

Dear Sir,

I am forwarding the following tender document and BOQ of the proposed 398 Kwp power plant at NKPSIMS Nagpur. The Institute is interested in installing solar power plants on the following buildings with the following capacities.

1.NRI Boys Hostel: 199 Kwp

Note: If the space required for 199 Kwp is insufficient then **Old Library Building** can be used for the remaining Capacity

2. Matoshri Hall: 199 Kwp

Note: If the space required for 199 Kwp is insufficient then **HOD Electrical Building** can be used for the remaining Capacity

As per the design simulation, a higher-watt solar panel will be the right choice. Kindly confirm the panels in the ALMM list for sanctions of net metering in MSEB.

You requested to study the proposal and send your quotation on or before 15th Nov 2022.

You can contact our Technical consultant Dr. Kishore Borakhade
Mobile no 9422572453 email: smartecc.india@gmail.com for further clarification.

For a site visit coordination please contact our Electrical Engineer Mr. Hemant Gode
Mobile No 8600877927.

Please find here the tender document, BOQ, images, and google location of the building.

Thanks and Regards



N.K.P SALVE
INSTITUTE OF MEDICAL SCIENCES
& RESEARCH CENTER AND
LATA MANGESHKAR HOSPITAL,
NAGPUR

DESIGN, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF GRID CONNECTED
ROOFTOP SOLAR POWER SYSTEM OF ESTIMATED CUMULATIVE CAPACITY 398 KW_p
(INCLUDING NET METERING & 5 YEARS COMPRESSIVE MAINTENANCE FROM 2nd YEAR

**NKP Salve Institute of Medical Sciences and Research Centre
Digdoh Hills, Police Nagar, Nagpur, Maharashtra 440019
(NKPSIMS Nagpur)**



TENDER DOCUMENT

SECTION I, SECTION II, SECTION III

FOR

DESIGN, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF

GRID CONNECTED ROOFTOP SOLAR POWER SYSTEM

OF ESTIMATED CUMULATIVE CAPACITY 398 KW_p

(199 KW_p on Metal Sheet Roof & 199 KW_p on RCC Slab)

(INCLUDING NET METERING & 5 YEARS COMPREHENSIVE

MAINTENANCE FROM 2nd YEAR)



N.K.P SALVE
INSTITUTE OF MEDICAL SCIENCES
& RESEARCH CENTER AND
LATA MANGESHKAR HOSPITAL,
NAGPUR

DESIGN, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF GRID CONNECTED
ROOFTOP SOLAR POWER SYSTEM OF ESTIMATED CUMULATIVE CAPACITY 398 KWp
(INCLUDING NET METERING & 5 YEARS COMPRESSIVE MAINTENANCE FROM 2nd YEAR

SECTION – I

TENDER DOCUMENT

FOR

DESIGN, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF GRID

CONNECTED ROOFTOP SOLAR POWER SYSTEM

OF ESTIMATED CUMULATIVE CAPACITY 398 KWP

(199 Kwp on Metal Sheet Roof & 199 Kwp on RCC Slab)

**(INCLUDING NET METERING & 5 YEARS COMPREHENSIVE MAINTENANCE FROM
2nd YEAR)**



NOTICE INVITING TENDER

Date:

Dear Sir,

Subject: Tender for Design, Supply, Installation, Testing And Commissioning (Including Net Metering & 5 Years Comprehensive Maintenance from 2nd year) Of Grid Connected Rooftop Solar Power System Of Estimated Cumulative Capacity 398 KWp (199 KWp on Metal Sheet Roof & 199 KWp on RCC Slab) (at NKP Salve Institute of Medical Sciences and Research Centre Digdoh Hills, Police Nagar, Nagpur, Maharashtra 440019 invite Sealed tenders as per schedule of work and General Terms & Conditions:

1	Description of Works	Design, Supply, Installation, Testing & Commissioning (Including Net Metering & 5 Years Comprehensive Maintenance from 2nd year) Of Grid Connected Rooftop Solar Power System Of Estimated Cumulative Capacity 398 KWp (199 KWp on Metal Sheet Roof & 199 KWp on RCC Slab)at NKP Salve Institute of Medical Sciences and Research Centre Digdoh Hills, Police Nagar, Nagpur, Maharashtra 440019
2	Date of Site Visit & Pre-Bid Meeting	
3	Date & Place of Address for Submission of the filled-in Tender	Date: NKP Salve Institute of Medical Sciences and Research Centre Digdoh Hills, Police Nagar, Nagpur, Maharashtra 440019
4	Date & Place of Address for Opening of the Tenders :	Date: 15 th Nov 2022 NKP Salve Institute of Medical Sciences and Research Centre Digdoh Hills, Police Nagar, Nagpur, Maharashtra 440019

It may be noted that the date of Opening Price Bids of those bidders who have submitted unconditional tenders and those who pre-qualify the criteria as stipulated in the tender will be intimated separately. Otherwise, in case of any of the conditions put forth by any of the bidding agencies, the bidder shall be asked to withdraw the condition or otherwise the particular tenderer shall be disqualified and price bids of remaining tenderers shall be opened on the same day. The sealed price bid will be returned to those bidders who are technically disqualified. The sealed tender in the prescribed tender form in two separate envelopes as follows should be addressed to

The Dean

N.K.P. Salve Institute of Medical Sciences & Research Centre and
Lata Mangeshkar Hospital.
Digdoh Hills, Hingna Road, Nagpur



1	Envelope No.1	To contain Covering Letter / Clarification, Technical & Commercial aspect and Set of Drawings and all related documents as mentioned
2	Envelope No.2	To contain only the Priced tender complete in all aspects (No conditions shall be mentioned in Envelope No.2 which will not be taken into consideration for evaluation of the tender) and submitted as above not later than 11:00 AM. on 15th Nov 2022
3	Notes:	Envelope Nos. 1 & 2 will be opened on different dates. Separate intimation of the date for the opening of the price bid will be made to only pre-qualified bidders. The sealed price bids of disqualified bidders will be returned by post or can be collected by hand.

The Tenderer will have to quote for all the sections included in the tender documents. The NKP Salve Institute of Medical Sciences and Research Centre Nagpur reserves the right to accept or reject any tender either in whole or in part without assigning any reasons for doing so and do not bind themselves to accept the lowest or any tender. The NKP Salve Institute of Medical Sciences and Research Centre Nagpur also reserve the right to negotiate or partly accept any or all the tenders received without assigning any reason thereof. Tenders, which do not fulfil all or any of the above conditions and conditions mentioned in the tender documents or are incomplete in any respect, are liable to be rejected. Any discrepancies, omissions, ambiguities in the tender documents for any doubts as to their meaning should be reported in writing to the office of the NKP Salve Institute of Medical Sciences and Research Centre Nagpur. And if any such aforesaid discrepancies, omissions, ambiguities in the tender documents is accepted then the necessary corrigendum will be issued accordingly.

The NKP Salve Institute of Medical Sciences and Research Centre Nagpur has appointed Solar Consultant: M/s. Smart Energy Conservation Consultancy Plot no 22 Tirupati Layout Somalwada Nagpur. Tenderers are requested to visit the site and make themselves familiar with the work before submitting the tenders. All other terms & conditions are detailed in the tender documents.

Thanking you,

Yours faithfully,

Dean

N.K.P. Salve Institute of Medical Sciences & Research Centre and
Lata Mangeshkar Hospital.Nagpur



LETTER OF SUBMISSION FROM CONTRACTORS

To,
The Dean

N.K.P. Salve Institute of Medical Sciences & Research Centre and
Lata Mangeshkar Hospital.Nagpur

Dear Sir,

I/ We, having examined the drawings, specifications, designs and bill of quantities relating to the works specified in the memorandum hereinafter set out and having visited and examined the site of the works specified in the said memorandum/tender / BOQ and having acquired the requisite information relating thereto as affecting or related to the tender. I/we hereby offer to execute the works specified in the said memorandum/tender / BOQ within the time specified and at the rates mentioned in the attached bill of quantities and in accordance in all respects complying to the specifications, designs, drawings and instructions in writing referred to in conditions of tender, the articles of Agreement, Condition of Contract, Bill of Quantities(Price Bid) and with such materials as are provided for, by, or prescribed and in all other respects in accordance with such conditions so far they may be applicable as below:

1	Description of Works	Design, Supply, Installation, Testing & Commissioning (Including Net Metering & 5 Years Comprehensive Maintenance from 2nd year) Of Grid Connected Rooftop Solar Power System Of Estimated Cumulative Capacity 398 KWp (199 KWp on Metal Sheet Roof & 199 KWp on RCC Slab) at NKP Salve Institute of Medical Sciences and Research Centre Digdoh Hills, Police Nagar, Nagpur, Maharashtra 440019
2	Date of Site Visit & Pre-Bid Meeting	Site Visit Date: Pre Bid Meeting:
3	Date & Place of Address for Submission of the filled-in Tender	Date: NKP Salve Institute of Medical Sciences and Research Centre Digdoh Hills, Police Nagar, Nagpur, Maharashtra 440019
4	Date & Place of Address for Opening of the Tenders :	Date: NKP Salve Institute of Medical Sciences and Research Centre Digdoh Hills, Police Nagar, Nagpur, Maharashtra 440019

Institute shall provide separate intimation for the date for the opening of price bid will be made to only pre-qualified bidders. The sealed price bids of disqualified bidders will be returned by post or can be collected by hand. In case of any of the conditions put forth by any of the bidding agencies, the bidder shall be asked to withdraw the condition or otherwise, the particular tenderer shall be disqualified and price bids of remaining tenderers shall be opened on the same day.



1.	Performance Security Deposit	For the successful bidder, who is awarded the project, 5% of the contract value (Part A & Part B of Price Bid) is in the form of an initial Performance security deposit. Initial Security Deposit is payable within 15 days from the date of award of the work in the form of Letter of Intent / Detailed Word Order / Tender acceptance Letter, whichever is earlier. This security deposit can be submitted as a Bank Guarantee (BG) and it shall be kept up to completion of 1 years from the successful handing over of the project to the NKPSIMS Nagpur
2.	Security deposit & Refund	Retention money of 5% of the cost of work (Final Bill amount excluding taxes) will be deducted and kept with the NKPSIMS Nagpur till the defect liability period (12 months) is over. Retention money can be refunded within 14 days after the end of the defect liability period provided the contractor has attended to all defects. During the defect liability period, the contractor has to repair all the defects at his own cost. If the contractor does not rectify the defects within the said period, then NKPSIMS Nagpur shall rectify the same from other agencies at risk and cost of the aforesaid contractor. The necessary amount shall be deducted from the retention amount and the balance, if any, may be released to the contractor/agency.
3.	Time allowed for completion:	120 days from the date of commencement of work or date of the Letter of Intent / Detailed Word Order / Tender acceptance Letter, whichever is earlier.
4.	Date of Commencement:	Within 7th day from the date of issue of Letter of Intent / Detailed Word Order / Tender acceptance Letter, whichever is earlier

Terms of payment of Bills

The payments shall be made as per the following terms and conditions:



- A. 30% of the ordered value will be paid as advance (Part A of price bid) after the technical specification and terms and conditions specified in the contract are duly certified by the concerned officer of the NKPSIMS Nagpur, appointed Consultant and permissions of authority authorities.
- B. 50% of the ordered value will be paid (Part A of price bid) against delivery of all 800 Kw Solar power Plant systems and accessories for installation and commissioning of the system. Payment will be made after checking of all the systems and accessories as per the specifications by the concerned officer of the NKPSIMS Nagpur, appointed Consultant. If any systems not found as per the specifications and standards the Payment will not be released.
- C. 15% of the order value (Part A of price bid) shall be released on completion of a satisfactory performance observation period of 3 Months (90days) from date of commissioning.
- D. 5% of the order value (Part A of price bid) for Defect Liability Period of 12 Months from date of Commissioning.
- E. The payment of CMC (Compressive maintenance Contract) shall be released against quoted CMC charges as per Price Bid (Part B) on annual basis at the end of every six months respectively for five years (from 2nd year) on satisfactory performance and timely submission of quarterly performance report.
- F. Liquidated damages will be 0.5% (Zero Point Five) of the Contract Value per Week (Delay Penalty) or part there of subject to maximum of 5% of the actual project cost.
- G. Five Years Comprehensive Maintenance Contract (CMC): The SPV Power Plant contract price the provision of 5 years mandatory Comprehensive Maintenance Contract (CMC). To ensure the long term sustainability of the system, the bidder must provide his representative's name, full address, mobile number and photographs to NKPSIMS Nagpur as well as the names and contact details of all technicians must also be provided. Failure to do shall invite penalty and action.

