



KELTRON[®]

KELTRON EQUIPMENT COMPLEX
കെൽട്രോൺ എക്യൂപ്മെന്റ് കോംപ്ലക്സ്

കരകുളം, തിരുവനന്തപുരം - 695564 | PH: 0472 2815999
KARAKULAM, THIRUVANANTHAPURAM | GSTIN: 32AABCK1319E3Z6

A UNIT OF KERALA STATE ELECTRONICS DEVELOPMENT CORPORATION LTD.

REGD. OFFICE : KELTRON HOUSE, VELLAYAMBALAM, THIRUVANANTHAPURAM - 695 033
CIN: U74999KL1972SGC002450 www.keltron.org

TENDER FOR

Design & Engineering, Manufacture/Procurement, Testing, Supply of 1.5 MWp Grid connected Roof Top Solar PV (GRTSPV) Power Plant including 5 years comprehensive maintenance on Turnkey basis as per tender document

Registered office: Keltron House, Vellayambalam, Thiruvananthapuram-695033

Ph: 0471-2724444, 4094444 Fax: 0471-2724545

NOTICE INVITING TENDER

E-tenders are invited from eligible Contractors / Suppliers for the items as detailed below:

Tender Number	KSEDC/KEC/PUR/REEG/0034/2025-26
Details of work	Design & Engineering, Manufacture/Procurement, Testing, Supply of 1.5 MWp Grid connected Roof Top Solar PV (GRTSPV) Power Plant including 5 years comprehensive maintenance on Turnkey basis as per tender document.
Date & Time of publishing bid documents	24.02.2026 6 PM
Date and Time of Pre-bid meeting	No pre bid meeting
Last Date & Time of online Submission of bid document	05.03.2026 6pm
Deadline for submission of Hardcopies of Attachments to the Office of the tendering authority	No hard copies accepted
Number of cover(s)	Two
Date & Time of Opening of Technical Bids / Pre-bid (cover 1)	07.03.2026 9am
Date & Time of Opening of Financial Bids (cover 2)	Will be published after Technical evaluation
Tender Document fee	₹ 25000.00
EMD	₹800000.00EMD exemption only for those who have UAN
Time allowed for the completion of work	Supply, installation , commissioning and handing over the project within 100 days from the date of PO/WO/LOI
Technical clarification	Rajeev M (Manager REEG) 9947781645 Arun MP (AM) : 8075714589
Tender document & commercials	Ranjith Vijay : 6282786800 Executive (Purchase)

Bidding and other information(Kerala State IT Mission E-tender help desk)	0471 2577388 / 0471 2577188 / 0471 2577088 Email: etendershelp@kerela.gov.in (On all Government working days from 10.00 am to 5.00 pm)
Tender Inviting Authority contact details	Sanjay N Head(Purchase) Keltron Equipment Complex, Karakulam,Thiruvananthapuram-695564 Email : kecpurchase@gmail.com Ph: 0472-2815999 0472-2815998 0472-2815997 Ext: 820 0472-2815996 Direct Line: 0472-2815820

All bidders participating in the Bid should have a valid Digital Signature certificate availed from an approved certifying authority. For more details about e-Tendering, please contact Kerala State IT Mission, e- Government Procurement PMU & Help Desk,

Trivandrum

Address : Kerala State IT Mission e-Government Procurement PMU and HelpDesk

Saankethika, Near EPF Office

Vrindavan Gardens, Pattom

Trivandrum - 695004

(On all Government working days from 10.00 am to 5.00 pm)

Tel : 0471-2577088, 0471-2577188

Mobile : 91-0471-2577388

E-Mail : etendershelp[at]kerala[dot]gov[dot]in

For any technical related queries please call at 24 x 7 Help Desk Number

0120-4001 002

0120-4001 005

0120- 4493395

International Bidders are requested to prefix 91 as country code

E-Mail Support

A) For any Issues or Clarifications relating to the published tenders, bidders are requested to contact the respective Tender Inviting Authority

All the Tender documents are to be submitted online only and in the designated covers on the above website and no manual submission will be entertained. The pre-qualification/technical bid shall be opened online at the office of the Head (Purchase), KELTRON Equipment Complex, Karakulam,

Thiruvananthapuram – 695 564 on the date and time mentioned above. The tendering authority reserves the right to cancel any or all bids without assigning any reasons. KELTRON will not be responsible for any errors like missing of schedule data while downloading by the bidder/ non-receipt of document/delay if any. Further details can be had from the office of the undersigned.

All bidders participating shall verify on the e-tender portal for any addendums, corrigendum's before submitting the final bid document. The bid document uploaded should be after considering all addendums, corrigendum's. Bids without considering the addendums, corrigendum's will be considered as invalid.

Sd/-

Sanjay N

Head(Purchase)

Keltron Equipment Complex,

Karakulam, Thiruvananthapuram-695564

Email : kecpurchase@gmail.com

Ph: 0472-2815999

0472-2815998

0472-2815997 Ext: 820

0472-2815996

Direct Line: 0472-2815820

PART 1 - DEFINITIONS AND INTERPRETATIONS

1. Accepted schedule' is the schedule of items containing the agreed rates on the basis of which the agreement shall be drawn.
2. 'Agreed rates' shall mean the rates accepted and agreed both by the KSEDC and the Contractor and which shall be given in the schedule forming part of the contract agreement and valid during the period of contract.
3. 'Agreement Authority' shall mean the Officer authorized by KSEDC to execute the agreement with the Contractor.
4. 'Bank' means State Bank of India or Nationalized Banks
5. Tender' or 'Bid' shall have the same meaning and includes all the documents which the bidder submitted with the letter of application as stipulated by the KSEDC and will be included in the contract agreement.
6. 'Bid Amount' or 'Bid Price' means the total bid amount indicated by the bidder in schedule (Price bid or Bill of Quantities) of the bid documents.
7. 'Bid Security' or 'Earnest Money Deposit' shall have the same meaning.
8. 'Bidder' shall mean the person, company, corporate body, association, body of individuals, group of persons, limited Company, firm, organization either single or Joint Venture from India bidding for the works and his/its executors or administrators or successor or assignees.
9. The 'KSEDC' or 'KELTRON' or 'The Company' or 'Purchaser' 'Buyer' or 'employer' shall mean 'Kerala State Electronics Development Corporation Limited'.
10. 'Contract' shall mean and include the conditions of bid and contract agreed to, specifications, schedules, drawings, annexure, letter of application, accepted schedule of prices and the agreement to be entered into.
11. 'Contract Agreement' shall mean the agreement entered into between the Contractor and the agreement authority.
12. 'Contractor' shall mean the Bidder who's Bid has been accepted by or on behalf of the KSEDC and shall include the contractor, legal personnel, and representatives.

13. 'Contractor's Representative' means the person authorized by the contractor in writing and approved by KSEDC to act on behalf of the contractor for the purpose specified in the letter of authorization.
14. Contractor's Personnel' means the contractor's representative and all personnel whom the contractor authorizes who may include staff, laborer and all other employees and any personnel assisting the contractor.
15. 'Defect' shall mean any part of the supply or work or services not completed or not performing in accordance with contract or specifications.
16. 'Drawing' shall mean collectively all the drawings, revisions and additions / modifications as per the contract issued from time to time and drawings submitted by the Contractor and accepted by KSEDC.
17. 'Fiscal year' shall mean a year beginning on 1st April and ending 31st March in the succeeding year.
18. 'Month' or 'calendar month' shall mean not only the period from the first of a particular month, but also, any period between a date in a particular month and the day previous to the corresponding date in the subsequent month unless specifically stated otherwise.
19. 'Government' shall mean 'The Government of Kerala'.
20. 'I.S.S.' means the Indian Standard Specifications of the Bureau of Indian Standards.
21. 'Letter of acceptance' shall mean the letter of formal acceptance signed and issued by the tendering/bidding authority.
22. 'Letter of Application' shall mean the document entitled letter of the bid which was furnished by the bidder and includes the signed bid documents in full.
23. Obligations of KSEDC are only those obligations, which have been specifically agreed to in the agreement.
24. 'Performance Certificate' shall mean the certificate issued by KSEDC on the performance of the obligations of contractor under the contract, when completed and this constitutes the acceptance of the work in Toto. This certificate will be issued by the KSEDC on the basis of the application of the contractor and only after the successful completion of period of contract.

25. 'Period of contract' shall mean the period covered from the date of issue of letter of acceptance to the date of satisfactory completion of the supply including duly sanctioned extensions and the specified defects liability period.
26. 'Schedules' mean the documents completed and submitted by the contractor with the bid and as included in the contract, which include the quantities, rates, general specifications, unit and technical particulars.
27. 'Site' or 'location' shall mean and include the lands and buildings in which the supply / work / services is to be executed in accordance with the contract.
28. 'Specification' shall mean collectively, all the terms and stipulations contained in the bid, contract agreement and any additions/modifications in accordance with the contract, technical provisions as per relevant BIS Codes and /or National Building Code and those specifically mentioned in construction drawings and its modifications and revisions which specifies the work wherever applicable or written directions of Engineer-in-charge.
29. 'Sub-Contractor' shall mean any person named in the bid and agreement for any part of the work and the legal representatives, successors and assignees of such persons.
30. 'Tendering authority' or 'bidding authority' shall mean the authorized officer of KSEDC who invites the bid and issues the bid documents on behalf of KSEDC.
31. 'Test' means the tests which are specified in the contract and mandatory tests specified by rules or regulations, to be carried out in accordance with the specifications before the works or on completion of work to the satisfaction of the KSEDC.
32. 'Time of Completion' shall mean the date within which the work under the contract is required to be completed satisfactorily in accordance with the specifications, drawings etc., including all extra items required to be executed for satisfactory completion of the work and including all extension of time duly granted by the KSEDC.
33. 'The title of clauses' shall not limit, alter or affect the meaning of the specifications or conditions of bid documents.

34. 'Words' importing the singular number shall include the plural number and plural the singular and the words importing the masculine gender shall include the feminine and the neutral gender where the context so requires. Words have their normal meaning under the language of the contract unless specifically defined.
35. 'Work' means what the contract requires the contractor to construct, fabricate, furnish, supply, and (or) provide services for, install, complete, maintain, test, commission and hand over to the KSEDC depending on the order awarded.
36. 'Writing' shall include any manuscript, type written or printed statement under or over signature or seal as the case may be.

PART 2 –INSTRUCTIONS TO THE BIDDERS (ITB)

1. Bidders are requested to read the specifications, tender schedules, drawings, annexure and any other document related to the tender with utmost care.
2. Any ambiguity or omission in the specifications, drawings, quantities or any other information related to the tender shall not be misinterpreted and the onus is on the bidder to clarify the same before arriving at the rate and submission of tender or commencement of work.
3. No alteration shall be made by the bidder in the tender schedule, specifications, drawings, quantities etc and in case if any such alterations are made, the tender will automatically become invalid. In case the bidder wish to include any remarks, explanation or terms and conditions, he is required to set out the same in a separate covering letter and the same shall become binding, only if accepted by the employer in writing at the time of acceptance of tender.
4. The rates will be quoted in BOQ, of the financial bid. The bidder shall quote unit rate of the item in BOQ and GST, freight/unloading as total in specified columns in BOQ. The bidding will be on-line; no other modes will be accepted.
5. It shall be the sole responsibility of the bidder to collect on his own expense, all necessary and required information related to the risks involved, contingencies and any other circumstances, so as to enable him to make a proper tender and to enter into a contract with the employer, he is also required to examine the drawings, specifications, conditions of contract and so on and must inspect the site of work, examine the nature of ground and acquaint himself with local conditions and means to access to the work, the nature of work, and in brevity all matters pertaining there to before he submits his tender.

6. The right to extend the last date for the submission of e-tender shall vest with KELTRON.
7. The tender submitted on behalf of a firm shall be signed by all the partners of the firm or by a partner who is authorized to do so, on behalf of the firm to enter in to the proposed contract or may be by a person holding the power of attorney in the case of a company.
8. EMD and tender fee payment shall be done in line with the government guidelines regarding the e-tender.
9. The notice inviting tender, the condition of the tender document and the duly completed form of tenders will form part of the agreement to be executed by the successful bidder with the employer.
10. KELTRON is not bound to accept the lowest tender and reserves the right to accept either in full or part of any tender or reject all the tenders without assigning any reasons whatsoever.
11. Any clarification regarding the tender may be addressed to kecpurchase3@gmail.com and the same shall be communicated to Ph: 0472-281599, 0472-2815998, 0472-2815997, 0472-2815996 Ext: 821 to avoid conflicts.

PART 3 – GENERAL CONDITIONS OF CONTRACT (GCC)

1. Tenders should be submitted through Kerala Govt. E- Tender portal <http://etenders.kerala.gov.in>
2. Tenderer should have valid digital signature for quoting.
3. Partially completed or incomplete tenders shall not be considered.
4. The rate should be quoted as per the format given in the e-tender portal. During period of validity of the tender no enhancement in the tendered rate will be allowed.
5. When a tenderer submit his tender in response to this document, he will be deemed to have understood fully about the requirements and terms & conditions.
6. It is the responsibility of the tenderer to incur the cost of the preparation and submission of bids including the cost of digital certificate, internet connection etc.
7. Before submission of tender, the tenderers are requested to visit the site and make themselves fully conversant with the scope of work and study all technical specifications, conditions of contract etc. so that no ambiguity arises on a later date in those respects. For any clarification regarding the scope of work or technical details may be addressed to Rajeev M (Manager REEG) : 9947781645 ,Arun MP (AM) : 8075714589
8. Tenders will be considered firm for acceptance for a period of 180 days from the date of opening of tenders. If it is found necessary to keep the tender open for a further period, prior consent of the tenderer shall be taken for every further period of extension of validity.
9. The acceptance of any/all tenders rests with Head purchase, KEC, Karakulam.
10. Tenders, which are incomplete in any respect, are liable to be rejected.
11. The quantities provided in the schedule can vary and the payment will be made for the actual quantity of work executed and will be limited to work order value.
12. The contractor should be prepared to do extra items of works if it is found essential.

13. The prices shown in the work order shall remain firm during the entire period of contract and no escalation or revision shall be allowed.
14. The successful tenderer has to deposit 5% of the contract value as PBG valid for warranty period / defect liability period +90 days and execute an agreement with KSEDC in non judicial stamp paper of 0.1% of order value/Govt. norms in standard format within 7 days from the date of acceptance of work order/purchase order.
15. All Supply and Installation works are to be done in conformity with the standard PWD/CPWD specifications and conditions of contract. The quoted rates should be inclusive of cost of all materials, labour charges, and all applicable taxes and duties excluding GST. Samples of all materials are to be shown and necessary approvals are to be taken before starting the work.
16. Detailed technical specifications/catalogue for the major item should be attached in tender for technical evaluation.
17. Necessary Test Certificates are also to be submitted for the major Items if asked by tenderer.
18. The contractor shall provide his own tools, plant and store shed to store all materials and he will be entirely responsible for the proper storage, use and safe custody of all materials and also for any damage, loss, theft, mishandling and weathering due to any cause whatsoever.
19. The contractor shall employ engineering personnel in addition to other supporting staff for works supervision.
20. If the Contractor fails to employ the required engineering personnel at site as per the above, the Engineer-in charge shall impose a penalty for non-engaging the required personnel at site at the appropriate daily wages rates published by the Government (Finance Department - Enhancement of remuneration of daily wage personnel and persons on contract appointment) prevailing at the time of such non engagement on a per day basis. This amount shall be deducted from any moneys due to the contractor by way of this contract.
21. The contractor shall be responsible for the safety of the laborers employed by him and he shall be liable to pay the necessary compensation in case of accidents as per Workmen's Compensation Act. Provisions of Indian Contract Labor Act also will have to be complied within this respect. In case the contractor fails to comply with the regulations, the expenses incurred by KSEDC shall be recoverable from the contractor.

22. All employees employed by the contractor should be covered by ESI & PF and the contractor will be liable to pay both employers and employees contribution as per the respective Acts. Bidder should have ESI & PF registration. Documents to be submitted along with the tender
23. The work should be completed in all respects by the stipulated time from the date of award of contract.
24. The date of completion agreed upon shall be strictly observed by the contractor and he shall show proportionate progress during the execution of work, failing which, a penalty of 0.5% for every 3 day or part there of subject to a maximum of 5% of contract value shall be imposed. Finally KSEDC reserves the right to get the work done otherwise at the risk and cost of the contractor if this work is delayed for a substantial period.
25. The contractor shall clear all debris from site to the satisfaction of KSEDC.
26. Arrangements for water and power supply required for this work will be under the scope of the contractor.
27. Sub-letting of work of any nature is strictly forbidden.
28. The work should be carried out as per approved drawings only. The successful bidder immediately after getting the order should submit one set of detailed drawings for approval.(If insisted by KSEDC).
29. All local enactments applicable shall be complied with by the contract.
30. Supply and Installation works are to be carried out adhering to the standards of KPWD/ CPWD norms as required.
31. The conditions in respect of quality of work, testing of materials, approved brand of material to be used etc. as stipulated by the Engineer in charge of KSEDC is to be complied.
32. All materials arranged for bonafide use or works including auxiliary works should not be misused in any manner. If any misuse or work through negligence by the contractor comes to light, the contractor is liable to pay penalty as may be fixed by the Engineer-in Charge.

33. All materials supplied by the contractor shall remain the absolute property of KSEDC and shall not, on any account, be removed from the worksite and shall at all times be open to inspection by the Engineer-in charge of KSEDC. The contractor shall be responsible for the proper use and bear the cost for protection of materials supplied for use on the work and bear any loss from deterioration or from fault workmanship or avoidable excessive use of materials etc. or from any other causes.
34. All materials or articles shall be approved by the agreement authority and use without such approval shall meet the risk of subsequent rejection. Such approval shall not absolve the contractor from his responsibility to use materials and articles as per specification.
35. Materials, tools and plant if any entrusted with the contractor by KSEDC in pursuance of the contract will be treated as an entrustment by KSEDC and to be continued to be KSEDC's property until actually and duly accounted for.
36. Damage, if any, caused by the contractor to KSEDC third party equipment's during the course of work have to be rectified/replaced by the contractor at his own risk and cost.
37. The machinery, equipments and other valuables of the contractor at worksite shall be insured by him. KSEDC will not give any financial assistance to him on account of any loss or damage to the valuable.
38. Any defect developed within 'Defect Liability Period' the virtual completion of the work will have to be rectified by the contractor at their own cost and in case the defects are not rectified by the contractor, KSEDC or their representative shall get the work done at the risk and cost of the contractor.
39. Payments will be made for work done at the rates specified in the schedule of rates.
40. The rates are expected to cover all incidental charges and are for finished work as per specifications and conditions of contract. Billing will be done for the actual quantity of work done at agreed rates.
41. The rates quoted by the contractor shall be firm throughout the contract period and there shall be no upward revision of the rates quoted by the contractor for any reasons whatsoever.
42. Contractor shall indemnify KSEDC against any accident to the works or your workers. All construction equipments brought to the site will be insured by you. You will also insure your workmen under Workmen Compensation Act insurance policy. No extra amount shall be payable to you on this account.

43. There should be a maintenance warranty including replacing of all parts.
44. In case the Supply of any items for the work is done by KSEDC, the work awarded bidders have to take care of the transportation of the items to the site.
45. The bidder should have experience in executing similar projects and enclose the experience certificate.
46. For making payments to the contractors GST bills need to be submitted. Further Income Tax, Works welfare fund etc will be deducted as per the rules during the currency of contract.
47. These instructions with conditions stated there in shall form part of the contract documents.
48. In case of discrepancy between technical specification and item specification provided along with Bill of Quantities, the Item Specification shall prevail.
49. The Party should have GST registration. The rate quoted should be excluding GST.
50. Tenders, which are not in conformity with the above tender conditions, are liable to summary rejection.
51. Any deviation in tender terms & conditions is not accepted. The supplier can submit their deviations as per annexure 6, 7. The acceptance of deviation vested with tender inviting authority. If any deviation is accepted, the acceptance will be communicated in written document.

PART 4 – SPECIAL CONDITIONS OF CONTRACT (SCC)

1. All statutory payments in connection with the employment of the work men & employees state insurance for this work shall be borne by the contractor. The copies of such documents should be produced before commencing the work.
2. The contractor is the employer of all the workers engaged for this work and should therefore take all the required registrations and pay premiums correctly to labor welfare funds / PF etc
3. The contractor shall not be entitled to any compensation for any loss suffered by him on account of delays in commencing or executing the work, whatever the cause for such delays may be including delays in procuring Govt. controlled or other materials.
4. The workmen will not be allowed to stay within the premises under any circumstance whatsoever unless otherwise permitted by the employer.
5. The water resource required for the work can be availed from the available source at site free of cost if permitted. In any case water is not available from this source, the Contractor shall make alternate arrangement to get sufficient water for the work at his own cost.
6. The electric power required for the work can also be drawn from the supply main available near the site if permitted. The Contractor has to make his own arrangements to take the supply to the requisite position. In any case electric power is not available from this source, the Contractor shall make alternate arrangement to get electric power for the work at his own cost.
7. The authorized officials of the Employer shall be entitled to inspect the materials/ work at any time in the works of the Contractor, if they so desire and the contractor shall provide all reasonable facilities to do so.
8. Even though in finishing items, the number of coats of Paint/Polish are mentioned, the Contractor shall note that the entire work be finished in top class while handing over, including if necessary, additional coat of Painting/Polishing etc without any extra cost.
9. The work shall be scheduled during the restricted working hours permitted and sufficient labor shall be provided to complete the work within the completion period.

