

- 34) Intending tenderer should note that he will have to work simultaneously with other contractors already entrusted with other work or with contractors to be entrusted with other work in future in the same site. The contractor will have to work in close co-operation and harmony with all the contractors engaged in the project. Any claim for idle labour, for any reason whatsoever, will not be entertained under any circumstances.
- 35) NKDA will not be held responsible for making payment against any anticipated profit and/or compensation for any losses or price escalation whatsoever for the works as stated in the annexure of this NeIT. Rates should be quoted accordingly.
- 36) The address as furnished by the contractor shall be deemed as the postal address of this office. Any notice or instruction to be given to the contractor under the terms of contract shall be deemed to have been served if it has been delivered to his authorized agent (on the strength of authorization) or representative or sent by registered letter to his official address as furnished.
- 37) Arbitration clause of WBF 2911(ii) stands deleted. Any dispute related to the contract will have to be settled in Calcutta High Court.
- 38) Any Corrigendum, notification in connection to this NeIT will be published in the official website of New Town Kolkata Development Authority (www.nkdamar.org) as well as <https://wbtenders.gov.in>. The applicants are requested to please follow the websites for such notifications, corrigendum etc.
- 39) **Scope of work:**
- i. Sites survey, Design and submission of complete Structural and Electrical drawing of Roof top Solar power Plant for approval by NKDA. The Module Mounting Structure (MMS) (inclined at the specified angle) shall be designed with adequate factor of safety, and as per relevant Indian Standards (with latest edition).
 - ii. Supply, transportation, delivery, Installation, Testing, Commissioning, at project site, of approved module mounting structure.
 - iii. Supply, Installation, Testing, Commissioning with Five years comprehensive maintenance of roof top solar power plant at New Town police station, New Town.
 - iv. Fabrication & erection of Module Mounting Structure. The frames and leg assemblies of the array structures shall be made of hot dip Galvanized steel. All shop / fabrication drawing will have to be produced and approved before fabrication and erection.
 - v. Supply, delivery, installation and commission at site of PCUs matched with proposed generation. The PCU shall be of string type and shall have MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the Inverter, to maximize Solar PV array energy input into the System. PCU should conform IEC 61683, IEC 60068 certification, it should have galvanic isolation between DC and AC side, the efficiency should not less than 96%.
 - vi. Supply, delivery, installation and commission at site of Array Junction Box and related accessories (For Stand along). The junction boxes shall be dust, vermin and waterproof and made of FRP /Thermo Plastic. The terminals shall be connected to copper bus bar arrangement of proper sizes, The junction boxes shall be of reputed make and should be as per IP 65 (for outdoor) and as per IEC 62208 as per drawing.
 - vii. Supply, delivery & laying of DC Cables & AC Cables. All cables to be supplied as per actual requirement at site and should be as per IEC 60189 / IS 694 / IS 1554 / IEC 69947 and should have proper current carrying capacity. The cable shall be PVC double insulated PVC sheathed copper conductor.
 - viii. Supply, delivery, installation and commission at site of AC Distribution Box ACDB shall have suitable AC Bus Bars, Breakers & Protections. All ACDBs shall have proper cable entry and exit with IP65 protection.
 - ix. Supply, delivery, installation and commission at site of Earthing Material. The Earthing for array and distribution system & Power plant equipment shall be made with GI pipe, 4 m long 50 mm diameter including accessories and providing masonry

enclosures with cast iron cover plate having locking arrangement, watering pipe using charcoal or coke and salt as required as per provisions of IS:3043. Necessary provision shall be made for bolted isolating joints of each Earthing pit for periodic checking of earth resistance.

