



**Reserve Bank of India
Estate Department
Kanpur**

Notice Inviting Tender

Tender for “Supply, Installation, Testing and Commissioning of 5 KWp Grid Connected SPV Based Solar Power System for Kidwai Nagar Staff Quarters (KNSQ), Reserve Bank of India, Kanpur”

Reserve Bank of India, Kanpur invites Tenders in Part-I and Part-II for “**Supply, Installation, Testing and Commissioning of 5 KWp Grid Connected SPV Based Solar Power System for Kidwai Nagar Staff Quarters (KNSQ), Reserve Bank of India, Kanpur**”, the estimated cost of which is ₹ 3.00 Lakhs. The work is to be completed within a period of 12 weeks from 10th day of issue of work order. All tenderers have to submit EMD of an amount Rs. 6,000/- in the form of DD or Bank Guarantee (as per Annexure ‘L’ of the tender part-I) or NEFT (Account No-186003001, IFSC Code- RBIS0KNPA01, **please read “0” as zero**) along with tender. Tenders accompanied without EMD is liable for rejection.

Tender forms are available at 2nd Floor, Estate Department, Reserve Bank of India, Mahatma Gandhi Road, Kanpur, Uttar Pradesh - from 17.09.2020 to 19.10.2020 or it can be downloaded from our Website www.rbi.org.in. (https://rbi.org.in/Scripts/BS_ViewTenders.aspx). Tender Forms will have to be submitted in a sealed cover at 2nd Floor, Estate Department, Reserve Bank of India, Mahatma Gandhi Road, The Mall, Kanpur up to October 19, 2020 till 11:00 AM. The Bank reserves the right to accept or reject any or all Tenders without assigning any reason therefore.

Tender for “Supply, Installation, Testing and Commissioning of 5 KWp Grid Connected SPV Based Solar Power System for Kidwai Nagar Staff Quarters (KNSQ), Reserve Bank of India, Kanpur”	
Tender Issue Date	17.09.2020
Date and Time of Pre-Bid Meeting	08.10.2020 at 11:00 AM
Last Date & Time of submission of tender documents	19.10.2020 till 11:00 AM.
Opening Date & Time of Tender Part-I	19.10.2020 at 12:00 PM.

**Regional Director
Reserve Bank of India
Kanpur**



**RESERVE BANK OF INDIA
ESTATE DEPARTMENT
KANPUR**

Supply, Installation, Testing and Commissioning of 5 KWp Grid Connected SPV Based Solar Power System for Kidwai Nagar Staff Quarters (KNSQ), Reserve Bank of India, Kanpur

Part I

(Technical Bid)

Name of the tenderer _____

Address _____

Date and time of Pre-Bid Meeting: October 08, 2020 at 11:00 AM

Due date of submission of tender: October 19, 2020 till 11:00 AM

Date and Time of opening part-I: October 19, 2020 at 12:00 PM

Section I

Commercial Terms and Conditions

Regional Director
Reserve Bank of India
Estate Department
Kanpur

Madam/ Dear Sir,

Having examined the specifications, drawings, designs and schedule of quantities relating to the works specified in memorandum hereinafter set out and having visited and examined the site of the works specified in the said memorandum having acquired the requisite information relating thereto as affecting the tender, we hereby offer to supply and execute the works specified in the said memorandum, within the time specified in the time memorandum, at the rates mentioned in the attached schedule of quantities and in all respects with the specifications, designs, drawings and instructions in writing referred to in conditions of tender, the Articles of Agreement, Special Conditions, Schedule of Quantities and conditions of Contract and with such materials as are provided for by us, and in all other respects in accordance with such conditions so far as they may be applicable.

MEMORANDUM

(a)	Description of works	:	Supply, Installation, Testing and Commissioning of 5KWp Grid Connected SPV Based Solar Power System for KNSQ Reserve Bank of India, Kanpur.
(b)	Estimated cost	:	Rs 3.0 lakh inclusive of GST, but exclusive of AMC cost.
(c)	Earnest Money	:	Rs. 6,000/-
(d)	Retention Money Deposit	:	NIL
(e)	Time allowed for completion of the work from tenth day after the date of written order to commence work	:	12 weeks

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 Reserve Bank of India the amount mentioned in the said conditions.

3. We have deposited a sum of Rs. 6000 /- as Earnest money with the Reserve Bank of India, which amount is not to bear any interest. Should we fail to execute the Contract when called upon to do so, we do hereby agree that this sum shall be forfeited by us to the Reserve Bank of India.

4. The list showing the particulars and the names of manufacturers of specified item are enclosed.

5. The details of our bankers are

Sr. No.	Name of Bank	Branch and its complete address	Name of the contact person	Telephone and FAX number
1	2	3	4	5

We are enclosing herewith the list of our clients with complete details as per the Bank's proforma ([Annexure-H](#)).

Name of the partner of the firm authorized to sign (or) Name of person having power of Attorney to sign the contract. (Certified true copy of the Power of Attorney should be attached.)

Yours faithfully

Signature of Contractor

(Signatures and addresses of witnesses)

Section II

General Instructions to Tenderer(s) & Special Conditions

Supply, Installation, Testing and Commissioning of 5 KWp Grid Connected SPV Based Solar Power System for KNSQ, Reserve Bank of India, Kanpur

Part I - Commercial Conditions

Pre-qualification criterion

A. Only those contractors who have **minimum 5 years' experience as on August 31, 2020**, in the field of undertaking similar works viz Supply, Installation, Testing and Commissioning of Grid Connected SPV Based Solar Power System for the Office Buildings/Commercial Premises/Industrial Houses and

B. Have executed successfully similar works viz Supply, Installation, Testing and Commissioning of Grid Connected SPV Based Solar Power System for the Office Buildings/Commercial Premises/Industrial Houses during the last 5 years (works completed on or after **August 31**) individually costing as under:

(i) Three works each costing not less than 40% of the estimated cost.

OR

(ii) Two works each costing not less than 50% of the estimated cost.

OR

(iii) One work costing not less than 80% of the estimated cost.

AND

C. Have a minimum yearly turnover of 100% of estimated cost during the last 3 years supported by audited financial statements.

AND

D. Have a service set up at Kanpur or Lucknow for rendering after sales service.

AND

E. Firm should have valid EPF and ESIC registration

Tenderers should submit the following documents in respect of their eligibility:

i. Copies of detailed work order indicating scope and value of works.

ii. Completion certificate and clients certificate in the prescribed format for the qualifying works (submitted against qualifying work orders) and proof for TDS in case the client is a private firm.

iii. List of completed works with all the details as per the proforma ([Annexure H](#))

iv. Financial statement (Balance Sheet and P&L statement for turnover for last 3 years certified by a Chartered Accountant) and Banker's certificate in prescribed format.

Only tenderers who qualify as above will be eligible to bid for the work. A tender submitted by a firm who is found to be not satisfying the above criteria will be liable for rejection. Also Bank reserves the right to ask the firm to produce any other document proof for obtaining further clarity in the eligibility criteria.

The tenders for the above work is in two parts i.e. Part-I containing technical specifications of equipment and the terms and conditions and Part – II containing Price Bid, only rates of items shall be stated in figures and words and amounts in figures shall be submitted, both in duplicate and in separate sealed covers addressed to Regional Director, Reserve Bank of India, Estate Department, Kanpur so as to reach him not later than October 19,2020 till 11:00 AM. No terms and conditions or any other information/enclosure shall be included in Part II. Any information and enclosure other than prices against the items appearing in Part II shall not be considered for evaluation.

- Part- I of the tenders will be opened on the same day at 12:00 PM.
Techno – Commercial Bid/Part I (Envelop 1) consist of following items

- i) Duly filled, signed and stamped Part I of the tender and authorization letter issued by the firm for the person who signed the tender.
- ii) Proof for eligibility required under commercial conditions of the tender and documents required in various annexures of the tender.
- iii) DD for EMD in separate envelope.

The envelope should be super scribed as “**Part I – SITC of 5KWp Grid Connected SPV Based Solar Power System for KNSQ, Reserve Bank of India, Kanpur**”

Part II /Financial Bid (Envelope 2) consist of following items

- i) Part II of the tender

The envelope should be super scribed as “**Part II – SITC of 5KWp Grid Connected SPV Based Solar Power System for KNSQ, Reserve Bank of India, Kanpur**”

Both envelopes (envelope 1 & envelope 2) are to be kept in single sealed cover super scribed with TENDER for SITC of 5KWp Grid Connected SPV Based Solar Power System for KNSQ, Reserve Bank of India, Kanpur”.

All the covers should also indicate clearly the name and address of the Tenderer.

Part- II of the tenders will be opened on the same day or on a subsequent date under intimation to all the eligible tenderers. Tenderers are advised to use only the forms supplied by the Bank and not to use any other forms on their own letterhead or otherwise for furnishing any information/rates/amount etc. If on opening the single sealed cover, it is discovered that the Part I/ Technical – Commercial Bid and Part II /Financial Bid have not been put in separate cover, the Bid will be liable for rejection.

Pre-bid meeting: - A pre-bid meeting will be held at **11.00 AM on October 08, 2020**, at New Conference hall, Reserve Bank of India, Kanpur to discuss/clarify anything about the tender. No separate communication will be sent for this meeting. All the intending tenderers are advised to be present and study the tender documents.

Brief Scope of Work

1. The scope of work shall include the following.

- Design and Delivery of all equipment materials for the captioned work to Bank's site at Kidwai Nagar Staff Quarters (KNSQ) RBI Kanpur including insurance, packing, handling, transporting, loading/unloading, GST, EPF ESIC etc. at site.
- Erection, Testing, Commission of Solar Power System and handing over of the system to Bank.
- Providing regular Inspection and Upkeep of system inclusive of periodic service etc.
- Liasoning works with KESCO and Approval, if any, of KESCO and local statutory authorities for connection to the grid.

2. Tenderers are required to submit the details of the works carried out by them during last 5 years along with the name and contact no. of the users of the equipment in the enclosed format.
3. A tender submitted by a firm who is found to be not submitting the above details will liable to be rejected.
4. Tenders shall be submitted in two parts viz. Part I containing technical and commercial details of the offer and Part II containing prices only. While Part I will be on October 19, 2020 at 12:00 PM and Part II will be opened on a later date, which will be intimated to the tenderers in advance.
5. The Reserve Bank of India reserves the right to accept or reject any or all the tenders, in full or in part, without assigning any reason therefor. The Bank also reserves the right to accept the tender of any firm. Tenderers are requested to quote unit rates and amounts separately. They are also requested to use the enclosed proforma only (and not to use their own format).

Earnest Money Deposit (EMD): -The tenderers shall pay as Earnest Money a sum of Rs.6000 /- (Rupees Six thousand and eight hundred rupees only) along with Part I of the tender or through NEFT till 11:00 AM on October 19, 2020. The Earnest Money Deposit of the successful tenderer shall be released without any interest on issue of virtual completion certificate. The Earnest Money Deposit of unsuccessful tenderer shall be released to them without any interest after award of work. Tenders without EMD will not be accepted under any circumstances.

6. **Validity of tender:** -The tenders shall be valid for a period of 90 days from the date of opening of Part I of the tender.
7. The rates quoted shall be inclusive of all duties, transport, packing, forwarding, insurance etc. and shall be for the complete work duly installed and commissioned at site. The prices quoted shall remain firm for the entire period of contract and shall not be subjected to any variations in the foreign exchange or variations of any other taxes, levies, duties etc. No import license will be furnished by the Bank. The tenderers shall make their own arrangement for import of any part or components, if any, required for completion of the work. Tender shall visit the sites before pre-bid meeting and before quoting to study site conditions.
8. **Completion of work:** - The entire work of supply, installation, testing and commissioning of the system shall be completed within a period of 12 weeks from the 10th day of date of issue of work order.
9. **Damages for non-completion:** If the Contractor fails to complete the works within tender specified completion period, the Contractor shall pay the Employer at rate of 0.25 % of the contract amount per week, for the period during which the said works shall so remain incomplete subject to a maximum of 10% of the contract amount (capital cost) and the Employer may deduct such damages from any money due to the Contractor.

10. Service set-up: - The tenderers shall indicate details of their Service Centre at Kanpur or Lucknow, the staff strength, contact numbers etc. as per enclosed [annexure- N](#).

11. Warranty/Defect Liability period and Annual Comprehensive Maintenance Service contract:

- a. The equipment supplied shall be guaranteed against all types of defects for a period of one year from the date of virtual completion. Any defects in the system/sub-assemblies, found within the guarantee period, shall be rectified/ replaced by the tenderer without any additional cost to the Bank. Servicing of PV panels to be carried out at quarterly intervals or earlier as prescribed by the manufacturer and as mutually agreed to during this period.
- b. The tenderers shall also quote their charges separately for comprehensive annual maintenance service (AMC) after the expiry of the one-year guarantee period. During the comprehensive annual maintenance service contract period, the servicing shall be carried out at quarterly intervals or earlier as prescribed by the manufacturer and as mutually agreed, shall be carried out in addition to any number of breakdown calls. This include cleaning of PV panels as per standard for optimum power generation. These rates shall be applicable from the date of expiry of one-year guarantee period. Comprehensive annual maintenance service charges shall be paid on half yearly basis on rendering satisfactory service and on submission of service reports.
- c. The charges for comprehensive annual maintenance service shall include replacement of all parts of the system, including all required spares, consumables etc during service contract period. Any defects in the system/sub-assemblies, found within the AMC period, shall be rectified/ replaced by the tenderer without any additional cost to the Bank.
- d. During this period (DLP & AMC) any defect observed in the system shall be rectified within 2 days. There will be a penalty of Rs.250/- per day subject to maximum of 1% of the capital cost of the work or 10% of the AMC value whichever is lower, if the defect in the system is not rectified within the period of 2 days from the date of intimation to the firm by phone/ e-mail. The penalty, if any, shall be recovered from any dues payable to the contractor or invoke from the performance bank guarantee. In addition to this, if the system is not rectified within the period of 10 days, the Bank shall have right to rectify the system at risk and cost of the contractor. The Bank shall have also right to invoke the **Performance Bank Guarantee (PBG)** towards penalty for delay in rectifying the fault in the system and terminate the contract, if service rendered by the contractor is found to be unsatisfactory.

Penalty for Reduced Generation during initial 10 years from date of completion of work

- e. As mentioned under the foregoing paragraphs, the successful tenderer is required to maintain minimum KWH generation per year as required in the tender (**4500** KWH per year with a tolerance of 10% of total annual generation (considering the weather conditions and KESCO power outages at site) at synchronization point. Failure to do so will make the contractor liable to pay compensation at double the rate of the prevailing tariff of Electricity supply Agency in the highest slab including all variable charges/taxes (Tariff) for shortfall of every KWH or part thereof of the power generated, subject to maximum of 1% of the capital cost of the work. The Bank shall have also right to invoke

the Performance Bank Guarantee or to deduct from any dues or AMC charges payable to the contractor to recover the penalty towards lack of production.

- f. Penalty shall be derived as per the following formula:
- g. Actual output for the year under reference = A (KWH)
- h. Minimum required output of the system per year as per the contract = B (KWh)
- i. Compensation to be paid to RBI in case of reduced generation (Rs)
- j. = (B-A) x (Prevailing KESCO Tariff for pump room power connection X 2)
- k. The service contract shall be renewed for a further additional period of at least 8 years after the initial annual service contact period of one year after one-year warranty. While renewing the contract the new contract amount will be arrived at based on following formula.