10. Any deviation in tender terms & conditions is not accepted .The supplier can submit their deviations as per annexure 6, 7. The acceptance of deviation vested with tender inviting authority. If any deviation is accepted, the acceptance will be communicated in written document.
- 11. Selected contractor is responsible for making payment to the principal client towards initial performance security as per principal tender requirement. It shall be released and paid back to the contractor once it is released by principal client.**
- 12. A separate agreement shall be executed for the project with suitable Kerala stamp paper.**

PART 5 - SAFETY CODE

1. First aid appliances shall be kept in a readily accessible place.
2. Suitable and strong scaffolds should be provided for workmen for all works that cannot safely be done from the ground/ floor.
3. 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 whose minimum height shall be one meter.
4. No floor, roof or other part of the structure shall be so overloaded with debris or materials as to render it unsafe.
5. Safety belts shall be provided for workmen engaged for work in first floor and above levels.
6. An injured person shall be taken to a public hospital without loss of time, in case the where the injury necessitated hospitalization.
7. Those engaged in welding works shall be provided with welders protective eye shields and gloves.
8. The contractor shall comply with the provisions of all Labor Legislation including the requirement of Payment of Wages Act, Owners Liability Act, Workmen compensation Act, Contract Labor Act, any other acts framed there under from time to time.
9. This terms and condition, safety codes, special conditions etc will form part of the agreement.

10. It is specifically understood that the moment the tender is submitted the contractor shall be deemed to have complied with the terms and conditions and has also satisfied himself about the requirement therein.
11. During Electrical works, all safety measures should be taken as per CEA guidelines.
12. Electrical installations should be done in such a way to meet the Kerala Electrical inspectorate guidelines and approvals should be taken, if necessary.
13. Only qualified persons in appropriate fields should be engaged for the work and safety of the person engaged is solely the responsibility of the contractor.

PART 6 - GENERAL OBLIGATIONS

Defect liability

For a period during the defect liability period commencing from the taking over of the work by KELTRON, the contractors liability shall be to replace the defective parts, rectify/ reconstruct the defective work, repair/servicing of defective parts immediately on intimation from the company.

Annual Maintenance Contract (AMC)

Comprehensive or Non-Comprehensive AMC shall be provided for as per the contract agreement after the defect liability period as per tender terms.

Mandatory spares

Mandatory spares shall be supplied as a part of the equipment supply. A detailed list of spares and vendor details should be provided along with the operations and maintenance manual. All necessary documents for the operations and maintenance shall be provided at the time of handing over after commissioning.

Training

Necessary onsite training shall be given to the Engineers for the operation and maintenance of the system after installation & commissioning.

PART 9
TENDER DOCUMENT
(E-Procurement – Two Part Tender)

Tender No. KSEDC/KEC/PUR/REEG/0034/2025-26

Date: 24.02.2026

Design & Engineering, Manufacture/Procurement, Testing, Supply of 1.5 MWp Grid connected Roof Top Solar PV (GRTSPV) Power Plant including 5 years comprehensive maintenance on Turnkey basis as per tender document as per tender document



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കരകുളം, തിരുവനന്തപുരം - 695564 | PH: 0472 2815999
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A UNIT OF KERALA STATE ELECTRONICS DEVELOPMENT CORPORATION LTD.
REGD. OFFICE : KELTRON HOUSE, VELLAYAMBALAM, THIRUVANANTHAPURAM - 695 033
CIN: U74999KL1972SGC002450 www.keltron.org

1. PREAMBLE

This tender is issued by Kerala State Electronics Development Corporation (KELTRON) inviting proposals from eligible vendors for the Design & Engineering, Manufacture/Procurement, Testing, Supply of 1.5 MWp Grid connected Roof Top Solar PV (GRTSPV) Power Plant including 5 years comprehensive maintenance on Turnkey basis as per tender document. Interested parties, who meet the qualification criteria specified in this document, please go through this document for scope of work and terms and conditions. The proposals submitted in the prescribed format of e-tendering system shall qualify for evaluation.

1. Tender Documents shall be available only on Internet and shall not be available for sales elsewhere.
2. KELTRON reserves the right to amend or cancel the tender in part or in full without prior notice at any point of time
3. KELTRON reserves the right to reject the bid of parties who have failed to supply / provide adequate after sales support for the products supplied against various previous orders.

4. In the event of failure to deliver the materials/work as per the agreed delivery schedule, we should be entitled to recover a sum equivalent to 0.5% of the order value for every 7 day delay or part thereof subject to a maximum of 5% of the order value. Also, if the supplies are not within control, the buyer is entitled to cancel the order and make necessary alternative immediate arrangements and if the work is not within control after supply of materials, the buyer is entitled make necessary alternative immediate arrangements at the cost of contractor. If the delay exceeds 30 days after the scheduled date of completion, such contractor will not be considered for the subsequent tenders
5. The Special Instructions to the Contractors/Bidders for the e-submission of the bids are given under “Help to Contractors” in website.<http://etenders.kerala.gov.in/nicgep/app>

2. TENDER SCHEDULE

Please refer the Notice inviting tenders

3. GENERAL INSTRUCTIONS

3.1 General

- i. The Bidders are requested to examine the instructions, terms and conditions and specifications given in the Tender. Failure to furnish all required information in every respect will be at the Bidder's risk and may result in the rejection of bid.
- ii. It will be imperative for each Bidder(s) to familiarize itself/ themselves with the prevailing legal situations for the execution of contract. KELTRON shall not entertain any request for clarification from the Bidder regarding such legal aspects of submission of the Bids.
- iii. It will be the responsibility of the Bidder that all factors have been investigated and considered while submitting the Bids and no claim whatsoever including those of financial adjustments to the contract awarded under this tender will be entertained by KELTRON . Neither any time schedule nor financial adjustments arising thereof shall be permitted on account of failure by the Bidder to appraise themselves.
- iv. The Bidder shall be deemed to have satisfied itself fully before Bidding as to the correctness and sufficiency of its Bids for the contract and price quoted in the Bid to cover all obligations under this Tender.

- v. It must be clearly understood that the Terms and Conditions and specifications are intended to be strictly enforced. No escalation of cost in the Tender by the Bidder will be permitted throughout the period of Agreement or throughout the period of completion of contract whichever is later on account of any reasons whatsoever.
- vi. The Bidder should be fully and completely responsible to KELTRON for all the deliveries and deliverables within the stipulated timelines.
- vii. Bidders are advised to inspect the sites, and get in touch with the local transport contractors, and get them familiarized with the routes and method of transport to site. This is most important as it is very essential for the successful execution of the contract, that the Bidder should be in possession of information regarding local conditions to enable him to be in a position to handle all materials and to transport them safely to site. KELTRON will not take responsibility on issues pertaining between contractor/ labor unions/ transporters/ loading unloading.

3.2 Amendments to the Tender

- a) The Bidders should periodically check for the amendments or corrigendum or information in the website till the closing date of this Tender. KELTRON will not make any individual communication and will in no way be responsible for any ignorance pleaded by the Bidders.
- b) No clarifications would be offered by KELTRON within 48 hours prior to the due date and time for opening of the Tender.
- c) Before the closing of the Tender, KELTRON may amend the Tender document as per requirements or wherever KELTRON feels that such amendments are absolutely necessary.
- d) KELTRON at its discretion may or may not extend the due date and time for the submission of bids on account of amendments /request from bidders.
- e) Keltron have its discretion to extend bid opening date/re-tender/cancel the tender without assigning any reason.
- f) KELTRON is not responsible for any misinterpretation of the provisions of this tender document on account of the Bidder's failure to update the Bid documents on changes announced through the website.

3.3 Language of the Bid

The bid prepared by the Bidder as well as all correspondence and documents relating to the bid shall be in English only.

3.4 Bid Currency

Prices shall be quoted in Indian Rupees (INR) Only.

3.5 Contacting Tender Inviting Authority

- 1) Bidders shall not make attempts to establish unsolicited and unauthorized contact with the Tender Accepting Authority, Tender Inviting Authority or Tender Scrutiny Committee after the opening of the Tender and prior to the notification of the Award and any attempt by any Bidder to bring extraneous pressures on the Tender Accepting Authority and / or the Officials of KELTRON shall be sufficient reason to disqualify the Bidder.
- 2) Notwithstanding anything mentioned above, the Tender inviting Authority or the Tender Accepting Authority may seek bonafide clarifications from Bidders relating to the tenders submitted by them during the evaluation of tenders.

4. BID PREPARATION AND SUBMISSION

4.1 Cost of Bidding.

The bidders shall bear all costs associated with the preparation and submission of bid. KELTRON will in no case be responsible or liable for the charges/costs incurred regardless of the conduct or outcome of the bidding process.

4.2 Tender Document Fee.

Refer Notice inviting Tender for Tender Document Fee. Tender Documents can be downloaded from the website (<https://etenders.kerala.gov.in>). The tender Document fee along with GST which is non-refundable shall be remitted online mode

4.3 Two Part Bidding

Bidders should examine all instructions, Terms, Conditions and Technical specifications given in the Tender document. Failure to furnish information required by the Bid or submission of a Bid not substantially responsive in every respect will be at the Bidder's risk and may result in rejection of Bids. Bidders should strictly submit the Bid as specified in the Tender, failing which the bids will be treated as non-responsive and will be rejected.

- a) The Technical Bid format as given in the Tender shall be filled, signed and stamped on all pages. Errors if any shall be attested by the Bidders. The Technical Bid shall not contain any indications of the Price; otherwise the Bid will be summarily rejected.
- b) Commercial bid shall be submitted as per the format (BOQ).

4.4 Online Bidder registration process

Bidders should have a Class II or above Digital Signature Certificate (DSC) to be procured from any Registration Authorities (RA) under the Certifying Agency of India. Details of RAs will be available on www.cca.gov.in. Once, the DSC is obtained, bidders have to register on www.etenders.kerala.gov.in website for participating in this tender. Website registration is a one-time process without any registration fees. However, bidders have to procure DSC at their own cost. Bidders may contact e-Procurement support desk of Kerala State IT Mission over telephone at 0471- 2577088, 2577188, 2577388 through email: etendershelp@kerala.gov.in for assistance in this regard.

4.5 Online Tender Process

The tender process shall consist of the following stages:

- a) **Downloading of tender document:** Tender document will be available for free download on www.etenders.kerala.gov.in. However, tender document fees shall be payable at the time of bid submission as stipulated in this tender document.
- b) **Publishing of Corrigendum:** All corrigenda shall be published on www.etenders.kerala.gov.in and shall not be available elsewhere.
- c) **Bid submission:** Bidders have to submit their bids along with supporting documents to support their eligibility, as required in this tender document on www.etenders.kerala.gov.in. No manual submission of bid is allowed and manual bids shall not be accepted under any circumstance
- d) **Opening of Technical Bid and Bidder short-listing:** The technical bids will be opened, evaluated and shortlisted as per the eligibility and technical qualifications. All documents in support of technical qualifications shall be submitted (online). Failure to submit the documents online will attract disqualification. Bids shortlisted by this process will be taken up for opening the financial bid.

e) **Opening of Financial Bids:** Bids of the technically qualified bidder's shall only be considered for opening and evaluation of the financial bid on the date and time mentioned in critical date's section.

4.6 Bid submission process

For submission of bids, all interested bidders have to register online as explained above in this document. After registration, bidders shall submit their Technical bid and financial bid online on www.etenders.kerala.gov.in along with online payment of tender document fees and EMD.

For page by page instructions on bid submission process, please visit www.etenders.kerala.gov.in and click "Bidders Manual Kit" link on the home page.

It is necessary to click on "Freeze bid" link/ icon to complete the process of bid submission otherwise the bid will not get submitted online and the same shall not be available for viewing/ opening during bid opening process.

4.9 Bid submission

MINIMUM ELIGIBILITY CRITERIA

The bidder/applicant should submit the following documents as a minimum eligibility criteria documents. The bids will not be considered for evaluation if any of the documents pertaining to minimum eligibility criteria are not submitted along with bid.

The Bidder(s) should meet the following Eligibility Criteria to participate in the Tender and should submit documentary proof for fulfilling the Eligibility in the Technical Bid

- a. The Bidder should be a Registered Company/Firm in India and consortium bid shall be eligible.
- b. The Bidder should have valid GST Registration certificate.
- c. Bidder should be a net worth positive among the three financial years 2022-23, 2023-24 & 2024-25. (net worth certificate shall be submitted).
- d. Proof of work order or completion certificates shall be submitted along with the bid,
- e. Offered products are shall not end of life and no refurbished one.
- f. Bidder shall not be black listed by any Govt. organisation. Bids containing products from blacklisted companies are not eligible to participate in the tendering process. Bidders who does not meet the criteria given above are subject to be disqualified, if they have made untrue or false representation in the forms, statements and attachments submitted in proof of the qualification requirements or have a record of poor performance, not properly completing the contract, inordinate delays in completion or financial failure, etc.
- g. Bids containing products from black-listed companies are not eligible to participate in the tendering process.
- h. The bidder should have prior experience of arranging inspection and acceptance of the items by the end customers.

Important Note:

Bidders should ensure that they have submitted all the required proof documents as specified in the Tender document without fail. Bids received without supporting documents to prove their Eligibility are liable for rejection. GST registration is mandatory. Keltron reserves the right to reject any bidder at any phase if finding the submitted document is suppressed/untrue.

Cover-1 (Pre-bid / Technical Bid)

The First Stage (Pre-Qualification and Technical Cover based on 2 cover tender system):

Pre-Qualification and Technical proposal shall contain the scanned copies of the following documents which every bidder has to upload.

The cover shall contain:

1. Bidder Information Letter in the Format listed as Annexure-1
2. Declaration Regarding Clean Track Record in the format given as Annexure 2
3. Net worth certificate as per annexure -3
4. Annual turnover certificate as per annexure -4
5. Acceptance of general conditions and instructions as per annexure-5
6. Certificate of incorporation/registration(The bidder have to upload company registration details as per companies act, MSME certificate/GST certificate uploaded will not be accepted)
7. GST certificate
8. Signed copy of un priced BOQ with company seal
9. Duly signed tender document including addendums, corrigendums (The bidder have to upload signed and sealed tender document in all pages)
10. Annexure 6: Deviation in terms and conditions
11. Annexure 7: deviation in technical specifications
12. The bidder needs to submit Manufacturer Authorization Form (MAF) exclusively for this tender by subscribing the tender number and other details.

Cover -2 (financial Bid)

BOQ

The Bidder shall complete the Price bid as per format given for download along with this tender.

Note: The blank price bid should be downloaded and saved on bidder's computer without changing file-name otherwise price bid will not get uploaded. The bidder should fill in the details in the same file and upload the same back to the website.

Fixed price: Prices quoted by the Bidder shall be fixed during the bidder's performance of the contract and not subject to variation on any account. A bid submitted with an adjustable/ variable price quotation will be treated as non - responsive and rejected.

KELTRON doesn't take any responsibility for any technical snag or failure that has taken place during document upload. GST Tax Registration is mandatory for the bidders who are participating.

4.10 Price Bid Form

- a) All the Price items as asked in the Tender should be filled in the Price Bid Format as given in the Tender. The financial bid (BOQ) should be submitted in .xls form which will be opened as and when the technical selection is over. No additional cost on any head can be claimed by the Successful Bidder during execution of the contract.
- b) The Bidder shall quote for Basic cost, GST and others if any. All expenses incurred during delivery of the item at destination including unloading charges has to be borne by the bidder. No additional cost on any head can be claimed by the Successful Bidder during execution of the contract
- c) The Price Bid Form (BOQ) should not contain any conditional offers or variation clauses; otherwise the Bids will be summarily rejected.
- d) The Prices quoted shall be in INDIAN RUPEES only. The tender is liable for rejection if Price Bid contains conditional offers.
- e) The price quoted by the Bidder shall be kept firm for a period specified in the Tender from the date of opening of the tender. The Bidder should keep the Price firm during the period of contract including during the period of extension of time if any. Escalation of cost will not be permitted during the said periods or during any period while providing services whether extended or not within the stipulated delivery period. The Bidders should particularly take note of this factor before submitting the Bids.
- f) If no tax values entered in the GST Column of BOQ, The basic price will be treated as inclusive of applicable GST. The bidders have to enter basic rate of item (Basic rate is multiplied by Qty), total GST for the qty mentioned and any other expenses.
- g) The bidder have to enter loading/unloading/packing /any other expenses to complete supply /installation is entered in column any other expenses.

4.11 Bid Closing date and time

The Bids should be submitted not later than the date and time specified in the Notice inviting Tender / Tender Schedule or Corrigendum (if published). Hence, the Bidders should be cautious to submit the Bids well in advance to avoid disappointments. Any other issues pertaining to bidding should be addressed to KERALA STATE IT MISSION E-Tender cell.

5. TENDER OPENING AND EVALUATION

5.1 Pre-bid / Technical Bid Opening

The Technical Bid will be opened on the date and time as specified in the Tender schedule.

5.2 Tender Validity

- a) The bid submitted by the Bidders should be valid for a minimum period of 180 days from the date of opening of the Tender.
- b) In exceptional circumstances, KELTRON may solicit the Bidders to extend the validity. The Bidder should extend price validity and Bid security validity.

5.3 Initial Scrutiny

Initial Bid scrutiny will be conducted and incomplete details as given below will be treated as non-responsive.

If Tenders are;

- Found with suppression of details
- Incomplete information, subjective, conditional offers.
- Submitted without support documents as per the Eligibility Criteria and Evaluation Criteria.
- Non-compliance of any of the clauses stipulated in the Tender

However, documents of historical nature can be called for by KELTRON for assessing eligibility. All responsive Bids will be considered for further evaluation. The decision of KELTRON will be final in this regard.

5.4 Clarifications by KELTRON

When deemed necessary, KELTRON may seek bonafide clarifications on any aspect from the Bidder. However, that would not entitle the Bidder to change or cause any change in the substance of the Bid or price quoted. During the course of Technical Bid evaluation, KELTRON may seek additional information or historical documents for verification to facilitate decision making. In case the Bidder fails to comply with the requirements of KELTRON as stated above, such Bids may at the discretion of KELTRON, be rejected as technically non-responsive.

5.5 Tender Evaluation

5.5.1 Suppression of facts and misleading information

During the Bid evaluation, if any suppression or misrepresentation is brought to the notice of KELTRON, KELTRON shall have the right to reject the Bid and if after selection, KELTRON would terminate the contract, as the case may be, the rejection/ termination will be without any compensation to the Bidder and the EMD / SD, as the case may be, shall be forfeited.

Bidders should note that if any figure in the proof documents submitted by the Bidders for proving their eligibility is found suppressed or erased, KELTRON shall have the right to seek the correct facts and figures or reject such Bids.

It is up to the Bidders to submit the full copies of the proof documents to meet out the criteria. Otherwise, KELTRON at its discretion may or may not consider such documents. The Tender calls for full copies of documents to prove the Bidder's experience and capacity to undertake the project.

5.5.2 Technical Bid Evaluation

- a) A Technical Committee will examine the Technical Bids against the Eligibility Criteria and Evaluation Criteria given in the Tender document. The evaluation will be conducted based on the support documents submitted by the Bidders. The documents which did not meet the eligibility criteria in the first stage of scrutiny will be rejected in that stage itself and further evaluation will not be carried out for such bidders. The eligible Bidders alone will be considered for further evaluation.
- b) Tender may be declared as nonresponsive in the following cases
1. The Bid is unsigned.
 2. The Bidder has quoted for goods manufactured by different firm without the required authority letter from the manufacturer.
 3. Bidder has not agreed to give the required performance security.
 4. The goods quoted are sub-standard, not meeting the required specifications.
 5. The schedule of Requirement (incorporated in the tender enquiry), the tenderer has not quoted for the entire requirement as specified in that schedule.
 6. The tenderer has not agreed to some essential condition(s) incorporated in the tender enquiry.

c) Registered vendors:

For those Bidders who have already worked or working with KELTRON, their previous performance would be the mandatory criteria for selection. If any unsatisfactory performances of those Bidders are found, their Bids will straight away be rejected.

The Unsatisfactory performance is defined as any of the following:-

- Non responsiveness after getting the Purchase order (or)
- Delay in supply, installation of the ordered items etc. (or)
- Lack of communication about the delay in deliveries, installation etc.
- Poor after sales support against previous supplies with KELTRON.

d) Documents Establishing Goods' Eligibility and Conformity to Bid Document:

Bidder must attach required technical brochures / literatures / data sheets marked and highlighted sequentially for all the products asked in the tender to ensure that compliance to all the specifications given in the tender document can be verified. All the brochures/literature/datasheets shall be counter signed and stamped by the bidders or authorized signatory of bidders. Non-availability of specifications (as mentioned in the tender document) in the brochure/literature will be treated as non-compliance and no clarifications shall be asked in this regard. If bidder fails to submit the required brochures/literatures along with the tender document, it shall be treated as non-compliance and may lead to outright rejection of bid submitted by bidder. No clarifications in this regard shall be sought from the bidder.

e) Specifications:

Specifications are basic essence of the product. It must be ensured that the offers are strictly as per our tendered specifications. At the same time it must also be kept in mind that merely copying our specifications in their quotation shall not make firms eligible for consideration. The documentary evidence of conformity of the goods and services to the Bid Document may be in the form of literature, drawings and data etc. compliance statement submitted shall be duly supported by technical literature, equipment brochures & other related reports / documents from the OEM. The compliance statement not supported by the documentary evidence shall not be considered. Such bids shall be considered as non-responsive and may result in rejection on technical grounds.

f) Submission of detailed requirements for installation & commissioning of the equipment:

All Bidders / Agents must submit full details and requirements for Installation & Commissioning of the Equipment as per Technical Specifications submitted by them.