Terms and Conditions

1. We agree to execute all the works therein referred to your entire satisfaction and as detailed in the contract sum analysis herewith attached.
2. Should this tender be accepted, we hereby agree to abide by and fulfil the terms and provisions of the said conditions of contract annexed hereto so far as they may be applicable or in default thereof to forfeit and pay to the NKPSIMS Nagpur the amount mentioned in the said contract.
3. If this tender is accepted we agree to provide an Initial Security Deposit/Performance Security Deposit for a sum equivalent to 5% (Five Percent) of the contract value for the due performance of the contract under the terms of the conditions of Contract within 14 days of acceptance of tender.
4. The validity of this tender is for a period of 90 days from the date of opening of the tender and it shall remain binding upon us and may be accepted by the NKPSIMS Nagpur at any time before the expiration of that period without any additional cost.
5. The formal agreement/Service Level Agreement when it is prepared and executed, this Tender together with your written acceptance thereof, shall constitute a binding contract between us. The agreement has to be entered in non-judicial stamp paper of value as per as per latest Maharashtra Stamp Act and we agree to bear the entire cost of agreement charges.



6. We agree to pay Government VAT, GST, Sales-Tax (State & Central), Service Tax, Central Excise Duty, Octroi, Work Contract Tax and all taxes as prevailing from time to time, on such items for with the same are leviable and the rates quoted by us are inclusive of the same.
7. The lists showing the particulars of fit out works carried out and the names of manufactures of specialized items as enclosed, will be followed.
8. The dispute resolution/arbitration procedure shall be as mentioned in Clause - 29 of Section VI, General Conditions of Contract and as per Indian Arbitration & Reconciliation Act.
9. Indian law shall govern the terms and conditions under this contract.
10. NOTE: ALL PAGES OF THE TENDER DOCUMENTS INCLUDING ANNEXURES
 \ TO THE TENDER SHALL BE SIGNED & STAMPED.
11. Our bankers are:
 - i)
 - ii)

Yours faithfully,

Signature of Tenderer

(By the authorized signatory of the Lead firm with Board resolution Reference and common seal of company)

Note: A copy of Power of Attorney or Board Resolution for authority imparted for signing tender document shall be enclosed with Technical Bid.

ARTICLES OF AGREEMENT
(on non-judicial stamp paper of value as per latest Maharashtra Stamp Act)
ARTICLES OF AGREEMENT (FORMAT)



Agreement for Design, Supply, Installation, Testing and Commissioning (including Net Metering & 5 Years Comprehensive Maintenance from 2nd year) of 398 KWp (199 KWp on Metal Sheet Roof & 199 KWp on RCC Slab) Grid connected Rooftop Solar Power system of Estimated Cumulative capacity in NKPSIMS Nagpur own premises at 4 different Buildings. Digdoh Hills, Police Nagar, Nagpur, Maharashtra 440019

BETWEEN

NKP Salve Institute of Medical Sciences and Research Centre Digdoh Hills, Police Nagar, Nagpur, Maharashtra 440019

AND

M/S.

DATE OF COMMENCEMENT: _____

DATE OF EXPIRY : _____

“THIS AGREEMENT is made & executed at Nagpur on this ___ day of ___ 2022”. BETWEEN ,Reg. Office:....., a limited company registered under the Company Registration Act with CIN Identification No. and having its Head office at hereinafter called “ The Contractor” (which expression shall include the heirs, executors, Administrators, Legal representatives and permitted assigns along with its successors.) of the ONE PART and NKP Salve Institute of Medical Sciences and Research Centre Digdoh Hills, Police Nagar, Nagpur, Maharashtra 440019. Whereas the NKPSIMS Nagpur has floated RFP (Request for proposal) videdated hereinafter called as “ said tender document” with following details as:

Date of Issue:

Last date of submission:

Date of Pre Bid Meeting:

Date of Opening of Technical Bid

for the work of “Design, Supply, Installation, Testing and Commissioning (including Net Metering & 5 Years Comprehensive Maintenance from 2nd year) of Grid connected Rooftop Solar Power system of Estimated Cumulative capacity 398 KWp (199 KWp on Metal Sheet Roof & 199 KWp on RCC Slab) in NKPSIMS Nagpur own premises at 4 different Buildings in Nagpur, hereinafter called as “said



work". In response, among the technically qualified bidders, M/s is qualified as bidder based on acceptance of schedule of prices (your letter. No____ date____) for the said works. The said tender documents are part of this agreement and are attached as Annexure-I, II & III.

The NKPSIMS Nagpur has approved the rate contract for Design, Supply, Installation, Testing and Commissioning (including Net Metering & 5 Years Comprehensive Maintenance from 2nd Year) of Grid connected Rooftop Solar Power system of Estimated Cumulative capacity 398 KWp (199 KWp on Metal Sheet Roof & 199 KWp on RCC Slab) in NKPSIMS Nagpur own premises at 4 different buildings Nagpur at rates on the terms & conditions mentioned in tender document duly accepted by you.

WHEREAS

- i. The NKPSIMS Nagpur is desirous of availing services for supply, installation & commissioning of Solar Grid connected Roof Top System, Comprehensive maintenance contract at rates (Annexure –II)
- ii. The Contractor is in the business of providing the above services and has agreed to provide the services as may be required by the NKPSIMS Nagpur mentioned in the said tender document at NKPSIMS Nagpur approved rates and the same shall be part of this Agreement. (Annexure –I)

NOW THEREFORE, in consideration of the mutual covenants, undertakings and conditions set forth below, and for other valid consideration the acceptability and sufficiency of which are hereby acknowledged, the Parties hereby agree to the following terms and conditions hereinafter contained: Now it is agreed by and between the parties as follows: -

1. THE CONTRACTOR will engage / employ persons having high integrity & good character. THE CONTRACTOR shall ensure that their conduct will be in order and shall not commit any crime or Fraud or shall not violate any laws while discharging their duty.
2. THE CONTRACTOR will ensure that its employees will not disclose any information / papers About NKPSIMS Nagpur to any outsider and observe strict confidentiality.
3. If it is revealed that any of its employees are engaged in breach of confidentiality, the NKPSIMS Nagpur will have recourse to recover appropriate damages from THE CONTRACTOR besides Termination of contract if felt necessary at the discretion of NKPSIMS Nagpur.
4. **“Indemnity”:**
 - a. THE CONTRACTOR shall indemnify and always keep, The NKPSIMS Nagpur Indemnified Against all the losses or damages that would occur on account acts or commission or omission or negligence by the employees of THE CONTRACTOR to the NKPSIMS Nagpur or its Property.



- b. Such losses or damages by whatever name called is to be made good by THE CONTRACTOR as per decision of the NKPSIMS Nagpur. “ THE CONTRACTOR will defend the NKPSIMS Nagpur for any loss or other liability from third party on account any act of commission or Omission or negligence or part of THE CONTRACTOR or any of its employees.”
- c. The NKPSIMS Nagpur is entitled to recover any loss or damage that would occur on account of acts of commission or omission or negligence by the employees of THE CONTRACTOR to the NKPSIMS Nagpur or its property.
5. THE CONTRACTOR will not appoint in sub agency to carry out work assigned to them under this agreement.
6. The period of rate contract is for one year from the date of execution of contract agreement. However, NKPSIMS Nagpur may continue for further six months on same rates with same terms & conditions based on satisfactory performance of THE CONTRACTOR. The decision of NKPSIMS Nagpur in this regard shall be final & unwinding.
7. The Purchase/Work order for Design, Supply, Installation, Testing and Commissioning 398 KWp (199 KWp on Metal Sheet Roof & 199 KWp on RCC Slab) (including Net Metering & 5 Years Comprehensive Maintenance) of Grid connected Rooftop Solar Power system of Estimated Cumulative capacity in NKPSIMS Nagpur own premises at 4 Buildings locations in Nagpur Maharashtra.
8. The rates shall be all inclusive and cover the cost of all materials, transportation, all types of duties, royalties, erection, construction, tools and tackles, plant and equipment, supervision, overheads, profit, all taxes including GST and any other expenditure incurred for completion of work as per drawings and specifications.
9. THE CONTRACTOR shall ensure that the Scope of Work & General Minimum Standards, Specification for Grid Connected Solar Roof Top system shall comply the sub part under technical service level guidelines of Tender document.
10. All works shall conform in all respects to high standards of engineering, design and workmanship and shall fulfill the anticipated performance during the expected life of the system.
11. Break-down Services (BDS): THE CONTRACTOR shall ensure & comply Service line agreement of tender document.
12. THE CONTRACTOR shall provide 5 years onsite warranty and 5 years Comprehensive Maintenance Contract (CMC from 2nd year) of all supplied, installed and commissioned equipment as per Service Level Agreement (SLA).



13.The details of Onsite warranty of 5 years & Comprehensive Annual Maintenance of 5years starting from second year are as below –

S.N.	On Site Warranty	Comprehensive Annual Maintenance Contract
1	Attending Breakdown call 24/7 or as per mutual consent	Attending Breakdown call 24/7 or as per mutual consent
2	Comprehensive coverage of System/gadgets	Comprehensive coverage of System/gadgets.
3	Quarterly visit for Preventive maintenance with test/performance report.	Quarterly visit for Preventive maintenance with test/performance report

14. Safety norms shall be followed & THE CONTRACTOR shall be accountable of safety violations. A Supply/maintenance/replacement schedule mutually agreed upon will be prepared. Any delay beyond the agreed schedule will attract penalty of 0.5% of Rate Contract value per day of delay or part there of subject to maximum deduction of 5 % of the Rate Contract value.

15. **Safety Violation:** THE CONTRACTOR shall be responsible for the safety of persons employed by him on the works and shall report serious accidents to any of them, however and wherever occurring on the works, to the Employer and Owner who shall make every arrangement to render all possible assistance. This shall be without prejudice to the responsibility of THE CONTRACTOR under the Insurance Clause of the General Conditions.

16. THE CONTRACTOR shall maintain services log book/file containing copy of the Job cards duly signed by the users and countersigned by NKPSIMS Nagpur official.

17. **Guarantees/ warranty:** THE CONTRACTOR must guarantee the system/ equipment/ materials/ supplied against faulty design/ material/ components/ workmanship giving rise to breakdowns/under efficiency, increase in power consumption/ reworks/ replacements etc. Comprehensive onsite warranty should be valid for a period of Five years from the date of handing over, irrespective of the date of deliveries shall be provided by THE CONTRACTOR. Failure to make-up the breakdowns for during the guarantee period shall automatically attract invocation of the Bank Guarantee/or seizure of retention money.

18. **Termination of Contract:** However, continued non-performance and inability to meet service requirements shall be viewed seriously & the agreement at any time giving thirty (30) days prior written notice to THE CONTRACTOR, may be terminated by NKPSIMS Nagpur.
“If, the THE CONTRACTOR breaches its obligations or terms & conditions under this agreement and if the breach is not cured within 15 days from the date of notice or if the service provider”.



- a. has a winding up order made against it; or
- b. has a receiver appointed over all or substantial assets; or
- c. is or becomes unable to pay its debts as they become due; or
- d. enters into any agreement or composition with or for the benefit of its creditors; or
- e. passes a resolution for its voluntary winding up or dissolution or if it is dissolved. Force Majeure incident continues more than 30 days the contract may be terminated by the NKPSIMS Nagpur

19. Any liability arising on NKPSIMS Nagpur, shall be deducted from the bill of the Contractor and if the full amount is not recovered then the same shall be recovered from the performance security deposit of THE CONTRACTOR. There would be no liabilities towards the workers of THE CONTRACTOR by the NKPSIMS Nagpur.

20. In the event of THE CONTRACTOR failing to execute the work under contract in whole or in part an alternative arrangement will be made by the NKPSIMS Nagpur at the risk and cost of THE CONTRACTOR besides any suitable fine/ penalty as deemed fit by NKPSIMS Nagpur.

21. THE CONTRACTOR shall personally be responsible for the conduct of his staff and in case of any complaint against any staff; THE CONTRACTOR will be under obligation to change the worker when instructed by NKPSIMS Nagpur officer for placing the order.