$A_C = A_P [(15+60x(EPI_C/EPI_P) + 25x(CPI_C/CPI_P))] \times 100$	
A _C	The contract amount for the current year.
A _P	The contract amount for the previous year.
EPI _C	Wholesale Price Index for Electrical Products 6 months prior to the commencement date of contract for the current year.
EPI _P	Wholesale Price Index for Electrical Products 6 months prior to the commencement date of contract for the previous year.
CPI _C	Consumer Price Index for Industrial Workers (All India Average) 6 months prior to the commencement date of contract for the current year.
CPI _P	Consumer Price Index for Industrial Workers (All India Average) 6 months prior to the commencement date of contract for the previous year.

- 12. PV modules used in solar power systems / 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.
- 13. Part I of the tender shall contain the following: **(to be scanned and uploaded in pdf format)**
 - a) Power of Attorney / authorisation with the seal of the company/firm in the name of the person signing the tender documents.
 - b) Detailed proposed **layout drawing** and full equipment details.
 - f) Detailed specifications** of each of the offered items such as SPVs, Arrays, PCUs, control panels, control & monitoring systems, cables etc. matching with the specifications contained under this contract along with manufacturer's **catalogue/ product brochure**. If there are some variations in specifications and dimensions of the equipment / products as contained under the manufacturer's catalogue / product brochures vis-a vis those given under the specifications contained under this tender document, the specifications and dimensions given in this tender document shall prevail.

g) Complete technical details and any special features proposed for incorporation must be given for full technical evaluation. Supporting documents for the claimed facilities/ features shall also be uploaded while submitting the technical bid.

h Product support for twenty-five (25) years shall be given. Tenderer shall specifically indicate the product support offered against this tender & submit an undertaking in this regard. ([Annexure C](#))

i) The details of the maintenance set-up at Kanpur/ Lucknow, address & telephone / fax nos. of maintenance set-up shall be indicated.

j) Technical data sheet as given under [Annexure A](#) shall be filled up giving full information.

Other Certificates / Declarations as per Annexures enclosed also to be uploaded. Duly filled in and signed copies of client's reports (from two clients in the attached format, for whom similar works are executed) and Banker's Certificate are to be uploaded

14. The tenderers shall submit full details of the patent, trade mark, registered design, intellectual property rights, copy rights and industrial property rights held by them or used by them of any third party with regard to design or any part of the system.

15. All information, correspondence letters shall be addressed to **Smt. Tuli Roy, Regional Director, Reserve Bank of India, Estate Department, Kanpur.**

16. Evaluation of tenders:

Tenders will be evaluated on the basis of Total Cost of Ownership (TCO) of the System comprising of the Capital Cost of the system(A) and taking into account the effect of rates quoted for comprehensive Annual Maintenance service contract charges (AMC) for a period of 9 years after the expiry of one-year defect liability period.

Total Cost of Ownership shall be the total of Capital Cost of the System (A) plus the NPV of comprehensive annual maintenance Service contract charges for the period of 9 years after 1-year defect liability period.

NPV Factor will be calculated assuming 5% increase in contract amount every year after first year of AMC, half yearly payment and a discount rate of 8%.

Total cost of ownership (TCO) = Total value of work (A) + AMC Charges (B) x MF

(MF is the NPV factor for 10 years (1yr DLP +9 year AMC) = 7.048)

17. Terms of payment :-

The following terms of payment, subject to statutory deductions, will apply to the contract:

- a. 60% of the quoted rate, on pro rata basis against delivery of all the equipment and material at site and submission of Performance Bank Guarantee for a period of one year and period of work.
- b. 40% of the quoted rate against erection, testing, commissioning, replacing the existing uni directional energy meter in pump rooms at KNSQ with bidirectional meter (net metering), liasoning with KESCO and handing over of the system to the Bank and on submission of a Bank Guarantee amounting to 10% of the contract amount, valid for 10 year, in a form ([Annexure-M](#)) acceptable to the Bank

as security against due fulfillment of the terms and obligations of the Contract, guarantee period and service contract for the entire life cycle of the equipment.

Performance Bank Guarantee(PBG):- Performance Bank Guarantee of 20% of the contract amount, for due fulfillment of the terms and obligations of the Contract for execution and completion of the work shall be submitted for the period of work (94 days) or till completion of work whichever is later, within 14 days from date of issue of work order, in the prescribed format. Bank has the right to invoke this PBG to compensate any kind of losses to the Bank during execution of the work.

Performance Bank Guarantee of 10% of the contract amount, for due fulfillment of the terms and obligations of the Contract, guarantee period and service contract for the entire life cycle of the equipment shall be submitted for at least 10 years immediately after completion of the work in the prescribed format. All payments due under this contract will be made only after submission of this PBG.

18. **Insurance:** - The Contractor shall at his own expense, arrange to effect and maintain (until the virtual completion of the contract) with an approved office the following insurance policies in the joint name of employer and himself with the employer being first (Principal) and deposit such policy or policies with the employer from time during the currency of this contract.
 - a. Storage, erection, testing and commissioning policy (C.A.R. policy) for the total amount of contract.
 - b. Workmen compensation policy.
 - c. Third party liability policy with the limits as under.
 - I. Rs.10,00,000/- for the contract period.
 - II. Rs.2,00,000/- per occurrence
19. The payment for the system will be made by RBI, Kanpur. The dispute arising out of this contract will also be sorted out within the jurisdiction of courts situated in Kanpur.
20. The contractors shall upload / enter the technical details of the system along with the tender. The tenderers are requested to use the enclosed proforma only for this purpose (and do not use their own formats and data sheets).
21. The tenderers shall give the names and postal addresses of their bankers,
22. The tenderers shall give the full name, Contact Numbers and postal addresses of clients to whom similar equipment has been supplied by them in [annexure-H](#).
23. The tenderers are requested to fill in the enclosed proforma ([Appendix-II](#)) on terms and conditions of the contract. They are advised to confirm whether they agree to the Bank's terms and conditions by indicating "YES" or "NO" only.
24. **Training:** The tenderer shall impart training to the Bank's Engineers/Technicians on the system before handing over of the system without any charge to the Bank.
25. **Agreement:** The successful tenderer shall execute an agreement with the Bank, on Government Stamp paper in the format in [annexure O](#) enclosed within 14 days of receipt of letter of acceptance. However, the issue of letter of acceptance by the Bank shall be

construed as a binding contract, as though such an agreement has been executed and all the terms and conditions shall apply on this contract

26. All disputes and differences of any kind whatever arising out of or in connection with the contract or the carrying out of the works (whether during the progress of the works or after completion and whether before or after the determination abandonment or breach of the contract) shall be referred to and settled by the Bank who shall state its decision in writing. Such decision may be in the form of a final certificate or otherwise. The decision of the Bank with respect to any of the excepted matters shall be final and without appeal as stated in hereof. But if either the Contractor be dissatisfied on any matter on which a decision is taken by the Bank as above, except any of the expected matter the Contractor may within 28 days after receiving notice of such decision give a written notice to the other party requiring that the matters in dispute be arbitrated upon. Such written notice shall specify the matters, which are in dispute or difference of which such written notice has been given. If both the parties agree, a single arbitrator would be appointed for the purpose. In case no agreement could be reached on the appointment of single arbitrator, both the parties will nominate one person each as an arbitrator on their behalf. The two arbitrators nominated by the parties shall nominate one more person to act as third arbitrator.

The arbitrator or Arbitrators, as the case may be, shall have power to open up, review and revise any certificate, opinion, decision, requisition or notice, save in regard to the excepted matters, referred to in the preceding clause, and to determine all matters to dispute which shall be submitted to arbitration and of which notice shall have been given as aforesaid.

The arbitrator or Arbitrators, as the case may be, shall make his or their award within one year (or such further extended time as may be decided by him or them as the case may be with the consent of the parties) from the date of entering on the reference. In case during the arbitration proceedings the parties mutually settle or compromise their dispute or difference, on the parties filing their joint memorandum of the settlement or compromise, the Arbitrator or the Arbitrators as the case may be, shall make an award in terms of such settlement or compromise.

Upon any such reference, the decision on the cost incidental to the reference and Award respectively shall be in the discretion of the arbitrator or Arbitrators as the case may be, who may determine the amount thereof or direct the same to be taxed as between the party and party, and shall direct by whom and to whom and in what manner the same shall be borne and paid.

This submission shall be deemed to be a submission to arbitration within the meaning of the Indian Arbitration and Conciliation Act, 1996 or any statutory modification thereof.

The award of the arbitrator or Arbitrators, as the case may be, shall be final and binding on the parties. It is agreed that the Contractor shall not delay the carrying out of the works by reason of any such matter, question or dispute being referred to arbitration, but shall proceed with the works with all due diligence and shall until the decision of the Arbitrator or Arbitrators, as the case may be, is given, abide by the decision of the Bank. No award of the Arbitrator or Arbitrators, as the case may be, shall relieve the Contractor of his obligations to adhere strictly to the Bank's instructions with regard to the actual carrying out of the works. The Employer and the Contractor hereby also agree that arbitration under this Clause shall be a condition precedent to any right of action under the Contract.

Safety Code

1. First aid appliances including adequate supply of sterilized dressings and cotton wool shall be provided in a readily accessible place.
2. An injured person shall be taken to a public hospital without loss of time, in cases where the injury necessitates hospitalization.
3. Suitable and strong scaffolds should be provided for workmen for all work that cannot safely be done from ground.
4. No portable single ladder shall be over 8 meters in length. The width between the side rails shall not be less than 30 cm (clear) and the distance between two adjacent rungs shall not be more than 30 cm. When a ladder is used an extra mazdoor shall be engaged for holding the ladder.
5. The excavated material shall not be placed within 1.5 meters of the edge of the trench or half of the depth of trench, whichever is more. All trenches and excavations shall be provided with necessary fencing and lighting.
6. Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing; minimum height shall be one meter.
7. No floor, roof or other part of the structure shall be so overloaded with debris of materials as to render it unsafe.
8. Workers employed on mixing and handling material such as asphalt, cement mortar or concrete and lime mortar shall be provided with protective footwear and rubber hand-gloves.
9. Those engaged in welding works shall be provided with welder's protective eye-shields and gloves.
10. i) No paint containing lead or lead products shall be used except in the forms of paste or readymade paint.
ii) Suitable face masks shall be supplied for use by the workers when the paint is applied in the form of spray or surface having lead paint dry rubbed and scrapped.
11. Overalls shall be supplied by the Contractor to the painters and adequate facilities shall be provided to enable the working painters to wash during the period of cessation of work.
12. Hoisting machines and tackle used in the works, including their attachments, anchorage and support shall be in perfect condition.
13. The ropes sued in hoisting or lowering material, or a means of suspension shall be of durable quality and adequate strength and free from defects.
14. The contractor shall provide all the safety gadgets to the workers for carrying out the work as per statutory norms.
15. During the work execution necessary fire safety measures shall also be taken.

FIRE SAFETY

- i. Cutting / drilling machine and other electrically operated equipments used at site shall be plugged into correctly rated electrical outlets.
- ii. Only ISI marked 3 pin plug and other appliances and equipments shall be used.
- iii. Electrical power cables/wires used shall not have any joints and shall be properly rated.
- iv. All electrical appliances i.e. welding, drilling, cutting machine etc. shall be safely and securely earthed to prevent leakage current while in operation.
- v. Before commencing the welding work for the first time on any day, fire section shall be informed and only after the site inspection by the Fire officers/Personnel, work shall be started.
- vi. Two buckets of water and sand shall be kept in an easily accessible area on the site.
- vii. Fire extinguishers recommended and issued by fire officers shall be kept on the site.
- viii. Used paint drums shall be stored in specified store only after closing them properly.
- ix. Personal protective equipments such as safety shoes, hand gloves, welder's mask, ear plug etc. depending upon the requirement of the work shall be provided by the contractor to the workmen to prevent occupational health hazards.
- x. The safety belt shall be provided by the contractor and used by the workmen while working from height for more than 10' from Ground level.
- xi. None of the passages near lift lobby and staircases shall be used for stacking / dumping any kind of materials/waste.
- xii. Both the staircase doors shall be normally kept closed.
- xiii. None of the fire extinguishers shall be removed/shifted from its designated location.
- xiv. Power supply shall be switched off from the mains when equipment is not in use.
- xv. Wood-shavings and saw-dust generated from the work shall be collected on daily basis, removed from site and stored at the designated place in proper manner.
- xvi. Any debris generated from the work shall be collected on daily basis, removed from site and stored at the designated place in proper manner.
- xvii. Battery operated emergency light/torches shall be provided by the contractor to the workmen while working beyond office hours.

"net prices" when used with reference to the contract or account shall be held to mean rates or prices so arrived at.

h) "The works" Shall mean **Supply, Installation, Testing and Commissioning of 5KWp Grid Connected SPV Based Solar Power System for Kidwai Nagar Staff Quarters (KNSQ) Reserve Bank of India, Kanpur**

2. **Scope of Contract:** The contractor shall carry out and complete the said work in every respect in accordance with this contract and with the directions of and to the satisfaction of the Bank's Engineer. The Bank's Engineer may in his absolute discretion and from time to time issue further drawings and/or written instructions, details, direction and explanations which are hereafter collectively referred to as "Bank's Engineer's instruction in regard to":

- a) The variations or modifications of the design, quality or works or the addition or omission or substitutions of any work.
- b) Any discrepancy in the Drawing or between the Schedule of Quantities and/or Drawing and/or specifications.
- c) The removal from the site of any materials brought thereon by the contractor and the substitution of any other material therefor.
- d) The removal and/or re-execution of any works executed by the contractor.
- e) The dismissal from the works of any persons employed thereupon.
- f) The opening up for inspections of any work covered up.
- g) The amending and making good of any defects under clause 20 hereof.

The contractor shall forthwith comply with and duly execute any work comprised in such Bank's Engineer's instructions, provided always that verbal instructions, directions and explanations given to the Contractor or his representative upon the works by the Bank's Engineer shall, if involving a variation, be confirmed in writing by the Contractor within seven days, such shall be deemed to be Employer's instructions within the scope of the Contract.

The contractor shall submit a statement of variations giving quantity and rates duly supported by analysis of rates, vouchers etc. The rates on scrutiny and final acceptance by the Employer shall form a supplementary tender. The Employer shall not be liable for payment of such variations until these statements are sanctioned by him.

3. The Contract shall be executed in triplicate and the Bank's Engineer, the Employer and the Contractor shall be entitled to one executed copy each for his use. The contractor shall prepare the line diagram and Lay out plan of the site for carrying out the work. Before the issue of the final certificate to the Contractor he shall submit to the Bank's Engineer all Drawings and Specifications.

4. **The Contractor shall provide at his cost everything necessary for the proper execution of the works** according to the intent and meaning of the Drawings, Schedule of Quantities and specifications taken together, whether the same may or may not be particularly shown or described therein provided that the same can reasonably be inferred therefrom, and if the

Contractor finds any discrepancy in the Drawings or between the Drawings, Schedule of quantities and Specifications, he shall immediately and in writing refer the same to the Bank's Engineer, who shall decide which is to be followed.