- i. Water Supply / electric power requirement
- ii. Civil Works including Foundation, Flooring.
- iii. Mechanical and Fabrication work required.
- iv. Ambient Temperature Control (if required, as applicable).
- v. Cooling requirement (if any).
- vi. Electrical and Power requirements in detail.
- vii. Space and Dimensions for Installation of the equipment
- viii. Any other Requirements for the successful commissioning. This shall include any accessories / equipments to be arranged by the purchase (other than the tendered items)

g) Patent Right & IPR Laws:

The supplier shall indemnify the purchaser against all third party claims of infringement of Patent, Trademark or Industrial Design Rights arising from the use of Goods or any part thereof in the Purchaser's country. The bidder should be sure about his claim on the ownership of technology and total compensation in the event of a claim should be paid to the buyer in case of patent infringement. Once bids submitted bidders agrees for the same.

h) Examination of terms & Conditions

- i. The Purchaser shall examine the Bid to confirm that all terms and conditions specified in the GCC and the SCC have been accepted by the Bidder without any material deviation or reservation including the terms & conditions.
- ii. Prior to the detailed evaluation, the Purchaser will determine the *substantial responsiveness* of each bid to the Bid Document.

i) Delivery Period:

In case of Indigenous suppliers the firm delivery period (in weeks) after issue of Purchase Order must be given in the Technical Bid. Delivery must be on FREIGHT PAID BASIS for dispatch by Road.

The bidder must provide information regarding mode of shipment whether it is by Air/Sea/Road/Rail failing which bid may be rejected subject to the discretionary power of the Purchaser.

- i. Prices quoted by the bidder shall remain fixed during the entire period of contract and shall not be subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non - responsive and rejected.
- ii. All lots and items must be listed and priced separately in the Commercial Bid. If a Price Schedule shows items listed but not priced, their prices shall be assumed to be included in the prices of other items.

The delivery requirements are mentioned in the tender. However, Keltron have the right to alter this while ordering or during the execution of the order to suit the actual requirement.

5.5.3 Price Bid Evaluation

1. Price bid of the technically qualified bidders alone will be opened and evaluated
2. The financial bid (BOQ) should be submitted in .xls form in the e-tender format.
3. The GST tax amount shall be included for evaluation
4. The bidder shall confirm that the price bid confirms to all the terms and conditions stipulated in the tender document. He shall confirm that the price bid is final in all respects and contains no conditions.
5. The total **cost** including purchase **price**, freight, insurance, the customs duties and other taxes levied on the shipment for cost comparison.
6. If not specifically mentioned, the bidder should quote for all the items in the BOQ. Else the bid shall be treated as non-responsive.
7. In the system generated BOQ comparison chart L1 rate may be obtained based on the addition value of total price+ total GST +total of any other expenses. If any mistake occurred while entering the values it will be under the scope and risk of bidder.

5.6 Acceptance of Tender and Withdrawals

The final acceptance of the tender is entirely vested with KELTRON who reserves the right to accept or reject any or all of the tenders in full or in parts without assigning any reason whatsoever. The Tender Accepting Authority may also reject all the tenders for reasons such as change in Scope, Specification, lack of anticipated financial resources, court orders, calamities or any other unforeseen circumstances. After acceptance of the Tender by KELTRON, the Successful Bidder shall have no right to withdraw their tender or claim higher price.

5.7 Negotiations

Negotiations will be conducted with the selected bidder for improvement in the Scope of work, further reduction in price and advancement of delivery schedule.

5.8 Award of contract

- 1) L1 Bidder will be declared as a Successful Bidder and contractor. In case KELTRON find that the Successful Bidder is unable to supply as per the conditions, they will be free to apportion the total contract to other Successful Bidders after recording the reasons in writing. The bidder will have to reimburse any additional expenditure which may be incurred in the process.
- 2) No dispute can be raised by any Bidder whose bid has been rejected and no claims will be entertained or paid on this account.

5.9 Purchaser Rights

KELTRON reserves the right to:

- a. Insist on quality / specification of materials to be supplied.
- b. Increase the period of contract
- c. If delivery performance of the Bidder is not as per the Schedule, then KELTRON reserves the right to reallocate the quantity to other Bidder.
- d. KELTRON reserve its right to inspect the bidders' facilities before or after placement of orders and based on the inspection, KELTRON reserves a right to modify the quantity ordered.
- e. KELTRON reserves its right to withhold any amount for the deficiency in the service aspect of the ordered items supplied to the customers.

6. EXECUTION OF WORK

6.1 Execution of Contract

- a) The successful bidder (contractor) will be required to remit a Security Deposit (SD) valid for a period of 6months/till the completion & acceptance of work from the date of LOA. The security deposit will be converted into PBG valid for warranty period+90 days from the date of commissioning and the contractor should extend the validity as required. Any changes/modifications as may be indicated by KELTRON at the time of discussions, negotiations will become a part of the agreement.

- b) The Successful Bidder shall not assign or make over the contract, the benefit or burden thereof to any other person or persons or body corporate for the execution of the contract or any part thereof without the prior written consent of KELTRON. KELTRON reserves its right to cancel the work order either in part or full, if this condition is violated. If the Successful Bidder fails to execute the agreement, EMD of the Successful Bidder will be forfeited and their tender will be held as non-responsive.
- c) The expenses incidental to the execution of the agreement should be borne by the Successful bidder.
- d) The conditions stipulated in the agreement should be strictly adhered to and violation of any of the conditions will entail termination of the contract without prejudice to the rights of KELTRON and KELTRON also have right to recover any consequential losses from the successful bidder.
- e) **Training:** The supplier should provide detailed onsite training after installations and commissioning of the said equipment free of cost. This training shall be to the satisfaction of purchaser.
- f) Comprehensive warranty shall be provided for a period as indicated in notice inviting tender after installation & successful commissioning of the equipment is complete in all respects. The warranty offered should be unconditional and the seller should agree to replace or repair the equipment at his cost. The spare parts for the warranty repair have to be provided by the vendor.
- g) **Vendor registration:**
The successful Bidder must be Registered with KSEDC Ltd., KELTRON Equipment Complex, Karakulam, Thiruvananthapuram, Kerala -695 564. In case the successful bidder is not Registered yet, they have to submit the Vendor Registration .

6.2 Refund of EMD

The EMD amount paid by the Successful Bidder will be adjusted towards Security Deposit payable by them. When the Successful Bidder submits Security Deposit for the stipulated value in full by way of Bank Guarantee, the EMD will be refunded. The EMD amount of the Unsuccessful Bidder will be refunded after finalization and signing of Contract Agreement with the Successful Bidder.

6.3 Forfeiture of EMD and SD

- a) If the Successful Bidder fails to remit the Security Deposit, the EMD remitted by them will be forfeited to KELTRON and the tender will be held void.
- b) If the Successful Bidder fails to act up on to the tender conditions or backs out from the contract, the Security Deposit will be forfeited to KELTRON.

6.4 Termination of Contract

6.4.1 Termination for default

- a) KELTRON may without prejudice to any other remedy for breach of contract, by written notice of default with a notice period of 3 days, sent to the Successful Bidder, terminate the contract in whole or part,
 - i. if the Successful Bidder fails to deliver any or all of the goods within the time period(s) specified in the Contract, or fails to supply the items as per the Delivery Schedule or within any extension thereof granted by KELTRON; or
 - ii. if the Successful Bidder fails to perform any of the obligation(s) under the contract; or
 - iii. if the Successful Bidder, in the judgment of KELTRON , has engaged in fraudulent and corrupt practices in competing for or in executing the Contract.
- b) In the event of KELTRON terminating the Contract in whole or in part, KELTRON may procure, upon terms and in such manner as it deems appropriate, the goods and services similar to those and delivered and the successful bidder shall be liable to KELTRON for any additional costs for such similar goods. However, the successful bidder shall continue the performance of the contract to the extend not terminated.

6.4.2 Termination of Insolvency

KELTRON may at any time terminate the Contract by giving written notice with a notice period of 3 days to the Successful Bidder, if the successful bidder becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Successful Bidder, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to KELTRON.

6.4.3 Termination for Convenience

KELTRON may by written notice, with a notice period of 3 days sent to the Successful Bidder, terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for KELTRON's convenience, the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective. On termination, the Successful Bidder is not entitled to any compensation whatsoever.

6.5 Execution of Work Order

The Successful Bidder should nominate and intimate the KELTRON, an Engineer for Single Point of Contact (SPOC), who should be responsible for effective delivery of work complying with all the terms and conditions. The Successful Bidder should ensure that the Engineer fully familiarizes with the Tender Conditions, Scope of Work and deliverables.

a) Testing and inspection:

Keltron will have the right to inspect the material before dispatch at the supplier's works / warehouses and also on receipt at Keltron's site/ keltron stores. Payment for items / quantity found to be acceptable only will be made. In case of rejections due to non-compliance of the technical specifications of the items, the supplier shall rework / manufacture new item as the case may be at their cost upon intimation from us. However this has to be done to supply the items within the delivery period mentioned in the order. The testing and inspection of the equipment procured shall be carried out in two stages as follows.

b) Factory Inspection / Acceptance Testing:

The buyer or his representative shall have the right to conduct pre-dispatch inspection of the Hardware and accessories. Where the buyer decided so conduct such tests on the premises of the Original Equipment Manufacturer (OEM) or supplier of the OEM, all reasonable facilities and assistance like Testing Instruments and other test gadgets including access to drawings and production data shall be furnished to the inspectors at no charges to the buyer. The schedule & Procedure of testing shall be intimated to the bidder after the placement of the Purchase Order. The successfully inspected / accepted items shall be sealed in the presence of the Inspectors and signed by the inspectors.

Should any inspected or tested items fail to confirm to the specifications the Buyer may reject them and the Contractor shall either replace the rejected items or make all alterations necessary to meet specification requirements free of cost to the buyer.

c) Post receipt / Pre-installation testing

This final testing / inspection shall be performed at the Keltron / customer site at the time of delivery of the equipment and the Inspector shall inspect the goods. The inspector shall also check the goods delivered against the models ordered. The inspector shall reject the items, which are not delivered as per the contract or any subsequent modifications to the contract, in terms of the Technical specification. The inspector shall also receive the goods after inspection,

If any item / quantity found to be not acceptable on arrival at our site/stores, the same has to be replaced / rectified by the supplier immediately free of cost. All the costs involved for return of the rejected items to the supplier and re-dispatch of the replacements will be in the scope of the supplier only.

Refurbished items are not acceptable and the bidder shall offer only brand new items.

d) Substitution & Wrong Supplies

Unauthorized/Pirated substitution or materials delivered in error of wrong description or quality or supplied in excess quantity or old versions shall be returned to the Contractor at his cost and risk.

Supply of unauthorized or pirated or sub-Standard or old equipment detected at any date during or after warranty shall be notified to the Contractor in writing. Such equipment shall be replaced forthwith by the Contractor at his own cost. Any penalty or litigations arising out of such supplies shall be the responsibility of Contractor and any consequential damages shall be fully compensated by the Contractor.

e) Spare Parts:

The Supplier shall be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:

- i. Such spare parts as the Purchaser may select to purchase from the Supplier, providing that this selection shall not relieve the Supplier of any warranty obligations under the Contract; and
- ii. In the event of termination of production of the spare parts:
 - (a) Advance notification to the Purchaser of the pending termination, in sufficient time to permit the Purchaser to procure needed requirements; and
 - (b) Following such termination, furnishing at no cost to the Purchaser, the blueprints, drawings and specifications of the spare parts, if requested.

6.6 Assigning of Tender as whole or in part

The Successful Bidder shall not assign or make over the contract, the benefit or burden thereof to any other person or persons or body corporate. The Successful Bidder should not under-let or sublet to any person(s) or body corporate for the execution of the contract or any part thereof.

Sub-contracting of the awarded work in any manner will amount to a breach of the contract. Such bidders would be disqualified and their bid would be summarily rejected. Time is the essence of the contract. KELTRON reserves the right to cancel the order placed on any bidder and assigns the work to anyone else at the risk and cost of the aforesaid bidder in case of delay, non-compliance to specifications or any other valid reason.

6.7 Price Re-fixation

The materials, if any, supplied after the scheduled delivery period noted in the order will be accepted only on condition that price of such materials will be re-fixed taking into consideration the rates of new tender/Purchase order for the material with same specification supplied and accepted by the KSEDC on the date of actual supply or the basic price as per the subject tender whichever is lower will be applicable. The date of opening of price bids of the new tender shall be treated as the effective date. The Head KEC's decision in re-fixing the price will be final.

6.8 Debarring the firms from business

The process of debarring the firm would be initiated in the below mentioned cases subject to the recommendation of the Technical team. The conditions for debarring the firm are:

- i. Not supplying the materials as per the technical specifications as mentioned in the Purchase Order.
- ii. Not fulfilling the contractual obligations as per the terms & conditions of the Purchase Order.
- iii. Not able to provide the required spares for the time period specified in the bidders quotation "or" in the tender enquiry "or" Purchase Order of the buyer.
- iv. Repeated failures during installation, commissioning & trial run.
- v. Inadequate service back-up in terms of spares & manpower being repeatedly observed in a number of occasions and recorded by during warranty and even afterwards (during the life cycle of the equipment).
- vi. In case it is proved that the Purchase Order has been sub-letted to some other vendor.

6.9 Training, Installation & Commissioning

- i. The bidder shall arrange for Installation & commissioning of the equipment within 10 days from the date of work order.
- ii. Elaborate training shall be provided at Keltron Equipment Complex, Karakulam or at the site by the contractor during installation & commissioning. The charges are included within the contract price. This training shall be to the satisfaction of purchaser.
- iv. All Bidders must submit bids with comprehensive warranty for a period as indicated in the Notice inviting tender after the installation & successful commissioning of the equipment complete in all respects. The warranty offered should be unconditional and the contractor should agree to replace or repair the equipment at his cost. The spare parts for the warranty repair have to be provided by the bidder

6.10 Manuals and Drawings

- i. Before the goods and equipments are taken over by the Purchaser, the Supplier shall supply operation and maintenance manuals. These shall be in such details as will enable the Purchaser to operate, maintain, adjust and repair all parts of the works as stated in the specifications.
- ii. Manuals shall be in the ruling language (English) in such form and numbers as stated in the contract.
- iii. Unless and otherwise agreed, the goods equipment shall not be considered to be completed for the purposes of taking over until such manuals and drawing have been supplied to the Purchaser.
- iv. List of spares and their vendor details shall be part of the maintenance manuals.

6.11 Performance Guarantee

The contractor shall furnish a performance Bank Guarantee for 5 % of the contract amount from any nationalized bank up to the end of warranty period+90 days . If the contractor had submitted security deposit for 5%, the validity of the same shall be extended up to the end of warranty /defect liability period.

6.12 Dispatch Documents

Delivery Challan, Original Commercial Invoice in Triplicate, (Original for Buyer & Duplicate for Transporter Copies), Warranty Certificates, Test Reports etc. shall be sent to the tendering authority.

6.13 .PAYMENT TERMS

All payments to be made to the Contractor under the contract will be in Indian rupees only. Payment schedule proposed to be as follows: Back To Back Payment. The BG against Performance Guarantee will be released after satisfactory completion of the warranty period guided by this tender

The materials shall be delivered at site according to the Bill of Materials mentioned in the BOQ. KELTRON shall arrange joint inspection and measurement of work after installation with an intimation to contractor. The contractor shall submit Invoice in triplicate along with delivery challans, /e-waybill, Joint Inspection Report and Project Completion Certificate for releasing the payments based on the Joint Measurement Book.

The Contractor will arrange for training at site for the end users.

Note:

1. No request for release of BG shall be entertained before the warranty period ends and the BG will be invoked if the warranty and services are not done promptly.
2. The release of BG/Retention money is subjected to the submission of duly certified preventive maintenance report of the installation.

6.14 Set off

Any sum of money due and payable to the contractor (including security deposit refundable to him) under this contract may be appropriated by the Buyer to set off the same against any claim of the Buyer for payment of a sum of money arising out of this contract made by the Contractor with Buyer.

6.15 Contradiction

In case of any contradiction in or between the clauses above, the more stringent of the clauses shall prevail.

6.16 Force Majeure

KELTRON may grant an extension of time limit set for the completion of the work in case the timely completion of the work is delayed by force majeure beyond the contractors control, subject to what is stated in the following sub paragraphs and to the procedures detailed there in being followed. Force Majeure is defined as an event of effect that cannot reasonably be anticipated such as acts of God (like earthquakes, flood, storms etc), acts of states, the direct and indirect consequences of wars (declared or un-declared), hostilities, national emergencies, civil commotion and strikes (only those which exceed a duration of ten continuous days) at successful Bidder's factory. The successful bidder's right to an extension of the time limit for completion of the work in above-mentioned cases is subject to the following procedures.

- a. That within 7 days after the occurrence of a case of force Majeure but before the expiry of the stipulated date of completion, the bidder informs the KELTRON in writing (about the occurrence of Force Majeure Condition and that the Bidder considers himself entitled to an extension of the time limit.
- b. That the contractor produces evidence of the date of occurrence and the duration of the force majeure in an adequate manner by means of documents drawn up by responsible authorities.
- c. That the contractor proves that the said conditions have actually been interfered with the carrying out of the contract.
- d. That the contractor proves that the delay occurred is not due to his own action or lack of action.
- e. Apart from the extension of the time limit, force majeure does not entitle the successful bidder to any relaxation or to any compensation of damage or loss suffered.

6.17 Settlement of Disputes

Any dispute, difference or disagreement arising out of this contract shall be referred to the Managing Director, Kerala State Electronics Development Corporation Limited whose decision shall be final and binding on the parties.

Unless the Contract has already been repudiated or terminated or frustrated the Contractor shall in every case, continue to proceed with the works with all due diligence and the Contractor and KELTRON shall give effect forthwith to every decision of the Project Leader or his nominee unless and until the same shall be revised, as hereinafter provided, by the Conciliator.

If the disputes are still not settled aggrieved party shall approach court for settlement of disputes. Courts in Thiruvananthapuram alone shall have jurisdiction in this matter

Scope, Eligibility criteria, Terms & conditions

1. ELIGIBILITY CRITERIA

The bidders empanelled in Kerala State Electronics Development Corporation Ltd. Karakulam for implementation of Solar projects in West Bengal is only eligible for participating in the tender.

2. **SCOPE OF WORK**

2.1 **Brief Scope of work**

The scope of work shall be on the basis of single source responsibility, completely covering all the Equipment/Material specified under the Technical Specifications. It will include the following:

- a. Detailed design of the System/Equipment/Materials.
- b. Complete manufacture including testing.
- c. Providing engineering drawing, data, operational manual, etc for the Purchaser's approval.
- d. Packing, forwarding, transportation and insurance of Equipment/ Material from the manufacturer's works to the Site.
- e. Cleaning of site identified for installation of different components of the power plants as may be required.
- f. Receipt, storage, preservation, insurance, and conservation of Equipment/ Material at the Site.
- g. Erection, testing, commissioning, and insurance of all the Systems/Equipment/ Materials.
- h. Reliability tests, performance and guarantee tests, wherever applicable, on completion of commissioning.
- i. Maintenance of the Power Plant throughout the defect liability period.
- j. All the work shall be completed as per west Bengal electricity board / electrical inspectorate or equivalent departments as required.

3.1 Definition of Terms:

Unless the context otherwise requires, the following terms whenever used in this document have the respective meaning:

- i. The 'Purchaser' shall mean the "Kerala State Electronics Development Corporation Ltd (KELTRON)", having its office in Keltron Equipment Complex, Karakulam, Thiruvananthapuram, Kerala - 695564 and shall include its successors and assigns.
- ii. 'Purchaser representative' shall mean any person or persons or consulting firm appointed/authorized by the Purchaser/ Customer, inspect, test and examine workmanship and materials of the work under this scope.
- iii. The 'Contractor' shall mean the Bidder who will be awarded with the contract by the Company and shall include the contractor's executor's administrators, successors and permitted assignees.
- iv. The 'Sub-Contractor' shall mean any person/agency to whom any part of the contract has been sublet by the contractor with the consent in writing of the Company and will include the legal representatives, successors and permitted assigns of such persons/agency.
- v. 'Equipment/materials' shall mean and include all type of construction equipment & materials etc. required for true and satisfactory completion of the work under this contract.
- vi. 'Workmanship' shall mean the method/manner in which the jobs of the different items, whether included in the schedule or not but are required for true & satisfactory completion of the work under this contract, are executed.
- vii. 'General conditions' shall mean all the clauses of General conditions of the proposed contract stated hereinafter. The specification shall mean the specification annexed to or issued with the General Conditions and shall include the schedule and drawings attached thereto.
- viii. The term 'Services' shall mean all works to be undertaken by the contractor as laid down under the head "scope of work" or elsewhere in the specification enclosed. When the words "approved", "subject to Approval". "As directed", "Accepted", "Permitted" etc. are used, the approval, judgment, direction etc. are understood to be a function of Company.
- ix. 'Day' means a calendar day beginning and ending midnight.
- x. 'Month'/'Calendar month' means not only the period from the first of a particular month, but also any period between a date in a particular month, and the date previous to the corresponding date in subsequent month unless specifically stated otherwise.
- xi. 'Week' means seven consecutive calendar days.
- xii. 'Writing' shall include any manuscript, type written, printed or other statement reproduced in any visible form.
- xiii. The work 'Site' shall mean the site of proposed work as detailed in the specification or any other place where the work is to be executed under the contract.