22. THE CONTRACTOR shall observe all the laws and will be responsible for any prosecution or liability arising from breach of any of those laws. NKPSIMS Nagpur will not hold any responsibility with regard to staff on the role of the contractor what so ever.

23. Performance Security Deposit: - A Performance security deposit of amount 5% (Five percent on Total order value) shall be submitted by the CONTRACTOR. The same will be kept in the form Of Bank Guarantee. The security deposit shall be forfeited as a compensation for any loss resultin from the failure to perform the obligations under the contract or in the event of termination of the contract or in any event, which NKPSIMS Nagpur thinks fit and proper.

24. Defect Liability and Retention amount: The defect liability period for the work shall be for period of 12 months from the completion of work (“Installation & Commissioning”). Retention of 5 % of Final bill amount which shall be interest free will be retain as security deposit for the period of 12months and same will be released after completion of defect liability period.

25. Liquidated damages for the delay: If THE CONTRACTOR fails to complete the task within the time provided in the tender, he shall be liable to pay liquidated damages @ 0.5% of the contract price per week up, to a max. of 5% of contract value. THE CONTRACTOR shall strictly comply of General terms and conditions of contract of said tender document for Insurance of work & Insurance against accident/ death etc. to workmen.

26. Applicable Laws & Jurisdiction: “This Agreement shall be construed and interpreted in with and governed by the laws of India, and the courts at Nagpur shall have exclusive jurisdiction over matters arising out of or relating to this Agreement”.



27. Severability: If any of the provisions of this Agreement may be constructed in more than one way, one of which would render the provision illegal or otherwise voidable or enforceable, such provision shall have the meaning that renders it valid and enforceable. In the event any court or other government authority shall determine any provisions in this Agreement is no amended so that it is enforceable to the fullest extent permissible under the laws and public policies of the jurisdiction in which enforcement is sought and affords the parties the same basic rights and obligations and has the same economic effect as prior to amendment. In the event that any of the provisions of this Agreement shall be found to be void, but would be valid if some part thereof was deleted or the scope, period or area of application were reduced, then such provision shall apply with the deletion of such words or such reduction of scope, period or area of application as may be required to make such provisions valid and effective, provided however, that on the revocation, removal or diminution of the law or provisions, as the case may be, by virtue of which such provisions contained in this Agreement were limited as provided hereinabove, the original provisions would stand renewed and be effective to their original extent, as if they had not been limited by the law or provisions revoked. Notwithstanding the limitation of this provision by any law for the time being in force, the Parties undertake to, at all times observe and be bound by the spirit of this Agreement.

28. Non-Disclosure Agreement: It is hereby agreed that THE CONTRACTOR in this agreement hereby agree as follows.

- a. THE CONTRACTOR shall hold all information about this Agreement as well as tender document and / or information gathered about the NKPSIMS Nagpur through this process in strict confidence with the same degree of care with which THE CONTRACTOR protects its own confidential and proprietary information. THE CONTRACTOR shall restrict disclosure of the information solely to its employees, agents and Sub-contractors on a need to know basis advise those persons of their obligations hereunder with respect to such Information.
- b. To use the information only as needed for the purpose solely related for the purpose of this Agreement.
- c. Except for the purpose of execution of this Agreement, not disclose or otherwise provide such information or knowingly allow anyone else to disclose or otherwise provide such information.
- d. THE CONTRACTOR shall disclose any information to parties not involved in supply of the products i.e. UPS & Batteries and services forming part of this order and discloser of information to parties not involved in supply of the products and services forming part of this order will be treated as breach of trust and invite legal action. This will also mean termination of the contract and disqualification of the THE CONTRACTOR in any future tendering process of the NKPSIMS Nagpur.
- e. Any information considered sensitive must be protected by THE CONTRACTOR from unauthorized discloser or access.

29. The NKPSIMS Nagpur shall have the authority to reject full or any part of the Service Providers/THE CONTRACTOR contract, which is not confirming to the specifications and complying terms and conditions of tender document. No payment shall be made for unsatisfactory service(s).

30. The Work should be carried out strictly as per standard operating procedure and as per Tender terms & conditions of the tender document & NKPSIMS Nagpur guidelines issued from time to time.



- 31.No payment shall be paid for any substandard quality.
- 32.Necessary TDS as applicable will be deducted from the bill. It is requested to sign a duplicate copy of this work order as token of acceptance and return back the same to our office.
- 33.The NKPSIMS Nagpur reserves the right to cancel the empanelment at any time without assigning any reason, whatsoever.
- 34.NKPSIMS Nagpur may conduct third party inspection of the goods supplied by you at any point of time, to ascertain technical specifications, at your cost. In case, it is found that they do not conform to the technical specification approved by NKPSIMS Nagpur then your company may be recommended to legal actions as deemed fit.

IN WITNESS WHEREOF the parties hereto have set their hands on the day and date first hereinabove mentioned.

Signed by		
	For – NKPSIMS Nagpur (Authorized Signatory	For - M/s. (Authorized Signatory
Witness	1. 2.	1. 2.



ELIGIBILITY CRITERIA

The bidder should fulfill the following eligibility criteria. They are required to submit copies of documents to substantiate their qualifying criteria.

1. Bidder should have valid Registration of PAN, GST, ESI, PF and income Tax clearance certificate etc.
2. The bidder should have successfully executed minimum single work of similar type with minimum 200Kwp during last three years (Proof of the same should be submitted for having successfully the work) OR
3. The bidder should not have been blacklisted by any enterprise /Govt. department during last 05 years. A written undertaking has to be given by the bidder. A written undertaking has to be given by the bidder on their letter head.
4. Only those bidders who have at least 3 years' establishment in the Solar industry and undertaking similar works viz. Supply, Installation, Testing and Commissioning in Grid Connected SPV Based Solar Power System on CAPEX model and with related satisfactory work completion report. The Completion Certificate pertaining to irrelevant works will not be considered.
5. Completion Certificate: Bidder shall submit the completion certificate for above Sr No.2 mentioning the scope of part/full related to solar power generation works, Final bill amount, year, duration of work, details of capacity of power generation etc. from the competent authority of client. No completion certificate from any Consultant will be considered.



DETAILS OF BIDDERS:

1	Name of the Firm/ Organization:			
	Registered Office			
	Nagpur Office(branch)			
	Telephone No.			
	Fax No.			
	E-mail			
	Website			
2	Year of Establishment			
3	Status of the firm (Partnership firm / Proprietary/ LLP / Company)			
4	Name and Qualifications of Partners / Proprietor / Directors			
	Names	Designation	Qualification	Mobile No
	1			
	2			
	3			
5	Whether registered with the Registrar of Companies /Registrar of Firms. If so, mention number & date. (Also enclose copy of Partnership Deed / Registration / Articles and Memorandum of Association)			
6	If empanelled with other organizations such as Govt. / Semi-Govt. undertakings, etc. (attach copy of registration, if any)			
7	Name of the Bankers.	Name of the bank:		
		Name of the branch:		
		Phone Nos:		
		Contact person phono.		
8	Satisfactory evidence to indicate financial capacity	Year	Turnover Rs. In Lac	Profit
		31.03.2020		
		31.03.2021		
		31.03.2022		
	Please enclose Certified copies of last 3 years Balance Sheet, Profit & loss A/C & IT returns			
9	Registration with Tax Authorities			
	i)Income-tax (PAN) No.			
	ii) Service tax no.			
	iii) EPF Reg. No.(if applicable)			
	iv) ESI Reg. No. (if applicable)			
10	Details of works executed in last 5 years (as per Performa I & II attached)			



11	Whether any Civil suit / Litigation arisen in the projects against the Contractor, executed during last 05 years / being executed now. If yes, please furnish details	
	Key personnel employed: (as per Performa III attached) (Detailed C.V.'s to be attached) Indicate special expertise and projects in which such techniques were employed	
	Infrastructure of the firm viz. office space, office equipment.(as per Performa IV attached)	
	List of major clients	Name Address and telephone numbers
	Any other relevant information	

Note: Where copies are required to be furnished, these are to be self-attested. In case you intend to give further / more information, please attach separate sheet/s.

**Signature and Seal of
Applicant.**

Date



PROFORMA – I

PARTICULARS OF RELEVANT WORKS EXECUTED

S.N.	Name of Work /Project executed	Short description of work	Name & Address of Owner /Client	Value of work executed	Stipulated time of completion	Actual time of completion	Copy of Work Order /completion certificate from the Client.
1							
2							
3							
4							
5							
6							

Signature and Seal of Applicant

PROFORMA – II

PARTICULARS OF WORKS IN HAND FOR CLIENTS

Sr. No.	Name of Work /Project executed	Short description of work	Name & Address of Owner /Client	Value of work executed	Stipulated time of completion	Copy of Work Order /completion certificate from the Client.
1						
2						
3						
4						
5						
6						

Signature and Seal of Applicant



GENERAL CONDITIONS OF CONTRACT

1. Total Security Deposit

Total security deposit comprises: Earnest Money Deposit & Performance Security Deposit Retention Money

2. Initial Security Deposit (Performance Security Deposit):

The amount of ISD shall be 5% of accepted value of tender in the form of Demand Draft/ Pay order / Bankers Cheque drawn on any Nationalized Bank or Scheduled Bank payable at Nagpur and shall be deposited within 14 days from the date of acceptance of the Tender.

3. Security Deposit / Retention Money

Total security deposit/retention money shall be 5% of the contract value or total executed value, whichever is higher. Retention money of 5% of the cost of work (Final Bill amount excluding taxes) be deducted and kept with the NKPSIMS Nagpur till defect liability period (12 months) is over. Retention money can be refunded within 14 days after the end of defect liability period provided contractor has attended to all defects. During the defect liability period the contractor has to repair all the defects at his own cost. If contractor does not rectify the defects within the said period, then NKPSIMS Nagpur shall rectify the same from other agencies at risk and cost of the aforesaid contractor. Necessary

4. Scope of Work:

Supply, Installation, Testing and Commissioning of rooftop solar power system of total estimated capacity 398 KWp (199 KWp on Metal Sheet Roof & 199 KWp on RCC Slab) at 4 different buildings locations in NKPSIMS Nagpur own premises. The Proposed locations are as mentioned in technical document.

5. Agreement: On receipt of intimation of the acceptance of tender from the NKPSIMS Nagpur the successful Tenderer shall be bound to implement the contract and within 15 days there of shall sign an agreement in a standard format with NKPSIMS Nagpur in a non-judicial stamp paper of value as per latest Maharashtra Stamp Act. The value of stamp paper shall be calculated based on the tendered amount and the same shall be borne by the contractor.

6. Liquidated Damage If the contractor fails to maintain the required progress or to complete the work on or before the contracted or extended date or completion without justification in support of the cause of delay, it may be called upon without prejudice to any other right of remedy available under the law to the NKPSIMS Nagpur on account of such breach to pay a liquidated damages at the rate of 0.5% of the actual project cost of the work per week of delay subject to a maximum of 5% of the actual project cost.

7. Materials, Appliances and Employees Unless or otherwise specified the contractor shall provide and pay for all materials, labour, water, power, tools, equipment, transportation, loading, unloading and any other facilities that are required for the satisfactory execution and completion of the work. Unless or otherwise specified all materials shall be new and both workmanship and materials shall be best quality. The contractor shall at all times enforce strict discipline and good order among its employees and shall not employ on the work any unfit person or anyone not skilled in the work assigned to it. Workman whose work or behavior is found to be unsatisfactory by the NKPSIMS/Solar Consultant shall be removed from the site immediately. The Contractor shall note



that no child labour (less than 18 years of age) on the work shall be employed. The Bidder shall use all materials conforming to relevant BIS/ relevant Code and will use the best materials of approved manufacture.

8. Protection of works and property

The contractor shall continuously maintain adequate protection of all his work from damage and protect the NKPSIMS properties from injury or loss arising in connection with contract. The contractor shall make good any such damage, injury, loss, except due to causes beyond his control and due to its fault or negligence.

9. Inspection of Work

The NKPSIMS Nagpur /Solar Consultant or their representatives shall at all reasonable time have free access to the work site and / or to the workshop, factories or other places where materials are lying or from where they are obtained and the contractor shall give every facility to the NKPSIMS / Solar Consultant and their representatives for necessary inspection and examination and test of the materials and workmanship.