5. **Authorities, notices and patents**: The Contractor shall conform to the provisions of any Act of the Legislature relating to the works, and to the regulations and bye-laws of any authority, and of any water, electricity supply and other companies and/or authorities with whose system the structure is proposed to be connected, and shall, before making any variations from the Drawings or Specifications that may be necessitated by so conforming, give to the architect written notice, specifying the variation proposed to be made and the reason for making it and apply for instructions thereon. In case the Contractor shall not within ten days receive such instructions, he shall proceed with the work conforming to the provisions, regulations, or bye-laws in question, and any variation so necessitated shall be dealt with under clause 17 hereof.

The contractor shall bring to the attention of the Employer all notices required by the said Acts, regulations or bye-laws to be given to any authority and pay to such authority or to any public office all fees that may be properly chargeable-in respect of the works and lodge the receipts with the Employer.

The Contractor shall indemnify the Employer against all claims in respect of patent rights, and shall defend all actions arising from such claims and shall himself pay all royalties, license fees, damages cost and charges of all and every sort that may be legally incurred in respect thereof.

6. **Setting out of work**: The contractor shall set out the works and shall be responsible for the true and perfect setting out of the same and for the correctness of the positions levels, dimensions and alignment of all parts thereof. If at any time any error in this respect shall appear during the progress of the works or within a period of one year from the completion of the works, the Contractor shall, if so required, at his own expense rectify such error to the satisfaction of the Bank's Engineer.
7. **Materials and Workmanship to conform to description**: All materials and workmanship shall so far as procurable be of the respective kinds described in the Schedule of Quantities and/or specifications and in accordance with the contract and the Contractor shall furnish to the Employer with all invoices, accounts, receipts and other vouchers to prove that the materials comply therewith. The Contractor shall at his own cost arrange for and/or carry out any test of any materials.
8. **Contractor's superintendence and representative on the works**: The Contractor shall give all necessary personal superintendence during the execution of the works and so long thereafter as the Employer may consider necessary until the expiry of the "Defects Liability Period" stated in the Appendix hereto. **The contractor shall, also during the whole time the works are in progress employ a competent representative who shall be constantly in attendance at the works while the men are to work.** Any directions, explanations, instructions or notice given by the Bank's Engineer to such representative shall be held to be given to the Contractor.
9. **Dismissal of workmen**: The Contractor shall on the request of the Bank's Engineer immediately dismiss from the works any person employed thereon by him who may, in the opinion of the Bank's Engineer, be incompetent or misconduct himself and such persons shall not be again employed on the works without the permission of the Bank's Engineer.

10. **Access to works**: The Employer, shall at all reasonable times, have free access to the works and/or to the workshops, factories or other places where materials are lying or from which they are being obtained and the Contractor shall give every facility to the Employer necessary for Inspections and examination and test of the materials and workmanship. No person not authorized by the Employer except the representatives of public authorities shall be allowed on the works at any time.

11. **Bank's Engineer**: The term Bank's Engineer shall mean the person appointed and paid by the Employer to inspect the works. The Contractor shall afford the Bank's Engineer every facility and assistance for inspecting the works and materials and for checking and measuring time and materials.

The Bank's Engineer, or the Employer shall have power to give notice to the Contractor or to his representative of non-approval or any work or materials and such work shall be suspended or the use of such materials shall be discontinued. The work will from time to time be examined by the Asst.Manager(Tech)/Manager (Tech.) but such examination shall not in any way exonerate the Contractor from the obligation to remedy any defects which may be found to exist at a stage of the works or after the same is completed. Subject to the limitations of this clause the Contractor shall take instructions only from the Bank's Engineer.

12. **Assignment and Subletting**: The whole of the works included in the Contract shall be executed by the Contractor and the contractor shall not directly or indirectly transfer, assign or under-let the Contract or any part share thereof or any interest therein without the prior written consent of the Employer and not undertaking shall relieve the Contractor from the full and entire responsibility of the Contract or from active superintendence of the works during their progress.

13. No alteration, omission or variation shall vitiate this contract but in case the Bank's Engineer thinks proper at any time during the progress of the works to make any alterations in, or addition to, or omissions from the works or any alteration in the kind of quality of the materials to be used therein and shall give notice thereof in writing under his hand to the Contractor, the Contractor shall alter, add to, or omit from, as the case may be, in accordance with such notice, but the contractor shall not do any work extra to or make any alterations or additions to or omissions from the works or any deviation from any of the provisions of the Contract. Stipulations, specifications or Contract Drawings without the previous consent in writing of the Employer and the value of such extras alterations, additions or omission shall, in all cases, be determined by the Employer in accordance with the provisions of Clause 17 hereof, and the same shall be added to, or deducted from the Contract Amount, as the case may be accordingly.

14. **Schedule of Quantities**: The Schedule of quantities, unless otherwise stated shall be deemed to have been prepared in accordance with the Standard Method of Measurement.

Any error in description or in quantity or in omission of items from the schedule of quantities shall not vitiate this contract but shall be rectified and the value thereof, as ascertained under Clause 17 hereof, shall be added to, or deducted from the Contract Amount (as the case may be) provided that no rectification of errors, if any, shall be allowed in the Contractor's schedule of rates.

15. **Sufficiency of Schedule of Quantities**: The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the prices stated in the Schedule of Quantities and/or the schedule of rates and prices which rates and prices shall cover all his obligations under the contract, and all matters and things necessary for the proper completion of the works.

16. **Measurement of works**: The Bank's Engineer may, from time to time, intimate to the contractor that he requires the works to be measured, and the Contractor shall forthwith

attend or send a qualified agent to assist Assistant Engineer in taking such measurements and calculations and to furnish all particulars or to give all assistance required by any of them.

Should the Contractor not attend or neglect or omit to send such agent then the measurement taken by the Bank's Engineer or a person approved by him shall be taken to be correct measurement of the works. Such measurements shall be taken in accordance with the Mode of Measurements detailed in the Specifications.

The Contractor or his Agent may at the time of measurement take such notes and measurement as he may requires.

All authorized extra works, omissions and all variations made with the prior approval in writing of Employer shall be included in such measurements.

17. **Prices for extra:** The Contractor may, when authorized and shall, when directed, in writing by the Employer, add to, omit from or vary the works shown upon the drawings, or described in the specification, or included in the schedule of Quantities, but the contractor shall make no addition, omission or variation without such authorization or direction. A verbal authority or direction by the Bank's Engineer shall, if confirmed by them in writing within seven days, be deemed to have been given in writing.

No claim for an extra shall be allowed unless it shall have been executed under provisions of clause above hereof with the concurrence of the Employer herein mentioned. Any such extra in herein referred to as authorized and shall be made in accordance with the following provisions.

- (a) (i) The net rates or prices in the original tender shall determine the valuation of the extra work where such extra work in similar character and executed under conditions as the work priced therein.
 - (ii) Rates for all items, wherever possible should be derived out of the rates given in the priced Schedule of Quantities.
- (b) The net prices of the original tender shall determine the value of items omitted provided if omissions vary the conditions under which any remaining items of works are carried out, the prices for the same shall be valued under sub-clause(c) hereof.
- (c) Where the extra works are not of similar character and/or quoted under similar conditions as aforesaid or where the omissions vary the conditions under which any remaining items of works are carried out or if the amount of any omissions or additions relative the amount of the whole of the Contract works or to any part thereof shall be such that in the opinion of the Bank's engineer, the net rate or price contained in the priced Schedule of Quantities or tender or for any item of the works involves loss or expenses beyond that reasonably contemplated by the contractor or is by reason of such omission or addition rendered unreasonable or inapplicable, the Bank's Engineer shall fix such other rate or price as in the circumstances he shall think reasonable and proper, with the prior approval in writing of the Employer.
- (d) Where extra work cannot be properly measured or valued, the Contractor shall be allowed day work prices as the net rates stated in the tender or the Priced Schedule or Quantities or, if not so stated, then in accordance with the local day work rates and wages for the district provided that in either case vouchers specifying the daily time (the workmen's names) and materials employed be delivered for verification to the Bank's Engineer at or before the end of the week following that in which the work has been executed.

The measurement and valuation in respect of the Contract shall be completed within the "period of final measurements" stated in the Appendix or if not stated then within six months of the completion of the Contract works as defined in Clause 21 hereof.

18. Unfixed materials when taken into account to be the property of the Employer

Where in any certificates (of which the Contractor has received payment) the Bank's Engineer has included the value of any unfixed materials included for and/or placed on or adjacent to the works such materials shall become the property of the Employer and they shall not be removed except for use upon the works, without the written authority of the Employer. The Contractor shall be liable for any loss of, or damage to, such materials.

19. **Removal of improper work** : The Employer shall, during the progress of the works, have power to order in writing from time to time the removal from the works within such reasonable time or times as may be specified in the order of any materials which in the opinion of the Bank's Engineer are not in accordance with the Specifications, the substitutions of proper materials, and the removal and proper re-execution of any work executed with materials or workmanship not in accordance with the drawings & specifications or instructions and the contractor shall forthwith carry out such order at his own cost. In case of default on the part of Contractor to carry out such order, the Employer shall have the power to employ any pay other persons to carry out the same; and all expenses consequent thereon, or incidental thereto, shall be borne by the Contractor, or may be deducted by the Employer from any moneys due, or that may become due, to the Contractor.

20. **Defects after virtual completion** : Any defect, shrinkage, settlement or other fault which may appear within the "Defects Liability Period" stated in the Appendix hereto, or, if none stated them within twelve months after the virtual completion of the works, arising in the opinion of the Employer from materials of workmanship not in accordance with the contract, shall upon the direction in writing of the Employer, and within such reasonable time as shall be specified therein, be amended and made good by the Contractor, at his own cost and in case of default the Employer may employ and pay other persons to amend and make good such defects, shrinkage settlements or other faults, and all damages loss and expenses consequent thereon are incidental thereto shall be made good and borne by the Employer or may be deducted by the Employer, upon the Bank's Engineer's Certificate in writing, from any money due or that may become due to the Contractor, or the Employer may in lieu of such amending and making good by the Contractor deduct from any money due to the Contractor a sum, to be determined by the Employer equivalent to the cost of amending such work and in the event of the amount retained under clause 32 hereof being insufficient, recover the balance from the Contractor, together with any expenses the Employer may have incurred in connection therewith. Should any defective work have been done or materials supplied by any sub-contractor employed on the works who has been nominated as provided under clause 12 and 22 hereof, the contractor shall be liable to make good in the same manner as if such work or material had been done or supplied by the Contractor and been subject to the provision of this clause 2 hereof. The contractor shall remain liable under the provisions of this clause the signing of any certificate or the passing of any accounts by the Employer.

21. **Certificate of virtual completion and defects liability period:** The works shall not be considered as completed until the Bank's Engineer has certified in writing that they have been virtually completed. The defects liability period shall commence from the date of such certificates.

22. **Nominated Sub-Contractor:** All Specialists, Merchants, Tradesmen and others executing any work of supplying and fixing any goods for which the prime cost prices or provisional

sums are included in the Schedule of Quantities and/or Specifications who may be nominated or selected by the Employer or hereby declared to be sub-contractors employed by the contractor and are herein referred to as nominated sub-contractors.

No nominated sub-contractors shall be employed on or in connection with the works against the Contractor shall make reasonable objection are (save where the Architect and the Contractor shall otherwise agree) who will not enter into contract providing.

- (a) That the nominated sub-contractor shall indemnify the contractor against the same obligation in respect of the sub-contract as the contractor is under in respect of this contract.
- (b) That the nominated sub-contractor shall indemnify the contractor against claims in respect of any negligence by the sub-contractors his servants or agents or any misuse by him or them or any scaffolding or other plant, the property of the Contractor or under any Workmen's Compensation Act in force.
- (c) Payment shall be made to the nominated sub-contractor within fourteen days of his receipt of the Employer's Certificate provided that before any Certificate is issued the Contractor shall upon request furnish to the Bank proof that all nominated sub-contractors accounts included in previous certificates have been duly discharged; in default whereof the Employer may pay the same upon a Certificate of the Bank and deduct the amount thereof from any sums due to the Contractor. The exercise of this power shall not create private of contract as between Employer and Sub-Contractor.

23. **Other persons employed by Employer:** The Employer reserves the right to use premises and any portion of the site for the execution of any work not included in this Contract which it may desire to have carried out by other persons, and the Contractor shall allow all reasonable facilities for the execution of such work but shall not be required to provide any plant or material for the execution of such work except by special arrangement with the Employer. Such work shall be carried out in such manner as not to impede the progress of the works included in the Contract and the Contractor shall not be responsible for any damage or delay which may happen to or occasioned by such work.

24. **Insurance in respect of damage to person and property:** The Contractor shall be responsible for all injury to persons, animals or things, and for all structural and decorative damage to property which may arise from the operation or neglect of himself or of any nominated sub-contractor or any employee of either, whether such injury or damage arises from carelessness accident or any other clause whatever in any connected with the carrying out of this Contract. This clause shall be held to include inter alia, any damage to buildings, whether immediately adjacent or otherwise, and any damage to road, streets, foot-paths, bridges or ways as well as damage caused to the buildings and works forming the subject of this contract by frost, rain, wind or other inclemency of weather. The Contractor shall indemnify the Employer and hold it harmless in respect of all and any expenses arising from any such injury or damage to persons or property as aforesaid and also in respect of any claim made in respect of injury or damage under any acts of any legislature or otherwise and also in respect of any award or compensation or damages consequent upon such claim.

The Contractor shall reinstate all damage of every sort mentioned in this clause, so as to deliver up the whole of the Contract works complete to and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third parties.

An insurance policy covering third party liability shall be taken by the contractor to cover the loss/disablement of human life (persons not belonging to the contractor). This shall also cover the risk of damages to other's materials/equipment/properties including those, if any of the banks during construction/erection/commissioning of the said contract work at site. The value of third party liability for compensation for loss of human life or full /partial disablement shall be of required statutory value for full and partial disablement and shall nevertheless cover such compensation as may be awarded by a court of law. Cover for damage to other's equipment/property shall be as approved by the bank. The sub-contractors of the contractor shall not be holders or beneficiaries in the policy nor shall they be named in the policy. The bank shall be the principal holder of the policy along with the contractor. The bank reserves the exclusive right to assign the policy.

The Contractor shall indemnify the Employer against all claims which may be made against the Employer by any member of the public or other third party in respect of anything which may arise in respect of the works or in consequences thereof and shall at his own expenses arrange to effect and maintain, until the virtual completion of the contract, with an approved office a policy of insurance in the joint names of the Employer and the Contractor against such risks and deposit such policy or policies with the Architect from time to time during the currency of this contract. The Contractor shall also similarly indemnify the Employer, against all claims which may be made upon the Employer whether under the Workmen's Compensation Act or any other status in force during the currency of this contract or at common law in respect of any employee of the Contractor or any Sub-Contractor and shall at his own expenses effect and maintain, in the joint names of the Employer and the Contractor against such risks and deposit such policy or policies with the Architect from time to time during currency of the Contract.

The Contractor shall be responsible for any liability which may be executed from the Insurance Policies above referred to and also for all other damage to any person, animal or property arising out of the incidental to the negligent or defective carrying out of this Contract transit, storage, erection, testing & commissioning policy. He shall also indemnify the Employer in respect of any costs, charges or expenses arising out of any claim or proceedings and also in respect of any award of compensation or damages arising therefrom.