- xiv. 'Date of Contract'/'Commencement Date' shall mean the date on which Letter of Award will be issued.
- xv. 'Zero Date' will be started from the date of issuance of Letter of Award.
- xvi. 'Specifications' shall mean collectively all the terms and stipulations contained in this document including the conditions of contract, technical provisions and attachments thereto and list of corrections and amendments.
- xvii. viii. 'Drawings' means collectively all the accompanying general drawings as well as all detailed drawings, which may be used from time to time or desired by WBGEDCL.
- xviii. xix. 'Approval' shall mean the written approval of WBGEDCL and/the statutory authorities, wherever such authorities are specified by any codes or otherwise.
- xix. xx. 'Manufacturer' shall refer to the party proposing to design/engineering and construct in complete or in part a particular job/work at their works/premises.
- xx. xxi. 'Labour' shall mean all categories of labour engaged by the Contractor, his sub- contractors and his piece workers for work in connection with the execution of the worked covered by the specifications. All these labourers will be deemed to be employed primarily by the Contractor.
- xxi. xxii. 'Plant'/'Equipment'/'Stores' means and include plant and machineries to be provided under the contract.
- xxii. xiii. 'Delivery of Plant'/'Delivery of Equipment' shall be deemed to take place on delivery of the plant/equipment in accordance with the terms of the contract complete in all respect after approval by WBGEDCL.
- xxiii. xxiv. 'Tests on Completion' shall mean all such tests as are prescribed by the specification to be made by the Contractor to the satisfaction of WBGEDCL before the plant and equipment are taken over by WBGEDCL and this also includes those tests not specifically mentioned in the specification but required under various BIS codes and relevant Electricity Acts and Rules.
- xxiv. xxv. 'Commissioning' shall mean the satisfactory, continuous and uninterrupted operation of the equipment/work as specified after all necessary initial tests, checks and adjustments required at site for a period of at least 15 (fifteen) days to the satisfaction of WBGEDCL.
- xxv. xxvi. 'Urgent Works' shall mean any urgent measures, which in opinion of the Engineer-in- Charge, become necessary at the time of execution and/or during the progress of work to obviate any risk of damage to the structure, or required to accelerate the progress of work or which become necessary for security or for any other/reason WBGEDCL may deem expedient.

3.2 Mode of Execution

The entire work will have to be executed on turnkey basis. Any minor item(s) not included in the schedule or specification but required for completion of the work will have to be carried out/supplied without any extra cost.

3.3 Equipment and Material

All materials and equipment will be supplied by the contractor. The supply of materials will also include transportation, loading and unloading at work site. Contractor will arrange pilfer proof proper storage at his own cost and risk at site for their equipment and materials. The complete system will be under the custody of the contractor till successful commissioning and handing over, at his own risk and cost. KELTRON in no case will be held responsible for any loss/damage or theft of materials/equipment; so long those will continue to remain under the custody of the contractor.

Equipment and material will comply with description, rating, type and size as detailed in this specification. Equipment and materials furnished will be complete and operative in all respect. All accessories, which are necessary for safe and satisfactory installation and operation of the equipment, will be provided by the contractor. All parts will be made accurately to standard gauges so as to facilitate replacement and repair in due course. All corresponding parts of similar equipment must be interchangeable. Contractor will carefully check the available space and the environmental conditions for installation of all equipment at site and will design the system accordingly.

Materials brought to the site shall not be removed from the site without the written consent of the KELTRON. The contractor shall submit well in advance for approval of samples, specimens as KELTRON may demand from time to time. Any material brought to the site and rejected by KELTRON shall be removed by the contractor from the site of work immediately.

All materials including reinforcing steel, cement for concrete work, sanitary, plumbing & carpentry fittings etc. shall be procured after approval of brand and make by KELTRON.

3.4 Tools & Tackles:

The contractor will provide all reliable tools & tackles for proper execution of work. Purchaser will in no way, be responsible for supply of any tools & tackles for execution of the work.

3.5 Codes and Standards

All equipment and materials to be furnished under this specification will be designed, manufactured and tested in accordance with the latest revisions of the relevant Indian Standard (IS)/IEC/MNRE as applicable.

The electrical installation will meet the requirement of Indian Electricity Act, and Indian Electricity Rules as amended up-to-date and also the applicable section of the latest revision of the relevant IS Code of Practice

3.6 Rules and Regulations

The Contractor shall obey following conditions strictly:

- a) Employees 'Provident Fund and Miscellaneous Provisions Act,1952
- b) Employees State Insurance Act, 1948 or appropriate medical facilities should be strictly adhered to wherever such Acts become applicable.
- c) Minimum wages to the workers shall be paid according to the rates notified and/or revised by the State Government from time to time under the Minimum Wages Act, 1948 in respect of scheduled employments, within the specified time as per law. Payment of bonus, wherever applicable, has to be made.

3.7 Safety

3.7.1 All units with respect to their location, layout, general arrangement and design and equipment, structural design, etc. shall be safe to the personnel and conform to the relevant safety rules and regulations/statutory requirement issued by the State Government and the Central Government as well as to:

- 1) Indian Electricity Rules
- 2) Indian Electricity Act
- 3) Indian Explosives Manual and
- 4) Fire Protection Manual issued by Tariff Advisory Committee (India).

The bidder shall also provide necessary fencing and lights to protect the public from accident. Fire extinguishers shall be kept by the bidder at the site of works where there is risk of fire hazard.

Adequate washing facilities shall be provided earth place of Work.

When the work is done near any place where there is risk of drowning, all necessary equipment shall be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provisions shall be made for prompt first aid treatment of all injuries likely to be sustained during the course of work.

These safety provisions shall be brought to the notice of all concerned by displaying on a notice board at a prominent place at the work spot. The persons responsible for compliance of codes shall be named by the bidder. To ensure effective enforcement of the rules & regulations relating to safety precautions, the arrangement made by the bidder shall be open to inspection by KELTRON.

Notwithstanding the above clauses there is nothing in those to exempt the bidder from the operations of any other Act or Rule in force in the Republic of India.

All storage, handling & use of flammable liquids shall be under the supervision of qualified persons.

First aid arrangements with the degree of hazard and with no. of workers employed shall be maintained in area duly accessible place throughout the whole of working hours

3.7.2 Reporting Of Accidents

All accidents, major or minor, must be reported immediately to KELTRON and the contractor will provide first-aid to the injured person immediately. The injured person shall report to the First Aid Station along with the 'Injured on work' form as per appropriate proforma, duly filled in triplicate and submit to the Medical Officer of the First-Aid Station.

3.7.3 Serious Injuries

In case of serious injuries, the following procedure shall be adopted by the contractor.

- a) To provide first aid at his own First Aid Station.
- b) To take the injured person to the hospital along with the 'Injured

on work' form duly filled in.

c) To report the accident to KELTRON.

3.7.4 Fatal Accident:

Fatal accidents must be reported immediately to KELTRON as well as to the Police.

3.7.5 Penalty:

Failure to observe the Safety Rules will make the contractor liable to penalty by way of suspension of work/termination of contract.

Adequate arrangement for proper lighting & guarding shall be made at the work site.

3.8 Statutory Acts

The work will be done in compliance with the IS Specification, I.E. Rules, Indian Electricity Acts, other relevant Rules, Act and Regulation now in force with latest amendments, if any.

3.9 Commissioning

After installation and testing of the equipment/works as per above, commissioning of the power plant and works will be carried out and here the term "Commissioning" will mean the activities of functional testing of the system after installation and testing, including tuning or adjustment of the equipment for optimum performance and demonstrating to the Purchaser that the equipment performance meets the requirements of the specifications.

3.10 Road Permits

The contractor will arrange the e-way bill, if required

3.11 Purchaser's/ Customer's Decision

Purchaser's/ Customer's decision is final in respect of all matters which are left to the decision of the controlling officer including the granting or with holding of certificates.

If, in the opinion of the contractor, a decision made by the Purchaser/ Customer is not in accordance with the meaning and intent of the contract, the contract or may file with the Purchaser/ Customer, within 05(Five) days after receipt of the decision, a written objection to the decision. Failure to file an objection within the allotted time will be considered as an acceptance of the

Purchaser's/ Customer's decision and the decision shall become final and binding.

3.12 Confidentiality

The Contractor, or any entity affiliated with the Contractor, shall not disclose to any unauthorized person any information and/or data that may be supplied to him/her by Customer or by any other organization, under the directions of WBGEDCL. All such documents shall be the property of Customer or any information that may have come to his/her knowledge directly or indirectly by virtue of the assignment.

3.13 Departmental Material

Departmental material shall not be issued to the contractor for the work except under special circumstances.

3.14 Supplementary/Extra Works

- 3.14.1 Whenever supplementary/extra items of work become unavoidable for completion of the work in all respect, the Contractor shall bring the matter to the notice of the Purchaser and submit their proposal. However, the Purchaser shall have the right to advise the contractor to proceed with such item(s) of work. Rates for supplementary items shall be arrived at as given hereunder.
- 3.14.2 The rates of all supplementary items shall be decided on pro-rata basis from the existing items in the contract.
- 3.14.3 When Clause no: 2.14.1 shall not be applicable, the rates shall be taken from PWD (Govt. of WB) Schedules of rates rate including addendum and corrigendum published upto date of bid opening subject to plus/minus the contractual rate of quotation.
- 3.14.4 When clause no 2.14.2 & 2.14.3 above shall not be applicable, the rates should be analyzed, to the mutual acceptance from present market rates of different elements involved in the item, against documentary evidence, with 5% overhead, contractor's profit as 10% and 1% cess towards BOCWWC Act,1996. In that case contractual rate of quotation will not be applicable.
- 3.14.5 Purchaser's decision regarding finalization of rate of non-scheduled item(s) shall be final and binding up on the contractors

3.15 Water and Electricity:

The arrangement of construction power and water, if required, during execution of the work, will be arranged by the contractor within the contract value.

3.16 Transportation

The Contractor shall at its own risk and expense transport all the Materials, Plant and Equipment and the Contractor's Equipment to the Site by the mode of transport that the Contractor judges most suitable under all the circumstances.

Unless otherwise provided in the Contract, the Contractor shall be titled to select any safe mode of transport operated by any person to carry the Materials, Plant and Equipment and the Contractor's Equipment.

The Contractor shall be responsible for obtaining, if necessary, approvals from the authorities for transportation of the Plant and Equipment and the Contractor's Equipment to the Site. The owner shall use its best endeavors in a timely and expeditious manner to assist the Contractor in obtaining such approvals, if requested by the Contractor. The Contractor shall indemnify and hold harmless the Owner from and against any claim for damage to roads, bridges or any other traffic facilities that may be caused by the transport of the Plant and Equipment and the Contractor's Equipment to the Site.

3.17 Insurance

The contractor must be responsible for transportation of material, loading and unloading, safe storage at site including its security and will hand over the complete system after commissioning.

It is therefore, desired that the contractor shall arrange for insurance coverage for the equipment, accessories, materials etc. to be delivered at site up to one(1)month from the date of successful commissioning of the plant. As such the bidder shall consider the price of such insurance in their price bid as part of the price of work.

Contractor will be however solely responsible for recovery of any losses or damages or death or injury of their personal or others, if occur, during execution of work irrespective of insurance is done or not by the contractor.

3.18 Accident Risk

Purchaser will not be responsible in connection with any sort of accident which may occur during transportation of materials/equipment, execution/maintenance of works of the PV Power Plant. The Contractor will have to provide safety precautionary arrangement for his workmen in order to avoid any such incident / accident

3.19 Stoppage of Work

Purchaser will neither be responsible nor be liable to bear any compensation for any interruption of work in the site due to war, strike, earthquake, lightning, flood, cyclone etc. Purchaser will also not responsible for any compensation due to stoppage of work as a reaction from the local public due to any undue action on the part of the contractor causing annoyance.

3.20 Force Majeure

Force Majeure means any circumstances beyond the control of the parties, including but not limited to:

- a) War and other hostilities, (whether war be declared or not), invasion, act of foreign enemies, requisition or embargo.
- b) Rebellion, revolution, insurrection, military power and civil war.
- c) Riot, commotion or disorder, except where solely restricted to employee of the Contractor or of his sub-contractors.
- d) Earthquake, flood, cyclone and such other natural disaster affecting Contractor's work.

Keltron shall neither be responsible nor be liable to bear any compensation for any interruption of work in the site due to force majeure.

Upon the occurrence of any situation of Force Majeure, the Contractor shall endeavor to continue to perform his obligations under the Contract so far as reasonably practicable. The Contractor shall notify within a week in written to the controlling officer of the steps he proposes to take including any reasonable alternative means for performance which is not prevented by Force Majeure. The Contractor shall not take any such steps unless directed to do so by the controlling officer.

If the Contractor shall fail to complete the works within the time prescribed herein or extended time for completion, then the Contractor shall pay to the Company a sum amounting to half percent (0.50%) of the value of works as liquidated damages for such delay for every week or part

thereof which shall elapse between the time prescribed or extended time as the case may be and the date of completion of the work in each phase, subject to a maximum of five percent (5%) of the contract price which will be covered by the Performance Security.

Purchaser may, without prejudice to any, all other method of recovery deduct the amount of such damages from any money in their hand due or which may become due to the contractor. The payment or deduction of such damages shall not relieve the contractor from this obligation to complete the works or from any other of his obligations and liabilities under the contract.

If there is a valid acceptable reason for delay of execution, the Controlling Officer may at his discretion consider lower down of the liquidated damage or even waive the liquidated damage on having written prayer from the contractor along with valid reason.

3.21 Liquidated Damage

If the Contractor shall fail to complete the works within the time prescribed herein or extended time for completion, then the Contractor shall pay to the Company a sum amounting to half percent (0.50%) of the value of works as liquidated damages for such delay or every week or part thereof which shall elapse between the time prescribed or extended time as the case may be and the date of completion of the work in each phase, subject to a maximum of five percent (**5%**) of the contract price which will be covered by the Performance Security.

The Company may, without prejudice to any, all other method recovery deduct the amount of such damages from any money in their hand due or which may become due to the Contractor the payment or deduction of such damages shall not relieve the contract or from this obligation to complete the works or from any other of his obligations and liabilities under the contract.

If there is a valid acceptable reason for delay of execution, the Controlling Officer may at his discretion consider lower down of the liquidated damage or even waive the liquidated damage on having written prayer from the contractor along with valid reason.

3.22 Performance Security/Contract Performance Guarantee

The Successful bidder(s) shall submit a Performance Guarantee (BG) within 10(Ten days) from the date of acceptance of LOA in the form of Bank Guarantee of amount not less than 10% (ten percent) of the total value of the contract valid for a period of 05(five) years with a claim period of 03 (three) months. The BG shall be extendable for further years of maintenance period from the date of completion of the work in all respect. The Performance BG will be released after satisfactory completion of the Comprehensive Maintenance support guided by the tender.

If the successful bidder fails to submit the Performance Security/Contract Performance Guarantee within the stipulated time as mentioned in Letter of Award, his EMD will be forfeited and the job may subject to be cancelled. Decision of the Controlling Officer in this regard will be final and bound to the Contractor.

KELTRON then, shall ask the L1 bidder to produce detailed price analysis to demonstrate the justification of prices quoted in the bid. After evaluation, KELTRON may ask the bidder ,at its discretion, to enhance the Performance Guarantee at the bidder's expense, by an amount equivalent to the difference of L1bid and the average bid price quoted by the other bidders. Such additional performance guarantee shall remain valid for a period of 05 (five) years with a claim period of ninety (90) days. Such additional performance guarantee shall be extendable for further periods, total up to the Defect Liability Period of 60 (sixty) months, with a with an additional claim period of ninety(90)days, failing which his bid security maybe forfeited.

3.23. Forfeiture of Performance Security/Contract Performance Guarantee

Performance Security/Contract Performance Guarantee shall be forfeited if,

- i. The successful bidder do not execute the work after placement of Letter of Award (LOA) and/or,
- ii. The successful bidder will discontinue the work without prior permission of KELTRON and/or,
- iii. The successful bidder fails to install / procure the total capacity of the plant as mentioned in the Bid Document and / or,
- iv. The contractor fails to submit a fresh BG prior to 15 (fifteen) days of expiration of the previous one against performance security of appropriate amount as per the terms and conditions and/or,

The successful bidder fails to rectify/replace of the defective/damaged equipment(s)/work(s) within the Defect Liability Period.

3.24 Taxes, Duties and other Levies

3.24.1 Except as otherwise specifically provided in the Contract, the Contractor shall bear and pay all taxes, duties, levies and charges assessed on the Contractor or their employees by all municipal, State or National Government Authorities in connection with the works. All taxes, duties and levies, including Central Goods and Services Tax, West Bengal Goods and Services Tax, Integrated Goods and Services Tax etc, - where applicable and payable on Equipment/Materials, components, sub-assemblies, raw materials and any other item required for manufacture of finished Equipment/Material or completion of Works shall be deemed to have been included in total value of supply of goods or services or both.

3.24.2 The Contractor shall be solely responsible for the taxes that may be levied on the Contractor's persons or on earnings of any of his employees and shall hold the Purchaser indemnified and harmless against any claims that may be made against the Purchaser. The Purchaser does not take any responsibility whatsoever regarding taxes under Indian Income Tax Act, for the Contractor or his personnel. If it is obligatory under the provisions under the Indian Income Tax Act shall be made by the Purchaser.

3.24.3 For the purpose of the Contract, it is agreed that the Contract Price specified in the Contract Agreement is based on the taxes, duties, levies and charges prevailing at the date seven (7) days prior to the last date of bid submission (hereinafter called "Tax" in this paragraph). If any rates of Tax are increased or decreased, a new Tax is introduced, an existing Tax is abolished, or any change in interpretation or application of any Tax occurs in the course of the performance of Contract, which was or will be assessed on the Contractor in connection with performance of the Contract, an equitable adjustment of the Contract Price shall be made to fully take into account any such change by addition to the Contract Price or deduction there from, as the case may be. However, these adjustments would be restricted to direct transactions between the Purchaser and the Contractor (if applicable). These adjustments shall not be applicable on the bought-out items.

3.24.4 Goods & Service Tax

3.24.4.1 Contract or shall mention HSN Code/ SAC Code and rate of Taxes again stall supplies of Goods or Services or both in it's Tax Invoice.

2.23.4.2 The Purchaser shall also bear and pay to the Contractor Good and Services Tax, Local Tax (if applicable) in respect of direct transactions between the Purchaser and the Contractor, if imposed on the Equipment/Materials including spares and specified in Price Schedule to be incorporated in the Works. These amounts will be payable, by the Purchaser on the supplies made by the Contractor.

3.24.4.3 Tax deduction at source under GST

KELTRON shall deduct tax from the payment made or credited to the supplier on the value of taxable supply, where the total value of such supply, under a contract ,exceed Two Lakh and Fifty Thousand Rupees at a rate of one percent or at such rate prevailing from time to time.

3.24.4.4 In case however, the Equipment / Materials are offered for inspection after the schedule delivery period, CGST plus WBGST, or IGST, as the case maybe, will be paid at the rate prevailing at the time of scheduled delivery period or actual delivery period, whichever is lower, in case of direct transactions.

3.25 Extension of Time

An extension of time without imposition of Liquidated Damage (LD), may be granted for delay in execution of work provided there is no fault whatsoever on the part of the contractor. Such extension may only be granted on the basis of application to be submitted within the schedule date of completion by the contractor who has to establish that the extension of time required by him is not due to his fault.

The Contractor may claim an extension of the Time for Completion if he is or will be delayed in completing the Works by any of the following causes:

- a) Extra or additional work ordered in writing by KELTRON.
- b) Suspension of work ordered in writing.
- c) Delay by any other Contractor engaged by KELTRON ,affecting this Contract.
- d) Delay in hand over of site by KELTRON
- e) Non accessibility of site
- f) Force Majeure.

The Contractor shall give notice to KELTRON of his intention to make a claim for an extension of time within 15 days of the occurrence of any of the above cause(s). The notice shall be followed as soon as possible by the claim with full supporting details. KELTRON shall after verification allow the Contractor for updating of the programmed chart as facts may justify.

3.26 Risk Purchase:

If the contractor fail, on receipt of the order, to take up the work within reasonable period or leave the work site after partial execution of the work KELTRON shall have the liberty to get the work done through other agency at his own risk and additional amount if any. If the situation so warranted to compel KELTRON to cancel the order placed on the Contractor, he shall be liable to compensate the loss or damage, which KELTRON may sustain due to reasons of failure on his part to execute the work in time.

3.27 Materials and Workmanship

Qualified, experienced people should be deployed to install the system(s). All materials will be of the best quality and workmanship capable of satisfactory operation under the operating and prevailing climatic conditions of respective. Unless otherwise specified, they will conform in all respect to the latest edition of the relevant code and standards. The project must be supervised by a qualified Engineers so that the work will be as per drawing and related IS/IEC Code. The work will be performed confirming safety precaution of all level of worker execute the project.

3.28 Approval

Design and Drawing : The contractor will obtain approval for all the designs associated with civil, mechanical and electrical work which includes design of foundation, structure, cable sizing, fabrication work , layout design , wiring diagram etc. prior to the execution of work and for this purpose the contractor will submit all design and drawing for obtaining approval from Purchaser.

Materials: Contractor will obtain approval for the materials deliverable under the project.

3.28.1 The following Schedule and Procedure of Documents Approval has to be followed:

Step	Action / Approved Status Duration
First submission by Contractor (Within 10 days)	5 Days
Second and Final submission by Contractor (Within 7 days)	3 Days

3.29 Testing and Inspection

The purchaser if required may opt for Testing & Inspection as follows:

Inspecting Agency

The Purchaser may delegate inspection and testing to an outside agency in place of personnel of PURCHASER.

Inspection and Testing During Manufacture

The Purchaser or its designated representative shall be entitled during manufacture to inspect, examine and test the materials and workmanship and check the progress of manufacture of all Equipment to be supplied under the Contract. This shall take place on the Contractor's premises during working hours

No such inspection, examination or testing shall relieve the Contractor of his obligation under the Contract regarding quality of material and soundness of manufacture.

No inspection call will be valid before drawings are approved without adverse comments.

Dates for Inspection and Testing

After getting the related drawings approved, the Contractor shall give the Purchaser notice of inspection along with factory test results in writing of the date and the place at which any Equipment/Materials will be ready for testing as provided in the Contract. The Purchaser shall attend at the place so named within **fifteen (15)** days of the date which the Contractor has stated in his notice. The Purchaser shall give the Contractor notice, in writing, of his intention to attend the tests. The above notices shall be given at first by the quickest possible means and confirmed later in writing. The Contractor shall render all possible assistance in carrying out inspection in time.