10. Assignment and subletting

In normal circumstances, subletting or assigning part or entire work shall not be permitted. However, for specialized works, if unavoidable, only with the prior approval of the NKPSIMS Engineer & Solar Consultant, subletting or assigning part of the work shall be permitted. However, in case of assignment or subletting the work to another agency, it not relieve the main contractor from the responsibility of his overall responsibilities and liabilities of the work. In any case it is responsible of the main contractor to appoint overall supervisor at site for one-point coordination.

11. Accident of injury to workmen

The NKPSIMS shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workmen or other person in the employment of the contractor or any sub contractor, save and except an accident or injury resulting solely from any act or default of the NKPSIMS or its agent, or employees. The contractor shall indemnify and keep indemnified the NKPSIMS against all such damages, and compensation, save and except said as aforesaid and against all claims, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

12. Commencement of Work

The date of commencement of the work shall be reckoned as the date of handing over the site or 07 days from the date of issue of letter of acceptance of tender by the NKPSIMS Nagpur whichever is later.

13. Time for Completion

Time is essence of the contract and shall be strictly observed by the Contractor. The Entire work shall be completed within a period of 120 days from the date of issue of work order. If required in the contract or as directed by the Solar Consultant, the contractor shall complete certain portions of the works before completion date of the entire work. However the completion date shall be reckoned as the date by which the whole work is completed as per the terms of the contract.

14. Extension of Time

If, in the opinion of the Solar Consultant, the work be delayed for reasons beyond the control of contractor, the Solar Consultant may submit a recommendation to the NKPSIMS to grant a fair



and reasonable extension of time for completion of the works as per the terms of the contract. If the contractor needs the extension of time for the completion of the works or the completion for the works is likely to be delayed for any reasons beyond the due date of completion as stipulated in the contract, the contractor shall apply to the NKPSIMS through the Solar Consultant in writing at least 30 days before the expiry of the schedule time and while applying for the extension of time it shall furnish the reason in detail and its justification if any for the delays. The Solar Consultant shall submit their recommendations to the NKPSIMS in the prescribed format for granting extension of time. While granting extension of time the contractor shall be informed the period extended time which will qualify for levy of liquidated damages. For the balance period in excess of original stipulated period and duly sanctioned extension of time by the NKPSIMS, the provision of the liquidated damage as stated herein this conditions shall become applicable. Further the contract shall remain in force even for the period beyond the due date completion irrespective whether the extension is granted or not

15. Rate of Progress

Whole of the material, plant and labour to be provided by the contractor and the mode, manner and speed of execution and maintenance of the works are to be of kind and conducted in a manner to the satisfaction of the Solar Consultant. Should the rate of progress of the work or part thereof be at any time be in the opinion of the Solar Consultant seems too slow to ensure the completion of the whole of the work by the prescribe time or extended time for completion the Solar Consultant shall thereupon take such steps as considered necessary by the Solar Consultant to expedite progress so as to complete the works by the prescribed time or extended time. Such communications from the Solar Consultant neither shall relieve the contractor from fulfilling obligations under the contract nor it shall be entitled to raise any claims arising out of such directions.

16. Pre-Despatch inspection: The successful bidder shall provide a copy of the type test certificates/reports with the techno- commercial bid. Pre-despatch factory inspection (Factory Acceptance Test) shall be arranged by the successful bidder to the representative of NKPSIMS Nagpur at the cost of successful bidder. Readiness for inspection shall be intimated in advance to Enable NKPSIMS Nagpur representative to witness the tests. Routine test certificates/reports for the equipment shall be submitted. Bought out equipment shall be provided with manufacturer's test certificates.

17. Price Variation / Escalation

The contract rates shall be firm and shall not be subject to fluctuation in the cost of materials, labour, transport, rate of exchange, taxation & introduction of any new taxes, duties, levies etc whatsoever till completion of work including the extension of time thereto

18. Force majeure

18.1 Neither contractor nor the NKPSIMS Nagpur shall be considered in default in performance of the obligations if such performance is prevented or delayed by events such as but not limited to War, hostilities revolution, riots, civil commotion, lockout, conflagrations, epidemics, fire, storms, floods, droughts, earthquakes or ordinances or any act of God or for any other cause beyond the reasonable control of the party affected or prevented or delayed. However, a notice is required to be given within 30 days from the happening of the event with complete details, to the other party to the contract, if it is not possible to serve a notice, within the shortest possible period without delay.

18.2 As soon as the cause of force majeure has been removed the party whose ability to perform its obligations has been affected, shall notify the other of such cessation and the actual delay incurred in such affected activity adducing necessary evidence in support thereof.



18.3 From the date of occurrence of a case of force majeure obligations of the party affected shall be suspended during the continuance of any inability so caused. With the cause itself and inability resulting there from having been removed, the agreed time completion of the respective obligations under this agreement shall stand extended a period equal to the period of delay occasioned by such events.

18.4 Should one or both parties be prevented from fulfilling the contractual obligations by state of force majeure lasting to a period of 2 months or more, the two parties shall each other to decide regarding the future execution of this agreement

19. TERMS OF PAYMENT:

The payments shall be made as per the following terms and conditions:

- i. 30% of the ordered value will be paid as advance (Part A of price bid) after the technical specification and terms and conditions specified in the contract are duly certified by the concerned officer of the NKPSIMS Nagpur, appointed Consultant and permissions of authorities authorities.
- ii. 50% of the ordered value will be paid (Part A of price bid) against delivery of all 800 Kw Solar power Plant systems and accessories for installation and commissioning of the system. Payment will be made after checking of all the systems and accessories as per the specifications by the concerned officer of the NKPSIMS Nagpur, appointed Consultant. If any systems not found as per the specifications and standards the Payment will not be released.
- iii. 15% of the order value (Part A of price bid) shall be released on completion of satisfactory performance observation period of 3 Months (90days) from date of commissioning.
- iv. 5% of the order value (Part A of price bid) for Defect Liability Period of 12 Months from date of Commissioning

20. Energy Generation Guarantee

The successful bidder should give minimum annual power generation Guarantee as per average irradiance profile of Nagpur city. It is complete responsibility of the Contractor to ensure the system running to meet the above Solar power generation.

MONTH	DAYS	Energy Yield (kWh)	Specific Yield (kWh/kW)	LIFE CYCLE PERFORMANCE	ANNUAL ENERGY YIELD (kWh)
JANUARY	31	31	40303.64	Year 1	513302.41
FEBRUARY	28	28	44453.67	Year 2	509195.98
MARCH	31	31	56430.79	Year 3	505122.42
APRIL	30	30	57715.24	Year 4	501081.44
MAY	31	31	55493.49	Year 5	497072.78
JUNE	30	30	39568.14	Year 6	493096.20
JULY	31	31	34466.27		
AUGUST	31	31	32093.60		
SEPTEMBER	30	30	34853.11		
OCTOBER	31	31	42699.71		
NOVEMBER	30	30	36785.93		
DECEMBER	31	31	38438.81		
ANNUAL	365	365	513302.41		



Five Years Comprehensive Maintenance Contract (CMC)

1. The SPV Power Plant contract price includes the provision of 5 years mandatory Comprehensive Maintenance Contract (CMC). To ensure long term sustainability of the system, the bidder must provide his representatives name, full address, mobile number and photographs to NKPSIMS Nagpur of Maharashtra as well as the names and contact details of all technicians must also be \ Provided. Failure to do shall invite penalty and action.
2. Replacement of Faulty Items: During CMC period, In case of any faults /non working of components, the vendor shall be responsible for replacements of those components on their cost to make system running.
3. Preventive Maintenance: In order to extend the life of plant, regular check-up of the plant on monthly basis is essential. Mainly string inverters, all types of cable connections, Solar Modules and structures, Earthing, Junction boxes, ACDB & DCDB as well as remote monitoring system etc. are to be checked properly to ensure that the both plants are running in good condition.
4. Breakdown Maintenance : In case, any plant at any roof of the building is reported to be under breakdown, the party shall take an action to arrange to identify the fault and rectify/repair the defect and will replace the defective part of component or equipment during the CMC period if found essential to do so to minimize the generation loss
5. Cleaning of Solar Modules on regular basis: In order to maximize the generation of the power and maintaining the plant in good condition, proper cleaning work of Solar modules is essential which shall be done on regular basis i.e. twice in a month. Due care has to be taken while cleaning the solar modules which should be cleaned thoroughly and gently using sufficient water and soft wiper.
6. Monthly Reporting: The party will submit a monthly report to NKSIMS Nagpur Concerned /designated official within 3 working days after completion of previous month in the proper format showing details of energy generation.



PENALTY CLAUSE:

1. In case, the party is failed to submit monthly report, it will be presumed that no CMC work has been carried out at site and accordingly, the payment will not be released by NKPSIMS Nagpur.
2. All defects and deficiencies advised to the contractor shall be attended within three working days. If the complaints are related to replacement/repairs of any crucial components the same must be rectified within 15 days.
3. In case of any delay in attending the complaint, penalty @ 1% of the CMC cost shall be applicable per week or part thereof restricted up to the affected generation loss @ Rs 12/- per KWH whichever is higher for the delay in action beyond 15 working days of breakdown of the plant. However, no penalty shall be applicable when the reason for delay is beyond the control of the contractor and the same will be justified to NKPSIMS Nagpur.
4. If contractor fails to respond and arrange repair/rectification within reasonable time, the purchaser/ NKPSIMS Nagpur shall be free to get the repairs done through departmental labour or through any other sources at contractor's expenses without prejudice to the other remedies available under the contract.
5. The Contractor should maintain the spares at the respective Sites

FAILURE BY CONTRACTOR COMPLY SOLAR CONSULTANT INSTRUCTIONS:

If the contractor after receipt of written notice from the Solar Consultant requiring compliance with instruction, fails within seven days to comply with the same, the NKPSIM / Solar Consultant may employ and pay other persons to execute any such work whatsoever as may be necessary to give effect thereto and all cost incurred in connection there with shall be recoverable from the contractors by the employer on a certificate by the Solar Consultant as a debit or may be deducted by him from any money due or which become due to the contractors.

REVIEW MEETINGS AFTER AWARD OF WORK:

The contractor shall present the programme and status at various review meetings as required.

1.WEEKLY REVIEW MEETING:

level of participation: contractor's site in charge and job engineers. agenda:

- a. Weekly programme v/s actual achieved in the past week and programme for next week.
- b. Remedial actions and hold up analysis.
- c. Client query/approval
- d. Safety compliance

2. MONTHLY REVIEW MEETING:

level of participation: senior officers of NKPSIMS Nagpur and contractors. agenda: \

- a. Progress status / statistics
- b. Completion outlook.
- c. Major hold ups / slippages
- d. Assistance required
- e. Critical issues
7. Client query / approval
8. Safety compliance.



N.K.P SALVE
INSTITUTE OF MEDICAL SCIENCES
& RESEARCH CENTER AND
LATA MANGESHKAR HOSPITAL,
NAGPUR

DESIGN, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF GRID CONNECTED
ROOFTOP SOLAR POWER SYSTEM OF ESTIMATED CUMULATIVE CAPACITY 398 KWp
(INCLUDING NET METERING& 5 YEARS COMPRESSIVE MAINTENANCE FROM 2nd YEAR

SECTION – II

TECHNICAL SPECIFICATION OF SOLAR PV ROOF TOP POWER PLANT

TENDER DOCUMENT

FOR

**DESIGN, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF GRID
CONNECTED ROOFTOP SOLAR POWER SYSTEM**

OF ESTIMATED CUMULATIVE CAPACITY

398 KWp (199 KWp on Metal Sheet Roof & 199 KWp on RCC Slab)

**(INCLUDING NET METERING & 5 YEARS COMPREHENSIVE MAINTENANCE FROM
2nd YEAR)**



1. Scope of Work :

- a. Design, Supply, Installation & Commissioning (with Net metering) including 5 Years Comprehensive Maintenance Contract (CMC from 2nd year) of cumulative 398 KWp (199 KWp on Metal Sheet Roof & 199 KWp on RCC Slab) Grid connected Roof Top Solar PV Power Systems at NKPSIMS Nagpur 12 buildings in Nagpur The project will be on complete turnkey basis.
- b. Net Metering and Grid synchronization related approvals, Liaisoning and Bidirectional meters and CT's to be provided as per ESCOM/MSEDCL norms are in the scope of EPC holder/Bidder.
- c. Detailed planning of smooth execution of the project
- d. Contract for 5 years including breakdown maintenance