The Employer shall be entitled to deduct the amount of any damage, compensation, costs, charges and expense arising of accruing from or in respect of any such claims or damage from any or all sums due or to become due to the Contractor without prejudice to the Employer's other rights in respect thereof. The Contractor shall at his own expense, arrange to effect and maintain (until the virtual completion of the contract) with an approved office the following insurance policies in the joint name of employer and himself with the employer being first (Principal) and deposit such policy or policies with the employer from time during the currency of this contract.

25. **Date of commencement and completion**: The Contractor shall be allowed admittance to the site on "Date of Commencement" stated in the Appendix hereto, or each later date as may be specified by the Employer and shall thereupon and forthwith begin the works and shall regularly proceed with and complete the same (except such painting or other decorative work as the bank may desire to delay) or before the "Date of Completion" stated in the Appendix subject nevertheless to provisions for extension of time hereinafter contained.
26. **Damages for non-completion**: If the Contractor fails to complete the works by the date stated in the Appendix or within any extended time under Clause 26 and 20 here the Contractor shall pay the Employer the sum named in the Appendix as " Liquidated

Damages" for the period during which the said works shall so remain incomplete and the Employer may deduct such damages from any money due to the Contractor.

27. **Delay and extension of time:** If in the opinion of the Employer the works be delayed (a) by force major or (b) by reason of any exceptionally inclement weather or c) by reason of proceedings taken or threatened by or dispute with adjoining or neighbouring owners or public authorities arising otherwise than through contractor's own default or (d) by the works or delays of other contractor or Tradesmen engaged or nominated by the Employer and not referred to in the schedule of quantities and/or specifications or (e) by reasons of Bank's Engineer instruction as per clause 17 hereof (f) by reason of civil commotion, local combination of workmen or strike or lockout affecting any of the building trades or (g) in consequence of the Contractor not having received in due time necessary instructions from the Bank for which he shall have specifically applied in writing or (h) from other causes which the Bank may certify as beyond the control of contractor or (I) in the event, the value of the work exceed the value of the Priced Schedule of Quantities owing to variation, the Bank may make a fair and reasonable extension of time for completion shall as soon as may be given written notice thereof to the bank but the Contractor shall nevertheless constantly use his endeavours to prevent delay and shall do all that may reasonably has required to the satisfaction of Bank to proceed with work.
28. **Contractor's failure to comply with Employers instruction:** If the Contractor after receipt of written notice from the Employer requiring compliance within 10 days fails to comply with such further drawings and/or Bank's instructions the Employer may employ and pay other persons to execute any such work whatsoever that may be necessary to give effect thereto, and all costs incurred in connection therewith shall be recoverable from the Contractor by the Employer as a debt or may be deducted by him from any moneys due to the Contractor.
29. **Termination of Contract by the Employer:** If the Contractor being an individual or a firm commits any "act of insolvency" or shall be adjudged an insolvent or being an incorporated company shall have an order for compulsory winding up made against it or pass an effective resolution for winding up voluntarily or subject to the supervisions of the court and the Official Assignee or the Liquidator in such acts of insolvency or winding up, as the case may be, shall be unable within seven days after notice to him requiring him to do so to show the reasonable satisfaction of the Architect that he is able to carry out and fulfill the Contract and to give security therefore, if so required by the Architect.

Or if the Contractor (whether an individual, first or incorporated company shall suffer execution or other process of court attaching property to be issued against the Contractor.

Or shall suffer any payment under this contract to be attached by or on behalf of any of the creditors of the Contractors.

Or shall assign to sublet this Contract without the consent in writing of the Employer first had and obtained.

Or shall charge or encumber this Contract or any payments due or which may become due to the Contractor hereunder.

- (i) Has abandoned the Contract, or

- (ii) Has failed to commence the works, or has without any lawful excuse under these conditions suspended the progresses of the works for fourteen days after receiving from the Bank notice to proceed or
- (iii) Has failed to proceed with the work with such due diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon, or
- (iv) Has failed to remove materials from the site or to pull down and replace work for seven days receiving from the Bank written notice that the said materials or work were condemned and rejected by the Bank's Engineer under these conditions' or
- (v) Has neglected or failed persistently to observe and perform all of any of the acts, matter or things by the Contract to be observed and performed by the Contractor for seven days after written notice shall have been given to the Contractor requiring the Contractor to observe or perform the same.

Then and in any of the said cases the Employer may, notwithstanding any previous waiver, after giving seven days' notice in writing to the Contractor, determine the Contract, the whole of which shall continue in force as fully as if the Contract has not been so determined, and so if the works subsequently execute had been executed by or on behalf of the Contractor. And further, the Employer by his agents or servants may enter upon and taken possession of the works and all plant, tools scaffoldings, sheds, machinery, steam and other power utensils and materials lying upon the premises or the adjoining lands or roads, and use the same as his own property or may employ the same by means of his own servants and workmen in carrying on and completing the work or by employing any other Contractor or other person or persons to complete the works, and the Contractor shall not in any way interrupt or do any act matter or thing to prevent or hinder such other contractor or other person or persons employed for completing and finishing or using the materials and plant for the works. When the works shall be completed or as soon thereafter as convenient the Bank shall give a notice in writing to the Contractor to remove his surplus materials and plant, and should the Contractor fail to do so within a period of fourteen days after receipt thereof by him, the Employer may sell the same by public auction, and give credit to the Contractor for the net amount realized. The employer shall thereafter ascertain and certify in writing under his hand what of the said plant and materials so taken possessions or by the Employer and the expenses or loss which the Employer shall have been put to in procuring the works to be completed and the amount. If any, owing the Contractor and the amount which shall be so certified shall thereupon be paid by the Employer to the Contractor or by the Contractor to the Employer, as the case may be, and the Certificate of the Bank shall be final and conclusive between the parties.

30. **Termination of Contract by Contractor:** If this payment of the amount payable by the Employer under Certificate of the Bank's Engineer shall be in arrears and unpaid for thirty days after notice in writing requiring payment of the amount as aforesaid shall have been given by the Contractor to the Employer, or if the Employer interferes with or obstructs the issue of any such Certificate, or if the Employer shall repudiate the Contract, or if the works be stopped under the order of the Architect or the Employer or by any injunction or other order of any court of Law, then and in any of the said cases the Contractor shall be in liberty to determine the Contract by notice in writing to the Employer, and he shall be entitled to recover from the Employer, payment for all works executed and for any loss he may sustain upon any plant or materials supplied or purchased or prepared for the purpose or the Contract.

In arriving at the amount of such payment the net rates contained in the Contractor's original Tender shall be followed or where the same may not apply valuation shall be made in accordance with Clause 17 hereof.

31. **Certificates and Payments:** The Contractor shall be paid by the Employer from time to time by instalments under interim Certificate to be issued by the Bank's Engineer on account of the works executed work to the approximate value named in the Appendix as 'Value of work for Interim Certificate' has been executed in accordance with this Contract, subject, however, to a retention of the percentage of such value named in the Appendix as "Total Retention Money" after which time the instalments shall be up to the full value of the work subsequently so executed and fixed in the building. And when the works have been virtually completed, the Contractor shall be paid by the Employer in accordance with the Certificate to be issued by the Bank's Engineers the sum of money named in the Appendix as "instalment after Virtual Completion" being a part of the said Total Retention Money. And the Contractor shall be entitled to the payment of the Final Balance in accordance with the final Certificate at the expiration of the period referred to as 'the Defects liability Period' in the Appendix hereto from the date of virtual completion or as soon as after expiration of such period as the works shall have been finally completed and all defects made good according to the true intent and meaning hereof whichever shall last happen provided always or at or after their completion shall not relieve the Contractor from his liability under clause 21 and 36 nor relieve the Contractor of his inability in cases of fraud, dishonesty, or fraudulent concealment relating to the works or materials or to any matter dealt with in the Certificate and in case of the all defects and insufficiencies in the works or materials which a reasonable examination would not have disclosed.

The Employer shall have power to withhold any Certificate if the works or any parts thereof are not being carried out to his satisfaction.

32. **Delayed Payment:** Any amounts payable by the Employer to the Contractor shall, if not paid within the 'period of honouring Certificates' names in the Appendix carry interest at the rate named in the Appendix as the "Rate of interest for delayed payment" from the date upon which sum ought to have been paid by the Employer until the payment.
33. The decision, opinion, direction Certificate (except for payment) with respect to all or any of the matters under Clauses 2(a,b), 4,5, 14, 20 hereof (which matters are herein referred to as the excepted matters) shall be final and conclusive and binding on the parties hereto and shall be without appeal. Any other decision, opinion, direction, shall be subject to the right of Arbitration and review under the Clause 35 hereof in the same way in all respects (including the provisions as to opening the reference).
34. **Settlement of disputes by Arbitration:** All disputes and differences of any kind whatever arising out of or in connection with the contract or the carrying out of the works (whether during the progress of the works or after their completion and whether before or after the determination abandonment or breach of the contract) shall be referred to and settled by the Bank who shall state its decision in writing. Such decision may be in the form of a final certificate or otherwise. The decision of the Bank with respect to any of the excepted matters shall be final and without appeal as stated in Clause 33 hereof. But if either the Contractor be dissatisfied on any matter on which a decision is taken by the Bank as above, except any of the expected matter the Contractor may within 28 days after receiving notice of such decision give a written notice to the other party requiring that the matters in dispute be arbitrated upon. Such written notice shall specify the matters, which are in dispute or difference of which such written notice has been given. If both the parties agree, a single arbitrator would be appointed for the purpose. In case no agreement could be reached on the appointment of single arbitrator, both the parties will nominate one person each as an

arbitrator on their behalf. The two arbitrators nominated by the parties shall nominate one more person to act as third arbitrator or umpire.

The arbitrator or Arbitrators, as the case may be, shall have power to open up, review and revise any certificate, opinion, decision, requisition or notice, save in regard to the excepted matters, referred to in the preceding clause, and to determine all matters to dispute which shall be submitted to arbitration and of which notice shall have been given as aforesaid.

The arbitrator or Arbitrators, as the case may be, shall make his or their award within one year (or such further extended time as may be decided by him or them as the case may be with the consent of the parties) from the date of entering on the reference. In case during the arbitration proceedings the parties mutually settle or compromise their dispute or difference, on the parties filing their joint memorandum of the settlement or compromise, the Arbitrator or the Arbitrators as the case may be, shall make an award in terms of such settlement or compromise.

Upon any such reference, the decision on the cost incidental to the reference and Award respectively shall be in the discretion of the arbitrator or Arbitrators as the case may be, who may determine the amount thereof or direct the same to be taxed as between the party and party, and shall direct by whom and to whom and in what manner the same shall be borne and paid.

This submission shall be deemed to be a submission to arbitration within the meaning of the Indian Arbitration and Conciliation Act, 1996 or any statutory modification thereof.

The award of the arbitrator or Arbitrators, as the case may be, shall be final and binding on the parties. It is agreed that the Contractor shall not delay the carrying out of the works by reason of any such matter, question or dispute being referred to arbitration, but shall proceed with the works with all due diligence and shall until the decision of the Arbitrator or Arbitrators, as the case may be, is given, abide by the decision of the Bank. No award of the Arbitrator or Arbitrators, as the case may be, shall relieve the Contractor of his obligations to adhere strictly to the Bank's instructions with regard to the actual carrying out of the works. The Employer and the Contractor hereby also agree that arbitration under this Clause shall be a condition precedent to any right of action under the Contract.

35. Right of technical scrutiny of final bill

The Employer shall have a right to cause a technical examination of the works and the final bill of the contractor including all supporting vouchers, abstracts, etc. to be made at the time of payment of the final bill. If as a result of this examination of otherwise any sum is found to have been overpaid or over certified it shall be lawful for the employer to recover the sum.

36. Employer entitled to cover compensation paid to workman

If, for any reason, the Employer is obliged, by virtue of the provisions of the Workmen's Compensation Act, 1923, or any statutory modification or re-enactment thereof to pay compensation to a workman employed by the Contractor in execution of the works, the Employer shall be entitled to recover from the Contractor the amount of compensation so paid, and without prejudice to the rights of the Employer under the said Act. The Employer shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by the Employer shall not be bound to contest any claim made against it under the said Act, except on the written request of the Contractor and

upon his giving to the Employer full security to the satisfaction of the Employer for all costs for which the Employer might become liable in consequence of contesting such claim.

37. Abandonment of works

If at any time after the acceptance of the tender, the Employer shall for any reasons whatsoever not requires the whole or any part of the works to be carried out, the Bank shall give notice in writing to the Contractor who shall have no claim to any payment of compensation or other-wise whatsoever on account of any profit or advantage which he might have derived from the execution of the whole works.

38. Return of surplus materials

Notwithstanding anything to the contrary contained in any or all the clauses of this Contact, where any material for the execution of the Contract is procured with the assistance of the Employer by purchase made under orders or permits or licenses issued by Government, the Contractor shall hold the said materials economically and solely for the purpose of the Contract and not dispose of them without the prior written permission of the Employer and return it to the Employer, if required by the Employer, at the price to be determined by the Bank having due regard to the conditions of the materials, the price to be determined not be exceed the purchase price thereof inclusive of sales tax, octroi and other such levies paid by the Contractor in respect thereof, in the event of breach of the aforesaid condition, the Contractor shall in addition to being liable to action for contravention of the terms of licenses or permit and/or criminal breach of trust, be liable to Employer for all moneys, advantages or profits resulting or which in the usual course would have resulted to his by reason of such breach.

39. Right of employer to terminate contract in the event of death of Contractor or individual

Without prejudice to any of the rights or remedies under this Contract, if the Contractor, being an individual, dies, the Employer shall have the option of terminating the contract without incurring any liability for such termination.

40. Non-disclosure Clause

The Contractor shall not disclose directly or indirectly any information, materials and details of the Bank's infrastructure/systems/equipment etc., which may come to the possession or knowledge of the Contractor during the course of discharging its contractual obligations in connection with this agreement, to any third party and shall at all times hold the same in strictest confidence. The Contractor shall treat the details of the contract as private and confidential, except to the extent necessary to carry out the obligations under it or to comply with applicable laws. The Contractor shall not publish, permit to be published, or disclose any particulars of the works in any trade or technical paper or elsewhere without the previous written consent of the Employer. The Contractor shall indemnify the Employer for any loss suffered by the Employer as a result of disclosure of any confidential information. Failure to observe the above shall be treated as breach of contract on the part of the Contractor and the Employer shall be entitled to claim damages and pursue legal remedies.

41. Sexual Harassment of women at work place:

a) The contractor shall be solely responsible for full compliance with the provisions of "the Sexual Harassment of women at work place (Prevention, Prohibition and Redressal) Act, 2013". In case of any complaint of sexual harassment against its employee within the premises of the Bank, the complaint will be filed before the Internal Complaints Committee constituted by the contractor/Agency and the contractor.

b) Any complaint of sexual harassment from any aggrieved employee of the Service Provider against any employee of the Bank or any employee of any other firm working in the Bank shall be taken cognizance of by the Regional Complaints Committee constituted by the Bank.

c) The contractor shall be responsible for any monetary compensation that may need to be paid in case the incident involves the employees of the contractor, for instance any monetary relief to Bank's employee or other firm's employee, if sexual violence by the employee of the contractor is proved.

d) The contractor shall be responsible for educating its employees about prevention of sexual harassment at work place and related issues.

e) The contractor shall provide a complete and updated list of its employees who are deployed within the Bank's premises.