Facilities For Testing

Where the Contract provides for tests on the premises of the Contractor or Sub-contractor, the Contractor shall provide such assistance, labour, materials, electricity, fuel, stores, apparatus and instruments as may be necessary to carry out the tests efficiently without any extra charges. If the facilities are inadequate to carry out tests as per standard, the Contractor shall have to arrange suitable testing place having all such required facilities and the cost towards this will be on Contractor's account.

The Contractor shall be responsible for proper execution of the quality plans. The Works beyond Purchaser's hold points will progress only with Purchaser's prior written consent. The Purchaser may also undertake quality surveillance and quality audit of the systems and procedures and quality control activities. Any change in the Quality Plans shall be made only with Purchaser's prior written approval.

The Contractor shall provide the Purchaser with the necessary facilities for carrying out quality audit and quality surveillance of the Contractor's and its Sub-Contractors' Quality Assurance System and manufacturing activities. Any expenses incurred for random sample testing at Govt. recognized test laboratories for SPV Modules, Inverters, MMS (not more than 1% of the supplied quantity) will be borne by the contractor.

Routine and Acceptance Tests

All routine tests and acceptance tests shall be carried out at manufacturer's works or test site of the Contractor/Sub-contractor/test laboratory as per stipulation of relevant Indian Standard and relevant IEC as mentioned in other part of this tender. All tests shall be carried out on every lot offered for inspection as per relevant I.S. and IEC.

Type Test

The successful bidder shall submit complete test reports of all tests (including type tests) as stipulated in the relevant I.S. and IEC and carried out in a Govt. recognized Test House or laboratory/NABL accredited laboratory on Equipment/IEC accredited laboratory on Equipment / Materials of identical design conforming to our Technical Specification, along with submission of drawing during detailed engineering stage.

PURCHASER may also undertake Proto checking and quality approval of structural items (wherever applicable) before erection. Each type test report shall provide the following information with test results:

- a) Complete identification, date and Serial No.

b) Method of application where applied, duration and interpretation of each test.

c)

Repetition of Tests

If any of the type tests, routine or acceptance tests fails to pass, the Contractor shall arrange for repetition of the tests, after rectification or replacement, at his own cost and expenses. If, however, the tests fail for the 2nd time, the related supplier shall be rejected immediately and the Contractor will be required to furnish the name of another supplier immediately either from the already approved list of Sub-contractor for that particular Equipment/Materials, or any new Sub-contractor along with submission of all relevant documents in stated in this tender document.

Reports of Inspection and Tests

After the factory tests have been completed at the Contractor's or Sub-contractor's works, the Contractor shall submit two(2) copies of Test Reports for approval of purchaser. The Purchaser in turn will approve the same. The Contractor shall provide the Purchaser with two (02) copies of Approved Reports of all inspection and tests.

If the Purchaser or his designated representatives fails to attend the test and/or inspection or if it is agreed between the parties that such persons shall not do so, then the Purchaser may advise the Contractor in writing to proceed with the test and/or inspection in the absence of such persons. The Contractor should provide the Purchaser with a certified report of the results thereof.

KELTRON, if desired, may test the delivered product (especially solar module) at site from any accredited laboratory of Govt. of India. The result of that test and subsequent decisions taken by the controlling officer will be bound to the contractor.

3.30 Rejection

If, as a result of an examination/testing, any plant, materials, design or workmanship is found defective and/or not in accordance with the Contract, KELTRON may reject the system, materials, design or workmanship by giving notice with reasons. The Contractor shall then promptly make good the defect and/or ensure that the rejected/replaced item complies with the Contract.

3.31 Defective Material

If in the opinion of the Engineer, any of the machineries/equipment/materials etc. brought to the site for use are not of the quality or kind specified in the contract and/or are unfit for the work, he shall be at liberty to order the removal of the said items and the contractor shall remove the same within twenty four (24) hours after notice has been given to him and if he fails to remove them within the time the engineer may cause them to be removed anywhere at the risk of the Contractor and any cost incurred in so doing shall be deducted from the dues to the contractor under the contract. In such case, items as prescribed by the Controlling Officer or his representative are to be substituted immediately.

3.32 Defect Liability Period

The term 'Defect Liability Period' shall be reckoned from the Date of commissioning of Plant/ System/Project. If any defect is found within the defect liability period the contractor shall be liable to rectify/replace the materials at their own cost and responsibility.

Defects/rectification work so notified shall have to be attended and completed satisfactorily within the specified date or as deemed justified by the Controlling officer. For faithful & due fulfillment of all obligations, this defect liability period shall be covered by the performance security/contract performance, already submitted by the contractor.

After completion of defect liability period, and on completion of satisfactory rectification of defects, if any, reported within the defect liability period and on receipt of the application from the contractor and considering other factors.

3.33 Subletting of Contract

The contractor shall not, without the written consent of the KELTRON, assign or sublet any part thereof, other than for raw materials, or for any part of the work provided that any such consent shall not relieve the contractor from any obligation, duty or responsibility under the contract. In the event of sub-letting of contract or any part thereof is permitted, the fact that such permission has been accorded shall not establish any contractual relationship between the approved Sub-vendor and KELTRON of any of his liabilities and obligations under the contract.

3.34 Notice

Unless otherwise stated in the Contract, all notices to be given under the Contract shall be in writing ,and shall be sent by personal delivery, Registered post, special courier, cable, telegraph, telex, (fax) or Electronic Data Interchange (EDI),e-mail to the address of the relevant party.

Any notice sent by cable, telegraph, facsimile or EDI shall be confirmed within two(2) days after dispatch by notice sent by air mail post or special courier, except as otherwise specified in the Contract.

Any notice sent by air mail post or special courier shall be deemed (in the absence of evidence of earlier receipt) to have been delivered ten (10) days after dispatch. In proving the fact of dispatch, it shall be sufficient to show that the envelope containing such notice was properly addressed, stamped and conveyed to the postal authorities or courier service for transmission by airmail or special courier.

Either party may change its postal, cable, telex, facsimile or EDI address or addressee for receipt of such notices by ten (10) days' notice to the other party in writing.

Notices shall be deemed to include any approvals, consents, instructions, orders and certificates to be given under the Contract.

3.35 Right to Terminate Contract

If the contractor fails to start the work within fifteen days from the date of issue of LOA, the KELTRON shall have the right to cancel the work order with forfeiture of earnest money without giving any notice to the contractor

If the contractor neglects, or fails to proceed with the work proportionate to the scheduled time of completion of the work or fails to complete the work within scheduled time or within approved extended time, KELTRON shall have right to terminate the work order after giving notice in writing to the contractor. If the contractor fails after 14 (fourteen) days of such notice, to proceed with the work in the manner notified, the Company shall terminate the contract and call the contractor to take joint measurement along with the Engineer for the finished portion of work. If the contractor does not appear for joint measurement, ex-party measurement by KELTRON will be taken as final. In that case, KELTRON shall take possession of the work, site and engage other agency to complete the work. Extra cost, if incurred, to get the unfinished work done through other agency, will be realized from him from his pending bills and security money. In the contract terminated as above, the contractor shall have no claim for compensation against KELTRON for any loss or deterioration of any materials that he may have collected, or he may have entered into account of the work.

3.36 Accommodation

The accommodation of the contractor's Engineers and workers at the site is to be arranged by the contractor.

3.37 Clearing Site on Completion

On completion of the works the contractor shall clear away any and remove from the site all constructional plant, surplus materials, rubbish, debris and temporary works of every kind and leave the whole of the site and works clean and in a good and tidy condition to the satisfaction of the Controlling Officer of KELTRON.

The contractor shall dismantle and remove the staging and other temporary structures like stores, offices, labour camps etc. on completion of work, clear and clean the site where such temporary facilities were built and restore the same to original condition.

3.38 Corrupt or Fraudulent Practices

3.38.1 The Purchaser requires that the bidders/Contractors observe the highest standard of ethics during the procurement and execution of the Contracts.

3.38.2 In pursuance of this policy, the Purchaser defines, for the purposes of this provision the terms set forth below as follows:

- a. "Corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in Contract execution.
- b. "Fraudulent practice" means a misinterpretation of facts in order to influence the procurement process or the execution of a Contract to the detriment of the Purchaser and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Purchaser of the benefits of free and open competition.

3.38.3 The Purchaser will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the Contract in question.

3.38.4 The Purchaser may declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a Contract if it any time determines that the firm has engaged in corrupt or fraudulent practices in competing for or in executing a Contract of the Purchaser

3.39 Advertising

Any advertising stating the subject of this Contract by the Contractor in India or in foreign countries shall be subject to approval of the Purchaser prior to the publication. Publication of approved articles, photographs and other similar materials shall carry acknowledgment to the Purchaser.

3.40 Disputes

The parties shall take necessary steps to settle any dispute through mutual discussion with issuing prior notice in writing to other side at least 07(seven) days in advance. If the issue is remained unresolved to the satisfaction of the parties, then the matter may be referred to Arbitration.

The parties may refer the matter for Arbitration on expiry of 45 (forty-five)days from the date of intimation of disapproval/ dissatisfaction from either party to other party.

The provisions of Arbitration and Conciliation Act1996 will apply with respect to Arbitration proceedings between the parties.

Dispute(s),if any, shall be settled by mutual agreement through Amicable Settlement and incase of failure the dispute(s) shall be settled through Arbitration.

3.41 Arbitration

The provisions of Arbitration and Conciliation Act1996 will apply with respect to Arbitration proceedings between the parties.

Dispute (s), if any, will be settled by mutual agreement through Amicable Settlement and in case of failure, the dispute(s) will be settled through Arbitration.

Amicable Settlement: If any dispute(s) is not resolved through mutual settlement, KELTRON and Contractor will attempt to settle the dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, arbitration may be commenced on or after the thirty day after the day on which notice of dissatisfaction was given, even if no attempt at amicable settlement has been made.

Arbitration: Unless settled amicably, any dispute or differences shall be referred to the Sole Arbitrator appointed by KELTRON. The Arbitrator will preferably be a member of Indian Arbitration Council and arbitration proceedings will take place as per provision of **The Arbitration And Conciliation Act, 1996** or any statutory modifications or re-enactment thereof, and the rules made there under and for the time being in force shall apply. The place of Arbitration shall be decided by KELTRON.

3.42 Jurisdictional Matter

Either party may approach Court of Law if any of them is aggrieved by the award of the Arbitration proceedings.

All litigation matters between the parties if any shall be held in any Court in Kerala under the judiciary of Kerala High Court.

3.43 Law & Procedure

The law which is to apply to the contract and under which the contract is to be constructed shall be Indian Law.

The law governing the procedure and administration of any arbitration instituted by the Clause for Arbitration shall be Indian Law.

3.44 Construction of Contract

The contract shall in all respect be construed and operated, as a contract as defined in the Indian Contracts Act, 1972, and all the payments there under shall be made in India Rupees unless otherwise specified

4 SPECIAL CONDITION OF CONTRACT

4.1 Title of the Work

Design & Engineering, Manufacture / Procurement, Testing, Supply, Installation and Commissioning of 1.5 MWp Grid Connected Roof Top Solar PV (GRTSPV) Power Plant at the Kalyani Layer Farm under WBLDCL, including 5 (five) years comprehensive maintenance on turnkey basis.

4.2 Beneficiaries

Kalyani Layer Farm, WBLDCL

4.3 Scope of Work

The work is to be executed on turkey basis. The Purchaser will not supply any material departmentally. The scope of work will include but not limited to the followings:

- (a) Site visit and field survey at the premises of the Prospective Beneficiary
- (b) Submission of site survey report indicating technical suitability of site for installation of the Power Plant with roof plan as per 3.3.1 and format provided by KELTRON.
- (c) Design of the system
- (d) Obtaining technical approval from the Purchaser
- (e) Timely procurement and transportation to site in properly packed condition of all equipment, materials and miscellaneous item required to complete the project
- (f) Cleaning of site identified for installation of different components of the power plants as may be required.
- (g) Receiving, unloading and transportation at site
- (h) Safe storage
- (i) Final check-up of equipment and commissioning and putting the system into successful Functional operation.
- (j) Installation, testing and commissioning of power plant
- (k) Providing of training material to the endusers during on site training for end users.
- (l) Preparing commissioning certificate and documentation.
- (m) Training and Handing over of power plant
- (n) Providing of routine and breakdown maintenance of grid connected solar rooftop power plants.
- (o) Fulfillment of warrantee obligation as may arise

In addition to facilitate the installation work, following work may have to take up be the contractor as per site condition. The activities, however, deemed to be included in the scoped of work.

(p) Tit bit repairing work mainly plastering, white washing, painting, mending good damages and other related miscellaneous work etc.

(q) Removing of rubbishes and staking the serviceable materials at suitable within a lead of around 75m and lift around of 15 m from the installation site place as directed.

(r) Cleaning of site identified for installation of different components of the power plants as may be required

The equipment and materials other than services deliverable against the grid connected solar power plants will include but not limited to the following:

1. PV Modules (Mono PERC / TOP Con)
2. PV Module Mounting Structure
3. PV Array Junction Box–DC Protection
4. Inverter
5. Web based online data logger and Remote Monitoring Unit
6. Inverter LT Panel/ Combiner Panel –AC protection
7. Kiosks for Inverter and accessories according to site condition
8. Grid interfacing LT Panel –AC protection
9. Power Evacuation Infrastructure including Power Transformer/Switchgear as may be applicable/if applicable as per design.
10. Energy Meter, Zero Export Meter & DG Synchronization kit.
11. Weather Monitoring Station
12. Cables and Wires as required.
13. Earthing system arrangement.
14. Fire Extinguisher
15. SPV Module Cleaning system
16. Individual Ladder for approach to roof
17. Signage

18. Project Document

19. Periodic operation Maintenance Logbook and Maintenance Manual equipment Manual.

4.3.1 Site Survey

(a) Site visit and field survey to be done by the Contractor.

(b) The contractor shall submit site wise Technical Feasibility Survey report indicating technical suitability of site for installation of the systems with roof plan and indicating the suitable area for installation of Solar Plant, dimension, north-south direction and any other relevant information of site, PV Array Lay out, Plant Component Lay out, the structural condition of the roof shed / type of roof / type of roof treatment (if any) along with all technical particulars along with site wise Single Line Diagram (SLD), Shadow Analysis report, PV Syst report, etc based on the guideline laid down by WBGEDCL.

(c) At any stage during implementation of the project, if it is found that the site is not suitable for installation of systems and the site survey has been conducted without maintaining the guideline as laid down by WBGEDCL, the site shall not be accepted by WBGEDCL and all related payment to that particular site will be forfeited.

4.4 Metering arrangement

The contractor shall have to guide, facilitate and assist the beneficiary institutions to complete the process of metering arrangement with DISCOM as may be required.

4.5 Variation, Additions and Omissions, Executed work value

KELTRON reserves the right to alter, amend, omit or otherwise vary the allotment quantities of power plant as may be necessary but such variation will be limited to +/-25% (Plus or minus twenty five percent) of the original order Payment shall however be made as per actual execution of work.

4.6 Executed work value:

The value of work may vary +/-25% (Plus or minus twenty percent) of the contact value.

4.7 Completion Time

The completion period of the project is as follows:

Work Volume	Completion Time from the date of Site Hand Over
Design & Engineering, Manufacture/Procurement, Testing, Supply, Installation and Commissioning of 1.5 MWp Grid Connected Roof Top Solar PV (GRTSPV) Power Plant at the Kalyani Layer Farm under WBLDCL, including 5 (five) years comprehensive maintenance on turnkey basis.	100 days

4.8 Warranty

The contractor must ensure that the goods supplied under the contract are new, unused and of most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the contract.

The warrantee period of the complete PV Systems will be 60 calendar months from the date of commissioning. However, the modules will have warranty for 25 years with degradation of power generated not exceeding 20% of the minimum rated power over the 25 years period and not more than 10% up to initial 10 years period as per guideline of MNRE, Government of India.

The equipment or components, or any part thereof of the Power Plant, if so found defective during warrantee period, the contractor will remain liable to repair or replace immediately under warrantee obligation to the satisfaction of the Purchaser in order to ensure trouble free operation of the Power Plant.

In case of PV Module, the contractor has to transfer Performance Guarantee Certificate from the original manufacturer to the Purchaser for subsequent arrangement.

In order to ensure satisfactory performance of the Power Plant, the contractor should take up periodic maintenance as may be required and also attend breakdown maintenance as and whenever required within the warrantee period and scope under warranty obligation.

Within the scope of warranty, the Contractor will repair or replace of any defective part of the Plant& Equipment supplied, Works done and services rendered under the Contract and render periodic maintenance as a preventive measure to up keep performance of the power plant and also to attend breakdown maintenance as and whenever needed.

4.9 Defect Liability Period

60(sixty) Calendar Month from the date of commissioning at each site

4.10 Comprehensive Maintenance during defect liability period

All the equipment to be installed for commissioning of each of the grid connected solar PV power plant and the power plant in whole shall be under Comprehensive Maintenance Contract within the scope of the tender for 5(five) years from the date of commissioning. The equipment or components, or any part thereof, so found defective during Comprehensive Maintenance Contract period will be forthwith repaired or replaced within the scope of guarantee obligation to the satisfaction of the Purchaser.

The maintenance of grid connected solar power plant include routine & periodic maintenance, overhauling, break down maintenance, and repairing or replacement of defective PV modules ,invertors ,and other components, providing of consumables.

The scope of support service provides preventive maintenance as & when necessary within the contract period and breakdown maintenance in the event of malfunctions, which prevent the operation of the power system or part of it within the stipulated time period & free replacement of spares required for maintenance.

The contractor will provide Spare parts & Measuring Instruments during maintenance. The Down-Time of PV system should not be more than three (03) working days

4.10.1 Routine maintenance:

In order to carry out routine maintenance of the power plant, the contractor will provide all labour, material, consumables etc. within the scope of maintenance service. Recommended tasks under the scope of routine maintenance will include but not limited to the following:

Sl No.	Type of Routine Maintenance
01	Cleaning of PV modules
02	Maintenance of evacuation system.
03	Checking and tightening of mechanical & electrical equipment
04	Checking and restoring of earthing system
05	Dusting and cleaning of Inverter and other electrical equipment
06	Routine maintenance as recommended by the Original Equipment Manufacturer(OEM)
07	Renewal of Fire Extinguishers
The engagement terms along with warrantee & maintenance terms of the agency regarding maintenance with the OEM have to be submitted to KELTRON.	

4.10.2 Breakdown maintenance:

Breakdown maintenance will include but not limited to the following:

i) Breakdown maintenance will mean the maintenance activity including repairs and replacement of any component or equipment of the power plant, which is required to be carried out as a result of any sudden failure/breakdown of that particular component or equipment while the plant is running.

ii) The contractor will be responsible to carry out breakdown maintenance of the power plant and will provide the required manpower, materials, consumables, components or equipment etc. for breakdown maintenance.

The contractor will undertake necessary maintenance/ troubleshooting work of the grid connected solar rooftop power plants. Down time will not be more than 03 (three) working days from time of occurrence or reporting. However, if the breakdown is not repairable within 3 (three working) days due to some specific reason, the contractor must seek extension of time by giving sufficient acceptable reasons within three working days of the occurrence of the fault. In such case, the contractor will also specify the specific date within which the fault will be restored and the system will be put in operation again. However, the final decision taken by the Purchaser considering all such reasons will be binding for the contract. In such cases the restoration shall be done by the contractor within a maximum of 15 days. **If the restoration of the power plant shall not be done within 15 days, the CMC of that Power plant shall be deducted prorate basis.**

4.10.3 Capital Maintenance:

Capital Maintenance shall mean the major overhaul of any component or equipment of the power plant, which is not covered by routine, preventive and break down maintenance which may become necessary on account of excessive wear & tear, aging, which needs repair/replacement. The capital maintenance of power plant and all civil structures shall normally be planned to be carried out on an annual basis.

The capital maintenance also includes annual paintings of mechanical & civil structures etc as and where required. Adequate measures should be taken for prevention of wear and tear of the machines. Solar PV Power System is to be designed to operate with a minimum of maintenance.

The scope of support service provides preventive maintenance as & when necessary within the contract period and breakdown maintenance in the event of malfunctions, which prevent the operation of the power system or part to fit within the stipulated time period & free replacement of spares required for maintenance.

The contractor will provide Spare parts & Measuring Instruments.

4.10.4 Maintenance Report

Quarterly Maintenance Report comprising of Generation Data for that particular quarter, period of grid out age and any other required details for each location as per approved form at must be submitted to KELTRON with certification of Beneficiary in original by the contractor within 30 day of the following month failing of which maintenance service will be deemed to be not attended .If the contractor shall not Submit the Quarterly maintenance report in a particular quarter in due dated the CMC Charges shall be deducted for that quarter.

The payment shall be made on yearly basis on submission of bills in triplicate to KELTRON along with a copy of the maintenance report of the claimed year period which will already to be submitted quarterly.

4.10.5 Insurance PV Power Plants during Comprehensive maintenance period

Operational Policy in the name of **KELTRON (Purchaser)** needs to be taken by the contractor after successful completion of the project for individual site. The following perils but not limited to, needs to be covered under the operational policy.

1. Standard Fire and Special Perils including STFI & Earth quake Policy 2.
2. Burglary and House breaking Policy including Theft Policy. (Contractor is to be responsible for renewal of the above said policies till completion of five years comprehensive maintenance period. The failure of such renewal will invite deduction of maintenance payment. The amount will be decided by KELTRON based on the extent of physical impact of such non-renewal.)

4.10.6 Rental and other periodic charges

The contractor shall pay the rental charge of the SIM / Telephone Bill for web connectivity in order to transfer of data related to Web Based Remote Monitoring System. The contractor shall also pay the rental charges for server of the web based remote monitoring system for storing and access the data till the defect liability period is over. The Contractor shall also pay necessary charges periodically for refilling of the Fire Extinguisher till defect liability period is over within the contract price.

3.10.7 The payment towards maintenance shall be made on yearly basis on submission of bills in triplicate to KELTRON along with a copy of the maintenance report during the claimed period which will already to be submitted on quarterly basis subjected to submission of the extension of Performance BG.

4.11 Payment

All payments to be made to the Contractor under the contract will be in Indian rupees only. Payment schedule proposed to be as follows:

Back-To-Back Payment. The BG against Performance Guarantee will be released after satisfactory completion of the Defect Liability period guided by this tender

Note: The materials shall be delivered at site according to the Bill of Materials mentioned in the BOQ. KELTRON shall arrange joint inspection and measurement of work after installation with an intimation to contractor. The contractor shall submit Invoice in triplicate along with delivery challans, /e-way bill, Joint Inspection Report and Project Completion Certificate for releasing the payments based on the Joint Measurement Book.

4.12 End User Training

The Contractor will arrange for training at site for the end users.

4.13 Handing Over

The work will be taken over by KELTRON upon successful completion of all tasks to be performed at site(s) on equipment supplied, installed, erected, commissioned and run successfully for consecutive 30 days by the contractor in accordance with provision of this order. During handing over of the complete project work, the contractor will submit the followings for considering final payment in triplicate along with soft copy of each site:

- a. All As-Built Drawings & Design of the power plant
- b. Layout of PV array field, schematic drawing, Shadow Analysis Report.
- c. Installation and testing compliance document as per format provided by KELTRON
- d. Detailed Engineering Document with detailed specification, schematic drawing, Design and test results, manuals for all deliverable major items, Operation, Maintenance & Safety Instruction Manual and other information about the project.
- e. Bill of materials
- f. Performance Guarantee Certificate of PV modules from the original manufacturer
- g. Completion certificate as per prescribed format provided by KELTRON

- h. Item wise picture
- i.30 days Generation Data.
- j.Copy of the Electricity Bill of the Beneficiary organization Handing Over document.
- k. Insurance Document
- l.Handing Over document.

Other documents to be delivered to KELTRON

The documents to be delivered to KELTRON will include but not limited as follows:

Warranty Certificates of Original Equipment Manufacturer (OEM) for stipulated period as mentioned in the Tender for Solar PV Modules, Inverters, etc.

4.14 Approval of Electrical Equipment

- a) The proposed inverter shall have the features and also comply the terms as laid down in the tender.
- b) The proposed inverter (minimum capacity of 100 kVA and above) and transformer, switchgear should be used in projects in any Government organization / Government undertaking / Government agencies / SNA of MNRE, Govt. of India and in operation with satisfaction for a minimum period of last 01 year from the date of issuance of the NIeT. (Site visit of such inverter(s) is to be arranged by the Agency concerned if required for performance checking. Supporting documents to be submitted. If the documents are not up to the acceptability of KELTRON, the bidder have to submit documents as required for satisfaction of KELTRON).
- c) In-case of imported inverter(s), original import document containing inverter identification details is to be provided.
- d) The proposed OEM must have service center or authorized service provider anywhere in West Bengal. The contractor shall have to submit the detail of the service center setup with documentary proof like Trade license, Agreement etc at time of the request for approval of Inverter.
- e) The contractor has to propose to supply Transformer & Switchgear and Inverter, data logger and Web based Monitoring Systems from maximum two manufacturers. Out of the offered inverters, approval shall be provided for the inverter(s) of one or two manufacturer, subject to compliance of the document(s) as submitted by the Contractor as per tender and observing the features of the Inverter, data logger and Web Based Monitoring System.

- f) Contractor shall be sole responsible for the delay in obtaining approval due to non- compliance.
- g) KELTRON (or authorized third party org) may opt for Testing & Demonstration. The demo has to be provided by the contractor/OEM at his place/warehouse/lab having appropriate testing facility along with all requisite documents for approval. The contractor has to submit QAP for approval to KELTRON before testing/demonstration. Appropriate and satisfactory testing and demonstration to be ensured at the satisfaction of KELTRON.
- h) Before going for mass production, approval shall be provided by KELTRON for the particular model(s) of the inverter(s).
- i) No further approval shall be accorded after completion of approval or in the mid time of the execution of the project if otherwise any force majeure/unusual/abnormal condition arises. In such case, the controlling officer's decision regarding further approval will be final.

Approval of PV Module

- a) The contractor has to offer PV Module of maximum two manufacturers. Out of offered PV Modules, approval shall be provided for the PV Module(s) of one or two manufacturer, subject to compliance of the document submitted by the Contractor as per tender.
- b) No further approval shall be accorded after completion of approval or in the mid time of the execution of the project if otherwise any force majeure/unusual/abnormal condition arises. In such case, the controlling officer's decision regarding further approval will be final.

Approval of Balance of Systems (BOS)

- a) The contractor has to offer BOS of maximum three manufacturers. Out of offered BOS, approval shall be provided of one or two or three manufacturers subject to compliance of the document submitted by the Contractor as per tender.
- b) No further approval shall be accorded after completion of approval or in the mid time of the execution of the project if otherwise any force majeure/unusual/abnormal condition arises. In such case, the controlling officer's decision regarding further approval will be final.

4.15 Joint Inspection

Joint Inspection may be carried out at various stages of execution of the work as follows but not limited to the following stages:

- a) Site Survey during site feasibility.
- b) After delivery of materials of GCRTS PV systems at site
- c) After Installation of GCRTS PV systems at site.
- d) After Testing of GCRTS PV systems at site.

4.16 ACTIVITY SCHEDULE

The bidder need to submit the project schedule (weekly schedule).

5 TECHNICAL SPECIFICATION

Design, Engineering, Supply, Installation, Testing, Commissioning of 1.5 MWp Grid Connected Rooftop Solar PV Power Plant on Tin Shed Roof at Kalyani Layer Farm including 5(five) years comprehensive maintenance on turnkey basis.

5.1 Outline of the scheme of the project:

- The array capacity of the PV Power plant will be minimum 1500kWp.
- The PV array will be installed at the available space ear marked at project site. The MMS have to be installed on the roof (corrugated tin shed) of the building.
- The power from PV array will be feed into grid through grid tied inverter(s).
- Output of the grid-tied inverter(s) will be terminated to an Inverter LT combiner Panel/AC protection device to be located close to the inverter.
- The output of the Inverter LT combiner Panel/AC protection device will be terminated and synchronized with supply mains through another AC protection device, Generation meter, etc as may be required as per design.
- The Generation/Energy Meter installed at any suitable location before connecting to the mains to measure the energy produce from the PV Power Plant.
- The synchronization of the power plant with the mains will be done through two different feeders. One feeder may be connected with 1MWp capacity and another with 0.5MWp capacity solar power plant. However, the capacity distribution may change during execution of work after calculating the load pattern of the site.

- A suitable arrangement should be done for synchronization of diesel generator (DG) with solar inverter during grid failure, allowing solar generation to continue in islanded mode, and ensuring proper load sharing and system protection. A suitable arrangement should be done if required for restricting solar power export to grid. Active Power Control Device (Zero Export Limiter) should ensure no excess energy to export from the solar PV system to the utility grid. It should dynamically control inverter output based on the real-time load to maintain export = 0 kW (\pm small tolerance).
- The SPV power plant to be installed should be Robust, Economic, Efficient and Time tested and having a good aesthetic view matched with the Building.
- Site as built diagram including shadow analysis report, PV Syst report to be submitted.
- The shed details are given below. The contractor has to design, calculate and request for use of adequate number of shed from the available sheds:

	Sl no	Description	Roof type	Azimuth	Qty	Length	Breadth	Area (Sqm)
Phase-1	1	Brooder	Corrugated Metal Sheet Roof	East-West dual tilt roof	1	130.93	16.35	2140.7
	2	Layer			3	153.9	12.76	5891.3
	3	Egg Room			1	70	20	1400.0
Phase-2	4	Brooder			1	84.75	13.55	1148.4
	5	Layer			3	122.75	16.35	6020.9
	6	Egg Room			1	50	18.7	935.0
				10			17536.2	

5.2 Solar PV Modules

The Cell of the Modules. The capacity will be consider as per declared capacity in the published technical brochures of the proposed PV Module Manufacturer.

Module manufacturer should been listed under recent ALMM list of MNRE, GoI.

Each PV module used in this solar power project must use an RF identification tag. The information must be mentioned in the RFID used on each module as per guideline of MNRE Government of India (This can be inside or outside the laminate, but must be able to withstand harsh environmental condition)

Warranty

Material Warranty: The manufacturer should warrant the Solar Module(s) to be free from the defects and/or failures specified below for a period not less than ten (10) Years from the date of dispatch instruction by KELTRON or dispatch from the manufacturers factory, which-ever is later:

- Defects and/or failures due to manufacturing
- Defects and/or failures due to quality of materials
- Non conformity to specifications due to faulty manufacturing and/or inspection processes.

If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s), at the Owner's sole option. The contractor (till defect liability period) shall be responsible to contact with the contractor if any of the above mentioned cases occurred.

Performance Warranty: The manufacturer should warrant the output of Solar Module(s) for at least 90% of its rated power output at the end of initial 10 years and 80% of its rated power at the end of the next 15 years from the date of dispatch instruction by KELTRON or dispatch from the manufacturers factory, which-ever is later. The contractor shall collect the Warranty Certificate for performance of the modules from the manufacturer and submit the same to KELTRON prior to delivery of the products to the respective sites.

If, Module(s) fail(s) to exhibit such power output in prescribed time span the Contractor/Manufacturer (Contractor within the 5 years Maintenance Period and the Solar PV Module manufacturer for the rest of 20 Years), will be bound to either deliver additional PV Module(s) to replace the missing power output with no change in area of site use do replace the PV Module(s) with no extra cost claimed at Owner's Sole option.

Manufacturer of proposed PV modules must have the ISO9001:2008 or ISO14001 Certification or any latest certification (if any) for their manufacturing unit for their said manufacturing item.

**Rated Power Output is determined as a standard under the test conditions of cell temperature of 25 degrees Celsius and irradiance of 1000 Watt per Sq. Mtr and Air Mass 1.5 Spectrum.

Note: Only indigenously manufactured PV modules should be used in Grid Connected Rooftop Solar PV Power Plants under this scheme. However, other imported components can be used, subject to adequate disclosure and compliance to specified quality norms and standards.

The contractor should submit the warrantee certificate issued by the original PV Module manufacturer to KELTRON after delivery of every lot. The warrantee shall include but not limited to the following:

- i) Capacity and model of the PV module,
- ii) PV Module serial no.
- iii) Warrantee period & Nature of warranty in details
- iv) Order description of KELTRON
- v) The warranty certificate as issued by the PV Module manufacturer, must comply the terms of the tender warranty period and other terms of the tender.

Desired specification of the PV Module will include but not limited to the following:

Sl No	Item	Description
1.0	Certification	i) IS 14286:2010/IS 16077:2013/IEC 61215 (Design Qualification & Type) ii) IS/IEC 61730(1,2):2004 (Construction & Testing) iii) IEC61701:2011 OR EQUIVALENT (Salt Mist). iv) IEC62804-1:2015(E) OR EQUIVALENT. (PID)
1.1	Type Test certificate issuing authority.	NABL/IEC Accredited Testing Laboratories or MNRE accredited test centers.

2.0	PV Cell	
2.1	Type	Mono PERC/TOPCon
3.0	PV Module	
3.1	Rating at STC	Minimum capacity of each PV Module to be used is 550 Wp (without any negative tolerance).
3.2	Efficiency	Minimum20%
3.3	Fill factor	Minimum70%
3.4	With standing voltage	1500VDC
3.5	Glass	
3.5.1	Thickness	3.2mm(minimum)
3.5.2	Type	High transmission, low iron, tempered & textured glass.
3.6	Bypass Diode	
3.6.1	System Voltage(V _{sys})	1500/1000Vdc(minimum)
3.6.2	Number	2numbers(minimum)
3.7	Module Frame	
3.7.1	Type	Anodized aluminum frame(35MM[min] vertical frame width)
3.8	Module Junction Box	
3.8.1	Enclosure	IP67(min)

3,8,2	MC4Connector	IP67havingIEC62852certification
3.8.3	Cable	Specified in Cables & Wires Specification.

5.3 PV Array

Desired specification of the PV Array will include but not limited to the following:

Sl No	Item	Description
1.0	Nominal Capacity	Minimum1500kWp
2.0	PV Module interconnection connector	MC-4/Tyco connector. IP67havingIEC62852certification
3.0	PV Module interconnection cable and array cable	PV 1-F standard /NEC standard “USE-2 orRHW-2” type and EN 50618
4.0	PV array String Voltage	Compatible with the MPPT Channel of the inverter
5.0	Maximum Roof Space Utilization	10Sqm/per kWp

5.4 PV Module Mounting Structure

During Structural design following points must be include but not limited to the following

➤ **Type & Material**

- (i) MountingstructureshallbeofMonoRail/LongRailtypesuitablefortinshed/ trapezoidal / standing seam roofs.
- (ii) Made of Aluminum Alloy (AL6063-T6) with minimum anodization thickness of 15 microns for long-term corrosion resistance.

➤ **Structural Fixings & Components**

i) Rails & Supports

- Aluminium extruded rails, dimensionally suitable to withstand loads as per IS875.
- Continuous mono rails to reduce the number of roof penetrations and distribute load evenly across purlins.

ii) End Clamps

- End clamps of anodized Aluminium designed to hold the PV module frames securely from edges.
- Must be suitable for the specified module frame thickness (e.g. 30-35 mm) with universal adjustability

iii) Mid Clamps

- Mid clamps of anodized aluminium with integrated SS304 hardware to secure adjacent modules.
- Designed to maintain uniform gap (typically 15-20mm) for thermal expansion.

iv) M8 Bolt

- **Type:** Hex head bolt (full threaded or as per structural design).
- **Material:** Stainless Steel (SS304)
- **Diameter & Length:** Typically M8x40mm to M8x60mm, depending on module frame and rail design.
- **Finish:** Polished to avoid corrosion pitting.

v) Spring Washer

- **Material:** Stainless Steel SS304
- **Size:** Matching M8 bolts

vi) Blind Rivet

- **Type:** Pull-type pop rivet. Dome or large flange head to spread load.
- **Material:**
- **Rivet Body:** Aluminum or stainless steel (as per site corrosion category).
- **Mandrel:** Stainless steel.
- **Size:** Ø 4.8mm (3/16") x length as per sheet thickness (commonly 16-18mm).
- **Usage:** Fixing clamps or EPDM to tin sheet when hanger bolts not used.

vii) EPDM Sheet/Rubber Gasket

- **Type:** UV resistant, high elastic solid EPDM.
- **Hardness:** 60±5 Shore A.
- **Thickness:** Typically 3mm.
- **Width:** ≥ 25mm (as per bracket footprint).
- **Purpose:**
 - Acts as weather proof sealing between MMS bracket and tin sheet.
 - Avoids galvanic corrosion and micro-cracking of sheet.

viii) Fastening Methodology

Each module shall be fixed using:

- 2 mid clamps (shared) and 2 end clamps at module ends.
- M8bolt + plain washer + spring washer + nut on each clamp.

Roof rail/ bracket to tin shed shall be secured via:

- Self-tapping screws or hanger bolts(SS)with EPDM sealing washer, OR
- Blind rivets + silicone sealant + EPDM sheet to ensure complete waterproofing.

- ix)** For 1500kWp rooftop, the structural condition of the roof/type of roof/type of roof treatment (if any)should be precisely assessed by the contractor before execution of work and in-case of any decision regarding availability of suitable shadow free and structural sound roof space, the matter is to be taken up with KELTRON in writing. The decision of the Controlling Officer will be final in this regard.
- x)** The contractor shall have to submit the drawing of PV Module mounting structure supported by Staad- pro design (soft copy of the staad profile to be submitted) , windloading calculation sheet, Foundation design, duly certified by an appropriate graduate Engineer to KELTRON after placement of LOA for necessary approval. The decision of the Controlling Officer will be final in this regard.
- xi)** The PV Array should be capable of withstanding **a minimum wind load of 180 km/hr after installation.** Standard design considerations i.r.o relevant wind zone may be applied, in line of given parameters/ information / instructions/standards, codes etc., as mentioned here in this tender document. Suitable fastening arrangement, such as grouting and clamping should be provided to ensure & secure the installation against the specific wind speed for the respective wind zone of the location where the proposed PV Power plant is to be installed. The decision of the Controlling Officer will be final in this regard.
- xii)**All structures including any ancillary metallic parts thereof must be protected against any corrosion. The structures must also be compatible with the materials used in the module frame, fasteners, fixtures, nuts, bolts etc. or any similar nature of metallic components whichever are required to complete the job, in all respect.
- xiii)** Structures will be supplied inclusive of all members compatible for allowing easy installation and complete in all respect as per the approved design & drawing.
- xiv)** The structures will be designed for simple mechanical and electrical installation.

- xv)** All fasteners, fixtures for supporting conduits Shall be made with stainless steel or aluminum. Cable Tie must be of Stainless Steel/ Aluminum for outdoor installations and for indoor/inside equipment/inside enclosure have to be of UV Protected PVC/ Stainless Steel/ Aluminum
- xvi)** Safety of the roof structure should be properly maintained all through the work. If any damages of the building roof structure occurred due to installation by the contractor, necessary rectification is to be made by the contractor immediately at his own risk & cost, mending good all damages & provided its original and good condition.
- xvii)** To ensure safe and efficient access for operation and maintenance personnel, dedicated **Walkway** shall be provided on each shed where PV modules are installed FRP walkway shall be securely mounted on MMS or support channels without damaging the roof or obstructing the drainage.
- xviii)** In case of any damage for MMS and/or PV Module will take place by cyclone or storm, the contractor has to assess the damage within 15 days of such incidence. The contractor has to do necessary repair works within three weeks of such occurrence at its own cost.

5.5 PV Array Junction Box(AJB)/DC Protection

PV Array Junction Box (AJB) will have to be used for termination of string prior connecting array with inverter. The desired specification of the PV Array Junction Box and accessories will include but not limited to the following:

Sl No	Item Description	Desired Data
1.0	Enclosure	
1.1	Degree of Protection	IP65withUVProtected
1.2	Material	Polycarbonate.
1.3	Withstanding voltage	1500VDC(min)
1.4	Withstanding Temperature	110°C
1.5	Accessories arrangement mounting	DIN Rail or as suitable
1.6	Front cover	Transparent
1.7	Number of Strings entry	As may be required
2.0	Cable Entry and Exit	
2.1	Position	Bottom at cable entry and exit
2.2	Cable Entry and Exit connector type	MC4/Tyco Connector(as per suitability of PV Array String cable),IP 65 having IEC 62852 certification OR EQUIVALENT
2.3	Cable gland	Earthing cable entry
3.0	Surge Protecting Device(SPD)	

3.1	Type	DC
3.2	Protection class	Type2
3.3	Rating(8/20)	20kA
3.4	Number of set	As may be required as per string Design (minimum 1 set against each MPPT Chanel)
4.0	Fuse with fuse holder	
4.1	Position	Positive and negative terminal for each series string
4.2	Type	Glass fuse for PV Use only
4.3	Rating	Current: Minimum 1.25 times the rated short circuit current of the series string
5.0	Earthing Provision	Terminal blocks (CONFORMING TO IEC 60947-7-1.) will have to be provided for Earthing,
6.0	Terminals ,lug sand busbar	Tinned copper

5.6 Grid-Tied Inverter

General Description

The power from PV array is to be feed into grid through grid-tied string inverter. Performance Certificate & Testing/Demonstration will be Guided As Per Clause **3.14**.

- The combined AC output of inverter(s) shall be **sized appropriately to handle at least 1500 kWp** of total installed PV capacity.
- Inverter grouping and AC synchronization shall comply with standard practices and grid codes.

Inverter Unit Rating and Quantity

- **Inverter Unit Rating:** Minimum 1500kVa (AC active power output at unity pf)
- **No. of Inverter(s):** As per design to achieve 1500 kVa capacity (AC active power output at unity pf)
- **DC:AC Ratio:** Up to 1.1 (max DC overloading allowed: 10%)

Desired specification of inverter will include but not limited to the following:

Sl.No.	Operating Parameter	Desired specification
1.0	Type	Grid-tied String Inverter/Central Inverter
2.0	Usage	Specially used for PV system
3.0	Standards	
3.1	Efficiency Measurement	IEC 61683/Equivalent BIS Std.(efficiency)
3.2	Environmental testing	IEC 60068-2 (1,2,14,30) /Equivalent BIS Std.(Environmental)
3.3	Interfacing with utility grid	IEC 61727 or Equivalent
3.4	Islanding Prevention Measurement	IEC 62116 or Equivalent

****VALID IEC CERTIFICATE ALONG WITH TEST REPORT TO BE SUBMITTED**

3.5	Type Test certificate issuing authority (for item no 3.1 , 3.2)	NABL/ IEC Accredited Testing Laboratories or MNRE approved test centers.
4.0	Input(DC)	
4.1	Aggregated PV array connectivity Capacity	1500kWp(min).(10% DC overloading allowed)
4.2	MPPT Voltage range	Compatible with the array voltage
4.3	Total number of MPPT	As per design.
5.0	Output(AC)	
5.1	AC Active Power	Minimum 1500kVA at unity pf.
5.2	AC Grid Connection	3Ø400V+N50Hz,
5.3	Adjustable AC voltage range	As per prevailing Grid code.
5.4	Frequency range	As per prevailing grid code
5.5	AC wave form	Pure Sine wave
5.6	THD at full load	As per prevailing code
5.7	AC Synchronization	All inverters must be synchronized to Common AC bus
6.0	General Electrical data	
6.1	Efficiency	Minimum 97% at 45 degree centigrade Ambient temperature.
6.2	No load loss	0.1% of rated power
6.3	Sleep mode consumption	Less than 5W
7.0	Protection	

7.1	DC Side	<ol style="list-style-type: none"> 1. Reverse-polarity protection 2. Over voltage protection.
7.2	AC side	<ol style="list-style-type: none"> 1. DC inject protection to grid 2. Over voltage and Under voltage 3. Over and under grid frequency protection, 4. Anti Islanding protection
7.3	Isolation Switch	PV array Isolation switch (DC). If DC isolating Switch is not provided in the inverter it will be provided by the Contractor separately nearer to the inverter.
7.4	Ground fault detection device (RCD) which can detect changes in ground current. Rating will be as suitable for inverter	To be provided for transformer-less inverter.
8.0	Interface (Communication protocol)	<p>Suitable port must be provided in the inverter for</p> <ol style="list-style-type: none"> i) On site upgrade of Software, ii) Instant On site dumping facility for onsite data dumping, iii) Compatible to Web based remote monitoring system
9.0	Web monitoring	Matched with the monitoring and data Logging system
10.0	Mechanical Data	
10.1	Protection Class	IP65 (min)
10.2	Temperature	0°C to 55°C
10.3	Cooling	Natural/forced cooling
10.4	Type of Fixing	Wall Mounted/Floor .Suitable Stand with Canopy have to be provided along with necessary civil foundation.