- x. Supply, delivery, installation and commission at site of Remote Monitoring Unit. The Power Plants should have suitable inbuilt instrumentation for remote monitoring of its Real Time Status. Power Plants shall be capable of transmitting its monitorable parameters over GPRS/ TCP IP/ethernet/Rs232/Rs485 Network and conform to respective standard protocols. The Power Plants shall also have suitable Data Logging & Storage capacity.
- xi. Supply, delivery, installation and commission at site of Lightning Arrestors (ESS Type) 1 numbers of lightning arrestors as per site conditions have to be provided throughout the array yard.
- xii. In case of supply of any defective material or substandard material, the materials will be rejected & it will be the responsibility of the supplier for taking back & replacing the rejected materials at their own cost. In case of non-lifting of such rejected materials within a reasonable time offered by the office it will have the right to suitably dispose of the same and forfeit the amount.
- xiii. Execution of Comprehensive Maintenance Contract (CMC) of the complete system for five years warranty period. The date of commencement of CMC shall be reckoned from the date of commissioning of the system.
- xiv. During the warranty period, MNRE/ NKGSCCL/State Agencies/ Users reserve the right to cross check the performance of the systems with the minimum performance levels.
- xv. Since timely execution of works is of paramount importance, requests for extension of time shall not be ordinarily entertained.
- xvi. Corresponding warranty certificate from OEMs must also be submitted. During the maintenance period, the bidder has to provide the maintenance, replacement of all defective LED luminaries, Solar panel, Inverter and other equipment's related to solar Plant of all types installed.
- xvii. The bidder must also provide a detailed operation and maintenance manual specific to the installed systems.
- xviii. The bidder shall furnish a brief write up backed with adequate data, explaining his available capacity and experience (both technical and commercial) for the manufacture and supply of the systems, equipment's within the specified time of completion after meeting all their commitments.

- xix. COMPREHENSIVE MAINTENANCE CONTRACT (CMC):
 - a) The scope of CMC must cover supply of spare parts (including wherever necessary) / services during the contract in force. Order shall be placed on bidders who agree to offer such CMC. The CMC charges quoted by the bidder must be realistic in view of actual rendering of after sale services. Payment will be effected depending upon the functionality of the system duly certified by the concerned Authorized officials of NKDA.
 - b) During the CMC period NKDA will have all the rights to cross check the performance of the Solar /Street Light.
- xx. INSPECTION:

All tests and inspections shall be made at the place of delivery. Officers authorized by NKDA shall be entitled at all reasonable time to inspect and supervise and test during erection and commissioning. Such inspection will not relieve the executing firm of their obligation in the contract.

40) **Payment Mode:**

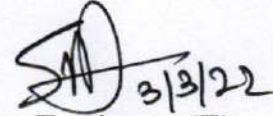
A) BOQ Item NO.1, 90% payment released after Supply, Delivery, Installation, Testing, Commissioning & 10% yearly in five equal installments.

B) BOQ Item SI No 2 payments released yearly.

C) BOQ Item SI 3 to 13 payments released after Supply, Delivery, Installation, Testing, Commissioning.

41) **The tender document consists of:**

- i) Technical specification of electrical work
- ii) WBF2911.
- iii) BOQ



Executive Engineer (E)

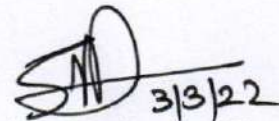
New Town Kolkata Development Authority

Memo No: 1359/1(8)/NKDA/EE-E/New Town PS Solar/2022

Date:03-03-22

Copy forwarded for information to:-

- i) The Chief Executive Officer, New Town Kolkata Development Authority.
- ii) The Chief Executive Officer, New Town Kolkata Green Smart City Corporation Ltd.
- iii) The Chief Engineer, New Town Kolkata Development Authority.
- iv) The Finance Officer, New Town Kolkata Development Authority.
- v) The Assistant Engineer (E), New Town Kolkata Development Authority.
- vi) P.A to the Chairman, New Town Kolkata Development Authority.
- vii) Office copy of NKDA.
- viii) Official Website of New Town Kolkata Development Authority (www.nkdamar.org)



Executive Engineer (E)

New Town Kolkata Development Authority

Technical specification of electrical work

1. PV MODULES:

- a) The PV modules must conform to the latest edition of any of the following / equivalent BIS Standards for PV module design qualification and type approval:
Crystalline Silicon Terrestrial PV Modules IEC 61215 / IS14286
- b) In addition, the modules must conform to IEC 61730 Part1 requirements for construction & Part2 requirements for testing, for safety qualification.
- c) IV curves both soft copy & hard copy must be provided (Image / PDF).
- d) Maximum power rating of each module at STC shall not be less than 330 Wp.
- e) The module efficiency of mono-crystalline module shall be more than 18% at standard test condition and should be corrosion resistant.
- f) The back cover of the module should preferably be made up of transparent Tedlar or glass on glass or equivalent.
- g) Each solar PV module shall be warranted by the manufacturer for at least 90% of its rated power after initial 10 years and 80% of its rated power after 25 years from the completion of the trial run.
- h) All wires used for connecting the modules and array should conform to the NEC/IS standards.
- i) Thermal coefficient of power for the module should not be less than -0.40.

Make: Tata/Adani/Vikram/Waaree/equivalent manufacturer as EIC Approved.

Identification and Traceability:

Each PV module must use a RF identification tag (RFID), which must contain the following information:

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

2. Power Conditioning Unit (PCU):

As SPV array produce direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels before powering equipment designed for nominal mains AC supply. Conversion shall be achieved using an electronic Inverter and the associated control and protection devices. All these components of the system are termed the "Power Conditioning Unit" OR simply PCU. In addition, the PCU shall also house MPPT (Maximum Power Point Tracker), to maximize Solar PV array energy input into the System. PCU should conform IEC 61683, IEC 60068 as per specifications. The capacity and the

specification of the PCU should be submitted by the vendor to NKDA and approved from the authority. Make: Fimer/ Sungrow/ Delta/ Equivalent EIC approved.

3. REMOTE MONITORING UNIT:

The Power Plants should have suitable inbuilt instrumentation for remote monitoring of its Real Time Status. Power Plants shall be capable of transmitting its monitorable parameters over CDMA/GPRS/ TCP IP Network and conform to respective standard protocols. The Power Plants shall also have suitable Data Logging & Storage capacity for at least 90 days event logs. The systems should also be able to monitor through internet at any time.

4. ARRAY JUNCTION BOX: (for stand along)

The array junction boxes shall be dust, vermin and waterproof and made of FRP /Thermo Plastic/PP with front panel transparent type. The terminals shall be connected to copper bus bar arrangement of proper sizes. The junction boxes shall have suitable cable entry points fitted with cable glands of appropriate sizes for both incoming and outgoing cables. Suitable markings shall be provided on the bus bar for easy identification and cable ferrules shall be fitted at the cable termination points for identification. The junction boxes shall be of reputed make and should be as per IP 65 (for outdoor). The junction boxes shall have suitable arrangement for the Following:

The vendor needs to follow the working drawing should be submitted to NKDA for approval.

5. CABLES & WIRINGS:

- All cables to be supplied should be as per IEC 60189 / IS 694 / IS 1554 / IEC 69947 and should have proper current carrying capacity.
- All cables and wires used shall be of copper conductors of suitable cross section with crossed linked polythene or polyvinyl insulated with polyvinyl sheath. Stranded and flexible cable shall be used. Non-stranded cable shall not be acceptable except otherwise mentioned and permitted.
- Buried underground cables shall be armored and all interconnecting surface cables shall be Unarmored with suitable conduit protection.
- Conductor size of cables and wires shall be selected based on efficient design criteria such that the overall electrical energy loss in any section of cable or wire is shall be less than 3% under the designed operating conditions. Conductor size of less than 4 sq. mm shall not be accepted.
- Cable/wire connections shall be soldered, crimp on type or split bolt type. Wire nut connections shall not be used.
- All cables shall be adequately supported. Outside of the terminals/panels/enclosures shall be protected by conduits. Cables shall be provided with dry type compression glands wherever they enter junction boxes/panels/enclosures.
- All cables shall be suited marked or coded for easy identification.