42. The clauses 40&41 will be part of agreement during AMC also.

I/We have understood all the above-mentioned conditions and they are acceptable to me/us.

Place:

Signature of Tenderer

Date:

Name

Designation Name & seal of the firm

Section - IV

SPECIAL CONDITIONS

1. The workmen will not be allowed to stay within the premises.
2. The electric power and water required for the work can be drawn from the supply available at site free of cost.
3. The intending Tenderer can obtain any clarifications regarding the Tender drawings, specifications etc. from the department on any working day of the Bank.
4. The debris/dust or any wastage generated out of the above work shall be cleaned as required and as instructed by the Bank's Engineer.
5. The Tenderer shall remove all the debris collected at site (from the Bank's premises), as per the satisfaction of Bank's Engineers.
6. The contractor shall depute a qualified supervisor during execution of the work. No work shall be carried out at site in unsupervised manner.
7. The Tenderer shall use only approved brands of materials. The Bank will be at liberty to choose any brand of materials from the names given therein in absence of any such choice indicated by the tenderer.
8. Any damage caused by the contractor to any of the Bank's property during the work must be rectified by him at his cost.
9. **Rates quoted by the Tenderers in the "Rate Column" should be including GST. Tender will be evaluated based on Total Cost of ownership(TCO).**
10. While submitting B2B invoice after award of work, the contractor shall clearly indicate the GST amount involved in the work value.

Place:

Signature of the Tenderer

Date:

Name & address

Phone No.:

Section - V

Appendix-I

APPENDIX HEREIN REFERRED

1.	Defects liability Period	12 months from declared date of completion of work.
2.	Period of final measurement	1 month from the date of final commissioning.
3.	Date of commencement	10 th day from the date of award letter.
4.	Period of completion	12 weeks from the 10 th day of work order
5.	Liquidated Damages for delay in completing the work.	0.25% of the contract amount per week subject to a maximum of 10% of the contract amount.
6.	Value of work for Interim Certificate for running bill	As per the payment terms and conditions
7.	after virtual completion	100% of Earnest money deposit shall be released
8.	Period of honoring interim certificate	1 month
9.	Interest for delayed payment	3 percent per annum

Seal & Signature of Contractor

Place :

Date:

Section VI

APPENDIX II

Check List

**Supply, Installation, Testing and Commissioning of 5 KWp Grid Connected SPV Based Solar Power System, for KNSQ for Reserve Bank of India, Kanpur
Commercial Conditions**

S. No.	Description	Bank's Terms and conditions	Acceptance of Bank's terms and conditions (YES/NO)
1	Validity	90 days from opening of tender part-I	
2	EMD	Rs. 6000/-	
3	Terms of payment	As per applicable clause in Part I of the tender	
4	Technical specifications	As per specifications in Part I of the tender	
5	Guarantee Period	One year from date of virtual completion of work.	
6	Service after sales, during AMC	Quoted rates shall include the cost of repairs/maintenance including replacement of any material / assembly / equipment / spares / labour if found necessary and Quarterly visit or as agreed.	
7	Completion period	12 weeks from 10th day of letter of award of work.	
8	Liquidated damages	0.25% of the contract amount per week of delay subject to a maximum of 10% of the contract amount.	
9	Penalty for reduced Power Generation during Defect Liability Period	As per applicable clause in Part I of the tender	
10	Penalty during warranty & AMC period	Rs.250/- per day subject to maximum of 10% of the annual maintenance charges, if the defect in the system is not rectified within the period of 2 days	

Part II should not contain any terms and conditions but only priced bill of quantity. Terms and conditions, if any, incorporated in Part II, will not be valid or considered.

Place

Date

Seal & Signature of Contractor

Section - VII
Technical Specifications

7.1 Scope of Work

The extent of the work shown and specified hereunder is defined to include all labour, materials, equipment, and supervision required for the design, fabrication, supply, installation, testing and commissioning of the complete solar power generation system, and subsequent upkeep and maintenance as defined.

Generation of 5 KWp of Solar Energy based, conversion of the same to AC power with a **guaranteed annual generation of 4500 KWH** per year with a tolerance of 10% of total annual generation (considering the weather conditions and KESCO power outages at site) during the first five years of operation at Bank's power grid synchronization point including:

- a) Design, Manufacturing, Factory Acceptance Test (FAT), supply, installation, testing and commissioning of Solar PV Modules (inclusive of Electrical, Electronic and Mechanical features) along with Power Conditioning Units (PCUs), as required and specified.
- b) Supply and installation of Module mounting structure / super structure on identified locations. The successful tenderer shall design their SPV Panel structure with Hot dipped galvanised steel and cement concrete (CC) foundation suitable for site condition. Design of SPV structure shall be certified /vetted by a recognized Govt. Engineering College viz. IIT / NIT etc. or by a reputed structural consultant and submitted for approval before taking up the structure and foundation works.
- c) Supply, installation, testing and commissioning of three phase Power Conditioning Units (PCU),(inverter plus local grid synchronizing system), distribution panels, electrical switchgears, inverters, metering and connecting the system to the switch gear(MCB/Distribution Board) provided by the Bank for load and connecting up the system to the electrical grid surge protection units etc. as required.
- d) Supply and laying of all power and control cables including supply of cable terminations and all fixing accessories.
- e) **Earthing:** Supply and installation of 2 sets of Chemical **Earthing stations with necessary size and length of earth conductor from earthing station** to the entire system including interconnection of solar panels. Earthing stations shall be provided with testing point for every pits as per relevant/latest IS, including cutting of roads / paved areas & making good the damages as in original shape.
- f) Testing and commissioning of the entire system including synchronizing with power grid and operation as required. The installation shall include the electrical switchgears, cabling, terminations, cable trays, inverters, metering and connecting the system to the electrical grid.
- g) The PV modules shall be installed with the necessary tilt with the most effective orientation.
- h) All related & required civil works will be the responsibility of successful tenderer. Tenders shall visit site to understand site condition before quoting.
- i) Solar System capacity shall be demonstrated to the Bank's Engineer.
- j) Onsite training to RBI Engineers and Workmen for proper operation, maintenance and trouble shooting.
- k) Provision for periodic cleaning of the solar panels considering the ambient conditions of the site. Water connection at the same floor at one point shall be provided by Bank.

- l) Liaisoning work with KESCO to convert the existing unidirectional energy meter in pump room of KNSQ with new bidirectional energy meter in co-ordination with Bank's Officers and KSECO is in the scope of the contractor. All statutory payments in this regard will be reimbursed by the Bank on producing challan or receipt from KESCO/other statutory bodies for such payments.
- m) Supply, laying, termination, testing and commissioning of aluminium armoured cable of 4 core 16 sq mm size by cutting soil/concrete layer from pump room in KNSQ to the inverter of solar power plant (approximately 70.0meter length) and making the surface as original after laying the cable. Cable shall be laid through B class GI pipe wherever underground concrete crossing is there. No additional payment will be paid for extra length of cable used). Also the contractor has to supply and install a 100 Amps, 3 phase with neutral bus bar in the pump room and four pole 63 Amps RCCB in factory fabricated enclosure near inverter with necessary cable terminations.

Service to be provided by the Bank:

Unless otherwise agreed by RBI, only the following services shall be provided in connection with this work:

- a) Single point water source for cleaning of SPV panels near to the solar system.
- b) Provision of necessary switchgear in the LT distribution panel for connecting the solar energy-based AC power to Bank's Power grid. However, the termination of cable to the switchgear shall be in the scope of the successful tenderer.

7.2 MINIMAL TECHNICAL REQUIREMENTS / STANDARDS FOR SPV ITEMS / SYSTEMS

7.2.1 PV MODULES:

The PV modules must conform to the latest edition of any of the following IEC/ equivalent BIS Standards for PV module design qualification and type approval: Crystalline Silicon Terrestrial PV Modules: IEC 61215 / IS14286. In addition, the modules must conform to IEC 61730 Part 1- requirements for construction & Part 2 - requirements for testing, for safety qualification or Equivalent IS

PV modules shall be suitable to be used in a highly corrosive atmosphere (coastal areas, etc.) must qualify Salt Mist Corrosion Testing as per IEC 61701 / IS 61701.

7.2.2 RELEVANT STANDARD OF SYSTEM/ COMPONENTS/ ITEMS

The system/ components/ items of the SPV power systems/ systems deployed must conform to the latest edition of IEC/ Equivalent BIS Standards/ MNRE specifications / as specified below:

(P.T.O.)

system/ components/ items	Applicable BIS /Equivalent IEC Standard Or MNRE Specifications	
	Standard Description	Standard Number
Charge Controller Maximum peak power transfer (MPPT)units	Environmental Testing	IEC 60068-2(1,2,14,30) / Equivalent BIS Std.
Power Conditioners/ Inverters including (Maximum peak power transfer) MPPT and Protections	Efficiency Measurements	IEC 61683 / IS61683
	Environmental Testing	IEC 60068-2 (1, 2, 14, 30)/ Equivalent BIS Std.
	Procedure of islanding prevention Measures	IEC62116
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 / IS694 IEC 60502 / IS 1554(Pt. I &II)
Switches/Circuit Breakers /Connectors	General Requirements connectors– safety A.C./D.C.	IEC 60947 part I,II, III/ IS 60947 Part I,II,III EN50521
Junction Boxes/Enclosures For Inverters/Charge Controllers/Luminaries	General Requirements	IP 65 (for outdoor)/IP 21(for indoor) as per IEC 529

7.3. AUTHORISED TESTING LABORATORIES / CENTERS

7.3.1 The PV modules must be tested and approved by one of the IEC authorized test centres. Test certificates can be issued by any of the NABL / BIS Accredited Testing / Calibration Laboratories.

7.3.2 Test certificates for the system/ components/ items from any of the NABL / BIS Accredited Testing Calibration Laboratories / MNRE approved test centres to be submitted to the Bank.

7.4. IDENTIFICATION AND TRACEABILITY

Each PV module used in the solar power project must use a RF identification tag (RFID), which must contain the following information. The RFID can be inside or outside the module Laminate but must be able to withstand harsh environmental conditions.

- i) Name of the manufacturer of PV Module
- ii) Name of the Manufacturer of Solar cells of PV Module
- iii) Month and year of the manufacture (separately for solar cells and module).
- iv) Country of origin (separately for solar cells and module)
- v) I-V curve for the module
- vi) Peak Wattage, I_m , V_m and field factor (FF) for the module
- vii) Unique Serial No. and Model No. of the module
- viii) Date and year of obtaining IEC PV module qualification certificate
- ix) Name of the test lab issuing IEC certificate
- x) Other relevant information on traceability of solar cells and module as per ISO 9000 series.

7.5 The contractor shall execute the whole & every part of the work in the most substantial manner and both as regard to materials and otherwise in every respect in strict accordance with the specifications. The contractor shall also confirm the execution of work exactly, fully and faithfully to designs, drawings & instructions in writing in respect of the work assigned by the Bank's Engineer.

7.6. Drawings indicating the design of Solar Power Generation System proposed along with designs for structures / foundations for SPV array duly certified / vetted by a competent Engineer shall be submitted to the Bank's Engineer, for approval, within Seven (7) days of the receipt of detailed order. The drawings shall indicate all relevant details about the component/equipment etc. A three dimensional pictorial view of the same shall also be depicted in the drawings. The contractor shall submit all equipment information, which should include but not limited to the following and obtain approval:

- a) General arrangement and dimensional layout
- b) Schematic Drawing showing the requirement of SPV System, Power conditioning Unit(s), Circuit breakers, Junction Boxes, AC and DC Distribution Boards, meters etc.
- c) Structural drawing along with foundation details for the structure.
- d) Itemised bill of material for complete SPV system covering all the components and associated accessories.

7.7 Testing of equipment/system: Type test certificates for all the tests specified for the factory built Solar PV modules and the component parts shall be submitted by the Bidder along with the bid.

7.8.1 Testing at site after completion of installation:

On completion of the installation, the tenderer shall conduct a system acceptance test. The tenderer shall propose a detail system acceptance test plan, which shall be jointly reviewed by RBI and the tenderer.

7.8.2 Acceptance of system: after completion of the system performance tests a joint acceptance inspection shall be carried out by Bank's Engineer and the representative of the contractor. The purpose of this inspection shall be to determine that the system has been furnished and installed as specified. If the system is not acceptable for reasons of non-compliance to the drawings and specifications, the contractor shall make immediate corrections within the construction schedule. A final acceptance inspection shall be done to determine all corrections have been made.

7.9 TRAINING

The contractor shall include in his tender cost of training of Bank's technical staff. Initial training of operating and maintenance personnel shall be provided at site to ensure competence in the operation and maintenance of the system provided. The training programme shall include but not limited to the following elements:

A) OPERATING TRAINING

- (i) System description including electrical, electronic and mechanical sub-system and their functions.
- ii) System operating procedures.
- iii) System operating characteristics.
- iv) System limitations.
- v) On-site system operation.

B) MAINTENANCE TRAINING

- i) System description including electrical, electronic and mechanical sub-systems and their functions.
- ii) System and component trouble-shooting
- iii) On-site inspection, operation and maintenance
- iv) Schedule of maintenance, safety checks and procedures.

7.10 DETAILED SPECIFICATIONS

Solar PV system shall consist required number of PV modules, module mounting structures, MPPT/PCU with data logger, Junction box and distribution boards, cables and hardware, earthing, surge arrestors, related civil works, and control & monitoring system etc. The specifications of these items are as under:

7.10.1 Solar PV Modules:

- a) The solar photo-voltaic module of $\geq 250\text{Wp}$ power output under STC to be provided with high efficiency of more than 14% multi or mono crystalline silicon solar cells.
- b) The solar cell shall have surface anti-reflective coating to help to absorb more light in all weather conditions.
- c) It should have rugged design to withstand tough environmental conditions and high wind speeds (over 150 km/h). It shall perform satisfactorily in relative humidity upto 95% and temperature between 10 deg C and 85 deg C.
- d) PV modules must be designed for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.
- e) The PV module should be IEC 61215-Ed 2 & 61730-1&2 / UL certified and with MNRE (GOI)-SEC test certificate or from other accredited / approved labs. The I-V characteristics of all suitable modules as per specifications, to be used in the systems are required to be submitted at the time of supply.

7.10.2 Module Mounting Structures:

- f) The module mounting structure to be designed in such a way that it will occupy minimum space without sacrificing the output from suitable number of solar modules in series.
- g) The structure shall be designed to allow easy replacement of any module & shall be in line with the site requirements.
- h) The frames and leg assemblies of the mounting structure should be of standard M.S. sections of angle, channel, tubes and any other sections conforming to IS: 2062. **These structures should be hot dip galvanized for the long life in external weather conditions.**
- i) The mounting structure should be of Fixed Type, Tilt angle suitable to site, Foundation PCC, fixing type with SS 304 fastener with clamp fitted to provide rigidity to the structure.
- j) Galvanized Steel Structural must be considered for all type structural steel proposed for the power system.
- k) The array structure shall be grounded properly using earthing kit.
- l) Design drawings with material selected shall be submitted for prior approval of Bank.