Aggregated System Design Notes:

The **total number and size** of inverter(s) shall be designed based on:

- DC array configuration and MPPT sizing
- Available space for inverter placement
- AC bus bar sizing at Grid Interfacing Panel(GIP)
- Grouped inverter outputs shall feed into Inverter LT Panel (IIP), then to GIP.
- Protection coordination and earthing shall be designed per IEEE /IS standards.

The contractor should submit the warrantee certificate issued by the original inverter manufacturer to KELTRON after delivery of every lot. The warrantee shall include but not limited to the following:

- i) Capacity and model of the inverter,
- ii) Inverter serial no.
- iii) Warrantee period
- iv) Order reference of KELTRON
- v) Order description of KELTRON
- vi) Name of KELTRON (principal purchaser)
- vii) Name of the contractor

The warranty certificate as issued by the Inverter manufacturer, must comply the terms of the tender warranty period and other terms of the tender.

NB: For sl no.(iv-vii): In case the OEM does not provide the Warranty certificate mentioning the points, then the Local Inverter dealer/distributor may issue additional warranty documents mentioning all the points.

5.7 Web enable online data logger and Remote Monitoring Unit:

- (i) Web enable data logging system may be an integrated part of the inverter or a separate unit.
- (ii) The data Logger should have the provision of recording electrical parameters on DC and AC side at different stages to study performance of system as well as to study status of the system at a particular instant. The data logger should have required transducer to monitor and record the required system data.
- (iii) Web based Remote Monitoring system must be compatible with data logger.

(iv) The data logger shall have reliable data storage capacity(for a minimum period of One year) to record and store the minimum desired data mentioned here in under with maximum 5 minutes intervals and there must be provision of offline retrieval of the same at site as and when required.

(v) The other required accessories, hardware and compatible software will have to be provided as an integrated part of the system to monitor the real time data (maximum 20 minutes delay) through web server. The Data logger will continuously send data to the server.

(vi) The desired data which will be recorded in the Data logger are as follows:

AC & DC Volt & Current data, Power generated, Cumulative Energy generated, Fault logs, Temperature, etc.

(vii) The contractor shall provide the necessary accessories to extract data from the data logger with the system for each site.

(viii) The system can be monitored from anywhere through internet without installing any specific application software. The server will not be provided by the Purchaser.

(ix) The rental charges and other charges of the IP address, data storage space in the host server and free access of the Data through Web for a period of five (5) years from the date of commissioning will be within the cost of contract value.

(x) The contractor will arrange Internet connection/ facility at the project site for data transfer by supplying and installing a dongle& a SIM card or by other means for a period of five (5) years from the date of commissioning and the cost incurred will be within the cost of contract value.

In case of modem based internet facility, the contractor will supply and install data cable connection with required switch or router having sufficient number of port from the Web-enabled Data Logger up to the internet facility at the project site for data transfer.

In case the data cable to be laid at outdoor for a significant distance, SPD (surge suppressing device) suitable for communication network ,as much number at suitable location are required must be provided with the system.

(xi) The data logger and remote monitoring system is not inbuilt to the inverter then the data logger and the remote monitoring system must be put into a Polycarbonate enclosure having transparent front panel.

(xii) The Web based monitoring system should have the provision of graphical representation of the data will include but not limited to the following:

Sl.No.	Operating Parameter	Desired specification
1.0	Input data	PV Power PV Energy String Wise Voltage, Current, Power.
2.0	Output data	
2.1	Inverter	Export energy Cumulative & daily Hour of Operation. Peak Power Daily fault log.

All data will be recorded chronologically date wise. The data file should be MS Excel/XML/or any readable form compatible and should have the facility of easy downloads. Software should have the facility to send automatically the generation report (Daily/Monthly/Yearly as desired) through e-mail to the feed in mail ID's of KELTRON.

5.8 Inverter LT Panel / AC Protection

The output of the string Inverter will be terminated in a Panel styled as Inverter LT Panel through 415 V 4 pole MCB/MCCB as applicable at the output of the string inverter. The set of AC surge suppressor (SPD) of type will be connected at the outgoing side.

Desired specification will include but not limited to the following:

Sl No	Parameter	Desired Specification
1.0	Incoming and outgoing side MCB/MCCB/ACB (Inverters side)	Proper design with calculation has to be submitted for approval.
2.0	Surge protection device	
2.3	Protection class	Type2
2.5	Rating	20kA(minimum)
3.0	Indicator (Have to be provided in incoming & outgoing of MCB)	R,Y,B
3.1	Front Cover (Only indicator portion)	Transparent to Visualize the Indicator R,Y,B from Outside
4.0	Earthing Provision	Terminal blocks (CONFORMING TO IEC 60947-7-1) will have to be provided for Earthing
4.1	Cable Gland	Double compressive Gland to Metallic be provided.
5.0	Enclosure	
5.1	Degree of Protection	IP-42/43 for indoor type or IP65 for outdoor type.

5.2	Type	Double door sheet steel (16SWG), powder coated horizontal / vertical enclosure dust and vermin proof
5.3	Type of Fixing	Mounted on stand. Suitable Stand with canopy have to be provided along with necessary civil foundation.
5.4	Accessories mounting arrangement	DIN Rail or as suitable
5.5	Socket	Cu Socket
5.6	Labeling of Panel	Panel name to be engraved with aluminium sheet on the panel

5.9. Grid interfacing LT Panel/AC Protection

Output of the Inverter LT Panel will be terminated to a **Grid Interfacing LT Panel**.

Desired specification of **Panel** will include but not limited to the following:

Sl No	Parameter	Desired Specification
1.0	Incoming and outgoing side - MCB/MCCB/ACB (Inverters side)	Proper design with calculation has to be submitted for approval.
2.0	Surge protection device	
2.3	Protection class	Type2
2.5	Rating	20kA (minimum)
3.0	Bus Bar	
3.1	Position	In the Bus Bar Chamber

3.2	Rating	3 Ph Neutral 415 V, Current rating will depend on system design by the vendor.
3.3	Type	Copper
4.0	Indicator (Have to be provided in incoming & outgoing of MCB)	R,Y,B
4.1	Front Cover (Only indicator portion)	Transparent to Visualize the Indicator R,Y,B from out side
5.0	Earthing Provision	Terminal Blocks (CONFORMING TO IEC 60947-7-1) will have to be provided for Earthing
5.1	Cable Gland	Double compressive Metallic Gland to be provided.
6.0	Enclosure	
6.1	Degree of Protection	IP 65 for outdoor type.
6.2	Type	Double door sheet steel (16SWG), powder coated horizontal / vertical enclosure dust and vermin proof
6.3	Type of Fixing	Mounted on stand. Suitable Stand with canopy have to be provided along with necessary civil foundation.
6.4	Accessories mounting arrangement	DIN Rail or as suitable
6.5	Socket	Cu Socket
6.6	Labeling of Panel	Panel name to be engraved with aluminium sheet on The panel

5.10. Energy Meter

- 3 Phase whole current Energy Meter shall be installed at the outgoing side of Inverter LT panel.
- The proposed manufacturer of energy meter must have experience of delivery of energy meter to different DISCOMs of India.
- The meter shall be installed to measure the total energy exported from the PV Power Plant.
- The meter must be put in an enclosure made with Polycarbonate sheet.
- The energy meter shall conform to the requirements laid down by the CEA's (Installation and Operation of Meters) Regulation, 2013 and any amendments thereof.
- Indian Standard or IEC to which conforming:IS 13779

5.10.1 DG synchronization Device: Synchronization of diesel generator (DG) with solar inverter during grid failure, allowing solar generation to continue in islanded mode, and ensuring proper load sharing and system protection.

- System Compatibility • Works with grid-tied solar inverter, grid, and DG sets
- Mode of Operation • Grid-connected, DG-only, solar-DG hybrid
- Auto Synchronization • Automatic start/stop and synchronization of DG with inverter
- Load Sensing • Real-time monitoring of site load and solar generation
- Export Limitation • Zero-export feature to DG using feedback loop
- Anti-Islanding • Mandatory for grid-tied inverters
- Priority Logic • Solar → DG → Grid
- Synchronization Time • <10seconds
- Enclosure: IP65
- Compliance: IEC60947, IEC60255, IEC61850, CE certified components
- DG set and solar inverter compatibility to be approved by OEMs

➤ **Typical Application Flow:**

- [Grid Available]→Grid + Solar
- [Grid Fail]→DG Starts→ Solar Continues via Sync Kit
- [Grid Returns]→DG Off→ Back to Grid + Solar

➤ **Protection & Safety**

- Reverse power protection to DG
- Over/under frequency & voltage protection
- DG overload and failure alarm
- Solar over-generation detection
- Emergency stop provision

5.10.2 Zero Export Meter

Smart Energy Management tool that prevents surplus solar power from feeding back into the grid. The minimum specification for the device but not limited to the following:

- Function-Monitors energy flow at PCC and limits PV inverter output to prevent export
- Compatibility: Compatible with Grid-tied String Inverters/Central Inverter
- Control Method: Real-time feedback loop via CTs/ Smart Meter/RS485 or Ethernet
- Control Accuracy: $\pm 2\%$ of set export limit
- Export Setting: 0kW (Default), adjustable up to full export (if permitted in future)
- Fail-safe Operation: In case of sensor or communication failure, the inverter reduces output.
- Communication: RS485/Mod bus/Ethernet/Wi-Fi (inverter & meter compatible)
- Current Measurement: External CT-based or in-built metering system
- Response Time: ≤ 2 seconds
- Electrical Safety: IS13252/IEC60950-1
- EMI/EMC Compliance: IEC61000-6-2 & 6-4
- Communication Protocol: Mod bus RTU/TCP
- Monitoring: Export power, load power, PV power status

- Logging: Daily/monthly export block history(if any)
- Integration with web portal
- Enclosure: IP65

5.11. Cables & Wirings

The Specification of wiring material of PV Power plant will include but not limited to the following:

Sl No	Item	Description
A	DC Cable	
1.1	Type	Single-core, flexible solar DC cable, UV resistant, weather and flame retardant
1.2	Conductor	Tinned, multi-stranded, annealed copper as per IS 8130/ IEC 60228 class 5
1.3	Voltage Rating	1.8 kV DC conforming to IS 17293:2020 and IEC 62930
1.4	Insulation & Sheath	Cross-linked polyolefin (XLPO) / XLPE, halogen-free, UV resistant
1.5	Standard	IS 17293:2020
B	AC Cable	
2.1	Type	Multi core (3.5 / 4-core), XLPE insulated, armoured, PVC sheathed
2.2	Conductor	Copper (Inverter to IIP/GIP), Aluminium (GIP to Transformer/Grid), conforming to IS 8130
2.3	Voltage Rating	1.1 kV grade (LT side), 11 kV grade (HT side of transformer)

2.4	Insulation	EBXL insulated as per IS:7098-(Part1)/IEC60502-1
2.5	Armouring	Galvanized steel strip or wire armoured, as per IS:3975
2.6	Sheathing	Extruded PVC sheath, flame retardant
2.7	Flame Retardance	IS10810/IEC60332-1
2.8	Termination	Using heavy-duty compression glands and tinned copper lugs
C. Communication Cable		
3.0	Type	RS 485 twisted pair communication cable - Armoured
3.1	Conductor	Solid bare cu, 1.5 sq mm or 1 sq mm based on distance and data rate
3.2	No of Pairs	1 pair or 2 pair, twisted, shielded
3.3	Armouring	Galvanize steel wire or tape armouring for mechanical protection
3.4	Standard	IS694/IS7098
D uPVC Conduit, tees, bends etc		
4.0	Standard	uPVC(ISI Marked)
4.1	Ambient Temperature	0°C to 50°C
4.2	Type	UV stabilized , temperatures, Shock proof chemical resistant

E	GI Pipe	
5.0	Make	SAIL/TATA/RINL
F	All Cables to be used in the project shall be copper connectors.	

Guideline of Cabling Overview

The power cable system from the inverter to the grid shall include the following segments:

- Inverter to Inverter Interfacing Panel(IIP)
- IIP to Grid Interfacing Panel (GIP)
- GIP to LT Side panel of the beneficiary for synchronization.
- Transformer HT Side to Grid(PCC via HT Panel/VCB)[if applicable]

All cable laying, termination, and protection work must be done as per the best engineering practices and relevant Indian Standards (IS:1255, IS:7098, IS:8130, IS:1554, IS:17505, etc.).

Cable Selection & Approval

- Cable types: XLPE insulated, armoured, copper/aluminium conductor power cables of suitable rating and voltage grade (1.1 kV / 11 kV as required).
- Cables to be selected based on:
 - **Voltage drop limits:**
 - From the PV Array to Inverter(s) should be less than 2%.
 - From Inverter to AC Grid interfacing panel to Transformer & Grid should be less than 3%.
- All proposed cable sizes shall be approved by KELTRON prior to installation.
Design & calculation have to be provided for consideration.

Cable Laying Methods

j) Surface/ Tray /Wall Mounting

- Cable to be laid on **perforated GI** trays with **UV-resistant stainless steel/PVC clamps** at 400 mm intervals.
- When laid on walls or ceilings, cable shall be fixed using MS clamps and routed in uPVC or GI conduit (GI conduit to be earthed).
- Vertical runs: Provide GI pipe protection (1meter) above each floor level.
- Penetrations through walls/floors to be protected using GI sleeve and sealed with silicon gel or fire-resistant sealant

ii) Underground Cable Laying

- Shall conform to IS:1255-1983.
- Trench dimensions:
 - Normal ground: Minimum depth 750mm, width 300–450mm.
 - Road crossings: Minimum depth 1000mm.
- Trench bedding and backfilling:
 - 75mm sand layer below cable.
 - Cable placed in trench.
 - Covered with 75mm sand cushion above cable.
 - Brick covering (1layer,flat-laid).
 - Refilled with excavated soil and compacted.
- Route marker posts every 30m and at every turn.

Crossing Roads/Structures/Drains

- Use ISI-marked GI pipe sleeves of suitable diameter for protection.
- Extend minimum 1 meter beyond structure or road on either side.
- Cables shall be laid inside pipes, and the pipe ends sealed to prevent moisture or rodent entry.

- iii) The cable must be laid through uPVC conduit or GI pipe on roof and indoor. In case of using metallic pipe as conduit proper grounding of the conduit must be done.
- iv) GI cable tray with perforation of suitable size must be used for laying of cable through uPVC conduit on the floor or Roof. Metallic clamp to be used for fitting/support of the conduit with the cable tray.
- v) Cable terminations are to be made with suitable cable lugs & sockets etc, crimped properly and cables will be provided with dry type compression glands wherever they enter junction boxes/ panels/ enclosures at the entry & exit point of the cubicles. The panel's bottoms should be properly sealed to prevent entry of snakes / lizard etc inside the panel. All cables are to be adequately supported.. Termination of cable shall have to be made by using suitable compression cable gland and sockets by crimping to the size of the cable. Only terminal cable joints will be accepted. Cable joint to join two cable ends will not be accepted.

- vi) All cable/wires/control cable are to be marked or coded properly for easy identification. Cables and wires have to conform to the relevant standards suppliers to specify the specification.
- vii) All fasteners will be made of Stainless steel or Aluminum. Cable Tie must be of Stainless Steel/Aluminum for outdoor installations and for indoor/inside equipment/inside enclosure have to be of UV Protected PVC/Stainless Steel/Aluminum
- viii) Minimum two number loop for underground cable laying and one number loop for other cable termination must be provided at the start and end of each span.
- ix) Proper measure to be taken to seal the end point of cable conduit to prevent entry of water/lizard etc inside the cable conduit and must be sealed with silica gel.
- x) Looping to be provided in DC Cable before exit from array field & entering in the PVC Conduit and also before entering in the AJB.
- xi) In order to avoid looping area formed in array wiring, the positive DC conductor must run parallel side by side till termination at AJB.
- xii) The DC Cables in the PV array field must be laid through uPVC conduit of minimum 1 inch diameter. The uPVC conduit must be rest and fixed with metallic clamp on the precast pedestals of minimum size 150mm X 150 mm x 100 mm on the Roof. However the height of the pedestals may be increased for leveling purpose as per site condition. The distance between two pedestals shall be maximum 1.0 M
- xiii) The DC cable shall be properly dressed and as far as possible most of the part of the cable must be inside the conduit.
- xiv) All the DC Cable shall be laid through uPVC conduit of minimum 1inch diameter.

Cable from Inverter to IIP to GIP to Point of Common Coupling

- (i) Inverter to IIP
 - Cable type:4-core,XLPEinsulated,armouredcoppercable(1.1kVgrade).
 - Laid through conduit/tray on roof top or internal building structure.
- (ii) IIP to GIP
 - Route via cable tray or underground depending on site condition.
 - Ensure proper phase marking and earthing continuity.
- (iii) GIP to LT panel/Transformer(LT Side)as may be applicable
 - Lay through underground trench or GI protected conduit if surface-laid.

- Entry to transformer cable box to be sealed properly.

(iv) Transformer to Grid/PCC(HT Side)if required.

- 11kVXLPEinsulated, 3-core, armoured aluminium cable(as per design).
- Directly laid underground up to HTV CB Panel/PCC.
- Termination at VCB with proper CT/PT interfacing for metering.

This also includes laying, Glanding, termination of cable in all complete. Different size of Power cable will be required and the vendor has to propose as per design subject to approval from KELTRON.

Note: The contractor has to consider 500 meter (minimum) power cable for calculation. However, the quantity may change as per design and site condition. The contractor may check during site visit regarding the same. AC power cable from IIP to GIP to Point of common coupling with grid.

5.12. Equipment and Array Structure Earthing:

As per site condition, the digging has to be done – Site picture enclosed for reference in drawing section). The above work is part of the total earthing system job and to be included in the contractual value.

- i. Equipment grounding (Earthing) will connect all non-current carrying metal receptacles, electrical boxes, appliance frames, chassis and PV panel mounting structures in one long run. The grounding wire should not be switched, fused or interrupted.
Earthing Pit with Pipe Electrode: Earthing with 50 mm dia. GI pipe 3.64 mm thick x 3Mtslong (make ISI medium) to be painted with bitumen partly under the ground level and partly above ground level driven to an average depth of 3.65Mts.below the ground level & restoring surface duly rammed.
- ii. Earthing pit should be filled with earthing compound as per IS below the ground level & restoring surface duly rammed.
- iii. Masonry enclosure with the earth pit of size not less than 600mmX600mm X 500mm (depth) complete with cemented brick work(1:6) of minimum 150mm width duly plastered with cement mortar (inside) shall be provided. Hinged inspection covers of size not less than 300mmX300mm with locking arrangement shall be provided. Suitable handle shall be provided on the cover by means of welding a rod on top of the cover for future maintenance.

- iv. Earthing to be done using MS flat 25 mm x 3 mm (min) and insulator should be used for laying. Galvanized Iron (GI) Flat shall be routed from each earth electrode and connected to the nearest Earth Bus-bar located at the ground floor of the building. From this Earth Bus-bar, the GI flat shall be extended to other Earth Bus-bars situated at various locations across the power plant.

All GI flats shall be terminated to the Earth Bus-bars using suitable insulators, with the spacing between insulator supports not exceeding 1 meter.

The size of the GI flat shall be selected based on conductor sizing calculations. The vendor shall submit detailed earthing conductor sizing calculations for review and approval by KELTRON prior to execution.

- v. Earth busbar should be of galvanized (Hot Dip) MS flat 50 mm x 6 mm (min) on wall having clearance of 6 mm from wall including providing drilled holes on the busbar and making connection to equipment with bolts, nuts, washers, cable lugs etc. as required and mending good damages.
- vi. Separate earthing have to be provided for each shed MMS, each AJB, each IIP, GIP, LA, etc. Minimum required gap shall be provided in between earth pits as per relevant standard. Calculation to be provided for justification.
- vii. The complete earthing system will be electrically connected to provide return to earth from all equipment independent of mechanical connection.
- viii. Test point will be provided for earth pits.
- ix. Earthing system design should be as per the standard practices.
- x. The Code of Practice Earthing will be IS3043 (latest edition)
- xi. Necessary provision will be made for bolted isolating joints of each earthing pit for periodic checking of earth resistance.
- xii. Parallel/ladder/double run earthing of MMS have to be done.
- xiii. The earthing resistance of the pit must be less than 3ohm

5.13 Ladder & Walk Way:

5.13.1 Ladder:

Type & Location

- Type: Fixed vertical ladder with safety provisions
- Location: Installed on each shed to access the tin shed where PV modules are installed
- Number: Minimum 1 per shed (final quantity as per layout and accessibility requirement)

Component	Desired Specification
Side members	MS Flat- 50mm x 8mm or MS Angle- 40x40x6 mm
Rungs(steps)	MS round bar-20 mm dia , spaced at 250mmc/c
Fixing brackets	MS Angle- 40x40x6mm (anchored to wall/shed)
Fasteners	Stainless Steel or Hot Dip Galvanized (HDG)
Coating	Hot Dip Galvanized ($\geq 80\mu\text{m}$) or 2 coats epoxy primer + 2 coats PU paint
Dimensions	<ul style="list-style-type: none"> i) Ladder width(outer to outer of side rails):min.500mm ii) Step spacing (vertical):250mm iii) Minimum vertical clearance from ground:300mm iv) Overall height: As per shed height
Safety Provisions	<ul style="list-style-type: none"> i) Safety Cage/Hoop Guard(Required if ladder height>3meters) <ul style="list-style-type: none"> • Cage starts at 2.2m above ground and continues to top • Hoop diameter:700mm(approx.),spacing:900mmmax ii) Handrail / Grab Rail at top landing point
Installation	<ul style="list-style-type: none"> i) Ladder shall be firmly anchored to RCC wall/steel shed structure ii) Proper welding or bolting as per structure type iii) Top end of ladder to have safe and stable transition to shed.

This is a tentative specification (minimum) of ladder. The contractor may of and submit better and modified design and drawing during execution as per site condition to KELTRON for approval.

5.13.2 Walk Way: To ensure safe and efficient access for operation and maintenance personnel, dedicated **Walkway** shall be provided on each shed where PV modules are installed FRP walkway shall be securely mounted on MMS or support channels without damaging the roof or obstructing the drainage. Appropriate Safety Line should be designed and provided.

5.14 PV Array Cleaning Arrangement

Necessary equipment and water supply lines are to be designed & provided with suitable number of outlets in the array field to facilitate easy cleaning of all the PV-Modules. **Cleaning system to be designed and submitted to KELTRON for approval.**

Equipment to be supplied but not limited to the following:

- Adequate Pump per shed/per roof (as required as per design).
- Sprinkler system as required, so that SPV Module automatically gets washed & cleaned with water.
- Appropriate Wiper(5nos).

The whole work shall be executed within the contract value.

5.15 Fire extinguisher

One number of minimum 6 kg ABC type dry power portable fire extinguishers and sand bucket (2 nos) with stand shall be provided at each location/shed and GIP and PCC. The installation of Fire Extinguishers should confirm to TAC regulations and BIS standards.

Standards:

Fire Extinguisher: IS13849/IS15683 (with latest amendments)

5.16 Signage:

Project information Signage: The Signage will be made up of Metallic Sheet of minimum size 4'x 3' in a suitable frame. The Signage provide with detail of the project as approved by KELTRON. The font size on the signage has to be big enough so that everyone can read it easily. The Signage will be fixed up two (02) prominent place of the project area.

Schematic Diagram

Schematic Diagram of Installation must be provided on a display board of minimum size 3'x 2' made up of metallic base with a suitable frame. The schematic diagram must be fixed up at any prominent place of installation.

Safety Signage

Safety Signage must be provided indicating the level and type of voltage and symbols as per IE Rule at different position as may be required. In the safety signage Voltage level and type of voltage must be mentioned.

Each set of Safety Signage contain minimum 05(five) nos. Safety signage:

Location	Quantity
PV Array Field	Minimum 2 nos. (made up of ACP base) for Rooftop.
On PV Array JB	01no.(Sticker/printed)
Near Inverters	01No(made up of ACP base)
Near Transformer	01No(made up of ACP base)
On Inverter Interfacing LT Panel	01no.(Sticker/printed)
On Grid interfacing Panel	01no.(Sticker/printed)
On Energy Meter	01no.(Sticker/printed)[Solar Meter]

Equipment Marking to be done.

5.17 Conventional Lightning Arrestor

Type & Design

- **Type:** Station class, conventional metal oxide gapless lightning arrestor (also called surge diverter), suitable for outdoor mounting.
- **Construction:** Heavy duty zinc oxide varistor elements enclosed in weatherproof porcelain housing.
- **Design Standard:** As per IS3070(Part3):1993/IEC60099-4.
- **Earthing Strip:** 25x3mm GI strip from LA base to earth pit (dedicated pit or combined mat, resistance $\leq 1 \Omega$).
- **Number of LA** required for the total plant shall depend on the particular LA used.

Design calculation has to be provided for approval from KELTRON.

5.18 Weather Monitoring Station:

Measured Parameters & Sensors

- Solar Irradiance(GHI&POA): Pyranometer (ISO 9060,ClassA)
- Ambient Temperature:±1°C(RTD/Thermistor)
- Module Temperature:±1°C(PT100sensor)
- Wind Speed & Direction : Cup anemometer &vane(±0.5m/s,±5°)

Data Logger

- Logging:Every5/10mins
- Storage:≥1year
- Communication:RS485/Modbus/GPRS/Ethernet
- Backup:24hrsbattery

Standards

- **IEC 61724-1, ISO 9060, MNRE, CEA norms**

5.19 Spares and Tools

- **Clamp Meter:** 1500 V of reputed make subject to approval of KELTRON.
- **L & Keypad with handle** of reputed make subject to approval of KELTRON.
- **Screw Driver set** of reputed make subject to approval of KELTRON.
- **PV Data Analysis and Reporting Tool:**

The I-V Data Analysis Tool, automates the process of preparing detailed, professional reports of your measurement results. The tool generates a table of the key performance parameter values for each string, group I-V graphs for each combiner box, and histogram showing how the data for each parameter is distributed. They should be calibrated and certificate should be submitted. Relevant standard IEC/EN certification should be submitted of the device for approval.

Thermal Imaging camera for measurement of object temperature range -20 C to 400 C. Data communication interface (WiFi, Bluetooth, USB) facility should be there. The should be calibrated and certificate should be submitted. Relevant standard IEC/EN certification should be submitted of the device for approval.

Specification:

- PV Voltage Range:0 to 1500V minimum.

Tool Includes:

- I-V Measurement Unit (provides Isc, Voc, Pmax, Fill factor, Efficiency, Performance factor, etc)
- Sensor unit
- Interface Software for Windows
- Wireless USB Interface for Windows laptop or tablet
- Connectorsavers,MC-4toMC-3adaptors,MC-4connectortool
- Battery charger(AC adapter)
- Short USB extension cable

5.20 Other Conditions:

The work includes necessary excavation, concreting, flooring, platform, necessary finishing, painting, back filling, shoring & shuttering, cable laying, location of installation of different component of PV Power Plant etc. if any , required for completion of the project in all respect shall be as per direction of Engineer-in-Charge.

❖ Technical Information by Successful Bidder

The successful bidder shall be required to provide three copies of the following information, drawings and documents :

- a. Complete technical specifications of the system
- b. Solar PV modules
- c. Power conditioning Unit/ Grid Tie Inverter
- d. Design of Module Mounting Structures
- e. DC and AC Cables
- f. Junction box and Distribution boxes, Earthing kit, Lighting Arrester.
- g. Necessary engineering drawings like layout of machineries and equipment's
- h. Detailed erection drawings and maintenance manuals.
- i. Schematic diagram of entire electrical system for grid interfacing & interconnection.
- j. Test reports of all major equipment's, material and components

❖ **Other Important conditions of contract**

- The other important conditions of contract shall be read in conjunction with General Conditions of contract where the provisions of these special conditions are at variance with the provision of the General Conditions of Contract the provisions of these other important conditions of contract shall take precedence.
- The bidder shall visit the sites listed here for the physical verification and for correctly estimating the quantity, especially related to structure and cabling, before submitting the bids.
- The successful bidder shall submit Structural Design, PV arrangement methodology, Design report from PV Syst Software, Technical Details of PV modules, Inverters to RPIPL including necessary type test and routine test reports. Soft copies of drawings in AutoCAD format, technical details of performance monitoring software/ web portal for Plant monitoring should also be submitted.
- Before starting of works, the bidder shall submit all the design drawings and technical specifications for the approval.
- On award of work the contractor should take prior Material Approval Request for all the materials which they are going to use in line with the list of approved make of Materials specified in the Tender.
- The quoted rates for various items are deemed to include all contingencies and all taxes excluding GST and no claims for additional payment / time of completion will be considered for dewatering, drainage of surface water, extra lead, lift, transport of materials etc.
- The site should be cleared and cleaned after the completion of the work to the satisfaction of the owner.
- The contractor should take all safety precautions for workers and equipment during the execution period.
- All type of interference like stream traffic, adjoining properties, cost taxes, trade union, labour issues etc and claims whatsoever arising will be responsibility of the contractor.
- The details provided for in the schedule may vary and the Contractor should be prepared to do any excess work for satisfactory completion of work at quoted rate.
- Claims for any ambiguity in conditions / specification etc. will not be considered once the contract is finalized.
- Security of all materials stored at site and completed work till it is handed over shall be the sole responsibility of the bidder
- If any deviation between specification, scope of work and drawing and the directions of Engineers found by the Bidder shall be brought to the notice of the RPIPL before the commencement of the work.

- KELTRON shall have the right at any time, to call upon the bidder for evidence of origin of raw materials and part of equipment. All goods or materials supplied or used shall be of first class quality of the grade specified.
- The Contractor shall execute the work without affecting the existing operations of the customer.
- The contractor must ensure effective enforcement of the rules and regulations relating to safety precautions arrangements and will be open to the inspection of concerned authorities.
- The contractor is not eligible for interest in the case of delayed payments on account of any force majeure conditions.
- All warranty, guarantee and licence are in the name of KELTRON or End Costumer.

PART 8 - FORMATS (ANNEXURES)**ANNEXURE -1****Bidder Information Letter**

(To be submitted in Letter Head)

To

Head (Purchase)
 KELTRON Equipment Complex
 Karakulam, Karakulam P. O.
 Thiruvananthapuram 695564, Kerala.

Title – Design & Engineering, Manufacture/Procurement, Testing, Supply of 1.5 MWp Grid connected Roof Top Solar PV (GRTSPV) Power Plant including 5 years comprehensive maintenance on Turnkey basis as per tender document as per tender document

Tender ID :

<u>GENERAL</u>		
1	Name of Organization	
2	Location of Business	
3	Type of Organization (Proprietary/Partnership Pvt. Ltd. Co. etc.	
4	Complete Address for communication	

5	Phone No of the firm	
6	Name of contact Person	
	Designation of the contact person	
	Mobile No:	
	E-mail Address	
7	PF NO *	
9	ESI NO *	
10	GST Registration No:	
11	Income Tax Permanent Account No.	
12	Bankers Name & Address	

13	What is the highest Turnover achieved by your company, specify the year also.	
14	License for civil works If any (CPWD/State PWD/KWA/MES etc.)	
15	Whether you are belongs to MSME (Please furnish Udhog AADHAR number)	

DECLARATION

We hereby declare that the information furnished above is correct and true to the best of our knowledge and belief. We confirm that our Proprietor / Partners / Directors are not associated with any firm with which the business has been banned by the State Department / Public Sector Undertakings (Central / State Government).

Place

Date

Seal of the Company

Signature

Name& Designation of signing authority

Contact details of signing authority

ANNEXURE-2

Declaration Regarding Clean Track Record

(To be submitted in Letter Head)

To

Head (Purchase)
KELTRON Equipment Complex
Karakulam, Karakulam P. O.
Thiruvananthapuram 695564, Kerala.

Tender ID :

I have carefully gone through the Terms & Conditions contained in the Tender Document [No.-----]. I hereby declare that my company has not been debarred/ black listed as on Bid calling date by any State Government, Central Government, Central & State Govt. Undertakings/enterprises/Organizations and by any other Quasi Government bodies/Organizations, World Bank and any other major Enterprise/Organizations in India for non-satisfactory past performance, corrupt, fraudulent or any other unethical business practices. Further, declaring that no cases pending against the firm/organization either in Government (State or Union) or as mentioned above for involvement in cases for supply of sub-standard goods/material or track record of supply of inferior quality or no enquiries on past supplies are being conducted or underway. I further certify that I am competent officer in my company to make this declaration.

Yours faithfully,

(Signature of the Bidder)

Name of the signing authority:

Designation of signing authority :

Contact details of signing authority:

NETWORTH CERTIFICATE

(To be furnished on the letter head of the Chartered Accountant)

Ref: tender id

The Net worth of..... (Name & Address of the firm) for the past years are given below and certified that the same is true and correct to the best of my knowledge

Sl.No.	Financial Year	Networth in Lakhs
1)	2022-2023	
2)	2023-2024	
3)	2024-2025	
Total		

This Certificate is issued on the basis of Financial Statements produced before me for verification.

(Signature)	
Name, Address & Membership Number:	
E-mail ID & Contact Number:	
UDIN:	

Place:

Date

Tender ID:

ANNUAL TURNOVER CERTIFICATE

(To be furnished on the letter head of the Chartered Accountant)

The Annual Turnover of..... (Name & Address of the firm) for the past years are given below and certified that the same is true and correct to the best of my knowledge.

Sl.No	Financial Year	Turnover in Lakhs
1)	2022-2023	
2)	2023-2024	
3)	2024-2025	
Total		

This Certificate is issued on the basis of Audited Financial Statements produced before me for verification

(Signature)	
Name, Address & Membership Number:	
E-mail ID & Contact Number:	
UDIN:	

Place:

Date :

Annexure-5

**Acceptance of general conditions of contract and instructions
(To be printed on letterhead and uploaded)**

Tender id :

1. Tenders should be submitted through Kerala Govt. E- Tender portal <http://etenders.kerala.gov.in>
2. Tenderer should have valid digital signature for quoting.
3. Partially completed or incomplete tenders shall not be considered.
4. The rate should be quoted as per the format given in the e-tender portal. During period of validity of the tender no enhancement in the tendered rate will be allowed.
5. When a tenderer submit his tender in response to this document, he will be deemed to have understood fully about the requirements and terms & conditions.
6. All communication regarding the submission of offers shall be done online within the e-procurement system.
7. It is the responsibility of the tenderer to incur the cost of the preparation and submission of bids including the cost of digital certificate, internet connection etc.

8. Before submission of tender, the tenderers are requested to visit the site and make themselves fully conversant with the scope of work and study all technical specifications, conditions of contract etc. so that no ambiguity arises on a later date in those respects.

9. For any clarification regarding the scope of work or technical details may be addressed to Rajeev M (Manager REEG) :9947781645 ,Arun MP (Sr.Engineer) : 8075714589

10. Tenders will be considered firm for acceptance for a period of 180 days from the date of opening of tenders. If it is found necessary to keep the tender open for a further period, prior consent of the tenderer shall be taken for every further period of extension of validity.

11. The acceptance of any/all tenders rests with Head purchase, KEC,Karakulam.

12. Tenders, which are incomplete in any respect, are liable to be rejected.

13. The quantities provided in the schedule can vary and the payment will be made for the actual quantity of work executed and will be limited to work order value.

14. The contractor should be prepared to do extra items of works if it is found essential.

15. The prices shown in the work order shall remain firm during the entire period of contract and no escalation or revision shall be allowed.

16. The successful tenderer has to deposit 5% of the contract value as PBG valid for warranty period / defect liability period +90 days and execute an agreement with KSEDC in non judicial stamp paper of 200 Rs as per Govt. norms in standard format within 7 days from the date of acceptance of work order/purchase order.

17. All Supply and Installation works are to be done in conformity with the standard PWD/CPWD specifications and conditions of contract. The quoted rates should be inclusive of cost of all materials, labour charges, and all applicable taxes and duties excluding GST. Samples of all materials are to be shown and necessary approvals are to be taken before starting the work.

18. Detailed technical specifications/catalogue for the major item should be attached in tender for technical evaluation.

19. Necessary Test Certificates are also to be submitted for the major Items if asked by tenderer.

20. The contractor shall provide his own tools, plant and store shed to store all materials and he will be entirely responsible for the proper storage, use and safe custody of all materials and also for any damage, loss, theft, mishandling and weathering due to any cause what so ever.

21. The contractor shall employ engineering personnel in addition to other supporting staff for works supervision .

22. If the Contractor fails to employ the required engineering personnel at site as per the above, the Engineer-in charge shall impose a penalty for non-engaging the required personnel at site at the appropriate daily wages rates published by the Government (Finance Department - Enhancement of remuneration of daily wage personnel and persons on contract appointment) prevailing at the time of such non engagement on a per day basis. This amount shall be deducted from any moneys due to the contractor by way of this contract.

23. The contractor shall be responsible for the safety of the laborers employed by him and he shall be liable to pay the necessary compensation in case of accidents as per Workmen's Compensation Act. Provisions of Indian Contract Labor Act also will have to be complied within this respect. In case the contractor fails to comply with the regulations, the expenses incurred by KSEDC shall be recoverable from the contractor.

24. All employees employed by the contractor should be covered by ESI & PF and the contractor will be liable to pay both employers and employees contribution as per the respective Acts. Bidder should have ESI & PF registration. Documents to be submitted along with the tender

25. The work should be completed in all respects by the stipulated time from the date of award of contract.

26. The date of completion agreed upon shall be strictly observed by the contractor and he shall show proportionate progress during the execution of work, failing which, a penalty of 0.5% per week or part there of subject to a maximum of 10% of contract value shall be imposed. Finally KSEDC reserves the right to get the work done otherwise at the risk and cost of the contractor if this work is delayed for asubstantial period.

27. The contractor shall clear all debris from site to the satisfaction of KSEDC.
28. Arrangements for water and power supply required for this work will be under the scope of the contractor.
29. Sub-letting of work of any nature is strictly forbidden.
30. The work should be carried out as per approved drawings only. The successful bidder immediately after getting the order should submit one set of detailed drawings for approval.(If insisted by KSEDC).
31. All local enactments applicable shall be complied with by the contract.
32. Supply and Installation works are to be carried out adhering to the standards of KPWD/ CPWD norms as required.
33. The conditions in respect of quality of work, testing of materials, approved brand of material to be used etc. as stipulated by the Engineer in charge of KSEDC is to be complied.
34. All materials arranged for bonafide use or works including auxiliary works should not be misused in any manner. If any misuse or work through negligence by the contractor comes to light, the contractor is liable to pay penalty as may be fixed by the Engineer-in Charge.
35. All materials supplied by the contractor shall remain the absolute property of KSEDC and shall not, on any account, be removed from the worksite and shall at all times be open to inspection by the Engineer-in charge of KSEDC. The contractor shall be responsible for the proper use and bear the cost for protection of materials supplied for use on the work and bear any loss from deterioration or from fault workmanship or avoidable excessive use of materials etc. or from any other causes.
36. All materials or articles shall be approved by the agreement authority and use without such approval shall meet the risk of subsequent rejection. Such approval shall not absolve the contractor from his responsibility to use materials and articles as per specification.
37. Materials, tools and plant if any entrusted with the contractor by KSEDC in pursuance of the contract will be treated as an entrustment by KSEDC and to be continued to be KSEDC's property until actually and duly accounted for.
38. Damage, if any, caused by the contractor to KSEDC third party equipments during the course of work have to be rectified/replaced by the contractor at his

own risk and cost.

39. The machinery, equipments and other valuables of the contractor at worksite shall be insured by him. KSEDC will not give any financial assistance to him on account of any loss or damage to the valuable.

40. Any defect developed within 'Defect Liability Period' the virtual completion of the work will have to be rectified by the contractor at their own cost and in case the defects are not rectified by the contractor, KSEDC or their representative shall get the work done at the risk and cost of the contractor.

41. Payments will be made for work done at the rates specified in the schedule of rates.

42. The rates are expected to cover all incidental charges and are for finished work as per specifications and conditions of contract. Billing will be done for the actual quantity of work done at agreed rates.

43. The rates quoted by the contractor shall be firm throughout the contract period and there shall be no upward revision of the rates quoted by the contractor for any reasons whatsoever.

44. Contractor shall indemnify KSEDC against any accident to the works or your workers. All construction equipments brought to the site will be insured by you. You will also insure your workmen under Workmen Compensation Act insurance policy. No extra amount shall be payable to you on this account.

45. There should be a maintenance warranty including replacing of all parts.

46. In case the Supply of any items for the work is done by KSEDC, the work awarded bidders have to take care of the transportation of the items to the site.

47. The bidder should have experience in executing similar projects and enclose the experience certificate.

48. For making payments to the contractors GST bills need to be submitted. Further Income Tax, Works welfare fund etc will be deducted as per the rules during the currency of contract.

49. These instructions with conditions stated there in shall form part of the contract documents.

50. In case of discrepancy between technical specification and item specification provided along with Bill of Quantities, the Item Specification shall prevail.

51. The Party should have GST registration. The rate quoted should be excluding GST.

52. Tenders, which are not in conformity with the above tender conditions, are liable to summary rejection.

53. Any deviation in tender terms & conditions is not entertained and accepted .The supplier can submit their deviations as per annexure 6, 7. The acceptance of deviation vested with tender inviting authority. If any deviation is accepted, the acceptance will be communicated in written document.

Agreed to the terms and conditions,

Yours faithfully,

(Signature of the Bidder)

Name of the signing authority:

Designation of signing authority :

Contact details of signing authority:

Annexure 6: Deviation in terms and conditions

Tender Document No:

Tender Title: Design & Engineering, Manufacture/Procurement, Testing, Supply of 1.5 MWp Grid connected Roof Top Solar PV (GRTSPV) Power Plant including 5 years comprehensive maintenance on Turnkey basis as per tender document as per tender document

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Agreed to the terms and conditions,

Yours faithfully,

 (Signature of the Bidder)

Name of the signing authority: -----

Designation of signing authority: -----

Contact details of signing authority: -----

Annexure 7: Deviation in technical specifications

Tender Document No.:

Tender Title: Design & Engineering, Manufacture/Procurement, Testing, Supply of 1.5 MWp Grid connected Roof Top Solar PV (GRTSPV) Power Plant including 5 years comprehensive maintenance on Turnkey basis as per tender document as per tender document

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