall, when brought at the site, be deemed to be exclusively intended for the construction and completion of this work and the contractor shall not remove the same or any part thereof (save for the purpose of moving it from one part of the site to another) without the consent of the Engineer-in-charge.

27. All materials shall be got checked & approved by the Engineer-in-charge on receipt of the same at site before use in the work. The rejected material is to be removed from the site immediately.

28. No foreign exchange shall be made available by the department for the purchase of equipments, plants, machinery, materials of any kind or any other items required to be carried out in execution of work.

29. The contractor shall give the Engineer-in-charge in every fortnight, a progress report of the work done during the previous fortnight and the targets for the next fortnight. The progress of work will be reviewed periodically by the Engineer-in-Charge with the contractor and shortfalls, if any, sorted out. The contractor shall thereupon take such action as may be necessary to bring back his work to schedule without any additional cost to the department.

~~**30.** It shall be responsibility of the main contractor to sort out any dispute involved with the associated contractor without any time and cost overrun to the department. The main contractor shall be solely responsible for settling the dispute/litigation arising out of his agreement with the associate contractor. The contractor shall ensure that the work shall not~~

- suffer on this account.
31. The contractor will have to ensure that the skilled labour i.e. wireman etc., engaged in the execution of the work must possess valid electrical license, otherwise he will not be permitted to execute the work.
 - ~~32. The associate contractors executing the electrical works must possess the valid electrical contractor license otherwise they will not be permitted to execute the electrical works.~~
 33. The contractor shall be responsible for removal of all defects in the work during the defect liability/guarantee/warranty period. The department shall carry out routine maintenance only. However, if any failure is noticed during this period which is attributable to poor quality of material and bad workmanship, the contractor will be required to rectify the same at his own cost, failure of which the department will be at liberty to get the defects rectified at the risk & cost of the contractor. The contractor will also be required to carry out his own inspection/testing during the guarantee/warranty period and attend to any defect taking place during this period.
 34. Material required for the work shall be brought at site at the appropriate time keeping in view the requirement of material depending on progress of the work.
 - ~~35. In case the main contractor fails to make the payment to the contractor associated by him as per mutually agreed terms & conditions and associated contractor makes a written complain to Engineer in charge, he shall serve the notice to main contractor to show cause within 7 days that why recovery for non payment to associated contractor shall not be made from the next running/final bill. In case no cause is shown by the main contractor within the giving time or the cause shown is not to the satisfaction of Engineer in charge, the Engineer in-charge of minor component will recover the due amount from the main contractor and pay to associate contractor. In case sufficient amount is not available, the same shall be recovered from any other amounts available with the department/Government. **Also Engineer in-charge can make payment to the associate contractor directly in such situation, subject to mutually agreed terms and condition between main contractor and associate contractor**~~
 38. If the main contractor fails to associate contractor for execution of this minor components within prescribed time or furnishes incomplete details or furnishes details of ineligible agencies even after the main contractor is given due opportunity, the entire scope of such component of works shall be withdrawn from the main contractor and the same shall be got executed by the Engineer in Charge at the risk and cost of the main contractor.
 - ~~39. The main contractor/associates are advised to visit the site of work / all architectural drawings to have an idea of the scope / nature of work. Failure to do so shall not absolve their responsibility to do the work as specified in agreement.~~
 40. In the event of the concerned E&M agency not performing satisfactorily or failure of associate/ sub-contractor to complete the E&M work, the main contractor on the written direction of the department, shall remove the Associate/sub contractor deployed on the work and shall submit name of new associate who fulfils the conditions mentioned in NIT to execute the leftover work without any loss of time or variation in cost to the department in this regard. Such associates shall also enter into agreement / contract with the main contractor and shall meet all the guarantee for the equipments already supplied for which payment has been released by the Department in part or full.
 - ~~41. If any equipment supplied for the work, during the currency of the earlier associate / sub-contractor and paid in part or full by the department, becomes redundant or not in a position to be installed and commissioned and put to beneficial use, the main contractor shall be liable for replacement of such equipment(s) at no cost to department. Prior approval of Engineer in charge of minor component is required for change in associated contractor.~~
 - ~~42. The main contractor shall not indulge in procurement of items and getting the work done on labour contract with the associate. The whole E&M component shall be executed by the eligible associate contractor on a turnkey basis i.e. procurement of material, engaging labour, execution, testing & commissioning etc. The associate electrical contractor shall submit the completion certificate of E&M work executed by him along with necessary test reports, guarantee bond/certificate, completion plan etc.~~
 - ~~43. The main contractor shall be responsible and liable for proper and complete execution of all components of work. Main contractor is also responsible to ensure coordination among various associates to complete the whole scope of work.~~
 - ~~44. The associate shall attend the inspection of the work by the Engineer in Charge of the work as and when required.~~

45. The several documents forming the contract are to be taken as mutually explanatory to one another, detailed drawings being followed in preference to small scale drawings and figured dimensions in preference to scale and additional/special conditions in preference to general conditions.
In the case of discrepancy between the schedule of quantities, the specification and/or the drawings, the following order of preference shall be observed:-
- i) Description of schedule of quantities.
 - ii) Particular specifications, if any.
 - iii) Additional specifications, if any
 - iv) Additional/special conditions, if any.
 - v) General conditions, if any.
 - vi) Drawings.
 - vii) Contract Clauses of General conditions of contract for CPWD 2023.
 - viii) CPWD specifications.
 - ix) Indian standard specifications of BIS.
 - x) Sound engineering practice as per directions of the Engineer-in-charge.
 - xi) Manufacturers' specifications.
46. A reference made to any Indian Standard Specifications in these documents, shall imply reference to the latest version of that standard, including such revisions/amendments as issued by the Bureau of Indian Standards up to last date of submission of tenders. The contractor shall keep at his own cost all such publications of relevant Indian Standards applicable to the work at site.

47. **BYE-LAWS AND REGULATIONS**

The work shall be carried out to the satisfaction of the Owner's site representative and in accordance with the Specifications, Regulations of the Electric Supply Authority, Indian Electricity Rules and Regulations, latest Indian Standards and as per the requirements of the Chief Fire Officer.

48. **FEES AND PERMITS**

The Contractor shall pay any and all fees and obtain permits required for the installation of this work. On completion of the work, the contractor shall obtain and deliver to the Owner, certificate of final inspection and ~~approval by the local fire authority~~ (CFO/ Municipal, State/Central govt. whichever is applicable).

49. **SHOP DRAWINGS**

- I. All the shop drawings shall be prepared on computer through AutoCAD System based on Architectural Drawings, site measurements and Interior Designer's Drawings. Within two weeks of the approval of the associate, contractor shall furnish, for the approval of the engineer-in-charge, two set of detailed shop drawings of all equipment and materials including layouts for all conduit layouts, distribution panels, and any other requirement to be fabricated or purchased by the contractor.
- II. These shop drawings shall contain all information required to complete the Project as per specifications and as required by the engineer-in-charge. These drawings shall contain details of construction, size, arrangement, operating clearances, performance characteristics and capacity of all items of equipment, also the details of all related items of work by other contractors. Each shop drawing shall contain tabulation of all measurable items of equipment/ materials/ works and progressive cumulative totals from other related drawings to arrive at a variation-in-quantity statement at the completion of all shop drawings.

Each item of equipment/material proposed shall be a standard catalogue product of an established manufacturer strictly from the list of approved manufacturer attached in this minor components.

When the engineer-in-charge makes any amendments in the above drawings, the contractor shall supply two fresh sets of drawings with the amendments duly incorporated along with check print, for approval. The contractor shall submit further six sets of shop drawings to the engineer-in-charge. No material or equipment may be delivered or installed at the job site until the contractor has in his possession, the approved shop drawing for the particular material/equipment/ installation.

- III. Soft drawings shall be submitted for approval sufficiently in advance of planned delivery and installation of any material to allow engineer-in-charge ample time for scrutiny. No

claims for extension of time shall be entertained because of any delay in the work due to his failure to produce shop drawings at the right time, in accordance with the approved programme.