7.10.3 PCU / MPPT/INVERTER:

- a) PCU / MPPT and 3 phase with neutral inverter shall be supplied as integrated unit depending upon the size of the solar power system. It should conform to IEC61683 and must additionally conform to the relevant national/ international Electrical Safety Standards IEC20068-2. To minimize power losses the PCU should be microprocessor & micro controller based having inverter, which converts DC energy produced by the solar array to 3 phase with neutral AC energy.
- b) The PCU shall be mounted either on a suitable MS stand on the floor or on the wall with proper supports in the control room. All cable entry to and from the PCU shall be fully sheathed to prevent access of rodents, termites or other insects into the PCU from bottom/top of the PCU.
- c) PCU to be communicable on LAN protocol and should be provided with the following minimum Indications (through LEDs & LCD display)

- ┆ Inverter ON
- ┆ Grid ON
- ┆ Inverter under voltage/over voltage
- ┆ Inverter over load
- ┆ Inverter over temperature.

Protections:

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

- d) The inverter shall be designed for continuous, reliable power supply as per specifications. The inverter shall have high conversion efficiency from 25 percent load to the full rated load. Output Sine wave with less than 3% THD from no load to full load at 0.8 pf lag or lead. The efficiency of the inverter shall be more than 94% at full load and more than 80% at partial load (50%-75%). The supplier shall specify the conversion efficiency in the offer.
- e) The inverter should be capable of operating under ambient temperature 0- 55 deg C, Humidity 0-95% RH
- f) The inverter shall have internal protection arrangement against any sustained fault in the feeder. The inverter shall have provision for input & output isolation.
- g) Inverter shall be tested for islanding protection performance. When the mains power is off, the PCU should also get automatically off so that back-feeding to the grid is not possible.
- h) The software (Plant Manager & PC for remote monitoring through LAN) and hardware **except PC**, required for interfacing the system are to be supplied.
 - i) Maximum Power Point Tracker (MPPT) shall be integrated into the PCU to maximize energy drawn from the Solar PV array. The details of working mechanism of MPPT shall be furnished. Each solid-state electronic device shall have to be protected to ensure long life of the inverter as well as smooth functioning of the inverter.
 - j) The dimension, weight, foundation, makes details etc. of the PCU / Inverter shall be clearly indicated in the detailed technical document. Good quality & reputed proven makes having minimum two years of trouble free successful functioning in similar solar PV system should be supplied.
 - k) The PCU shall be capable of complete automatic operation, including wake-up, synchronization & shut down
 - l) Built-in with data logging to remotely monitor system performance through external PC shall be provided. **(PC shall be provided by Bank)**

7.10.4 Junction box and distribution boards:

- a) The junction boxes should be dust, vermin & waterproof & made of FRP/ABS plastic for outdoor use and IP 65 rated (for outdoor) / IP 21 (for indoor) and IEC

62208, for long-term use in PV systems. In addition, the direct connection between the strings and the spring clamp connectors should ensure a durable and safe installation.

- b) The junction boxes shall have suitable cable entry points fitted with cable glands of appropriate sizes for both incoming & outgoing cables. Suitable markings shall be provided on the bus bar for easy identification & cable ferrules shall be fitted at the cable termination points for identification.

7.10.5 Cables and hardware:

- a) Flexible cables of appropriate size and voltage rating of 620/1100V to be used in the system and shall conform to IS 694/1554 standards. The cable should have excellent resistance to heat, cold, water, oil, abrasion, UV radiation.
- b) Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use.
- c) Cable Routing/ Marking: All cable/wires are to be routed properly using suitable fixing arrangement in heavy duty conduit or tray and suitably tagged and marked with proper manner by good quality ferrule or by other means so that the cable easily identified.
- d) The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e. 25years.

7.10.6 Instrumentation, measurement and monitoring:

The scope of work shall include for supply and installation of pyranometer, temperature probes for recording the solar panel temperature, anemometer for measuring the wind speed. All these instruments shall be installed and integrated and the data should be available for viewing on a display. Necessary software/ hardware also shall be provided for the same.

Data Logging Provision for system monitoring, time and date stamped system data logs for analysis shall be made.

Metering and Instrumentation for display of systems parameters and status indication to be provided.

PV array energy production: Digital Energy Meters to log the actual value of AC/ DC voltage, Current & Energy generated by the PV system provided. Energy meter along with CT/PT should be of 0.2 accuracy class shall be provided

All major parameters available on the digital bus and logging facility for energy auditing shall be available on the display.

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

- a. AC Voltage.
- b. AC Output current.
- c. Output Power
- d. DC Input Voltage.
- e. DC Input Current.

- f. Time Active
- g. Time disabled.
- h. Time Idle
- i. Temperatures
- j. Inverter Status.

7.10.7 System protections requirements: Protective function limits (Viz-AC Over voltage, AC Under voltage, over frequency, under frequency, ground fault, PV starting voltage, PV stopping voltage, over voltage delay, under voltage delay, Ground fault delay, PV starting delay, PV stopping delay).

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

- a) **Earthing:** The structure of the PV arrays will be grounded properly using adequate number of earthing. All metal casing / shielding of the system shall be thoroughly grounded to ensure safety of the solar systems.
- b) **Lightning and O/V protection:** The SPV systems shall be provided with lightning & over voltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub- system components. The source of over voltage can be lightning, atmosphere disturbances etc.
- c) All wiring/cables should be in proper conduit or suitable casing and wires should not be hanging loose.
- d) All connections are to be made through suitable cable/lug/terminals; crimped properly & with use of Cable Glands.
- e) Switches / Circuit Breakers / Connectors-safety IS/ IEC 20947 part I, II & III, EN 50521
- f) Fuses/ MCBs to be provided to protect against short circuit conditions.
- g) Details of solar power system design and layout for all systems shall be submitted along with Technical bid (Part-I)
- h) All the components of the systems viz PV modules, Electronics, etc should have type approval / test certificates **as per MNRE guide lines**
- i) All components and materials used in the system should be of good quality & conform to the BIS / IEC standards / specifications, wherever available / applicable.
- j) Each system should have number plate with name & logo of the manufacturer and the month / year of installation.
- k) Operation and Maintenance / Instruction Manual (with Do's and Don'ts) to be provided with each system.
- l) Danger boards should be provided as and where necessary as per IE Act./IE rules as amended up to date.

7.10.9 ENVIRONMENT/MAINTENANCE/ SAFETY DESIGN PARAMETERS

i) Environment

All components and materials are to be designed and selected for long service life under local environment conditions.

ii) Maintenance consideration

- a) Particular attention shall be given to keep components simple, rugged and easily accessible for routine maintenance and components replacement.
- b) Major assemblies and components such as, electrical components/controls shall be interchangeable and easily removable/replaceable without extensive dismantling of other assemblies of components.
- c) **All wiring shall be of a uniform colour coding and marking system throughout indicating wiring terminations** to permit rapid effective tracing and trouble shooting. Maintenance manual shall reflect said colour coding/markings.
- d) To facilitate identification, each item of equipment shall have a name plate of corrosion resistant metal attached in a conspicuous location.

iii) Safety considerations

All components shall be designed to have fail proof performance. In the event of an equipment failure or external influence such as improper operation, power failure or other adverse conditions affecting the proper function of the system or equipment, the said system or equipment **shall revert to a safe state**.

Section - VIII
ANNEXURE- 'A'

A. SCHEDULE OF TECHNICAL INFORMATION

i)	Enclose a write up on the system design proposed for this project specifically indicating how the power generated from the solar energy will be synchronized with the local grid.	
ii)	Enclose a single line diagram (SLD) / schematic layout for the proposal indicating the ratings and quantity of major components viz. SPV Modules, nos. of arrays, AC & DC distributions, PCUs etc.	
iii)	Enclose the proposed layout of the SPV module array showing the spacing between arrays, walk way width etc.	
iv)	Confirm the minimum guaranteed annualized energy (KWH/year) that will be generated from solar energy source and available for internal use for 25 years.	Please fill up the format Enclosed under Annex. C
v)	Confirm the area required by the bidder for installation of SPV panels along with its structure, maintenance, walk ways to provide a generating capacity of 5 KWp at both sites as required in the tender.	Length in Meter _____ Width in Meter _____ Total area in sqm. _____
vi)	Enclose drawing showing typical arrangement for mounting of SPV modules along with dimension and nature of foundation.	(plan, elevation and section to be enclosed)
vii)	Confirm the total quantum of AC power to be available from the installed SPV Modules	_____ kVA
viii)	Confirm the location of meters to be provided for continuous measurement of AC power generated.	
ix)	Please confirm the acceptance test procedures to be adopted during FAT for the SPV Modules. Also indicate the standard to be followed.	
x)	Please confirm the acceptance test procedure to be adopted on completion of the work for the major components and the complete system at site.	

B. SCHEDULE OF TECHNICAL DATA TO BE FUNISHED BY THE CONTRACTOR

A	SPV MODULE	
i.	Manufacture's Name & Address	
ii.	Type of Modules with cat. Reference	
iii.	Design of module at standard test condition	
	a) Peak power watt	
	b) Peak power voltage	
	c) Peak power current	
	d) Open circuit voltage	
iv.	No. of SPV Modules proposed to achieve minimum 5 KWp DC power	
v.	Short circuit current of PV module (Amp.)	
vi.	Open circuit voltage of PV Module (V)	
vii.	Max. power rating of one PV Module (KWp) (not less than 200Wp)	
viii.	Photo electrical conversion efficiency of SPV module (not less than 14%)	
ix.	Fill factor of the SPV module (> 0.70)	
x	Designated life of the SPV modules	
xi.	Overall dimensions (in mm)	
xii.	Weight	
Xiii	Frame materials	
xiv.	Reference of Standards / approval, if any	
xv.	Life of SPV Module (Years of Operation)	
B	PV ARRAY CAPACITY	
	Number of Module in series in each array	
	Peak power rating of one array	
	Number of array considered to achieve the specified output	
C	MODULE MOUNTING STRUCTURE	
i)	Type of structure and its materials used in frame and accessories	
ii)	Type of mounting structures (Fixed or any other type)	
iii)	Overall dimensions	
iv)	Type of mounting	
v)	Surface azimuth angle of PV Modules	
vi)	Tilt angle (Slope) of PV module	

vii.	Confirm structure & module frame shall be designed at wind speed 150 km/hr.	
D	POWER CONDITIONING UNITS (PCUs)	
i.	Manufacturer's name & address	
ii.	Type of PCU (Centralized or string type)	
iii.	Number of units proposed	
iv.	Rated capacity of each PCU	
v.	Input DC Voltage range	
vi.	Output voltage	
vii.	Frequency	
viii.	Minimum efficiency at full load	
ix.	Location (outdoor/indoor)	
x.	Output wave shape	
xi.	Dimensions in mm	
xii.	IP protection level	
xiii.	Type of cooling required	
xiv	Type of mounting	
xv.	Suitability for specified Ambient Temp. range & Humidity at	
xvi.	Type of Protection provided	
xvii	Over Load Condition	Yes/No
xviii	Short Circuit Protection	Yes/No
xix	Low/High Voltage Protection	Yes/No
xx	Power Electronic Component Protection Yes/No	Yes/No
E.	METERING	
i.	Nos. of meters proposed to be provided	
ii.	Location of meters	
iii.	Manufacturer's name & address	
iv	Confirm compliance with laid down specification	

Date

Signature of the contractor with company seal

ANNEXURE- 'B'

NAME OF WORK: "Supply, Installation, Testing and Commissioning of 5 KWp Grid Connected SPV Based Solar Power System for KNSQ, Reserve Bank of India, Kanpur

List of Major equipments to be provided for 5 KWp Solar Power Plant
(To be filled by the bidder)

S. No	Item	Quantities	To be filled by the contractor
1	SPV Modules	Total Quantities (nos)	
		No. of Arrays	
		Nos. of SPV modules in each array	
2	Power Conditioning Units (PCUs) (Centralized / string type)	Type	
		Quantity	
3.	DC Junction Boxes	No.s	
4.	AC Junction Boxes	No.s	
5	Other related items viz. control & power cables, cable trays, surge diverters, earthing etc. for the complete work as required & specified	Lot	

Date

Signature of the contractor with company seal

ANNEXURE –C

NAME OF WORK: Supply, Installation, Testing and Commissioning of 5 KWp Grid Connected SPV Based Solar Power System for KNSQ Reserve Bank of India, Kanpur

GUARANTEED ENERGY GENERATION FOR 25 YEARS

Note : Efficiency of solar PV System shall be guaranteed to minimum 90% at the end of 10 years and 80% at the end of 25 years.

Year	Total (KWh) of guaranteed generation at KNSQ in a year	Total (KWh) of guaranteed generation at KNSQ in a year
Year 1		
Year 2		
Year 3		
Year 4		
Year 5		
Year 6		
Year 7		
Year 8		
Year 9		
Year 10		
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
Year 16		
Year 17		
Year 18		
Year 19		
Year 20		
Year 21		
Year 22		
Year 23		
Year 24		
Year 25		

Date

Signature of the contractor with company seal

ANNEXURE- 'D'

Format for undertaking for product & maintenance support

(To be submitted by the tenderer)

NAME OF WORK: Supply, Installation, Testing and Commissioning of 5KWp Grid Connected SPV Based Solar Power System for KNSQ Reserve Bank of India, Kanpur

Pursuant to a contract awarded by Reserve Bank of India for the full scope of work as contained under the tender document for the above mentioned work or part thereof, we..... *(full name of the firm with address)*, hereby undertake the complete responsibility for providing full product support and also maintenance support for the entire period of the designed life of the equipment so supplied and installed by us, promptly and expeditiously.

Further, in case any of the component(s), materials or parts used in the system so provided goes out of production, then we will make available the blue prints, drawings of the spare parts and specifications of materials at no cost to the RBI, as and when required in connection with the equipment to enable the RBI to procure spare parts from other sources.

Thanking You

Yours faithfully,

(Signature of the Contractor / Firm with Company's Seal)

ANNEXURE-“E”

Undertaking

(Undertaking by manufacturer of SPV Modules and PCUs regarding the manufacture's obligation to extend uninterrupted after sales service to RBI)

NAME OF WORK: Supply, Installation, Testing and Commissioning of 5KWp Grid Connected SPV Based Solar Power System for KNSQ Reserve Bank of India, Kanpur

We, the manufacturer of Solar Power System Component(s) undertake to provide continued after sales service including but not restricted to the following services.

- i) To guarantee uninterrupted supply of spare parts throughout the designed life of SPV modules and PCU's. The designed life of SPV modules and PCU's shall be as indicated elsewhere in the technical bid.
- ii) To assist RBI in investigation of failure/malfunctioning of any part or system as and when called for by RBI during and after defects liability period.
- iii) We shall propose with cost estimate, any modification / up gradation of safety features, design modification / improvements to be incorporated in the SPV modules and PCU's subsequent to completion of the contract and suggest a time schedule to implement the same to enhance performance, reliability / life of SPV modules and PCU's.
- iv) We hereby undertake to provide the above services and respond to RBI's queries/requests in reasonable time notified by RBI during the design life of the SPV modules and PCU's.
- v) Any breach of above undertaking will entail RBI to take any or all actions mentioned below as deemed fit by RBI.
 - a) To place on record the performance of firm either in the RBI Web Site or other publications.
 - b) Intimate the Regulatory Authorities / bodies or other Banks.
 - c) Restrict the firm's participation in further tendering in RBI.