2. Detailed Scope of Work:

- a. Supply of all components, sub components, spares and tools etc. necessary to make the system complete shall be the responsibility of successful bidder.
- b. The installation is to be on the rooftops of individual separate buildings. 398 KWp (199 KWp on Metal Sheet Roof & 199 KWp on RCC Slab) will be on the 4 buildings of NKPSIMS Nagpur with Mono crystalline PV modules and String Inverter technology and with synchronization with Grid connected Net metering.
- c. Total erection works and material item supplies should be carried out as per applicable latest CE, IS, IEC & IEEE standards / codes with solar grade with appropriate Ingress protections.
- d. PERT / CPM detailed project monitoring charts & schedules along with critical tasks / activities to be monitored along with dates for easy reviews to be submitted within 15 days from the date of LOI.
- e. Total Associated Engineering Works (both supply & erection)
 - i. Electrical:-Power cables, communication cables & control cables of armored and Solar grade
 - ii. Synchronizing / Paralleling equipments to achieve flaw less synchronizing with electricity board grid and captive diesel generator grid (if any) as desired /required by NKPSIMS Nagpur
- i.e. 100% utilization solar power.
- f. Lighting arresters, earthing, cable trays, cable trenches, terminations and etc.
- g. Armoured copper cables for power should be laid up to AC junction box.
- h. From AC junction box to main junction box armoured aluminum power cable should be considered.
- i. Checking the feasibility of existing Control Panel/Switch Gear and if required, Modification of existing outgoing feeder protection which may include extension of bus bars in the Bus and outgoing section, metering and control circuits and energy meter to suite for receiving solar power for both grid connections with prior approval from NKPSIMS Nagpur.
- j. Suitable earthing with GI strips for following items provided at each plants
- k. Civil supporting structure., Modules. Inverters , DC junction, Distribution & combiner boxes , AC junction & combiner boxes, Lighting arrester & Weather station



Approval of NKPSIMS NAGPUR AND CONSULTANT should be obtained on designed drawing before executions

Recommendations

1. Solar Module: Modules with performance to meet Energy Generation. High performance make in India Module can be given preference.
2. Inverter: Delta/ SMA with String level monitoring system.
3. Cables: Finolex/ Polycab
 - a) PV array to Solar Inverter - Copper Only
 - b) Inverter to ACDB – Aluminium Armoured
 - e) Earthings – Aluminium Insulated Cable

1. Civil:-

- i. GI structural supports to mount PV panel as per NKPSIMS Nagpur approved design and drawings given along with tender document.
- ii. If Drilling holes deep in Roof Concrete Slab grouting the same with injectable grout before and after inserting the M20 & 6inch long anchor bolts and to be casted with RCC block of 400x400x400mm as per the approved Drawings.
- iii. Providing concrete pedestal as per drawing and laying M20, 6inch length anchor bolts at the time of casting.
- iv. Providing, fabricating and laying galvanized structural steel section, plates, nuts washer and bolts, and cable tray as per drawing with thickness of galvanizing of 80 microns.
- v. Providing and laying cement plaster and doing water proof treatment around the pedestals to prevent leakage of water.
- vi. All GI structural steel section should be 'CE' quality certified.
- vii. Damaged existing water proofing sheet should be re-laid with new one and also around the civil pedestals, to ensure no rain water will leak inside the building after completion of the total erection works.
- viii. The civil & structural works should be carried out as per the civil drawings enclosed
- ix. The structural design Should be for 150KM / hours wind speed.
- x. Providing concrete pedestal as per drawing and laying M20 6inch length anchor bolts at the time of casting for the sites where the Solar Panels are intended to be mounted on RCC flat roof
- xi. Providing, fabricating and laying galvanized structural steel section, plates, nuts washer and bolts, and cable tray as per drawing with thickness of galvanizing of minimum 90 microns.
- xii. Providing and laying cement plaster and doing water proof treatment around the pedestals to prevent leakage of water.
- xiii. All GI structural steel section should be quality certified.
- xiv. Damaged existing water proofing sheet should be re-laid with new one and also around the civil pedestals, to ensure no rain water will leak inside the building after completion of the total erection works.
- xv. The civil & structural works should be carried out as per the civil drawings enclosed
- xvi. The structural design should be for 150KM / hours wind speed.



2. Data Acquisition, Performance monitoring & Reporting:

- a. Remote Monitoring system shall be provided to monitor the Solar Power Generation such that all (i.e. AC & DC) electrical parameters (cumulative & instant) in graphical presentation from string level, next inverter and so on as desired by NKPSIMS Nagpur/ owner.
- b. Contractor shall coordinate and take care on behalf of NKPSIMS Nagpur including the charges (including Liasoning) on all the necessary electrical approvals for synchronizing with Grid the Solar power Plant. NKPSIM Nagpur will sign on application forms. The Proof of documentation to be submitted to NKPSIMS Nagpur.
- c. Module acceptance criteria: -
 1. Each module is to be tested for electro luminescence test to detect micro cracks and pass the test as per IEC norms and also record of data on the test for each module will be done by NKPSIMS Nagpur for future studies.
 2. NKPSIMS Nagpur may submit the PV Modules to any NBAL or MNRE accredited test centers to recheck on Quality.

WARRANTY:

1. Total system including all hardware components and workmanship except PV modules shall carry comprehensive on-site warranty for a period of five years from the second year, whereas, the PV modules shall carry performance guarantee for a period of 25 years from the date of commissioning.
2. Further, cost for Comprehensive Annual Maintenance Contract (CMC) for the solar power plants for a period of five years from the date of completion of 1 year Defect Liability period shall also be separately indicated in the price-bid. The work order for CMC also will be released along with the work order (for supply, Installation, testing and commissioning) of Solar Power Plant.
3. The scope of work under warranty and CMC periods shall include supply and fixing of all required spares necessary for smooth operation of the systems. List of minimum tools, tackles and spares proposed to be kept at site by the tenderer during the warranty and CMC period shall be indicated in the bid

SPECIFICATIONS OF MAJOR COMPONENTS OF THE SYSTEM

1.SPV ARRAY:

The Solar PV Modules shall be of made of Mono Crystalline Silicon Solar Cells and of capacity of **540 Wp or above** with Solar cells connected in series to give required Power output.

The Solar Modules should be IEC Certified and BIS Approved and in the list of ALMM RFID Tag: The PV module will have a RF Identification tag (RFID), which will contain the following information. The RFID will be inside the module laminate to withstand harsh environmental condition:

- a) Name of the manufacturer of PV Module
- b) Name of the manufacturer of Solar Cells
- c) Month and year of the manufacture (Solar Cell & Module)



- d) Country of Origin (Solar Cell & Module)
- e) I-V curve for the module
- f) Peak Wattage, I_m , V_m and FF for the module
- g) Unique Serial No. & Module No. of the Module
- h) Model or Type Number
- i) Date & year of obtaining IEC PV Module Qualification Certificate
- j) Name of the Test Lab issuing IEC Certificate
- k) Other relevant information on traceability of the Solar Cell & Modules as per ISO.
- l) script to be screen printed in indelible ink or paint on the back side of each PV.

Warranty: PV modules used in solar PV 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. Also the Module should have min of 12 Years of Product warranty against any workmanship defects.

2.MODULE MOUNTING STRUCTURE

- a. The mounting structure shall have to be designed by the Contractor after spot verification.
 - b. The module mounting structures should be made suitable for Flat RCC roof and Steel sheets.
 - c. Structures shall be supplied complete with all members to be compatible for allowing easy installation at the rooftop site.
 - d. The structures shall be designed to allow easy replacement of any module.
 - e. Each structure will have a provision to adjust its angle of inclination to the horizontal as per the site condition and will be capable of withstanding a wind load of 150 Km/hr after grouting and installation. The vendor has to submit the installation drawings approved by the registered structural engineer that designed structure and grouting method is capable of withstanding a wind pressure of 150 Km/hr.
 - f. Few locations/site are of Flat RCC roof, where the suitable Elevated **GI Structure** to be fabricated to utilize the space beneath the Structure.
 - h. Mounting Structure must be designed to withstand all weights of modules and to withstand wind speed of 150km/hr. Anti-theft Nut & Bolts must be used for modules.
 - i. For Elevated **GI Structure MS angles** & poles to be used with **minimum thickness 5 mm** adhering to IS standards The thickness of galvanization should be minimum of 90 microns. All the nuts, bolts are made of good quality Stainless Steel (SS 304).
 - j. Space must be provided in between rows for proper maintenance and cleaning.
- K Bidders have to submit detailed designs and Drawings to NKPSIMS Nagpur for acceptance and approval before execution of work.
- l. NKPSIMS Nagpur already has inventory of solar structures which should be used whenever suitable in this project and cost of these structure will be deducted from the bill.



3. STRING INVERTER:

The string inverter shall be installed near to the solar array and hence it shall be suitable for weather proof and shall have IP65 class of protection. Also, a separate hood type arrangement using GI metal sheet to cover top of the string inverter enclosure shall also be provided with necessary mounting arrangements. Technical features of the inverters shall be as follows:

Maximum Input DC Voltage	1000V
Nominal AC output voltage and frequency	415V, 3 Phase,4 wire,50 Hz
AC Voltage Range (Grid)	400 V \pm 20 % (320 – 480 V)
Accuracy of AC voltage control	+/-1%
Output frequency(Nominal)	50Hz
Frequency Range (Grid)	45 Hz -55 Hz
Accuracy of frequency control	+/-0.1%
Grid frequency synchronization range	+/-3 Hz
Ambient temperature range to be considered	-10 to +50 Deg. Centigrade
Humidity	95% Non-Condensing
Protection of enclosure	IP 65 for outdoor application
Grid Voltage Tolerance	-20%& +15%.
No-Load losses	Less than 1 % of rated power
Inverter efficiency (minimum)	98%
Total Harmonic Distortion (THD)	<3%and shall comply with IEEE 519
Communication Interface	RS 485
Maximum Input DC Voltage	1000V

Others:

1. DC reverse Current Protection: Yes
2. AC Short Circuit protection: Yes
3. Leakage Current protection: Yes
4. Grid Monitoring : Yes
5. DC/AC switch: Yes
6. DC Fuse: Yes (15A)
7. PV String Current Monitoring: Yes
8. Over voltage protection: DC type II / AC Type III
9. Connection Type: 3 Phase
10. Isolation Method: Transformer Less
11. Degree of Protection: IP 65
12. Night Power Consumption: < 1W
13. Cooling Method: Smart Forced air Cooling
14. Grid Support: LVRT, HVRT, Active-Reactive Power Control & power Ramp Control
15. Inverter shall be capable of complete automatic operation including wake-up synchronization & shutdown.
16. Minimum expected protections required are: Anti Islanding, DC Over voltage/ Current.
17. AC Over Voltage/ Current AC Short Circuit Protection DC Reverse Polarity Protection.
18. Over/under grid frequency. Inverter fan failure Over temperature.
19. Short Circuit. Earth fault. Protection against Lightning. Surge voltage induced at output due to



external sources.

Note: Tenderer shall specifically bring out the protections proposed in the techno-commercial bid for each configuration.

The system shall be suitable to adapt, synchronize and satisfactorily deliver power to the internal grid during all normal functioning of the system. Liquid crystal display shall be provided on the inverter front panel or on separate data logging/ display device to display the following:

- a. DC Input Voltage.
- b. DC Input Current.
- c. AC Power Output(kW) delivered to Internal Grid.
- d. kWh/units generated.
- e. Current time and date.

Following shall also be displayed:

Protection function limit (AC overvoltage, AC under voltage, Over frequency, under frequency, ground fault, PV starting voltage, PV stopping voltage and other standard features).

Nuts & bolts and the inverter enclosure shall have to be adequately protected taking into consideration, the atmosphere and weather prevailing in erection site. Dimensions and weight of the inverter shall be indicated by the tenderer in the offer. All doors, covers, panels and cable exits shall be provided with gaskets or otherwisedesigned to limit the entry of dust and moisture. All doors shall be provided with locks. Inverter shall be provided with suitable rain proof enclosure.

3. AC DISTRIBUTION BOARD (ACDB) AND PANELS TO CONNECT MSEB INCOMING:

The ACDB shall be double door type and made out of MS sheet with powder coating. It shall be weather proof of IP65 Grade. ACDB shall have circuit breaker of suitable rating for connection and disconnection. It shall have Surge protection device, trip, ON, OFF, R, Y, B output indication lamps and multifunction meter with communication compatibility. All switches and circuit breakers shall conform to IEC/IS 60947 part- I, II & III.