- IV. Manufacturers' drawings, catalogues, pamphlets and other documents submitted for approval shall be in four sets. Each item in each set shall be properly labelled, indicating the specific services for which material or equipment is to be used, giving reference to the governing section and clause number and clearly identifying in ink the items and the operating characteristics. Data of general nature shall not be accepted.
- V. Samples of all materials like conduits, accessories, switches, wires, control cables etc shall be submitted to the engineer-in-charge prior to procurement. These shall be submitted in two sets for approval and retention by engineer-in-charge and shall be retained for reference and verification till the completion of the Project.
- VI. Approval of shop drawings shall not be considered as a guarantee of measurements or of building dimensions. Where drawings are approved, said approval does not mean that the drawings supersede the contract requirements, nor does it in any way relieve the contractor of the responsibility or requirement to furnish material and perform work as required by the contract.
- VII. Where the contractor proposes to use an item of equipment, other than that specified or detailed on the drawings, which requires any redesign of the structure, partitions, foundation, wiring or any other part of the mechanical, electrical or architectural layouts; all such re-design, and all new drawings and detailing required therefore, shall be prepared by the contractor at his own expense and gotten approved by the engineer-in-charge.
- VIII. The contractor shall prepare composite working drawings and sections at a suitable scale, not less than 1:50, clearly showing how his work is to be installed in relation to the work of other trades. If the Contractor installs his work before coordinating with other trades, or so as to cause any interference with work of other trades, he shall make all the necessary changes without extra cost to the engineer-in-charge.
- IX. Within four weeks of approval of all the relevant shop drawings, the contractor shall submit four copies of a comprehensive variation in quantity statement, and itemized price list of recommended (by manufacturers) imported and local spare parts and tools, covering all equipment and materials in this contract.

50. **ACCESSIBILITY**

The Contractor shall verify the sufficiency of the size of the shaft openings, clearances in wall cavities and suspended ceilings for proper installation of his conduits cables, cable trays, panels etc. His failure to communicate insufficiency of any of the above shall constitute his acceptance of sufficiency of the same. The Contractor shall locate all equipment which must be serviced, operated or maintained in fully accessible positions. The exact location and size of all access panels, required for each concealed control damper, valve or other devices requiring attendance, shall be finalized and communicated in sufficient time, to be provided in the normal course of work. Failing this, the Contractor shall make all the necessary repairs and changes at his own expense. Access panel shall be standardized for each piece of equipment / device / accessory and shall be clearly nomenclature / marked.

51. **MATERIALS AND EQUIPMENT**

All materials and equipment shall conform to the relevant Indian Standards and shall be of the approved make and design. Makes shall be strictly in conformity with list of approved manufacturers attached in this minor components.

The Contractor shall be responsible for the safe custody of all materials and shall insure them against theft or damage in handling or storage etc. A list of items of materials and equipment, together with a sample of each shall be submitted to the Owner's site representative within 15 days of the award of the contract.

The quantity of material in the BOQ is indicative. Contractor has to assess the actual requirement of material at site before placing the order, keeping in view the drawing and site requirement from the shortest route. No claim for payment for unused excess material shall be entertained

52. **COMPLETION CERTIFICATE**

On completion of the electrical installation a certificate shall be furnished by the Contractor countersigned by the licensed supervisor, under whose direct supervision the installation was carried out. This certificate shall be in the prescribed form as required by the local, state/central govt./ municipal / fire authorities concerned.

53. COMPLETION DRAWINGS

Upon completion of the work and before issuance of certificate of virtual completion the contractor shall submit to the engineer-in-charge four set of layout drawings in progressive manner for individual systems drawn at approved scale indicating the complete wiring system as installed. Drawing shall be prepared on AUTO-CAD (latest version). Along with the hard copies, the contractor shall submit copies of all drawings on CD and one set of all drawings on RTF shall also be submitted. These drawings must provide:

- a. Single line distribution diagram including submain circuit wiring etc.
- b. Location of all DB's, switch board, panels etc.
- c. Any other relevant drawing.

54. OPERATING INSTRUCTION & MAINTENANCE MANUAL

Upon completion and commissioning of part Electrical system the contractor shall submit a draft copy of comprehensive operating instructions, maintenance schedule and log sheets for all systems and equipment included in this contract. This shall be supplementary to manufacturer's operating and maintenance manuals. Upon approval of the draft, the contractor shall submit four (4) complete bound sets of typewritten operating instructions and maintenance manuals. These manuals shall also include basis of design, detailed technical data for each piece of equipment as installed, spare parts manual and recommended spares for 4 year period of maintenance of each equipment.

55. ON SITE TRAINING

Upon completion of all work and all tests, the Contractor shall furnish necessary operators, labour and helpers for operating the entire installation for a period of thirty (30) working days of ten (10) hours each, to enable the engineer-in-charge and his duly authorized representatives to get acquainted with the operation of the system. During this period, the contractor shall train the engineer-in-charge's personnel in the operation, adjustment and maintenance of all equipment installed.

56. MAINTENANCE DURING DEFECTS LIABILITY PERIOD

Complaints

The Contractor shall receive calls for any and all problems experienced in the operation of the system under this contract, attend to these within 24 hours of receiving the complaints and shall take steps to immediately correct any deficiencies that may exist during defect Liability period of 1 year & ~~LED warranty period for 5 year.~~

Repairs

All equipments that require repairing shall be immediately serviced and repaired. Since the period of Mechanical Maintenance runs concurrently with the defects liability period, all replacement parts and labour shall be supplied promptly free-of-charge to the engineer-in-charge.

57. METHOD OF MEASUREMENT

The works shall be measured in accordance with relevant IS codes notwithstanding any general or local custom except where otherwise specifically described or prescribed in the contract.

58. DEMONSTRATION TO ENGINEER-IN-CHARGE:

At completion, devices subject to manual operation shall be operated at least five times in presence of engineer-in-charge's site representative to demonstrate satisfactory operation.

59. PREPARATION AND APPROVAL OF DRAWING

On award of the work, the contractor has to prepare working drawings and submit to the Engineer-in-Charge for approval. This drawing shall be prepared after considering all the services, viz. conduits, Structure for mounting solar panel etc. The work is to be executed as per approved drawings.

60. The associate shall attend the inspection of the work by the Engineer-in-Charge as and when required.

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

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 [Providing 7 kWp solar power generation at SIB, Satna.](#)

1.3 The work shall be executed as per CPWD General Specifications for Electrical works part-I (internal) 2023, Part-II(external)2023, as amended up-to date, relevant I.E. Rules, BIS/IES and as per directions of Engineer-in-charge. These additional specifications /conditions are to be read in conjunction with above and in case of variations; specifications given in these additional conditions shall apply. However, nothing extra shall be paid on account of these additional specifications and conditions, as the same are to be read along with schedule of quantities for the work.

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

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

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), CPWD, Jabalpur 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 conditions/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 60%
- ii.) On completion of pro-rata installation 30%
- 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 12months 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 Pantograph scanning reports, address /identification tag for Lan wiring, all other items which are useful and necessary for efficient assembly and installation of 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 03 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 1 year, 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 equipment regarding installation, adjustment 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 equipment 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 along-with 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 75 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:

Factories Act

Indian Electricity Rules

BIS & other standards as applicable

Workmen's compensation Act

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) Description of Schedule of quantities
- b) Particular Specification and Special Condition, if any.
- c) Drawing
- d) CPWD specifications
- e) Indian Standard Specification of B.I.S.
- f.) Manufacturers specifications.

PARTICULAR SPECIFICATIONS OF GRID INTERACTIVE ROOF TOP SOLAR PHOTOVOLTAIC POWER PLANT/ENERGY INSTALLATION SYSTEM

1. GENERAL SCHEME & SCOPE

This document contains the requirement of on-grid interactive Solar Photo Voltaic (SPV) power supply System for general electrical load. Suitable size of solar photovoltaic system is to be installed at each location and has to feed all the electrical installations in the campus and shall be importing power to the grid also. The Power Conditioning Unit (PCU) shall be Grid tied, i.e. with a priority for use of Solar power for general electrical load and if the solar power becomes inadequate due to solar radiation outage or the fault in solar generation system then, Main/grid supply shall be used for meeting the power demand due to general electrical load.

GI structure to be fabricated above the existing roof structure on the basis of approved drawing of engineer in charge. Solar modules/arrays should be mounted over the structure. The PCU shall be installed inside solar inverter room nearer to the compound wall. Solar Inverter room will be provided by the Department.

The scope of work include designing and providing suitable size of Grid interactive solar power system, PCU (power conditioning unit), all measuring devices, indication devices, protection Devices, switching devices with all necessary wiring, cabling, terminations, mounting structure on existing MS/GI roof truss structure and any other item needed for proper functioning and protection of system from external/internal causes & from all kind of surges etc. System shall be designed with sound engineering and state of the art manner.

The scope of work includes supply, installation, testing and commissioning of the entire solar PV plant in compliance to applicable standards including Central Electricity Authority (CEA) regulations, M.P. State Electricity regulatory Commission regulations, M.P. State Electrical Inspectorate norms & guidelines, pre- requisites/norms laid down by MPPKVCL.

2. DEFINITION

In an on grid solar photovoltaic system, an array of solar panels are connected with solar inverter which is connected to the grid through meter. The solar panels converts sunlight into DC electricity which is then converted into alternating current termed as AC power. A Grid Connected Solar Rooftop Photo Voltaic (SPV) system consists of Solar PV modules combined into arrays, Mounting Structure, Inverter/Power Conditioning Unit (PCU) consisting of Maximum Power Point Tracker (MPPT), Controls & Protections, interconnection cables and switches. PV Array(s) to be mounted on a suitable structure. Grid connected SPV power plant is without battery and should be designed with necessary features to supplement the grid power and interact with mains power during day time. Components and parts used in the Solar power plants including the PV modules, metal structures, cables, junction box(s), switches, inverters/PCUs etc. should conform to the BIS or IEC or international specifications, wherever such specifications are available and applicable.

3. GRID TIED SPV POWER SUPPLY SYSTEM:

Grid tied solar inverters are suited for outdoor/indoor use and the ideal solution for medium voltage application. The inverters provide a wide maximum point power tracking (MPPT) voltage range on effective efficiency more than 97%.

4. SITE LAYOUT DESIGN:

The contractor will submit his layout design for SPV module including its structure details to Engineer in charge for approval before start of work. The contractor should visit the site before quoting the tender to have idea of the site related preparation to be included in their offer.

5. SPV MODULE/ARRAY:

Solar Photo Voltaic Generating Sources: SPV generating sources constituted of following building blocks:

SPV Module: SPV Module is the basic building block of the SPV power supply, which consists of a number of Solar cells (Semiconductor Devices which when exposed to sunlight produces DC electricity) connected in series and hermetically sealed with a toughened and highly transparent front glass cover. These modules are connected in series as well as in parallel to get the desired power and voltage. The Rated DC current of One solar PV module shall be 600Wp or higher. Solar PV modules shall be PID (Potential induced degradation) free. SPV Panel: SPV Modules of same rating are connected in series to form a SPV panel to get the desired voltage.

SPV Array: A number of panels are connected in parallel to get the desired power. This whole combination is called an array. The SPV array is designed in such a way that, it provides simultaneous power to meet the load demand, when sufficient solar irradiation is available.

Design Features: The mechanical design and construction of SPV modules, panels and mounting structure shall be inherently robust and rigid under all conditions of operation, adjustment, storage and transport. Sharp edges shall be avoided.

Array capacity of plant shall not be less than 3 kWp @ standard test conditions depending on size of the power plant. Number of modules required shall be worked out accordingly. Standard test conditions shall be solar irradiance of 1000w/m², cell operating temp. Of 25 Deg C and spectral AM of 1.5.

Single module with the highest wattage is preferred. Solar PV module array will be made by utilizing Poly/mono Crystalline high efficiency Silicon Solar PV cells. Minimum power output guarantee offered for the SPV Module shall not be less than for a period of 25 years as per the tender conditions. Individual solar PV module rating shall not be less than 380 Wp at standard test conditions. Each Solar PV module offered shall meet following minimum requirements.

a. SOLAR PHOTOVOLTAIC MODULES- General features:

The module conversion efficiency of the PV modules should be minimum 23% under standard test conditions.

- i. The solar PV modules shall be MNRE approved. If PV module is not MNRE approved, a certificate of MNRE approved laboratory shall be obtained and submitted by the agency.
- ii. Test Certificate issued by one of the MNRE/ MNRE authorized test centre(s).
- iii. Modules of any type and of mono/poly crystalline film can be used.
- iv. The module type must be qualified as per IEC 61215 latest edition. Modules must qualify to IEC 61730 Part I and II for construction and safety qualification testing. Certificate of MNRE approval to be submitted prior to delivery. I-V curve of each PV module with serial number of each module should be submitted along with supply of modules. Solar PV modules shall conform to IEC-61215 standards. Documentary evidence of IEC- 61730 certification shall be submitted after award of work but prior to supply of material.
- v. The total solar PV array capacity should not be less than allocated capacity (kWp) and should comprise of solar crystalline modules of minimum 330 Wp and above wattage per module. Solar PV modules having Power generation capacities less than minimum 330 Watts shall not be accepted. Test reports of the modules should be submitted.
- vi. Protective devices against surges at the PV module shall be provided as per M.P. State Electrical Inspectorate norms. Low voltage drop bypass diodes shall also be provided.

- vii. DC surge arrester shall be provided at DC side and it shall be of type II(as per IEC 61643-I, IEC62548/2016) rated at continuous operating voltage of at least 125% of open circuit voltage of PV string and a flash current of more than 5Amps.
- viii. PV string connected in parallel shall have matched open circuit voltage within 5% per string to avoid circulation current as per IEC: 62548:2016.
 - 1.1.10 Sizing of cables for PVC sub array shall be chosen as per IEC: 62548: 2016 and its amendments.
 - 1.1.11 The module frame shall be made of corrosion resistant materials having anodized aluminum or as per manufacturer standard.
 - 1.1.12 Crystalline high power cells shall be used in the Solar Photovoltaic module. Each Solar module shall consist of 72 Photovoltaic cells redundantly interconnected.
 - 1.1.13 Junction box with cable gland & terminal connection block accepting 2.5mm² to 6mm² cable would be preferred
 - 1.1.14 The rated output power of any supplied module shall not vary more than 3-5% from the average power rating.
 - 1.1.15 The fill factor of modules shall not be less than 0.70 (typical).
 - 1.1.16 The bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power.
 - 1.1.17 Other general requirement for the PV modules and subsystems shall be of the following:
 - a) The rated output power of any supplied module shall have a tolerance of $\pm 3\%$.
 - b) The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary by more than 2 (two) per cent from the respective arithmetic mean for all modules and/or for all module strings, as the case may be.
 - c) The module shall be provided with a junction box with weather proof lid of sealed type and IP-65 rated.

Warranty: The PV Modules must be warranted for output wattage, which should not be less than 90% at the end of 10 years and not less than 80% at the end of 25 years. Solar PV module shall be product warrantied for 10 years by the OEM/authorized channel partner/agent. Also, solar PV Module shall be offered a power output/linear output warranty for 25 years by the OEM as above. The certificate in this regard shall be furnished by the agency from OEM prior to delivery of unit.

1. SPV MODULES- Other features

- (a) Each SPV Module to be supplied should have minimum declared output of 380Wp or higher. Number of Modules to be provided shall be worked out accordingly. Test reports of the modules should be submitted.
- (b) Stabilized output of the Solar PV Array for the Power Plant should not be less than Calculated Kwp under standard Test Conditions of solar irradiance of 1000W/m² at 25 Deg. Celsius, spectrum Air mass: 1.5 at cell temperature of 25 Deg.C
- (c) Modules for Power Plant shall be made of poly or mono-crystalline Silicon Solar cells.
- (d) Except otherwise specified, the front module surface shall consist of impact resistant, low iron and high transmission glass.
- (e) The module frame shall be made of aluminum or corrosion resistant material, which shall be electrically compatible with the structural material used for mounting the modules.

2. SOLAR PV MODULE (ELECTRICAL FEATURES)

- (a) Crystalline high power cells shall be used in the Solar Photovoltaic module. Solar Module shall be laminated using laminating technology using established polymer (EVA) and Tedlar/Polyester laminate. The solar modules shall have suitable encapsulation and sealing arrangement to protect the silicon cells from the environment. The arrangement and the material of encapsulation shall be compatible with thermal expansion properties of the Silicon cells of the module framing arrangement/ material. The encapsulation arrangement shall ensure complete moisture proofing during life of solar modules.
- (b) SPV Module conversion efficiency should be greater than 19%. Module shall be made of high transmissivity glass front surface giving high encapsulation gain.
- (c) All materials used shall be having a proven history of reliable and stable operation in external outdoor/indoor applications.
- (d) Module rating is considered under standard test conditions, however Solar modules shall be designed to operate and perform in relative humidity up to 95% (non-condensing) with temperature between -10° Deg. C and +85° Deg. C and with stand gusts up to 180Km/hr from back side of the panel or the Geological data of M.P. can be followed for the design to meet optimum generation whichever is higher
- (e) Sample modules and production processes employed in the manufacture of the offered module shall be in accordance with the requirement of IEC 61730 with appropriate certificate.
- (f) Each PV module used in any solar power project must use a RF identification tag. The following information must be mentioned in the RFID used on each module. This can be inside or outside the laminate, but must be able to withstand harsh environmental conditions.
 - (1) Name of the manufacturer of PV module.
 - (2) Name of the manufacturer of Solar cells.
 - (3) Month and year of the manufacturer (Separately for Solar cell and module)
 - (4) Country of origin (Separately for Solar cell and module)
 - (5) I-V curve for the module
 - (6) Wattage, Im, Vm and fill factor for the module.
 - (7) Unique Serial No and Model Number of the module.
 - (8) Date and year of obtaining IEC PV module qualification certificate.
 - (9) Name of the test lab issuing IEC certificate.
 - (10) MNRE certificate details

3. SOLAR PV MODULE (MECHANICAL FEATURES)

Solar PV module design shall conform to following Mechanical requirement: -

- (1) Toughened, low iron content.
- (2) High transmissivity front glass.
- (3) Anodized Aluminum Frame.
- (4) Ethyl vinyl Acetate (EVA) encapsulant.
- (5) Silicon edge sealant around laminate.
- (6) Tedlar/ Polyester tri-laminate back surface.
- (7) Weatherproof DC rated MC connections easier and secure, not allowing for any loose connections, Resistant to water, abrasion, hail impact, humidity & other environment factor for the worst situation at site

4. JUNCTION BOXES (JBs):

- a) The junction boxes are to be provided in the PV array for termination of connecting cables. The J. Boxes (JBs) shall be made of GRP/FRP/Powder Coated Aluminum /cast aluminum alloy with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The Junction Boxes shall be such that input & output termination can be made through suitable cable glands.
- b) Copper bus bars/terminal blocks should be housed in the junction box with suitable termination threads Conforming to IP65 standard and IEC 62208. Hinged door should be used with EPDM rubber gasket to prevent water entry.
- c) Each Junction Box shall have High quality Suitable capacity Metal Oxide Varistors (MOVs) / surge arrestors and suitable Reverse Blocking Diodes etc. The Junction Boxes shall have suitable arrangement for monitoring and disconnection for each of the groups.
- d) A test point for each sub-group for quick fault location shall be provided. It shall have facility for group isolation.
- e) The rating of the JB's shall be suitable with adequate safety factor to inter connect the Solar PV array

5. PV ARRAY CONFIGURATION

- a) The Solar array shall be configured in multiple number of sub- arrays, providing optimum DC power. The bidder shall submit their own design indicating configuration of PCU and respective sub arrays.
- b) The PV modules should be mounted on aluminum structures/GI/ MS powder coated of adequate strength and appropriate design, which can withstand load of modules and high wind velocities up to 44 m/sec or as per the geological wind map for M.P. whichever is stringent. STADD analysis in substantiation of meeting this condition to be submitted for verification by department.
- c) The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels.
- d) The bidder needs to take care of the load bearing capacity of the existing roof structure and to arrange suitable structures based on the quality of roof. The total load of the structure (when installed with PV modules) on the terrace/roof should be less than 60 kg/m². Suitable civil work for installation of the structure as per schedule of quantities is to be done by the supplier. Design of the structure should be approved by Engineer in charge . Civil Structure should be neat & clean, with proper alignment and round in shape with emphasis on proper grouting and there should not be leakage, seepage in roof after installation of plant.

6. MODULE MOUNTING STRUCTURE

Pre-Installation Requirements for Mounting Structure

Before proceeding with the installation of the mounting structure, the Contractor must undertake the following steps:

- 1. Engagement of a Qualified Structural Engineer
 - (a) The Contractor must hire a qualified Structural Engineer, preferably from NIT, IIT, or any recognized government organization.
 - (b) The Structural Engineer will prepare the structural drawings for the proposed truss work.

2. Preparation and Submission of Structural Drawings
 - (a) The structural drawings must comply with all relevant standards and specifications.
 - (b) These drawings must be submitted to the Engineer-in-Charge for review and approval before commencing any work.
3. Reimbursement of Structural Engineering Costs
 - (a) The Contractor shall be reimbursed for the cost incurred in engaging the Structural Engineer upon submission of:
 - (i) A tax invoice or bill for the consultancy charge of the Structural Engineer.
 - (ii) Supporting documents proving the qualifications and credentials of the Structural Engineer.
4. Responsibility for Timely Submission
 - (a) The Contractor is responsible for ensuring the timely submission of structural drawings and obtaining necessary approvals.(Within 20 Days after award of work)
 - (b) Any delays in submission or approval that impact the project schedule will be the responsibility of the Contractor.

The mounting structure would be designed to sustain wind loading of up to 180Kmph or as per the geological wind map of M.P. whichever is stringent and shall be protected by using Eco friendly anticorrosion on structure. The entire structure including array will be earthed to an independent pit with redundant paths. Mounting Structures with fixed/adjustable tilt has been proposed. The Hardware shall be made of SS material or as per manufacturer standard.

The structure design shall be appropriate and innovative and must follow the existing structure and profile

The structure design shall be appropriate and innovative and must follow the existing structure and profile.

The structure shall be designed to allow easy replacement of any PV module.

The structure shall be designed for simple mechanical and electrical installation. It shall support SPV module at a given orientation, absorb and transfer the mechanical loads to the roof properly.

The array structure shall be so designed that it will occupy minimum space without sacrificing the output from SPV panels at the same time.

Nut & bolts supporting structure including module Mounting Structures shall have to be adequately protected from atmosphere and weather prevailing in the area; Nut, bolts should be especially in SS material.

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

The drawings along with detailed design shall be submitted in three sets to the engineer- in-charge for approval before starting the execution of work. The work will be carried out as per designs approved by the Engineer in-charge

7. POWER CONDITIONING UNIT (PCU)

Power Conditioning Unit (PCU) is critical equipment in Grid interactive SPV Power Plant. This equipment converts DC power generated by SPV array, into three phase medium voltage AC to be connected to Grid. It also provides necessary protections for Grid

Synchronization and Data Logging/Monitoring. The DC energy, thus produced has to be utilized to maximum and supplied to the DC bus for inverting to AC voltage with the help of Power Conditioning Unit using its MPPT (The efficiency of MPPT shall not be less than 97% & shall be designed to meet the Solar PV Array capacity control) to extract maximum energy from solar array and provides 415V AC, 3- ph 50Hz to synchronize with local grid. Power conditioning unit shall be MNRE approved.

- a) The PCU shall have protection features such as, over current, short circuit, over temperature etc.
- b) The PCU shall be of very high quality having high efficiency (>97%) and shall be capable of running in isolated mode.
- c) The PCU should be designed to be completely compatible with the SPV array voltage and grid supply voltage.
- d) The PCU should be designed for continuous, reliable power supply as per specifications.
- e) The PCU shall have internal protection arrangement against any sustained fault.
- f) The dimension, weight, foundation details etc. of the PCU shall be clearly indicated in the detailed technical specification submitted by contractor **prior to delivery of the unit.**
- g) It should have user friendly LCD/LED display for programming and view on line parameters such as DC power input, DC input voltage, DC current, AC power output, AC voltage and AC current and Power factor etc.
- h) The PCU shall have arrangement for adjusting DC input current and should trip against sustainable fault downstream and shall not start till the fault is rectified.
- i) The Grid connect PCU shall be sourced from list of acceptable makes, which will incorporate latest technological advances to provide highly reliable and efficient energy conversion from DC to AC. The PCU incorporates a new system design which uses multiple power stacks which work in tandem. The PCU should be Single phase static solid state type power conditioning units/string inverters suitably connected & synchronized to give three phase supply output. Both AC & DC lines shall have suitable fuses/MCBs and contactors to allow safe start up and shut down of the system. Fuses/MCBs used in the DC circuit should be DC rated. The PCU shall have provision for input and output isolation. 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.

AC side specifications for inverter –

Nominal AC power	3 kw
Output AC voltage	415V with a variation at $\pm 10\%$ at nominal voltage
Frequency	50 Hz
Total harmonic distortion	$\leq 3\%$
Under frequency protection	Yes
Under voltage protection	Yes
PV power	As per manufacturer design
Maximum DC voltage	As per manufacturer design
MPPT voltage range	As per manufacturer design
Maximum DC current	As per manufacturer design
DC over voltage protection	Yes
DC voltage ripple	$\leq 3\%$
Efficiency	$\geq 97\%$
Ambient temperature range	0-50°C

Degree of protection	IP20 for internal units and IP65 for outdoor units
Accurate display on front panel	DC input voltage
	DC current
	AC voltage (all 3phases)
	Instantaneous and cumulative output power
	Daily DC energy produced
	Solar charge current and ambient temperature
	Individual power stage heat sink and cabinet temperature
	Inverter ON
	Grid ON
	Inverter under/over voltage
	Inverter overload Inverter over temperature
Communication interface	RS485/RS232
	PCU shall also house MPPT (maximum power point tracker) an interface between solar PV array to power conditioning unit/inverter.
Power factor	≥0.9
Test certificates	PCU/inverter should be tested from MNRE/IEC accredited testing-calibration laboratories. In case of imported power conditioning units these should be approved by international test house.

The PCU shall be able to withstand an unbalanced load conforming to relevant IEC standard and Indian electricity condition. The PCU shall include appropriate self-protective and self-diagnostic features to protect itself and the PV array from damage in the event of PCU component failure or from parameters – beyond the PCU’s safe operating range due to internal or external causes. The self- protective features shall not allow signals from the PCU front panel to cause the PCU to be operated in a manner which may be unsafe or damaging. Faults due to malfunctioning within the PCU, including commutation feature, shall be cleared by the PCU protective devices and not by the existing site utility grid service circuit breaker.

- j)** The PCU shall go to shutdown/standby mode, with its contacts open, under the following conditions before attempting an automatic restart after an appropriate time delay.
- k)** When the power available from the PV array is insufficient to supply the losses of the PCU, the PCU shall go to standby/shutdown mode.
- l)** The PCU control shall prevent excessive cycling of shut down during insufficient solar radiance.
- m)** Operation outside the limits of power quality should cause the power conditioner to

disconnect the grid. Additional parameters requiring automatic disconnection are:

- i. Neutral voltage displacement
- ii. Over current
- iii. Earth fault
- iv. Reverse power

In each of the above cases, tripping time should be very less.

- n) PCU / Inverter should be tested from the test centres MNRE / BIS / IEC accredited testing calibration laboratories and shall be MNRE approved.

8. WIRING

1. All instruments and Panel wiring shall be of heat resisting and self-extinguishing type in compliance with IS. Plastic or porcelain cleats of the limited compression type shall be used for holding wiring runs. All wires shall be suitable for bending to meet the terminal studs at right angles. Metal cases of all apparatus mounted on panels shall be separately earthed.
2. The following colour scheme of the wiring shall be used as per IS: 375.
 - a) AC three phase circuits:
 - i) No.1 Phase: Red. No.2 Phase: Yellow.
 - ii) No.3 Phase: Blue Neutral Conductor:
 - iii) Black
 - iv) Connection to Earth: Green
 - D.C. circuits: Grey

The cabling for solar PV system shall be UV protected.

9. CABLE ACCESSORIES

Only terminal cable joints shall be accepted. No cable joints to join two cable ends shall be accepted. Cable terminations shall be made with suitable cable lugs & sockets etc., crimped properly and passed through brass compression type cable glands at the entry and exit point of the cubicles. The panels' bottoms should be properly sealed to ensure the required ingress protection of IP 42.

The terminal end of cables and wires are to be fitted with good quality numbered ferrules of proper sizes so that the cables can be identified easily.

10. INTEGRATION OF PV POWER WITH GRID:

- i) In this case, Power plant is without battery bank (i.e. with string inverter), the existing uni-directional meter of the user shall be installed for gross metering of solar generation while a Bi-directional meter shall be installed for net-metering purpose or conditions pertaining to Net Metering Policy of MPPKVV Co. Ltd. Jabalpur.
- ii) M.P. State Electrical Inspectorate guidelines/norms for interconnecting solar power with Grid and for the grid tied solar PV plant/system shall be complied in full.
- iii) Certification of anti-Islanding protection in the inverter/PCU from the manufacturer of the equipment shall be mandatory.

11. DATA MONITORING OF POWER PLANT:

- i) PCU to log the inverter performance data and transmits the same to the Data logger.
- ii) Data logger shall then gather information and monitor the performance of the inverter. It shall also support measurements from the external sensors. The data can be acquired remotely via modem.

12. LIGHTNING & OVER VOLTAGE PROTECTION

The SPV Power plant should be provided with Lightning and surge voltage protection connected to proper earth electrodes.

The Lightning Conductors shall be made as per applicable Indian Standards and as per M.P. State Electrical Inspectorate norms in order to protect the entire Array Yard/Shed from lightning strike.

The lightning conductor shall be earthed through flats and connected to the Earth electrodes as per applicable Indian Standards with earth pits. Each Lightning Conductor shall be fitted with individual earth pit as per required Standards including accessories, and providing masonry enclosure with cast iron/MS cover plate having locking arrangement, watering pipe, charcoal or coke and salt as per required provisions of IS.

The bidder shall ensure adequate lightning protection to provide acceptable degree of protection as per IS for the array Yard/Shed. If necessary, more numbers of Lightning conductors may be provided.

For each earth pit, necessary test Point shall have to be provided.

13. EARTHING SYSTEM

- a) Each array structure of the SPV shall be grounded properly. The array structure are to be connected to earth pits as per CPWD General Specifications and as per requirements of M.P. State Electrical Inspectorate norms whichever is stringent. Junction boxes shall be connected to the main earthing conductor/ electrode.
- b) Earthing system installation shall be in strict accordance with CPWD General Specifications Part-I internal 2013 amended up to date and as per M.P. State Electrical Inspectorate norms. The size of earthing conductor to solar PV array shall be 1.56 times the maximum short circuit current of the PV array.
- c) Necessary test point provision shall be made for bolted isolating joints of each earthing pit for periodic checking of earth resistance.
- d) In compliance to Rule 33 and 61 of Indian Electricity Rules, 1956 (as amended up to date) all non-current carrying metal parts shall be earthed with two separate and distinct earth continuity conductors to an efficient earth electrode.
- e) Earth resistance of the earth pits shall be tested in presence of the representative of Engineer-in-charge.

14. AC Distribution Box (ACDB)

- i) All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS- 60947 part I, II and III.
- ii) The switches, cabling work, Manual isolation of Inverters/Grid should be undertaken by the bidder as part of the project within quoted rates.

15. DATA ACQUISITION SYSTEM / PLANT MONITORING

- i) Web based remote monitoring which shall also be linked with servers of client / Board or software such as SCADA monitoring system must be provided by Bidder. If needed, access to MNRE/CREST shall also be provided.

- ii) —PV array energy production: Digital Energy Meters to log the actual value of AC/ DC voltage, Current & Energy generated by the PV system shall be provided.
- iii) All instantaneous data shall be shown on the computer screen.
- iv) —The bidder must avail approval, feasibility certificate from MPPKVV Co. Ltd. and energization approval in liaison with other agencies including MPPKVV Co. Ltd. M.P. State Electrical Inspectorate etc.
- v) —NOC for connecting solar PV plant to the distribution system of IMU and synchronization of SPV plant with distribution network and submit the same before commissioning of SPV plant shall be availed by the agency. Nothing extra shall be paid on this account.

16. PRIORITY FOR POWER CONSUMPTION:

Regarding the generated power consumption, in case of string inverter, priority need to given for internal consumption first and thereafter any excess power can be exported to grid.

17. Grid Islanding:

- i) In the event of a power failure on the electric grid, it is required that any independent power-producing inverters attached to the grid turn off in a short period of time. This prevents the DC-to-AC inverters from continuing to feed power into small sections of the grid, known as “islands.” Powered islands present a risk to workers who may expect the area to be unpowered, and they may also damage grid- tied equipment. The Rooftop PV system shall be equipped with islanding protection. In addition, to disconnection from the grid (due to islanding protection) disconnection due to under and over voltage conditions shall also be provided.
- ii) A manual disconnect pole isolation switch beside automatic disconnection to grid would have to be provided at utility end to isolate the grid connection by the utility personnel to carry out any maintenance. This switch shall be locked, if required, by the utility personnel.

18. PAINTING & FINISH

- i. All metal surfaces shall be thoroughly cleaned of rust, scale, oil, grease, dirt etc. Fabricated structures shall be pickled and then rinsed to remove any trace of acid. The under surface shall be made free from all imperfections before undertaking the finishing coat.
- ii. After Phosphate treatment, two (2) coats of yellow zinc chromate primer shall be applied followed by two(2) coats of epoxy based synthetic enamelled paint. Thickness of paint shall be not less than 75 micron.

All unpainted steel parts shall be cadmium plated or suitably treated to prevent rust formation. If these parts are moving elements, then they shall be greased

19. STANDARDS FOR SOLAR PHOTOVOLTAIC (PV) POWER PLANTS/SYSTEMS

- A. PV MODULES:** The PV modules must conform to the latest edition of any of the following IEC/equivalent BIS standards for PV module design qualification and type approval: Crystalline Silicon Terrestrial PV modules : IEC 61215/ISI 14286 Thin Film Terrestrial PV modules : IEC 61646 Concentrator PV Modules & Assemblies : IEC 62108 In addition, the modules must conform to IEC 61730 Part1-requirements for construction & Part2 – requirements for testing, for safety qualification. PV modules to be used in a highly corrosive

atmosphere (coastal areas, etc.) must quality. Salt Mist Corrosion Testing as per IEC 61701

B. BALANCE OF SYSTEM (BoS) ITEMS/COMPONENTS: The BoS items/components of the SPV power plants/systems deployed under the work must conform to the latest edition of IEC/equivalent BIS standards as specified below-

20 As per Ministry of New and Renewable Energy (MNRE) circular dated 25th May 2026, it is mandatory from 01st June 2026 onwards, to use Domestic Content Requirement (DCR) solar panels. Nothing extra shall be paid on this account.

21 Scope of work includes net metering along with liasioning with local regulatory body.

1. TECHNICAL SPECIFICATIONS OF SPV PANE

BoS Item/Component	Applicable IEC/equivalent BIS standard	
	Standard Description	Standard Number
Power Conditioner/Inverter	Efficiency Measurement Environmental Testing	EN 61000-6-3 EN 50178
MPPT Units	Design Qualification Environmental Testing	EN 50178 UL 1741 CSA107.1
Cables	General testing and measuring methods PVC insulated cables for working voltage up to and including 1100V, UV resistant for outdoor installation	IEC 60189 IS 694/IS1554 IS/IEC/69947 IEC 62548
Switches/Circuit Breakers/Connectors	General requirements connectors-safety	IS/IEC 60947 part I, II & III, EN 50521
Junction Boxes/Enclosures	General requirements	IP 65 (for outdoor)/IP 21 (for indoor) IEC 62208
SPV system design	PV Stand-alone System Design verification	IEC 61215 IEC 61730 IEC 61701 IEC 62548
Installation Practices	Electrical installation of buildings requirements for SPV power supply systems	IEC 61730

Sl. No	Description	As per NIT
1.	Type	On -grid/Grid interactive
2.	Max DC Array Input voltage	Not more than 800 V DC
3.	DC voltage tolerance	-20% to +15% of DC array input voltage
4.	Type of solar charge controller	MPPT based solar charge controller to suit to individual array voltages.
5.	Switching device	MOSFET/IGBT
6.	Topology	With isolation transformer/transformer less
7.	Continuous inverter output rating	Peak/Maximum Inverter output rating
8.	Output wave form	Pure sine wave output
9.	Ripple content	DC Voltage ripple content shall be not more than 3%; DC current not greater than 1% of rated output current
10.	Total harmonic distortion	Less than 3% of power injected into the grid (with resistive load)
11.	Nominal AC output voltage and frequency	415V, 3phase, 50Hz

2.

Sl. No	Description	As per NIT
1.	Max. output (Pmax) at standard test conditions (solar irradiance of 1000W/m ² at a cell temperature of 25 Deg. C and spectral air mass=1.5)	≥600Wp
2.	MPP Voltage (Vmpp) V	As per manufacturer standards
3.	MPP current (imp) A	As per manufacturer standards
4.	Open circuit voltage (Voc)V	As per manufacturer standards
5.	Normal operating cell temperature	0 to 50°C
6.	Module dimensions (LxWxH) Appx.	As per manufacturer standards
7.	No. of PV cells per Module	As per manufacturer
8.	Min. efficiency of module	Not less than 19%
9.	Solar module frame material	Aluminium/anti corrosive material
10.	Weather resistant junction	IP65 or better
11.	Glass	Toughened
12.	Glass iron content	Low Iron
13.	Glass transmissivity	High transmissivity
14.	Frame	Anodized aluminium/anti corrosive material
15.	Encapsulation	Ethyl Vinyl Acetate (EVA)
16.	Trilaminate back surface	Tedlar / Polyester
17.	By-pass diode	To be provided
18.	Standard	IEC 61215 / IS 14286 & IEC 61730 Part 1& Part 2,
19.	Guarantee	Performance guarantee of 90% of peak output power capacity at the end of 10 years
		Performance guarantee of 80% of peak output power capacity at the end of 25 years
		10 years against manufacturing defects (product warranty).

3. TECHNICAL SPECIFICATION OF SOLAR INVERTER (PCU)

1	Output frequency	50Hz +/- 2.5Hz
2	Grid frequency tolerance	+3%
3	Grid frequency synchronization range	+3Hz
4	No load losses	Not more than 1%
5	Power factor	0.9
6	PCU efficiency	Greater than 97% at nominal voltage and power
7	Noise level	Less than 75 dBA
8	Certifications	IEC 61727, CE, IEC 62109-1, IS:16221, part-II Clause 5/ IEC 62109-2 & IS 16169 /IEC 62116
9	Idle current	4% of rated capacity
10	Regulation	Line regulation and load regulation
11	Overload features	2% to 150% for one minute
12	Cooling	Forced air cooling with temperature controlled cooling
13	Operating temperature	-20 to 50°C
14	Relative humidity	Upto 95% non-condensing or better
15	LED/LCD display	Indication display shall indicate system functional parameters and protection functional indicators
16	Data monitor and display control	RS485, Ethernet or RS 232 connectivity
17	Recommended LED indications	<ul style="list-style-type: none"> i) ON ii) Grid ON iii) Under/ Over voltage iv) Overload v) Over temperature
18	Protection	<ul style="list-style-type: none"> 1. Input and output over voltage 2. Input and output over current 3. over/under grid frequency 4. Short circuit 5. Under output voltage 6. Over temperature 7. Grid input under/over voltage with auto-recovery 8. Ground fault monitoring 9. DC disconnect device 10. DC reverse polarity 11. Surge voltage induced at output due to external source islanding 12. Anti islanding protection as per standard 13. Lightning protection- PV: Type-II, AC: Type-II
19	Enclosure protection safety	IP 65 for outdoor and IP 20 for indoor
20	Other compatibility	EMC compatible

4. **TECHNICAL SPECIFICATION OF PV PANEL SUPPORT STRUCTURE –**

Sl. No	Description	As per NIT
1	Material	Hot dip Galvanized Mild Steel conformed to IS 2062:1992 and with 80micron thickness as per IS: 4759 only with SS304 nuts and bolts as required
2	Overall dimensions	As per manufacturer standard
3	Wind rating	180Km/hr or as per the Geological wind map for M.P. whichever is stringent; Structural design shall be appropriate with a minimum factor of safety of 1.5
4	Tilt angle and adjustment	Upto 25°portrait
5	Hardware and fastener	SS304
6	Welding	Not allowed.

5. **TECHNICAL SPECIFICATION OF ENERGY METER –**

Sl. No	Description	As per NIT
1	Applicable IS	IS13779 or IS14679, depending upon accuracy of meters
2	Accuracy class index	0.5 or better up to 650V
3	Display	LCD
4	Power factor range	Zero lag-Unity-Zero lead
5	Display parameters	LCD test, KWH import, KWH export, MD in KW export, MD in KW import, date and time, AC current and voltage, and power factor, (cumulative KWH will be indicated continuously by default and other parameters through push button)
6	Power consumption	Less than 1 watt and 4VA in voltage circuit and 2VA for current circuit
7	Frequency	50Hz with $\pm 5\%$ variation
8	MD register	Meter shall store MD in every 30 minute period along with date and time. At the end of every 30 minute new MD shall be compared with previous MD and store whichever is higher and the same shall be displayed. It shall be possible to reset MD automatically at defined date or period or through MRI. Manual MD resetting using sealable push button is an optional
9	Memory	Non volatile memory independent of battery backup, memory should be retained up to 10 years in case of power failure
10	Climatic condition	As per IS:13779 or IS14697 for climatic conditions. The meter should function satisfactorily in India with high end temperature of 50°C and humidity of 95%.
11	Insulation	A meter shall withstand insulation test of 4KV and impulse test at 8KV
12	Battery	Lithium with guaranteed life of 15years

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

Name of Work : Providing 7 kWp solar power generation at SIB, Satna.

NITNo.: 12/EE(E)/Jabalpur/2026-27

S.No.	Details of Particulars	To be filled by tenderer
(A) Solar PV Module		
1	Rated power range output at standard test conditions of solar irradiance of 1000W/m ² at a cell temperature of 25 Deg.C & spectrum air mass=1.5	
2	No. of solar cells in each solar PV module	
3	Voc /Isc	
4	MPP Voltage (Vmpp) V	
5	MPP current (imp) A	
6	Normal operating cell temperature	
7	Operating Temperature range	
8	Module dimensions (LxWxH) Appx.	
9	PV Module type	
10.	Min. efficiency of solar cell	
11.	Solar module frame material	
12.	Weather resistant junction	
13.	Front Glass	
14.	Glass iron content	
15.	Glass transmissivity	
16.	Frame	
17.	Encapsulation	
18.	Trilaminare back surface	
19.	By-pass diode	
20.	Standard	
21.	Performance Warranty	

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

(C) Array Junction Box (DCDB)		
1	No. of module in series	
2	No. of module in parallel	
3	Switch gears	
4	Connectors	
5	Wiring	
6	Enclosure Protection	
7	Enclosure	
8	Size	
9	Capacity of each SPV panel and nos.	
(D) PANEL SUPPORT/MODULE MOUNTING STRUCTURE		
1	Material	
2	Thickness of member	
3	Over all dimensions	
4	Wind rating	
5	Tilt angle and adjustment	
6	Peach of structure	
7	Hardware & fastener	
8	Foundation	
		Signature of the Contractor(s)

Note: To be furnished on a 'Non-Judicial' stamp paper worth Rs. 200/-

UNDERTAKING FROM MANUFACTURER/AUTHORIZED CHANNEL PARTNER FOR GRID INTERACTIVE SOLAR POWER PLANT/ SOLAR PV PANEL/SOLAR PV INVERTER(PCU)

(To be submitted along with supply of system)

We hereby agree that

1. Solar PV panels supplied by us are offered a warranty of **10 (Ten)** years from the date of handing over.*
2. We assure a performance warranty of Solar PV panels for a period of 25 (twenty five) years; Peak output capacity will not be less than 90% of the claimed peak output capacity at the end of 10 (ten) years and peak output capacity will not be less than 80% of the claimed peak output capacity at the end of 25 (Twenty five) years. *
3. PCU/ Solar PV inverter supplied by us are offered a warranty for 5 (five)years from the date of handing over. *
4. In case of any defect, discontinuation of model and non-availability of spares, we will replace the unit with equivalent/ high end model during the above period of product warranty.

* If the solar PV module and PCU/inverter are from separate OEMs, separate affidavits may be submitted.

For M/S

.....

(Authorized signatory of manufacturer

/ dealer of Solar PV plant and /or Solar PV inverter)

Counter signed

Signature of Major contractor

GUARANTEE BOND FOR VARIOUS ITEMS

The contractor shall be duly responsible for and shall guarantee for proper design and performance of the following items for the specified period of years from the date of completion of the work :

Sl No.	Description of Item	Gross Value of Work done (Rs)	Remarks (Guarantee Period)
1.	Solar Photo Voltaic System	As per final bill amount against these items in SOQ	3% (Three) percentage of the Gross Value of work done against these items shall be retained as Security Deposit for 01 (One) Year *

Note :

The amount so withheld would be released after **the years * so specified to be reckoned** after the date of completion of the entire work under the Agreement if the performance of the work done is found satisfactory. If any defects are noticed during the Guarantee period, it shall be rectified by the contractor within seven days of receipt of intimation of defects in the work. If the defects as pointed out are not attended by the contractor within the specified period, the same will be got rectified from another Contractor at the risk and cost of the Contractor.

However, the Security deposit deducted may be released as per Schedule-F by Engineer-in-charge. The Security deposit against these items of works shall be in addition to the Security deposit mentioned elsewhere in the Contract form.

List of Acceptable Make

All materials and Equipment shall conform to the relevant standards and shall be of approved make and design. The list of preferred makes for various equipment/materials etc. is given below. Any item missed out from the list should be got approved by the Engineer in Charge before delivery/ installation. Engineer-in-charge may, for any item, in the interest of work allow use of any other make/brand in addition to the makes/brands mentioned in the preferred makes lists subject to its satisfactory quality and on proper grounds like non-availability of preferred makes/brands in the market etc. In such case, cost adjustment shall be made if the make/brand actually used is priced lower than the lowest priced brands of that item in the preferred makes list. However, nothing extra shall be paid if actually used brand/make is of higher price than the highest priced brand/make in the list of preferred makes.

Sl. No	Description of Material/Equipment	Make
1.	SPV Modules	Warre Engineers Ltd /TATA Power Renewable energy Ltd. / Havells India Ltd/ Luminous / Panasonic / BOSCH/ Adani Green Energy/ EMMVEE/UTL Solar/ Bajaj Electricals/Surya Roshni/ Any Manufacturers Approved by Ministry of New & Renewable Energy
2.	Data logging system	As per OEM of PCU
3.	Power Control Unit (PCU) string PCU	MNRE approved models of Warre Engineers / Havells India Ltd / Luminous / Panasonic / TATA Power Renewable energy Ltd. / BOSCH/ Adani Green Energy/UTL Solar
4.	Power distribution panel board/ Metering panel board	CPRI Approved manufacturer
5.	Moulded Case Circuit Breaker (MCCB-3P and 4P)	Schnieder / Legrand / L&T / Siemens / ABB / Havells India Ltd
6.	Miniature Circuit Breaker (MCB)	Legrand / Schneider / Siemens / L&T / Havells India Ltd
7.	Residual Current Circuit Breaker (RCCB/RCBO)	Legrand / Schneider / Siemens / L&T
8.	Power/Auxiliary Contactor (3P and 4P)	Siemens / L&T / GE / Schneider
9.	Indicating lamps LED type, push buttons	Siemens / Teknic / L & T / BCH /C&S/ABB/ Eaton
10.	Electronic digital meter(A/V/PF/Hz/KW/KWII-networkable)	Conzerv / AE / Krykard/ Schnieder/ Mecon/ L&T/ C&S/ Rishab / HPL

Sl. No	Description of Material/Equipment	Make
11.	XLPE insulated PVC sheathed copper conductor armoured power cable of 1.1kv grade	Polycab / Finolex / RPG / Universal / Nicco / Gloster/ Havells/ Grandlay / CCI
12.	LT jointing kit/termination	3M / Raychem / M Seal / CCI-Xicon / Denson
13.	Cable gland double compression with earthing links	Comet / Cosmos/Jainson / Dowells
14.	Bimetallic copper / aluminum cable lugs	Comet / Dowells (Biller India Pvt Ltd) / HAZ Brass(Copper Alloy India Ltd)
15.	PVC insulated copper conductor stranded flexible FRLS wire (pre twisted)	Polycab / Finolex / KEI / Havells / RR Kabel / Anchor
16.	Poly carbonate junction boxes	Hensel / Clipsal / Sintex
17.	Selector switch, toggle switch	Salzar (L&T) / Siemens / Kaycee/Siemens/C&S
18.	Timer	Siemens / L&T / Schneider Electric-TE/Legrand/BCH/GE
19.	Material for structure	TATA / JINDAL / SAIL
20.	Sandwich PUF paneled roofing sheets	Lloyd Insulation/Jindal Mectec / Danpalon /GE Plastic/Lexan

केन्द्रीय लोक निर्माण विभाग
कार्यालय ज्ञापन

No. DG/Manual-2024/20

ISSUED BY THE AUTHORITY OF DIRECTOR GENERAL, CPWD

Vidyut Bhawan, New Delhi

Dated: 27.02.2026

Sub: **Modification in Para 5.2 for CPWD Works Manual 2024.**


Following modification is made in Para no. 5.2 for CPWD Works Manual 2024:

Existing Provision	Modified Provision
<p>5.2 Performance Guarantee</p> <p>Sl. No. 1</p> <p>2. PG shall be 5% of the contract amount or as prescribed from time to time to be submitted in the form as prescribed in GCC. Performance Guarantee shall remain valid for a minimum period of sixty days beyond the date of completion of all contractual obligations as per GCC. In case of contracts where supplementary agreement is drawn, the fresh PG shall be obtained from the contractor @ 5% of the amount of the supplementary agreement or as prescribed from time to time. The PG received against the original work shall be released as per contract conditions.</p> <p>Sl. No. 3</p> <p>4. No provision</p> <p>5. No provision</p>	<p>5.2 Performance Guarantee</p> <p>No Change</p> <p>2. PG shall be 5% of the Estimated cost put to tender (ECPT) or contract amount whichever is higher, or as prescribed from time to time, to be submitted in the form as prescribed in GCC. Performance Guarantee shall remain valid for a minimum period of six months beyond the date of completion of all contractual obligations as per GCC. In case of contracts where supplementary agreement is drawn, the fresh PG shall be obtained from the contractor @ 5% of the amount of the supplementary agreement or as prescribed from time to time. The PG received against the original work shall be released as per contract conditions.</p> <p>No Change</p> <p>4. A bid will be treated as abnormally low if the quoted bid amount is lesser than 80% of the estimated cost put to tender.</p> <p>5. Requirement of Additional Performance Guarantee (APG) : In case of abnormally low bids as defined above, the bidder shall be required to submit Additional Performance Guarantee (APG) in addition to the Standard Performance Guarantee (PG). The amount of Additional Performance Guarantee (APG) shall be equivalent to the difference between the 80% amount of ECPT and quoted amount. (e.g. if ECPT is A and quoted amount is 0.7A then the amount of APG shall be</p>

(Signature)
27.02.2026
Contract

	<p>0.8A – 0.7A). The Additional Performance Guarantee (APG) shall be in the prescribed format of Performance Guarantee and has to be submitted within the time frame prescribed for submission of Performance Guarantee. The other terms and conditions of release etc. of APG shall be same as that of PG.</p>
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This is issues with the approval of DG CPWD.


27-02-2026
(चन्द्र पाल)
अधीक्षण अभियंता (सी.एस.एम.) (सी.एच.एन.)
Chandar Pal, SE (C&M)

Issued from file No. CSQ/CM/16(1)/2026 e-file 9212995 (DFA/ 9365789)

केलोनिवि तथा लोनिवि दिल्ली के सभी अधिकारियों को आवश्यक सूचना एवं कार्यवाही हेतु। (केलोनिवि वेबसाईट के माध्यम से)


21/2/16

D.P. Jindal
EE (Contract)

Schedule of Work

Name of Work - Providing 7 kWp solar power generation at SIB, Satna.

S.No.	Description	Qty.	Unit	Rate	Amount	Remark
1	<p>Supplying, Installation, Testing and Commissioning of on-grid Solar Photovoltaic Power Plant conforming to various applicable standards BIS, IEC, MNRE guidelines, the Central Electricity Authority Regulations and CPWD Specifications as amended up to date, consisting of Mono/Poly Crystalline silicon solar cells module, net metering facility, necessary control, protections, earthing, cabling, mounting structure, junction boxes, power conditioning units, Real time online web interfaced Data Monitoring System, Distribution panels, grid connecting arrangement, conduits, pipes, cable trays and other accessories etc. as required.</p> <p>a) High Energy Efficiency Solar Photovoltaic Module of capacity 330 Wp or above, manufactured in India, conforming to IS 14286/IEC 61215, IS/IEC 61730- Part-1, IS/IEC 61730-Part-2. Solar Photovoltaic Module conversion efficiency shall not be less than 23% at STC with temperature coefficient of Pmax better than -0.30% per 0C. PV modules used in solar power plants/ systems must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years. Solar Modules shall be designed to operate in relative humidity upto 100% with temperature between -10 0C and +85 0C. Further, each PV module used in any solar power project must have Radio frequency identification tag with information such as name of manufacturer, month and year of manufacturing, country of origin (separately for Solar cell and module), I-V curve, Unique Serial No and Model No of the module, Wattage, Im, Vm and FF, name of test lab issuing IEC certificate.</p> <p>b)Power Conditioning Unit (PCU) of 350-800 V DC Input voltage range and 415 V AC, three phase, 4 wire, 50Hz +/- 2.5 Hz, output voltage suitable to generate AC with a variation of 10% at nominal voltage. Power with efficiency not less than 97%, total harmonic distortion less than 3% and suitable for ambient temperature from 0 to 50 0C, Minimum IP-65 for outdoor and Minimum IP 21 for indoor, Built-in. meter and data logger, MPPT, switching devices IGBT/MOSFETs and controller Microprocessor /DSP. PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown. The PCU shall be able to withstand unbalanced load conforming to IEC standard with shutdown/standby mode. It must be provided with grid islanding along with manual disconnect pole isolation switch besides automatic disconnection. Minimum protections: Mains Under / Over Voltage, Over current, Over/Under grid frequency, Over temperature, Surge voltage induced at output due to external source, Short-circuit, Lightening, Anti Islanding (for grid synch. Mode) and other protections as per applicable standards. LCD/LED display of minimum parameters: DC input voltage, DC current, AC Voltage and current (all 3 phases, in case of 3 phase), Instantaneous & cumulative AC output power, Daily DC energy produced and other parameters applicable standard. Communication interface RS 485 / RS 232.</p> <p>c) Module mounting structure: The roof top solar plant generation units shall be installed by using supporting Aluminium/Galvanized MS structure (mass of zinc coating shall be as per IS4759) having minimum head room clearance of 2.4 meter above the terrace level / ground level. The mounting structure would be designed to sustain wind</p>					

	<p>load and seismic parameter of the site of installation. All the structure shall be design as per applicable BIS code and the material shall also confirm the applicable BIS Code. Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. The suitable arrangements for maintenance and cleaning shall be provided.</p> <p>d) Real time online web interfaced Data Monitoring System complete with accessories for various parameters such as Solar Irradiance, temperature, AC Output Voltage and current, Output Power, Power factor, DC Input Voltage and Current, Time Active, Time disabled, Time Idle, Power produced and other parameters as per standard practices.</p> <p>e) Array junction box & Main junction box with IP 65 protection and termination arrangement for incoming and outgoing cable along with glands, lugs and other accessories etc. as required. Each junction box shall be made of GRP/FRP/Powder Coated Aluminium /cast aluminium alloy with full dust, water & vermin proof arrangement with High quality Suitable capacity Metal Oxide Varistors(MOVs) (semiconductor diode with resistant applied voltage)/ surge arrestors and suitable Reverse Blocking Diodes, isolation switches isolate the DC input to Inverter, copper bus bar etc.</p> <p>f) Lightning, surge voltage protection, earthing protection and grid islanding. g) Cables: Connections & Interconnections by required size IR/UV protected XLPE insulated copper conductor 1.1 kV grade armored power and control cables(ISI Marked) along with supplying & fixing of necessary channel/conduit, GI cable trays, supports, lugs, thimble and other accessories etc. as required.</p> <p>h) DC Distribution Board And AC Distribution Panel Board: IP65, free standing, metal cladded, having copper bus bar, having required protection and control gears, connection-interconnection, etc. as required.</p> <p>[Note: - Scope of work includes net metering along with liasioning with local regulatory body]</p>					
		7	kWp	54280	379960.00	
	Total				379960.00	
	Add Cost Index @ 6% on DSR item				22797.60	
	Total				402757.60	
	Say				402758.00	

Assistant Engineer (E)
C.P.W.D., Jabalpur