Date: *(Name and address of the company with Company Seal)*

Note : This undertaking shall be furnished by the manufacturer of SPV Modules and PCUs. In case the manufacturers of these two items are different, separate undertakings must be furnished by the respective manufacturer.

ANNEXURE 'F'

DECLARATION OF COUNTRY OF ORIGIN

(To be furnished by the tenderer)

NAME OF WORK: Supply, Installation, Testing and Commissioning of 5KWp Grid Connected SPV Based Solar Power System for KNSQ Reserve Bank of India, Kanpur

This is to certify that

a) The SPV Modules & PCU's offered are new:

b) The SPV Modules will be manufactured, assembled and offered for inspection before dispatch the works/factory of _____ (*address in India*)

Therefore, Country of Origin of SPV Modules shall be

_____.

c) The Power Conditioning Units (PCUs) will be manufactured, assembled and offered for inspection before dispatch at the works / factory of (*address India*)

_____.

Hence the Country of Origin of PCUs shall be _____.

Date :

(Name of the Company with address and Company Seal)

Note: There could be different country of origin for SPV Modules & PCUs. Specific address shall be provided for carrying out pre-delivery inspection at the works of the manufacturer.

ANNEXURE – ‘G’

Factory Acceptance Test

Solar PV Modules: The Solar PV modules shall be tested at the factory at the description of the Bank in the following manner:

- i) **Physical Inspection:** The PV modules shall be inspected for its physical parameters such as dimensions, material and workmanship etc.
- ii) **Performance Parameter:** The Solar PV modules shall be tested at the factory on a sun simulator at Standard Temperature Conditions (STC) for the following Parameters:
 - a) Open Circuit Voltage (Voc)
 - b) Short Circuit Current (Isc)
 - c) Max. Power (Pmax.)
 - d) Voltage at Max. Power (Vmax.)
 - e) Current at Max. Power (Imax.)
 - f) Fill Factor
 - g) Module efficiency

2. Power Conditioning Unit: The power conditioning unit shall be inspected for the display of parameters as mentioned in the tender either at factory of OEM/Integrator or at site.

Annexure- "H"

List of Clients

Details of similar qualifying works executed during the last 5 years

Sr. No.	Name and address of the firm	No. of units supplied	Value of the work	Whether works completed in time or not (give date of start & and date of completion)	Completion period as per work order	Fax /phone number &contact person of the firm

(Attach sheet if required)

Signature of Tenderer:

Date:

Place:

Annexure-“I”

CLIENT’S CERTIFICATE REG. PERFORMANCE OF CONTRACTOR

Name & address of the Client

Details of Works executed by Shri /M/s

- 1 Name of work with brief particulars
- 2 Agreement No. and date
- 3 Agreement amount
- 4 Date of commencement of work
- 5 Stipulated date of completion
- 6 Actual date of completion
- 7 Details of compensation levied for delay
(indicate amount) if any
- 8 Gross amount of the work completed and paid
- 9 Name and address of the authority under whom
works executed
- 10 Whether the contractor employed
qualified Engineer/Overseer during
execution of work?
- 11 i) Quality of work (indicate grading) Outstanding/Very Good/
Good/Satisfactory/poor
ii) Amt. of work paid on reduced rates, if any.
- 12 i) Did the contractor go for arbitration?
ii) If yes, total amount of claim
iii) Total amount awarded
- 13 Comments on the capabilities of the contractor.
 - a) Technical proficiency Outstanding/Very Good/
Good/Satisfactory/poor
 - b) Financial soundness Outstanding/Very Good/
Good/Satisfactory/poor
 - c) Mobilization of adequate T&P Outstanding/Very Good/
Good/Satisfactory/poor

- | | |
|-----------------------------|--|
| d) Mobilization of manpower | Outstanding/Very Good/
Good/Satisfactory/poor |
| e) General behavior | Outstanding/Very Good/
Good/Satisfactory/poor |

Note : All columns should be filled in properly countersigned.

Annexure–J

FORMAT OF BANKERS' CERTIFICATE

1. Composition of the firm (whether Partnership/ Private Limited/ Proprietorship/ Public Limited.)
2. Name of the Proprietor/ Partners/ Directors of the firm.
3. Turnover of the firm for the last 3 financial years (year wise). 2019-2020, 2018-2019, 2017-2018
4. Credit facility/ Overdraft facility enjoyed by the firm.
5. Dealings (Satisfactory/unsatisfactory) :
6. The period from which the firm has been banking with your bank.
7. Any other remarks.

You may also kindly forward your opinion whether the above firm is considered financially sound to be entrusted with the contract for works estimated to cost Rs.3.00 Lakh (Yes/No)-

(Signature)
For the
Bank Note:

Bankers' certificates should be on letter head of the Bank, sealed in cover addressed to RBI.

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

Annexure K

FORMAT FOR POWER OF ATTORNEY FOR SIGNING OF PROPOSAL

(On Non-Judicial Stamp Paper of appropriate value)

Know all men by these presents, We.....(Name of the Bidder and address of their registered office) do hereby constitute, appoint and authorise Mr. / Ms. (Name and residential address of Power of Attorney holder) who is presently employed with us and holding the position ofas our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our bid for the Design, Supply, Installation, Testing and Commissioning of 5 KWp Grid Connected SPV Based Solar Power System, KNSQ COLONY, Reserve Bank of India, Kanpur including signing and submission of all documents and providing information / responses to RBI, representing us in all matters before RBI, and generally dealing with RBI in all matters in connection with our proposal for the said Project.

We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us.

Note:

Power of Attorney should be properly stamped and notarized

Power of Attorney furnished shall be irrevocable.

Signature/(s) of the

Bidder Name/(s)

Stamp/Seal of the Bidder

(NB: This guarantee will require stamp duty as applicable in the state, where it is executed and shall be signed by the official whose signature and authority shall be verified).

Annexure "L"

Proforma For Bank Guarantee In Lieu Of Earnest Money Deposit

(To be submitted on non-judicial stamp paper of appropriate value purchased in the name of the issuing Bank)

This deed of guarantee made this ___ day of ___ two thousand ___ between _____ (Name of Banker) having its registered office at ___(place) and one of its local offices at (hereinafter referred to as the Surety), and Reserve Bank of India, a Corporation constituted by the Reserve Bank of India Act, 1934, having its Central Office at Central Office Building, Shahid Bhagat Singh Road, Mumbai-400 001 INDIA (hereinafter referred to as the Bank).

WHEREAS _____(Tenderer's name hereinafter referred to as 'Tenderer') a Company registered under _____ and having its registered office at _____ is bound to deposit with the Bank by way of earnest money xxxxxxxx in connection with its Supply, Installation, Testing and Commissioning of 5 KWp Grid Connected SPV Based Solar Power System for KNSQ, Reserve Bank of India Kanpur and the specifications and terms and conditions enclosed therein.

WHEREAS the tenderer as per clause No. ___ Section II of Instructions to tenderers and special conditions has agreed to furnish a Bank Guarantee valid up to _____ instead of deposit of earnest money in cash.

NOW THIS WITNESSETH:

1. That the Surety in consideration of the above Tender made by the Tenderer to the Bank hereby undertakes to guarantee payment on demand without demur to the Bank the said amount of INR _____ (INR _____ only) within one week from the date of receipt of the demand from the Bank on presentation of this deed of guarantee, which the Tenderer is bound to deposit with the Bank by way of earnest money in connection with his Tender.
2. This guarantee shall not be affected by any infirmity or irregularity on the part of the Tenderer or by the dissolution or any change in the constitution of the Bank, Tenderer or the Surety.
3. The Bank shall be eligible to make any claim under this guarantee if the Tenderer after submitting his Tender, rescinds from his offer or modifies the terms and conditions thereof in a manner not acceptable to the Bank or expresses his unwillingness to accept the order after the Bank has decided to place order with the Design, Supply, Installation, Testing and Commissioning of 5 KWp Grid Connected SPV Based Solar Power System for KNSQ Reserve Bank of India, Kanpur. The Banks' decision in this regard shall be final and binding.
4. The Surety shall not and cannot revoke this guarantee during its currency except with previous consent of the Bank in writing.

- 5. Notwithstanding anything contained in the foregoing, the Surety's liability under the guarantee is restricted to INR_____ (INR _____ only).
- 6. This guarantee shall remain in force and effective up to_____ and shall expire and become ineffective on intimation thereof being given to the Surety by the Bank in which event this guarantee shall stand discharged.
- 7. The Surety will make the payment pursuant to the demand notice issued by the Bank, notwithstanding any dispute that may exist or arise between the Tenderer and the Bank or any other person.
- 8. Any forbearance, act or omission on the part of the Bank in enforcing any of the conditions of the said tender or showing of any indulgence by the Bank to the tenderer shall not discharge the Surety in any way and the obligations of the Surety under this guarantee shall be discharged only on the intimation thereof being given to the Surety by the Bank.
- 9. Notwithstanding anything contained hereinabove, unless a demand or claim under this guarantee is made on the Surety in writing on or before____, the Surety shall be discharged from all liabilities under guarantee thereafter.
- 10. The Surety has the power to issue this guarantee under its Memorandum and Articles of Association and the person who is hereby executing this deed has the necessary powers to do so under the Power of Attorney granted to him by the Surety.

SIGNED AND DELIVERED

For and on behalf of

For and on behalf of above named Bank.

(Banker's Name and Seal)

Branch

Manager

(Banker's seal)

Annexure "M"

Proforma of Bank Guarantee for Performance Guarantee/ Retention Money

(To be submitted on Non-judicial stamp paper of appropriate value purchased in the name of the issuing bank)

No. _____ Date _____

To:

Smt. Tuli Roy
Regional Director
Reserve Bank of India
Estate Department

Madam

In consideration of your agreeing to accept the security deposit of INR (INR only) furnish able to you by Messer's (hereinafter referred to as "the Contractor") in terms of their contract with you for Supply, Installation, Testing and Commissioning of 5 KWp Grid Connected SPV Based Solar Power System, one each for Kidwai Nagar staff Quarters Reserve Bank of India, Kanpur, as per their Tender dated ----- and your Special Conditions of Contract and other tender documents relating thereto subject to the conditions and alterations mutually agreed upon the set forth or referred to in your Contract dated in the form of guarantee from us in the manner hereinafter contained, we (Name of the Bank) do hereby covenant and agree with you as follows:

1. We undertake to indemnify you and keep you indemnified from time to time to the extent of INR _____ INR (_____ only) against any loss or damage caused to or suffered by or that may be caused to or suffered by you by reason of any breach or breaches on the part of the Contractor of any of the terms and conditions contained in the said Contract and in the event of the Contractor making any default or default in carrying out any of the work under the said Contract or otherwise in the observance and performance of any of the terms and conditions relating thereto in accordance with the true intent and meaning thereof, we shall forthwith on demand pay to you such sum or sums not exceeding in total the said sum of INR _____ (INR _____ only) as may be claimed by you as your losses and/or damages, costs, charges or expenses by reason of such default on the part of the Contractor.
2. Notwithstanding anything to the contrary, your decision as to whether the Contractor has made any such default or defaults and the amount or amounts to which you are entitled by reasons thereof will be binding on us and we shall not be entitled to ask you to establish your claim or claims under this Guarantee but will pay the same forthwith on your demand without any protest or demur.
3. This guarantee shall continue and hold good until it is released by you on the application by the Contractor after expiry of the relative guarantee period of the said Contract and after the contractor had discharged all his obligations under the said Contract and produced a certificate of due completion of the work under the said contract and submitted a "No Demand Certificate", provided always that this guarantee shall in no event

remain in force after the day of__without prejudice to your claim or claims arisen and demanded from or otherwise notified to us in writing before the expiry of six months from the said date which will be enforceable against us notwithstanding that the same is or are enforced after the said date.

4. Should it be necessary to extend this guarantee on account of any reason whatsoever, we undertake to extend the period of this Guarantee on your request till such time as may be required by you. Your decision in this respect shall be final and binding on us.
5. You will have the fullest liberty without effecting this guarantee from time to time to vary any of the terms and conditions of the said contract or extend the time of performance of the Contractor or to postpone for any time or from time to time any of your rights or powers against the Contractor and either to enforce or forbear to enforce any of the terms and conditions of the said Contract and we shall not be released from our liability under this guarantee by the exercise of your liberty with reference to matters aforesaid or by reason of any time being given to the Contractor or any other forbearance, act or omission on your part or any indulgence by you to the Contractor or by any variation or modification of the said contract or any other act, matter or things whatsoever, which under the law relating to sureties would but for the provisions hereof have the effect of so releasing us from our liability hereunder provided always that nothing herein contained will enlarge our liability hereunder beyond the limit of INR _____(IN R _____ only) as aforesaid.
6. This guarantee shall not in any way be affected by your taking or varying or giving up any securities from the Contractor or any other person, firm or company on its behalf or by the winding up, dissolution, insolvency or death as the case may be, of the Contractor.
7. In order to give full effect to the guarantee herein contained you shall be entitled to act as if we were your principal debtors in respect of all your claims against the Contractor hereby guaranteed by us as aforesaid and we hereby expressly waive all our rights of surety-ship and other rights, if any, which are in any way inconsistent with any of the provisions of this guarantee.
8. Subject to the maximum limit of our liability as aforesaid, this guarantee will cover all your claim or claims against the contractor from time to time arising out of or in relation to the said contract and in respect of which your claim in writing is lodged on us before expiry of six months from the date of expiry of this guarantee.
9. Any notice by way of demand or otherwise hereunder may be sent by special courier, telex, fax or registered post to our local address as aforesaid and if sent by post, it shall be deemed to have been given when the same has been posted.
10. This guarantee and the powers and provisions herein contained are in addition to and not by way of limitation of or substitution for any other guarantee or guarantees heretofore given to you by us (whether jointly with others or alone) and now existing uncanceled and that this guarantee is not intended to and shall not revoke or limit such guarantee or guarantees.
11. This guarantee shall not be affected⁵⁸ by any change in the constitution of the contractor or us nor shall it be affected by any change in your

constitution or by any amalgamation or absorption thereof or therewith but will ensure to the benefit of and be available to and enforceable by the absorbing or amalgamated company or concern.

12. Any forbearance, act or omission on the part of the Bank in enforcing any of the conditions of the said tender or showing of any indulgence by the Bank to the Tenderer shall not discharge the Surety in any way and the obligations of the Surety under this guarantee shall be discharged only on the intimation thereof being given to the Surety by the Bank.
13. This guarantee is irrevocable during the period of its currency and shall not be revoked without your previous consent in writing.
14. We further agree and undertake to pay you without demur the amount demanded by you in writing notwithstanding any difference or dispute or controversy that may exist or arise between you and contractor or any other person.
15. Notwithstanding anything contained herein above our liability under this guarantee is restricted to INR _____ (INR_____only). Unless a written claim is lodged on us for payment under this guarantee within six months from the date of expiry, including extensions if any, of this guarantee all your rights under the guarantee shall be forfeited and we shall be deemed to have been released and discharged from all liabilities there under, irrespective of whether or not the original guarantee is returned to us.
16. We have power to issue this guarantee in your favour under the Memorandum and Articles of Association of our Bank and the undersigned has full power to execute this Guarantee under the Power of Attorney granted to him by the Bank.