4. NET METERING:

Bi Directional Meter (As per Local ESCOM Standard) shall have the provision for measurement for Current, Voltage, frequency, Energy, Power/Load, power factor, maximum demand with RS232 with class 0.5 accuracy. Net metering with local ESCOM shall be provided by the contractor on turkey basis for all the sites of NKPSIMS NAGPUR. The scope of work for net metering is detailed as below:

- a. Preparation of necessary documentation and submission of application (online/offline) to
- b. DISCOM for net metering.
- c. Obtaining site feasibility report from DISCOM.
- d. Obtaining net metering approval from DISCOM.
- e. Contractor shall work with DISCOM to enable NKPSIMS NAGPUR's signing of PPA.
- f. Supply & Testing of net meter (Main & Check meter) and related accessories
- g. (Cubicle, CTs, PTs, earthing etc.) as per requirements of DISCOM.
- h. Replacement of existing meter and related accessories (Cubicle, CTs, PTs, earthing etc.) with



new

- i. metering systems as per requirements of DISCOM.
- j. CEIG/CEA/DISCOM inspectorate approval for supply, testing and replacement of new net
- k. metering system including preparation and submission of necessary documentation.
- l. CEIG/CEA/DISCOM inspectorate approval of Solar Power Plant including preparation and
- m. submission of necessary documentation.
- n. Synchronization / Commissioning approval from CEIG/CEA/DISCOM.
- o. Synchronization/Commissioning certificate for the Plant from CEIG/CEA/DISCOM.

Note: The contractor shall take up net metering for NKPSIMS turnkey basis including any statutory fees, fee towards testing of net meter, CTs, PTs, Cubicle etc. to be paid. Any other item / supply / activity / approvals/NOCs/fees not specifically defined in the above clause but required for successful completion of net metering with DISCOM as per the latest Net Metering Policy for NKPSIMS shall be to the scope of the Contractor. In other case of non-applicability of Net metering, Contractor has to take care of approval of alternative mechanism as per state electricity regulatory norms & latest revisions of state grid code, all the required fees/NOC/other activity adhering to alternative mechanism shall be responsibility of contractor only.

5. CABLES AND ACCESSORIES:

1. Cables/wires are to be used for connecting the solar PV system namely Special purpose, suitable DC voltage, PV application rated, tinned copper conductor cable/wire between

- a) PV array to Solar Inverter - Copper Only
- b) Inverter to ACDB – Aluminium Armoured

The sizes of the cables between array interconnections, array to inverters etc. shall be so selected to limit the voltage drop and losses to minimum. The voltage drop shall not exceed more than 2% of peak power voltage. All cables supplied by the tenderer shall conform to relevant IS/IEC standards. All AC/DC cables shall run through HDPE pipes / UV stabilized CPVC of adequate diameter with minimum wall thickness of 1.5 mm and in turn laid on cable trays/ raceways.

The following colour coding shall be used for cable wires:

- i) DC positive: red (the outer PVC sheath can be black with a red line marking)
- ii) DC negative: black
- iii) AC single phase: Phase: red; neutral: black
- iv) A C three phase: Phases: red, yellow, blue; neutral: black Earth wires: green

2. Specification of excavation for Laying Underground AC Cable as per IS Standard as mentioned below, Laying of cables including excavation of 900 mm deep trenches (minimum width 450 mm complete with total 250 mm (after ramming compacting.) sand column (80 mm bedding + 80 mm topping + cable dia), 150 mm ID half round RCC covers. Cable route Markers be used to trace the cable route.

6. CABLE TRAYS:

The perforated cable trays with Tray cover shall be manufactured from good commercial high grade strength sheet steel having minimum thickness of 1.6mm for Tray and 1mm for Tray Cover. The



perforated cable trays shall be hot dip galvanized according to IS-2629, BS729-1971 or equivalent standard suitable for indoor/outdoor use having moderate humidity and air pollution. The zinc coating thickness shall work out by applying a 610 gm of zinc per square meter surface with an approximate thickness of 80 microns

7. EARTHING

Body and lightning protection system earthing shall be of provided with maintenance free earthing (MFE) system comprising of 17mm (3M length) dia copper bonded stainless/ nickel steel alloy rods suitably joined together with thread less/compression couplers made of copper alloy including supply of copper rods and all other accessories required for the total erection of the earthing system. The rod shall be driven in earth with augured hole dia of 75-100 mm in ground filled with conductivity/earth enhancement compound. Earth pit chamber with RCC cover as per standards shall be constructed for each maintenance free earth rod. Earthing conductor of size not less than 25x3mm GI strip on roof/wall mounting for body Earthing system shall be provided with proper clamping arrangement using GI spacer and saddles over a suitable concrete blocks on roof and with necessary fixing materials with a spacing of not less than 600mm. Earth resistance shall not be more than 5 ohms. All metal casing/shielding of the plant shall be thoroughly grounded to ensure safety of the solar power plant

EARTHING SPECIFICATIONS:

- a. Electrode : Material - Cu. Bonded
- b. Diameter - Ø17 mm.
- c. Length - 2 m. long
- d. Earthing Chemical / Enhancement compound: 15- 25 kg
- e.

8. LIGHTNING PROTECTION EARTHING:

ESE Lightning and surge protection for the SPV plant shall be provided using adequate number of earthing kits but not less than two independent earthing stations. The entire space occupying the SPV array shall be suitably protected against lightning by deploying required number of lightning arresters. It shall be ensured that all the earth are bonded together to bring them to the same potential. Earth resistance shall not be more than 5 ohms with earthing Strip of 25x6mm GI.

9. INSTALLATION:

Installation shall be carried out by qualified engineers who have adequate experience in the installation of the PV systems. Necessary labour required for installation shall be deployed. The Tenderer is responsible for arranging all accessories and measuring instruments required for smooth commissioning of the power plants. Site acceptance testing and commissioning report shall be prepared and signed by all participating agencies. The structures shall be designed for simple mechanical on-site installation. There shall be no requirement of heavy welding or complex machinery at the installation site. Access for panel cleaning and maintenance should be provided. The prospective Installer shall specify installation details of the solar PV modules and the support structures with lay-out drawings, other technical details and array connection diagrams. The work shall be carried out as per the design provided by NKPSIMS Nagpur.



10. GENERAL

- a. All materials used for connecting the earth lead with electrode shall be of GI in case of GI pipe and GI plate electrodes, and of tinned brass in case of copper plate electrode. The earthing lead shall be securely connected at the other end to the main board.
- b. The earthing lead from electrode onwards shall be suitably protected against mechanical injury by routing the earth wire / strip through a suitable size of GI pipe wherever necessary.
- c. All medium voltage equipment shall be earthed by two separate and distinct connections with the earth. All materials, fittings etc. used in earthing shall conform to Indian standard specifications wherever they exist. In the case of materials for which Indian standard specifications do not exist, such materials shall be approved by the NKPSIMS representative.
- d. The earth electrode shall be kept free from paint, enamel and grease. It shall be ensured that similar materials are used for respective earth electrodes and earth conductors. Earth electrode shall not be installed in proximity to a metal fence.
- e. Copper/GI strip shall be connected to the respective earth electrodes, either by brazing or welding respectively. The Copper/GI strip shall be jointed only either by brazing or by riveting at the end of over lapping portions. The overlap shall not be less than 50 mm.
- f. Earthing clamps used for supporting earth strips shall be made of such materials so as to avoid bimetallic action between strip and clamps.
- g. The installation, commissioning & trials to demonstrate proper functioning of the all the systems will be the responsibility of the supplier.
- h. The bidders have to supply the calibration reports for all sensors from the authorized calibration laboratory.**

11. TOOLS, TACKLES AND SPARES

The Installer shall keep ready stock of tools, tackles and essential spares that will be needed for the day-to-day maintenance of the solar PV system. This shall include but not be limited to, the following:

- I. Screw driver suitable for the junction boxes and combiner boxes.
- II. Screw driver and / or Allen key suitable for the connectors, power distribution blocks, Circuit breaker terminals and surge arrestor terminals.
- III. Spanners / box spanners suitable for the removal of solar PV modules from the solar PV module support structure.
- IV. Solar panel mounting clamps.
- V. Cleaning tools for the cleaning of the solar PV modules.
- VI. Spare fuses.

12. CAUTION SIGNS

- a. In addition to the standard caution and danger boards or labels as per Indian Electricity Rules, the cable junction box near the solar grid-tie inverter, the building PCC board to which the AC output of the solar PV system is connected shall be provided with a non-corrosive caution label
- b. The size of the caution label shall be minimum 105mm (width) x 20mm (height) with white letters on a red background



13. FIRE EXTINGUISHERS:

The firefighting system for the proposed power plant(s) for fire protection shall be consisting of: Portable fire extinguishers in the control room for fire caused by electrical short circuits. The installation of Fire Extinguishers should conform to TAC regulations and BIS standards. The suitable fire extinguishers shall be provided in the control room housing as well as near the Roof or site where the PV arrays have been installed.

14. DOCUMENTATION TO ACCOMPANY FOR HANDING OVER THE PROJECT

The complete documentation should be as per IEC 62446 and submitted to NKPSIMS

1• One set of operation manuals complete with drawing, parts list (with part codes) circuit diagrams with list ratings of components and list of do's and don'ts for the main equipment as well as the sub-systems should be submitted to NKPSIMS Nagpur.

- One set of maintenance manuals with full information on drawings, circuit diagrams, list and suppliers addresses for bought out parts, troubleshooting charts, programs of built in controllers etc. for the main equipments as well as for the sub-system.
- These manuals should be in the form of hard (printed) copy in English Language as well as in electronic storage form (disc pen drive etc.)

A certificate for the adequacy of the manuals should be obtained and provided with the manuals. Such certificate must be signed by the QA engineer of the manufacturer

The Installer shall supply the following documentation also:

- a) System description with working principles.
- b) System single line diagram.
- c) Solar PV array lay-out
- d) Routing diagram of cables and wires.
- e) Data sheets and user manuals of the solar PV panels and the solar grid-tie inverter.
- f) A system operation and maintenance manual.
- g) Name, address, mobile number and email address of the service centre to be contacted in case of failure or complaint.
- h) Guarantee & Warranty cards of the components supplied with seal and signature of the manufacturer.
- i) Maintenance Register.

2. Complete SLD from the vendor including evacuation panels & GA Drawings of evacuation & other panels.

15. TEST CERTIFICATES AND REPORTS TO BE FURNISHED

- a. Test Certificates / Reports from IECQ / NABL accredited laboratory or MNRE approved test centers for relevant IEC / equivalent BIS standard for quoted components shall be furnished.
- b. Type Test Certificates shall be provided for the solar modules and the solar grid inverters to provide evidence of compliance with standards as specified in relevant articles of this Technical Specification.
- c. NKPSIMS Nagpur reserves the right to ask for additional test certificates or (random) tests to establish compliance with the specified standards.



16. INSTRUCTION AND O& M MANUALS

Four copies of Instruction and Operation and Maintenance Manual should be furnished. The manual shall be furnished at the time of dispatch of the equipment and shall include the following aspects about:

- a. Precautions during unpacking
- b. Instructions for handling at site.
- c. Erection drawings with written assembly instructions.
- d. Detailed instructions and procedures for the installation, operation and maintenance.
- e. Pre-commissioning tests.
- f. Solar PV system—its components and expected performance.
- g. Clear instructions about mounting of PV module (s)
- h. DO's and DONT's.
- i. Specimen log book.
- j. Principle of Operation of various equipment
- k. Safety and reliability aspects
- l. Metering scheme
- m. string inverter software and controls
- n. Clear instructions on regular maintenance and trouble shooting of solar power plant.
- o. Name and address of the person or service centre to be contacted in case of failure or complaint.
- p. Outline dimension drawings showing relevant cross sectional views, earthing details and constructional features.
- q. Rated voltages, current and all other technical information which may be necessary for correct operation of the SV plant.
- r. Catalogue numbers of all the components which are liable to be replaced during life of the SV plant and all the component parts.
- s. Trouble shooting and diagnostic procedure.

17. Dismantling, shifting of existing solar water heaters on various buildings

Some buildings already had solar thermal systems installed and are non-functioning. A contractor has to appoint experienced persons to dismantle and shift solar thermal system to storage place in NKPSIMS Nagpur. Cost of this work has to be separately mentioned along with this quotation.



ANNEXURE-I DECLARATION BY THE BIDDER

This is to certify that I/We before signing this tender have read and fully understood all the terms and conditions contained herein and undertake myself/ourselves to abide by them.

Enclosures:

1. DD/Pay Order NO.....
2. Terms & conditions (each page and Annexure documents are signed & stamped with the seal)
3. Financial Bid. (Signature of Bidder with seal) Name: Address: Date:

NOTE: Submission of all the documents mentioned above along with declaration, is mandatory. Non submission of any of the documents above will render the bid to be rejected. Also, non-adhering of any of the terms and conditions of will render the bid to be rejected.

Date:

Signature of Bidder

Stamp



ANNEXURE-II
CERTIFICATE / UNDERTAKING OF VISITING SITE BY BIDDER
(On Bidder's letter Head)

- a) Certified that I / we have visited the site on _____ and assessed the nature and amount of work involved before submitting our offer. We will be able to execute the work within the available site condition.
- b) I undertake that I / we have visited the place/sites mentioned herein below, and noted & studied the site feasibilities for installing the said Grid Connected Solar Roof Top Power

S.N.	Building Name
1	NRI Boys Hostel
2	Old Library Building
3	Matoshri Hall
4	Electrical Dept Building

- c) Manpower & Materials supplied by us will be suitable for in the existing location / condition with sufficient space all around. No extra cost will be claimed by me later for any difficulties/modifications involved for total execution of all the works mentioned in the tender. I also understand that the work, if required to be completed on priority basis, so we are ready to work in day / night hour subject to availability of site/space.

(Signature of Bidder):

(NAME):

(SEAL):

Note: Contractor shall visit the site with prior approval.



N.K.P SALVE
INSTITUTE OF MEDICAL SCIENCES
& RESEARCH CENTER AND
LATA MANGESHKAR HOSPITAL,
NAGPUR

DESIGN, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF GRID CONNECTED
ROOFTOP SOLAR POWER SYSTEM OF ESTIMATED CUMULATIVE CAPACITY 398 KWp
(INCLUDING NET METERING& 5 YEARS COMPRESSIVE MAINTENANCE FROM 2nd YEAR

ANNEXURE -III
FORMAT OF UNDERTAKING, TO BE FURNISHED IN COMPANY LETTER HEAD
WITH REGARD TO BLACKLISTING/NON-DEBARMENT, BY ORGANIZATION
UNDERTAKING REGARDING BLACKLISTING/ NON-DEBRMENT

To,
The Dean
N.K.P. Salve Institute of Medical Sciences & Research Centre and
Lata Mangeshkar Hospital.
Digdoh Hills, Hingna Road, Nagpur

We here by confirm and declare that we, M/s----- is not
Blacklisted /De-registered/debarred by any Government department/ Public Sector Undertaking/
Private Sector/ or any other agency for which we have executed/undertaken the works/services during
the last 05 years. If this declaration is found to be incorrect then without prejudice to any other action
that may be taken, my/ our security amount may be forfeited in full and the tender if any to the extent
accepted may be cancelled.

Thanking you,

Yours faithfully,

Signature.....

Date.....

Name.....

Place.....

Seal of the organization



ANNEXURE-IV
FORMAT FOR NET MINIMUM GUARANTEE GENERATION (NMGG)

(To be executed by contractor on Rs 100 /- non-judicial stamp paper)

1. We hereby provide Net minimum guarantee generation (NMGG) for the work of “Design, Supply, Installation, Testing And Commissioning (Including Net Metering & 5 Years Comprehensive Maintenance from 2nd year) Of Grid Connected Rooftop Solar Power System Of Estimated Cumulative Capacity 398 KWp (199 KWp on Metal Sheet Roof & 199 KWp on RCC Slab) In NKPSIMS Nagpur Own Premises

At 12 Different buildongs in Nagpur, Maharashtra” carried out by us as per our Bill No. _____ dated _____. Should, however, due to any unforeseen defect left out in our work at the times of execution there be any _____ during the period of _____ Years from the date of its completion i.e., from _____, it shall be rectified by us without any extra cost to the NKPSIMS Nagpur

2. We assure and confirm about NMGG per annum after considering proposed configuration and all local conditions, solar insolation, wind speed and direction, air temperature & relative humidity, barometric pressure, rainfall, sunshine duration, grid availability and grid related all other factors and losses due to near shading, incidence angle modifier, irradiance level, temperature loss, array loss, Module quality loss, Module array mismatch loss, and various inverter losses etc. after going through tender document and site visit.

3. We confirm Net minimum guarantee generation (NMGG) per annum as per schedule and minimum guaranteed generation will be _____ kWh per annum (for first year). From the second year upon the start of CMC there shall only be technical losses in the systems as per IS/IEC/industry standard applicable to Maharashtra region.

4. We shall be responsible for achieving NMGG. For any shortfall in the net minimum guaranteed generation corresponding to the offer, NKPSIMS Nagpur can recover in form of the compensation from the M/s _____ on yearly basis.

5. We assure to maintain the Solar Plant equipment/s including its repair, replacement etc. under Compressive Maintenance Contract (CMC) as per quoted amount so as to give the agreed NMGG per year, for which NKPSIMS Nagpur shall pay the agreed CMC amount year wise after completion of defect liability period of 12 months and no other charge/cost is payable by NKPSIMS Nagpur. There will be no relaxation in NMGG beyond 5%. However, we will be allowed to relocate the solar modules and install at different places at their own cost ensuring guaranteed net minimum generation. The entire cost including dismantling and re-erection, etc, will be borne by the us. To ensure NMGG, the we will be allowed to erect additional number of solar modules without extra cost at site assigned by NKPSIMS Nagpur under approval of NKPSIMS Nagpur/solar consultant

In case of shortfall in aforesaid quoted NMGG in a for period of defect liability and 5 years of CMC, NKPSIMS Nagpur can recover amount in form of compensation from the date of commissioning and after completing the particular said period. Amount of compensation shall be decided by NKPSIMS



Nagpur Engineer/Solar consultant & same shall be agreed by us. However, NMGG will be worked out for every year. We will be liable to pay compensation or compensation shall be recovered from any payment due to us /B.G. The benefit of excess generation in any year of block shall be considered to compensate the shortfall in generation in other year of the block. In case there is shortfall for consecutive two years, then compensation as penalty to be calculated on year to year basis and to be charged based on average tariff (Rs. / kWh) per annum as decided by the Maharashtra State Electricity Distribution Co. Ltd from time to time.

6.The NMGG will be for the Solar power plant and installation work for a period of 12(Twelve) months + 60 (sixty) months from the date of commissioning of solar plant. Any damage or defect that may arise or lie undiscovered at the time of issue of completion certificate, connected in any way with the equipment or materials supplied by us or in the workmanship, shall be rectified or replaced by the us at our own expenses as deemed necessary by the NKPSIMS Nagpur Engineer /solar consultant or in default, the NKPSIMS Nagpur Engineer /solar consultant may cause the same to be made good by other agency and deduct expenses (for which the certificate of NKPSIMS Nagpurs Engineer /solar consultant shall be final) from any sums that may be then or at any time thereafter, become due to be payable to us or from BG. No excuses in the matter will be provided by us.

7.Net minimum guarantee generation (NMGG) are deemed to have been a part of the contract.

(Name of Contractor)

Signed and Stamped

**Note: The Form of Guarantee has to be executed on required non-judicial stamp paper
(price of non-judicial paper shall be as per latest Govt. guidelines on stamp paper)**



ANNEXURE –V
PROFORMA FOR BANK GUARANTEE - PAYMENT OF PERFORMANCE SECURITY DEPOSIT

Bank Guarantee No.:	
Bank Guarantee Amount :	
Expiry Date :	
Claim Amount:	
Account :	M/S

THIS GUARANTEE AGREEMENT executed at _____ this _____ day of Two Thousand Twenty one.

BY

.....issuing Bank....., a body corporate constituted under Banking Corporation (Acquisition and Transfer of Undertakings) Act, 1980, having its Registered Office/ Head Office at and a Branch Office at..... (hereinafter referred to as “the Guarantor”, which expression shall, unless it be repugnant to the subject or context thereof, be deemed to mean and include its successors and assigns) NKP Salve Institute of Medical Sciences and Research Centre Digdoh Hills, Police Nagar Nagpur, Maharashtra 440019 constituted under _____ Act, ____ and having its Registered office at which expression shall unless it be repugnant to the subject, meaning or context thereof, be deemed to mean and include its successors and assigns),

1.WHEREAS the NKPSIMS Nagpur pursuant to the Tender Documents, general terms and conditions of Contract, Letter of Intent (LOI) for “Design, Supply, Installation, Testing and Commissioning (including Net Metering & 5 Years Comprehensive Maintenancefrom 2nd year) of Grid connected Rooftop Solar Power system of Estimated Cumulative Capacity 398 KWp (199 KWp on Metal Sheet Roof & 199 KWp on RCC Slab) in own premises at 12 different buildings in Nagpur Maharashtra and the Agreement (hereinafter collectively referred to as “the said documents”, the NKPSIMS Nagpur has agreed to purchase fromand has accepted work of “Design, Supply, Installation, Testing and Commissioning (including Net Metering & 5 Years Comprehensive Maintenance) of Grid connected Rooftop Solar Power system of Estimated Cumulative capacity 800 Kwp in own premises at 12 buildings in Nagpur, Maharashtra, work more particularly described in the bill of quantities to the said documents (hereinafter collectively referred to as “said work”, subject to payment of the purchase price as stated in the said documents and also subject to the terms, conditions, covenants, provisions and stipulations contained the said documents.

2.AND WHEREAS pursuant to the above arrangement, the NKPSIMS Nagpur, has placed Work Order for “Design, Supply, Installation, Testing and Commissioning (including Net Metering & 5 Years Comprehensive Maintenance from 2nd year) of Grid connected Rooftop Solar Power system of



Estimated Cumulative capacity 800 Kwp in NKPSIMS Nagpur own premises at 12 building in Nagpur Maharashtra” (hereinafter referred to as “The Work Order”), with (Hereinafter referred to as “Contractor” which expression shall unless it be repugnant to the subject or context thereof, be deemed to mean and include its successors), subject to the terms and conditions contained in the said documents and the CONTRACTOR has duly confirmed the same.

3.AND WHEREAS the CONTRACTOR has returned the duplicate of the Work Order duly signed in token of its unconditional, unqualified and absolute acceptance, vide its letter dated and has confirmed the performance/ execution of the Rate Contract and the said documents.

4.AND WHEREAS the said documents and the unconditional, unqualified and absolute acceptance by the CONTRACTOR are hereinafter collectively referred to as “the Contract”.

5.AND WHEREAS in terms of the Contract, the CONTRACTOR has agreed to procure an unconditional and irrevocable performance bank guarantee, in favour of the NKPSIMS Nagpur from a Scheduled Bank acceptable to the NKPSIMS Nagpur for securing towards faithful observance and performance by the CONTRACTOR of the terms, conditions, covenants, stipulations, provisions of the Contract.

6.AND WHEREAS at the request of the CONTRACTOR, the Guarantor has agreed to guarantee the NKPSIMS Nagpur , payment of Rs/- (Rupees in words Only) towards faithful observance and performance by the CONTRACTOR of the terms of the Contract.

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

In consideration of the premises, the Guarantor hereby unconditionally, absolutely and irrevocably guarantees to the NKPSIMS Nagpur as follows:

1.The Guarantor hereby guarantees and undertakes to pay, on demand, to the NKPSIMS Nagpur at its office at forthwith, an amount of Rs/- or any part thereof, as the case may be, as aforesaid due to the NKPSIMS Nagpur from the CONTRACTOR , towards any loss, costs, damages, etc. suffered by the NKPSIMS Nagpur on account of default of the CONTRACTOR in the observance and performance of the terms, conditions, covenants, stipulations, provisions of the Contract, without any demur, reservation, contest, recourse or protest or without any reference to the CONTRACTOR . Any such demand or claim made by the NKPSIMS Nagpur, on the Guarantor shall be conclusive and binding notwithstanding any difference or any dispute between the NKPSIMS Nagpur and the CONTRACTOR or any dispute between the NKPSIMS Nagpur and the CONTRACTOR pending before any Court, Tribunal, Arbitrator, or any other authority.

2.The Guarantor undertakes not to revoke this Guarantee during the currency of these presents, without the previous written consent of the NKPSIMS Nagpur and further agrees that the Guarantee herein contained shall continue to be enforceable until and unless it is discharged earlier by the NKPSIMS Nagpur, in writing.

3.The NKPSIMS Nagpur shall be the sole judge to decide whether the CONTRACTOR has failed to



perform the terms of the Contract by the CONTRACTOR to the NKPSIMS Nagpur and on account of the said failure what amount has become payable by the CONTRACTOR to the NKPSIMS Nagpur under this Guarantee. The decision of the NKPSIMS Nagpur in this behalf shall be conclusive and binding on the Guarantor and the Guarantor shall not be entitled to demand the NKPSIMS Nagpur to establish its claim under this Guarantee but shall pay the sums demanded without any objection, whatsoever.

4.To give effect to this Guarantee, the NKPSIMS Nagpur, may act as though the Guarantor was the principal debtor to the NKPSIMS Nagpur.

5.The liability of the Guarantor, under this Guarantee shall not be affected by _

- i) any change in the constitution or winding up of the CONTRACTOR or any absorption, merger or amalgamation of the CONTRACTOR with any other Company, Corporation or concern; or
- ii) any change in the management of the CONTRACTOR or takeover of the management of the CONTRACTOR by the Government or by any other authority; or
- iii) acquisition or nationalization of the CONTRACTOR and/or of any of its undertaking(s) pursuant to any law; or
- iv)any change in the constitution of the Bank; or
- v) any change in the setup of the Guarantor which may be by way of change in the constitution, winding up, voluntary or otherwise, absorption, merger or amalgamation or otherwise; or
- vi)the absence or deficiency of powers on the part of the Guarantor to give Guarantees and/or Indemnities or any irregularity in the exercise of such powers.

6. Notwithstanding anything contained hereinabove, the liability of the Guarantor hereunder shall not exceed Rs..... (Rupees in words Only)

7. This Guarantee will expire on completion of 06year and (03) three months from the date of Guarantee. Any demand or claim under this Guarantee must be received by the Guarantor within above said period and if no such demand or claim has been received by the Guarantor by the date mentioned as aforesaid, then all the rights under this Guarantee shall cease.

8. For all purposes connected with this Guarantee and in respect of all disputes and differences under or in respect of these presents or arising there from the courts of Nagpur city where the NKPSIMS Nagpur has its Head Office shall alone have jurisdiction to the exclusion of all other courts.

9. Notwithstanding anything herein:

- a. The Bank's liability under this Bank Guarantee shall not exceed Rs/(Rupees \ only)
- b. This Bank Guarantee shall be valid upto and
- c. The Bank is liable to pay the Guaranteed amount or part thereof under this Bank Guarantee only and only if the beneficiary serves upon the Bank a written claim or demand on or before
(Date of Expiry of Guarantee).
- d. Every Guarantee shall be issued (regardless of the guarantee period) with a minimum claim period of



N.K.P SALVE
INSTITUTE OF MEDICAL SCIENCES
& RESEARCH CENTER AND
LATA MANGESHKAR HOSPITAL,
NAGPUR

DESIGN, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF GRID CONNECTED
ROOFTOP SOLAR POWER SYSTEM OF ESTIMATED CUMULATIVE CAPACITY 398 KWp
(INCLUDING NET METERING& 5 YEARS COMPRESSIVE MAINTENANCE FROM 2nd YEAR

one year from the date of expiry on top of the guarantee period so as to avail benefit of Exception 3 of the Section 28 of the Indian Contract Act, 1872.Or

e. If a Bank Guarantee is issued with a claim period of less than one year and three months on top of the guarantee period, then such guarantee will not have the benefit of Exception 3 of the Section 28 of Indian Contract Act,1872.

IN WITNESS WHEREOF the Guarantor has caused these presents to be executed on the day, month and year first herein above written as hereinafter appearing.

SIGNED AND DELIVERED BY

the within named Guarantor,

by the hand of Shri. _____,

its authorized official.

Note :- a) The Name and Designation of the Authorized officer(s) of the bank should be compulsorily mentioned.

b) A copy of the resolutions/power of attorneys authorizing the officer(s) for executing the aforesaid guarantee



ANNEXURE –VI
STANDARDS:

Sr. No.	Component	Pertain to component / system	Standard
1	PV Module Crystalline Silicon terrestrial PV module	Design Qualification and type approval <ul style="list-style-type: none">• Safety qualification• NH₃ (Ammonia) corrosion testing• PV Module Performance Testing and Energy Reliability – Part – 1• Slat mist corrosion testing• Dynamic mechanical load testing• System voltage durability test (PID) Crystalline PV Modules• Comparative Testing of PV Modules to different performance in multiple climate and application	IEC 61215 / IS 14286, IEC 61730 (part 1 & 2) IEC 62716, IEC 61853-1 IEC 61701 ,IEC 62782 IEC 62804 IEC 62892
2	Solar Grid Tied inverter		IEC 61683, IEC 62109-2 and IEC 62093 or equivalent BIS standards
3	Cables	General Test and Measuring method PVC insulated cables for working voltage up to and including 1100V and UV resistant for outdoor installation	IEC 60227 / IS 694 IEC 60502/IS 1552 (Pt. I &II) TUV 2PFG 1169
4	Switches / Circuit Breakers / connectors	General requirements • Connectors safety • AC/DC • Connectors in DC applications in PV system	IEC 60947 part I, II, III IEC 60947 part I, II, III EN 50521 IEC 62852
5	Data monitoring system	PV system performance & monitoring, data exchange & analysis	IEC 61724
6	Lightening Arrestor		IEC 62305
7	Earthing		IS 3043



N.K.P SALVE
INSTITUTE OF MEDICAL SCIENCES
& RESEARCH CENTER AND
LATA MANGESHKAR HOSPITAL,
NAGPUR

DESIGN, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF GRID CONNECTED
ROOFTOP SOLAR POWER SYSTEM OF ESTIMATED CUMULATIVE CAPACITY 398 KWp
(INCLUDING NET METERING & 5 YEARS COMPRESSIVE MAINTENANCE FROM 2nd YEAR

SECTION – III

PRICE BID (BILL OF QUANTITIES)

TENDER DOCUMENT

FOR

**DESIGN, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF GRID
CONNECTED ROOFTOP SOLAR POWER SYSTEM**

OF ESTIMATED CUMULATIVE CAPACITY

398 KWp (199 KWp on Metal Sheet Roof & 199 KWp on RCC Slab)

**(INCLUDING NET METERING & 5 YEARS COMPREHENSIVE MAINTENANCE FROM
2nd YEAR)**



PRICE BID (BILL OF QUANTITIES)

Description of Work: Design, Supply, Installation, Testing and Commissioning (including Net Metering & 5 Years Comprehensive Maintenance from 2nd year) of Grid connected Rooftop Solar Power system of Cumulative capacity 398 KWp (199 KWp on Metal Sheet Roof & 199 KWp on RCC Slab) in NKPSIMS Nagpur own premises at 4 Buildings Nagpur Maharashtra.

PART A

S.N	Building	Capacity Proposed Kw	Kw	Unit Rate	Net amount	Gst	Gross Amount
1	NRI Boys Hostel	140	Kw				
2	Old Library Building	59	Kw				
3	Matoshri Hall	185	Kw				
4	Electrical Dept Office Building	14	Kw				
	Total	398	Total Amount				

Note:

- 1. Contractors can propose enhanced capacity by using higher wattage panels for optimization**
- 2. Shadow analysis is must in design of solar power plant.**
- 2. To attain total 398 Kw Capacity, Buildings with lower solar capacity can be excluded in installation**



**COMPREHENSIVE MAINTENANCE CONTRACT FOR ALL THE
398 KWp (199 KWp on Metal Sheet Roof & 199 KWp on RCC Slab) Kw INSTALLATION (5
YEARS): PART(B)**

S.N	Building	Capacity Proposed Kw	2 nd Year	3 rd Year	4 th Year	5 th Year	6 th Year	GST 18%	Total
1									
2									
3									
4									
	Total		Total						

Note:

1. Contractors can propose enhanced capacity by using higher wattage panels for optimization
2. Shadow analysis is must in design of solar power plant.
2. To attain total 800 Kw Capacity, Buildings with lower solar capacity can be excluded in Installation

(Note: The least quote shall be considered the sum of System Cost + CMS Cost)

GRAND TOTAL= PART(A) + PART(B)= Rs _____

(including GST)

Amount in words: Rupees _____

TERMS OF PRICE BID

- 1) Prices quoted must be for Turnkey project and should be firm for the period /extended period of contract. No escalation shall be admissible in respect of any item of the contract.
- 2) Prices Quoted should be Inclusive all Taxes, Transportation, Insurance, Loading & unloading, Installation & commissioning, CMC for 5 Years (from 2nd year), Net Metering PPA and Grid synchronization related approvals and Bi-directional meters and CT's to be provided as per ESCOM/MSEDCL norms & modifications in existing LT Panels including supply of LT modules. Also the Liaisoning with MSEDCL will be in the scope of bidder only.
- 3) Price quoted must be inclusive of all items required for the entire job of design, manufacture, supply to site, erection, testing, commissioning, and handing over including ancillary items like Elevated structures, minor civil works, all electrical items, Liaisoning works with MSEDCL etc., and nothing extra shall be paid.
- 4) All materials shall be insured against theft, damage, etc., from the time they are transported from the



N.K.P SALVE
INSTITUTE OF MEDICAL SCIENCES
& RESEARCH CENTER AND
LATA MANGESHKAR HOSPITAL,
NAGPUR

DESIGN, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF GRID CONNECTED
ROOFTOP SOLAR POWER SYSTEM OF ESTIMATED CUMULATIVE CAPACITY 398 KWp
(INCLUDING NET METERING& 5 YEARS COMPRESSIVE MAINTENANCE FROM 2nd YEAR

factory up to the time of handing over to the owner. No claim in respect of any damage/ loss shall be entertained.

5) Watch and ward responsibility at site shall be the responsibility of the firm.

6) The Supplier has to sign the Agreement as per the NKPSIMS Nagpur format within 07 (Seven) days from date of issue of Work order

(Signature of the authorized person with stamp of the firm/company)

Name of the authorized person:

Date:

PART A : Building wise Solar Power Plant Installation Cost

S.N	Building	Capacity	Kw	Uint Rate	Net amount	Gst	Gross Amount
1	NRI Boys Hostel						
2	Old Library Building						
3	Matoshri Hall						
4	Electrical Dept Office						
	Total				-	-	-

Total Amount Part A	0
Total Amount Part B	0
Total Amount Part C	
Grand Total	0

Note: BOM attached a ANNEXURE II

Building wise solar Power Plant Installation Details

S.N	Building	Capacity	Kw	Total No of Modules (NOS)	Tilt Angle	Invterter Kw	No of Inverter	Invterter Kw	No of Inverter	Total No of Inverter
1	NRI Boys Hostel		Kw							
2	Old Library Building		Kw							
3	Matoshri Hall		Kw							
4	Electrical Dept Office		Kw							
	Total	0.000		0						0

Mounting Structure Specification	DC Cable Specification PV Module to Inverter	AC Cable Specification Inverter to ACDB	AC Cable specification from ACDB to MSEB Panel

Lightning Protection Specification	Earthing Specifications	Data Monitoring Details	SPD/ Circuit Breakers/ Safety Devices Specifications

Note: Module Datasheet is attached

Solar Module Specification	
Make	
Electrical parameters at standard test conditions (STC)*	
Nominal power output (W)	
Power tolerance (W)	
Module efficiency (n%)	
Voltage at Pmax VMPP (V)	
Current at Pmax IMPP (A)	
Open-circuit voltage VOC (V)	
Short-circuit current ISC (A)	
Electrical parameters at NOCT	
Power output PMAX (W)	
Voltage at PMAX VMPP (V)	
Current at PMAX IMPP (A)	
Open-circuit voltage VOC (V)	
Short-circuit current ISC (A)	
Temperature coefficient Characteristics	
NOCT(°C)	
Module efficiency (% / C)	
Temperature Coefficient of Pmax (% / °C)	
Temperature coefficient of Voc (% / °C)	
Temperature coefficient of Isc (% / °C)	
Operating conditions	
Maximum system voltage (V)	
Maximum series fuse rating (A)	
Limited reverse current (A)	
Operating temperature range (°C)	
Maximum static load (Snow or Wind)	
Module general characteristics	
Module dimensions L X W X H(mm)	
Module weight (approx) (Kg)	

No of cells &size	
Frame materials	
Glass	
Junction box	
Cable connector	