SIGNED AND DELIVERED

(For & on behalf of the above named Bank)

For & on behalf of

(Banker's Name &

Seal)

BRANCH MANAGER

(Banker's Seal)

Address _____

Annexure – N

Details of Service Set up at the place of work

S. No.	Details of service Centre	
1	Address of Service Centre	
2	Contact numbers	
3	Staff strength	
4	Whether spares parts of the system have been stocked	

Stamp and Signature of the contractor

Place:

Date:

Annexure – O

Articles of Agreement

Articles of Agreement

ARTICLES of Agreement made on the ----- day of -----
----- between the Reserve Bank of India, having its Central Office at Mumbai
(hereinafter called “The Employer”) of the one part and -----
(hereinafter called “The Contractor”) of the other part.

Whereas the employer is desirous of doing the work of **Supply, Installation, Testing and Commissioning of 5KWp Grid Connected SPV Based Solar Power System, for Kidwai Nagar Staff Quarters Reserve Bank of India Kanpur** and whereas the said drawings and the specifications and the Schedule of Quantities have been signed by or on behalf of the parties hereto.

And Whereas the Contractor has agreed to execute upon and subject to the conditions set forth in the Conditions and in the Schedule of Quantities and Conditions of Contract (all of which are collectively hereinafter referred to as “the said Conditions”) the works shown upon the said drawings and/or described in the said Specifications and included in the said Schedule of Quantities at the respective rates therein set forth amounting to the payable there under (hereinafter referred to as “the said Contract Amount”).

NOW IT IS HEREBY AGREED AS FOLLOWS:

1. In consideration of the said Contract Amount to be paid at the time and in the manner set forth in the said Conditions, the Contractor shall upon and subject to the said Conditions execute and complete the work described in the said Specifications and the Schedule of quantities.
2. The Employer shall pay the Contractor the said Contract amount or such other sum as shall become payable, at the times and in the manner specified in the said Conditions.
3. The said conditions and Appendix thereto and the correspondence attached hereto shall be read and construed as forming part of this Agreement and the parties hereto shall respectively abide by and submit themselves to the said Conditions and the correspondence and perform the agreement on their part respectively in the said Conditions and the correspondence contained.
4. The plans, agreement and documents mentioned herein shall form the basis of this contract.
5. This Contract is an item rate contract to be paid for according to the completion of work as contained in Schedule of Quantities or as provided in the said conditions and all as per specifications and working drawings.
6. The contractor shall afford every reasonable facility for carrying out of all works of other Contractors appointed by the Employer and shall make good any damages done to walls, floors etc. after the completion of such works.
7. Time shall be considered as the essence of this Contract and the Contractor hereby agrees to commence the work/job from the 10th day of issue of formal work order as provided for in the said conditions and to complete the entire work specified within 12 weeks subject to nevertheless to the provisions for extension of time.
8. All payments by the Employer under this Contract will be made only at Kanpur.

9. All disputes arising out of or in any way connected with this Agreement shall be deemed to have arisen at Kanpur and only Courts in Kanpur shall have the jurisdiction to determine the same.
10. The equipment supplied shall be guaranteed against all types of defects for a period of one year from the date of virtual completion. Any defects in the system/sub-assemblies, found within the guarantee period, shall be rectified/ replaced by the tenderer without any additional cost to the Bank. Servicing of PV panels to be carried out at quarterly intervals or earlier as prescribed by the manufacturer and as mutually agreed to during this period.

The tenderers has quoted their charges in part II of the tender separately for comprehensive annual maintenance service (AMC) after the expiry of the one year guarantee period. During the comprehensive annual maintenance service contract period, the servicing shall be carried out at quarterly intervals or earlier as prescribed by the manufacturer and as mutually agreed, shall be carried out in addition to any number of breakdown calls. This include cleaning of PV panels as per standard for optimum power generation. These rates shall be applicable from the date of expiry of one year guarantee period. Comprehensive annual maintenance service charges shall be paid on half yearly basis on rendering satisfactory service and on submission of service reports.

The charges for comprehensive annual maintenance service shall include replacement of all parts of the system, including all required spares, consumables etc during service contract period. Any defects in the system/sub-assemblies, found within the AMC period, shall be rectified/ replaced by the tenderer without any additional cost to the Bank.

During this period (DLP & AMC) any defect observed in the system shall be rectified within 2 days. There will be a penalty of Rs.250/- per day subject to maximum of 1% of the capital cost of the work or 10% of the AMC value whichever is lower, if the defect in the system is not rectified within the period of 2 days from the date of intimation to the firm by phone/ e-mail. The penalty, if any, shall be recovered from any dues payable to the contractor or invoke from the performance bank guarantee. In addition to this, if the system is not rectified within the period of 10 days, the Bank shall have right to rectify the system at risk and cost of the contractor. The Bank shall have also right to invoke the **Performance Bank Guarantee (PBG)** towards penalty for delay in rectifying the fault in the system and terminate the contract, if service rendered by the contractor is found to be unsatisfactory.

Penalty for Reduced Generation during initial 10 years from date of completion of work

As mentioned under the foregoing paragraphs, the successful tenderer is required to maintain minimum KWH generation per year as required in the tender (**4500** KWH per year with a tolerance of 10% of total annual generation considering the weather conditions and KESCO power outages at site) at synchronization point. Failure to do so will make the contractor liable to pay compensation at double the rate of the prevailing tariff of Electricity supply Agency in the highest slab including all variable charges/taxes (Tariff)

for shortfall of every KWH or part thereof of the power generated, subject to maximum of 1% of the capital cost of the work. The Bank shall have also right to invoke the Performance Bank Guarantee or to deduct from any dues or AMC charges payable to the contractor to recover the penalty towards lack of production.

11. Penalty shall be derived as per the following formula:

Actual output for the year under reference = A (KWH)

Minimum required output of the system per year as per the contract = B (KWh)

Compensation to be paid to RBI in case of reduced generation (Rs)

= (B-A) x (Prevailing KESCO Tariff for pump room power connection X 2)

The service contract shall be renewed for a further additional period of at least 8 years after the initial annual service contract period of one year after one year warranty. While renewing the contract the new contract amount will be arrived at based on following formula.

$A_C = A_P [(15+60x(EPI_C/EPI_P)+25x(CPI_C/CPI_P))] \times 100$	
A_C	The contract amount for the current year.
A_P	The contract amount for the previous year.
EPI_C	Wholesale Price Index for Electrical Products 6 months prior to the commencement date of contract for the current year.
EPI_P	Wholesale Price Index for Electrical Products 6 months prior to the commencement date of contract for the previous year.
CPI_C	Consumer Price Index for Industrial Workers (All India Average) 6 months prior to the commencement date of contract for the current year.
CPI_P	Consumer Price Index for Industrial Workers (All India Average) 6 months prior to the commencement date of contract for the previous year.

12. **Performance Bank Guarantee(PBG) :-** Performance Bank Guarantee of 20% of the contract amount, for due fulfillment of the terms and obligations of the Contract for execution and completion of the work shall be submitted for the period of work (94 days), with 14 days from date of issue of work order, in the prescribed format. Bank has the right to invoke this PBG to compensate any kind of losses to the Bank during execution of the work. Performance Bank Guarantee of 10% of the contract amount, for due fulfillment of the terms and obligations of the Contract, guarantee period and service contract for the entire life cycle of the equipment shall be submitted for at least 10 years immediately after completion of the work in the prescribed format. All payments due under this contract will be made only after submission of this PBG.

13. That the several parts of this contract have been read by the Contractor and fully understood by the Contractor.

14. The contractor is bound to abide by the provision of payment of wages Act 1936 and minimum wages Act 1948. The Bank reserves the right to pay the minimum wages to worker by deducting appropriate amount from liability to contractor, in case minimum wages are not paid.

IN WITNESS WHEREOF the Employer and the Contractor have set their respective hands to these presents and two duplicates hereof the day and year first herein above written.

(If the Contractor is a partnership or an individual)

IN WITNESS WHEREOF the Employer has set its hands to these presents through its duly authorized official and the Contractor has caused its common seal to be affixed hereunto and the said two duplicates has caused these presents and the said two duplicates hereof to be executed on its behalf, the day and year first herein above written.

If the Contractor is a Partnership or an Individual

IN WITNESS WHEREOF The Bank and the Contractor have set their respective hands to these presents and two duplicate hereof the day and year first hereinabove written.

If the Contractor is a Company

IN WITNESS WHEREOF The Bank has set its hand to these presents through its duly authorised official and the Contractor has caused its common seal to be affixed hereunto and the said two duplicate/has caused these presents and the said two duplicates hereof to be executed on its behalf, the day and year first hereinabove written.

Signature Clause

SIGNED AND DELIVERED by the Reserve Bank of India by the hand of Shri

(Name and designation)

.....
..... in the presence of

(1)
Address

(2)
Address

.....
.....
.....

SIGNED AND DELIVERED BY

If the part is a partnership firm or any individual should be signed by all or on behalf of all the partners.

.....
1).....
..... Address

.....
2)

.....
..
Address

.....
.....
..
Witnesses

If the Contractor signs under its common Seal the signature clause should tally with their sealing clause in the Articles of Associations.

THE COMMON SEAL OF
Was hereunto affixed pursuant to
the resolutions passed
By its Board of Directors at the
meeting held on

.....
.....
.....

The Contractor is signing by the hand of power of attorney whether a company or individual.

.....
In the presence of

(1
)

.....
.....

(2
)

.....
.....

Directors who have signed these presents in taken thereof in the presence of

The Contractor is signing by the hand of power of attorney whether a company or individual.

(1)

.....

(2)

.....

SIGNED AND DELIVERED BY the Contractor by the hand Of Shri

.....
and duly constituted attorney.

**Reserve Bank of India
Estate Department
Kanpur**

PART-II – UN PRICED BILL OF QUANTITY

Supply, Installation, Testing and Commissioning of 5 KWp Grid Connected SPV Based Solar Power System, for KNSQ, Reserve Bank of India, Kanpur

S. No	Description of the Item	Qty	Unit
1.	<p>Design, Supply, Installation, Testing & Commissioning of 5 KWp grid Connected SPV based Solar Power System. The system shall have guaranteed annualized AC energy output of 4500 Kilo watt hour (Kwh) per year during the first five years of operation. The rate shall include for all the material required including required quantities of SPV modules formed into arrays, their mounting arrangement, power conditioning units, required DC & AC distribution panels with surge protection units, chemical earthing stations with properly supported GI strip of size 25x3mm, supply & laying of 4 core 16 square mm armored aluminum cable from pump room(qty approximately 70.0meter), supply and fixing of 100 Amps 3 phase copper bus bar, supply and fixing of 63 Amps 4 pole MCCB with enclosure, data loggers along with Wifi based arrangement for remote system performance monitoring through licensed software in mobile/web, metering safety arrangements, civil works, training etc. as defined in Part I of the tender to provide a composite operational system. The rate shall include for all the taxes, duties, levies, insurance, transportation etc.</p> <p>(Rate quoted shall be inclusive of GST and other applicable taxes)</p>	1	Job
	<p>Total capital-cost/work-value (A) = _____ in words</p>		
2.	<p>Annual Maintenance Contract Charges per annum Comprehensive annual maintenance charges for periodic maintenance/servicing of complete system for cleaning of PV cells, PCU, remote monitoring system etc. including providing all spare parts/ tools/ consumables for servicing at least once in a quarter and whenever required as per good engineering practice, data charges for enabling remote monitoring of system performance, recommendation(s) of the respective equipment manufacturer(s) and instructions of engineer-in-charge as per the scope of work in Part I of the tender. The rate shall be applicable after one year defect liability period/warranty of entire unit. The rate shall include for all the taxes, duties, levies, insurance, transportation, EPF ESIC etc. (Rate quoted shall be inclusive of GST and other applicable taxes)</p>	1	Lumps um
	<p>Total AMC value (B) = _____ in words</p>		
	<p>Total cost of ownership = Total capital cost of work (A) + AMC Charges (B) x 7.048 = _____ (in words)</p>		

Stamp and Signature of the contractor

Place :

Date :



**RESERVE BANK OF INDIA
ESTATE DEPARTMENT
KANPUR**

**Supply, Installation, Testing and Commissioning of 5 KWp Grid Connected
SPV Based Solar Power System, one each for Kidwai Nagar Staff Quarters
(KNSQ) for Reserve Bank of India, Kanpur**

Part II

PRICE BID

Name of the tenderer _____

Address _____



**Reserve Bank of India
Estate Department
Kanpur
PART-II –BILL OF QUANTITY**

Supply, Installation, Testing and Commissioning of 5 KWp Grid Connected SPV Based Solar Power System, for KNSQ, Reserve Bank of India, Kanpur

Sl. No	Description of the Item	Qty	Unit	Rate (in INR)	Amount (in INR)
1.	Design, Supply, Installation, Testing & Commissioning of 5 KWp grid Connected SPV based Solar Power System. The system shall have guaranteed annualized AC energy output of 4500 Kilo watt hour (Kwh) per year during the first five years of operation. The rate shall include for all the material required including required quantities of SPV modules formed into arrays, their mounting arrangement, power conditioning units, required DC & AC distribution panels with surge protection units, chemical earthing stations with properly supported GI strip of size 25x3mm, supply & laying of 4 core 16 square mm armored aluminum cable from pump room(qty aprox 70.0meter), supply and fixing of 100 Amps 3 phase copper bus bar, supply and fixing of 63 Amps 4 pole MCCB with enclosure, data loggers along with Wifi based arrangement for remote system performance monitoring through licensed software in mobile/web, metering safety arrangements, civil works, training etc. as defined in Part I of the tender to provide a composite operational system. The rate shall include for all the taxes, duties, levies,insurance, transportation etc. (Rate quoted shall be inclusive of GST and other applicable taxes)	1	Job		
	Total capital-cost/work-value(A)= _____ in words	Total capital-cost/work-value (A) in figures			
2.	<u>Annual Maintenance Contract Charges per annum</u> Comprehensive annual maintenance charges for periodic maintenance/servicing of complete system for cleaning of PV cells, PCU, remote monitoring system etc. including providing all spare parts/ tools/ consumables for servicing at least once in a quarter and whenever required as per good engineering practice, data charges for enabling remote monitoring of system performance, recommendation(s) of the respective equipment manufacturer(s) and instructions of engineer-in-charge as per the scope of work in Part I of the tender.	1	Lump sum Amount per annum		

	The rate shall be applicable after one-year defect liability period/warranty of entire unit. The rate shall include for all the taxes, duties, levies, insurance, transportation, EPF ESIC etc. (Rate quoted shall be inclusive of GST and other applicable taxes)				
	Total AMC value (B) = _____ in words	Total AMC value (B) in figures =			
	Total cost of ownership = Total capital cost of work (A) + AMC Charges (B) x 7.048 = _____ (in words)	TCO in figures =			

Rates are to be quoted in the prescribed format only.

Stamp and Signature of the contractor

Place:

Date: