

**BAIF Development Research Foundation**

**Techno-Commercial Bid**

Tender notice: BAIF Solar PV Bid/Dec 01/2024-25, date- 5/12/2024

**Last Date of Submission: 19/12/2024**

Tender for supply, installation, and commissioning of Solari PV Power Systems for Agrivoltaics (Agri PV) applications at Urulikanchan village of the Pune District, Maharashtra.

**A. Commercial terms:**

<b>SN</b>	<b>Particulars</b>	<b>Information by bidder</b>
1	Name of the bidder	
2	Address of the Registered Office	
3	Address of the branch / office quoting against the Tender	
4	Contact person name and number	
5	E-mail ID	
6	Year of commencement of business	
7	Whether experience certificate is enclosed (Work Completion Certificates of single and cumulative works must be enclosed as per eligibility criteria).	
8	Whether documentary proof of annual turnover is enclosed (IT returns / P&L / balance sheet / auditor's Report of 2021-22, 2022-23 and 2023-24).	
9	Permanent Account Number (PAN) (Enclose copy)	
10	GST Registration Number (Enclose copy)	
11	Certificate of incorporation / Registration No. (under companies Act) (Enclose copy)	

12	Whether the bidder is a Manufacturer or Authorized Dealer / Supplier (Enclose authorization / dealership certificate).	
13	Whether Sole Trader/ Partnership / Private Limited Co. or Public Limited Co.	
14	Whether the bidder is an employee or a relative of an employee working in BAIF/BISLD. If so, please mention the name, designation and department.	
15	Name of the Banker (if any)	
16	Whether registered under MSEMED Act (Enclose copy).	
17	MSME status of social category (SC/ST/OBC/General)	
18	MSME Gender Status (Male/Female)	
19	Whether the bidder has understood the work, scope and conditions.	

#### B. TECHNICAL SPECIFICATIONS FOR Solar PV

SN	Technical Specifications	Vendor Response Yes / No
1	<b>Scope:</b> Installation and commissioning of Solar PV with supply, installation, commissioning and after-sales service.	
2	<b>Location:</b> At Uruli Kanchan village of Pune District, Maharashtra; location as per the address provided in the technical document.	
3	<b>Quantity required:</b> Immediate requirement of 530 kWp dc solar PV systems at two locations of BAIF Uruli Kanchan, Pune, Maharashtra. For other locations (Maharashtra, Karnataka and Telangana), the orders will be released to the selected vendor on the basis of requirement within the next two months.	
4	DETAILED TECHNICAL SPECIFICATIONS FOR SOLAR PV Please check <b>Annexure 1</b> and give your response	
5	<b>Installation and Commissioning:</b> a) Installation and commissioning of Solar PV to be done by the company/manufacturer's authorized and trained personnel.	

	Vendor should ensure that each component should be transported by the vendor to the respective locations and complete installation, inclusive in the cost as quoted in the tender has to be ensured.																																		
6	<p><b>Warranty:</b> Complete system shall be warranted for a standard period from the date of commissioning for malfunctioning, manufacturing defect, poor workmanship and improper installation. After the warranty period is over, the product should be supported through Annual Comprehensive Maintenance Contract (CMC) for minimum five years from the date of installation. BAIF reserves the right to enter into a CMC agreement with the successful tenderer / OEM after expiry of the warranty period at the above mentioned rate and the payment for CMC charges will be made annually before rendering of CMC Services of the relevant CMC period. Performance Bank Guarantee of the successful tenderer shall be forfeited if it fails to accept the CMC contract when called upon by BAIF. CMC should include the cost of preventive and breakdown maintenance.</p>																																		
7	<p><b>Annual Maintenance Contract (AMC):</b> <b>The Defect Liability Period is for 12 months</b> from the date of commissioning of the Solar PV Plant. The Annual Maintenance Contract of the Solar PV Plant will commence immediately after the Defect Liability Period. The duration of the AMC will be 5 years from the date of commissioning of the Solar PV plant. The Service Engineer of the selected bidder should visit the site once in every three months for preventive maintenance of the Solar PV Plant. Periodic Cleaning of Solar Modules in not within the scope of the AMC.</p> <p>The scope of the AMC activities will be as under:</p> <table border="1" data-bbox="264 1227 1283 1942"> <thead> <tr> <th data-bbox="264 1227 427 1265">Sr. No.</th> <th data-bbox="427 1227 954 1265">Activity</th> <th data-bbox="954 1227 1283 1265">Frequency</th> </tr> </thead> <tbody> <tr> <td data-bbox="264 1265 427 1303">1.</td> <td data-bbox="427 1265 954 1303">Visual Inspection of Modules</td> <td data-bbox="954 1265 1283 1303">Every 4 months</td> </tr> <tr> <td data-bbox="264 1303 427 1341">2.</td> <td data-bbox="427 1303 954 1341">Checking string voltages of modules</td> <td data-bbox="954 1303 1283 1341">Every 4 months</td> </tr> <tr> <td data-bbox="264 1341 427 1379">3.</td> <td data-bbox="427 1341 954 1379">Inverter Fan checking and cleaning</td> <td data-bbox="954 1341 1283 1379">Every 4 months</td> </tr> <tr> <td data-bbox="264 1379 427 1417">4.</td> <td data-bbox="427 1379 954 1417">Checking DC SPDs</td> <td data-bbox="954 1379 1283 1417">Every 4 months</td> </tr> <tr> <td data-bbox="264 1417 427 1541">5.</td> <td data-bbox="427 1417 954 1541">Checking the DC cable connections from Module to Inverter</td> <td data-bbox="954 1417 1283 1541">Every 4 months</td> </tr> <tr> <td data-bbox="264 1541 427 1630">6.</td> <td data-bbox="427 1541 954 1630">Checking and tightening of AC Connections at inverter input</td> <td data-bbox="954 1541 1283 1630">Every 4 months</td> </tr> <tr> <td data-bbox="264 1630 427 1753">7.</td> <td data-bbox="427 1630 954 1753">Checking and tightening AC Connections at Inverter Disconnect Panels, Solar LT panel and Ma</td> <td data-bbox="954 1630 1283 1753">Annually</td> </tr> <tr> <td data-bbox="264 1753 427 1792">8.</td> <td data-bbox="427 1753 954 1792">Checking AC SPDs in IDPs</td> <td data-bbox="954 1753 1283 1792">Every 4 months</td> </tr> <tr> <td data-bbox="264 1792 427 1830">9.</td> <td data-bbox="427 1792 954 1830">Cleaning of IDP and Solar LT panel</td> <td data-bbox="954 1792 1283 1830">Annually</td> </tr> <tr> <td data-bbox="264 1830 427 1942">10.</td> <td data-bbox="427 1830 954 1942">Checking voltages and current in all Panels and Inverters</td> <td data-bbox="954 1830 1283 1942">Every 4 months</td> </tr> </tbody> </table>	Sr. No.	Activity	Frequency	1.	Visual Inspection of Modules	Every 4 months	2.	Checking string voltages of modules	Every 4 months	3.	Inverter Fan checking and cleaning	Every 4 months	4.	Checking DC SPDs	Every 4 months	5.	Checking the DC cable connections from Module to Inverter	Every 4 months	6.	Checking and tightening of AC Connections at inverter input	Every 4 months	7.	Checking and tightening AC Connections at Inverter Disconnect Panels, Solar LT panel and Ma	Annually	8.	Checking AC SPDs in IDPs	Every 4 months	9.	Cleaning of IDP and Solar LT panel	Annually	10.	Checking voltages and current in all Panels and Inverters	Every 4 months	
Sr. No.	Activity	Frequency																																	
1.	Visual Inspection of Modules	Every 4 months																																	
2.	Checking string voltages of modules	Every 4 months																																	
3.	Inverter Fan checking and cleaning	Every 4 months																																	
4.	Checking DC SPDs	Every 4 months																																	
5.	Checking the DC cable connections from Module to Inverter	Every 4 months																																	
6.	Checking and tightening of AC Connections at inverter input	Every 4 months																																	
7.	Checking and tightening AC Connections at Inverter Disconnect Panels, Solar LT panel and Ma	Annually																																	
8.	Checking AC SPDs in IDPs	Every 4 months																																	
9.	Cleaning of IDP and Solar LT panel	Annually																																	
10.	Checking voltages and current in all Panels and Inverters	Every 4 months																																	

11.	Checking and tightening connections for structural/body earthing, lightening arrestor, inverter and panels	Annually before the monsoon season
12.	Checking/ tightening of Module bolts	Annually before the monsoon season
13.	Random Check of Module Mounting structure	Every 4 months
14.	Earth pit inspection and testing	Every 4 months
15.	Remote Monitoring system	Every 4 months
16.	Plant Fitness report	Every 4 months
17.	Any unscheduled repair maintenance	As per requirement

The selected bidder must carry out the activities under repair and replacement as under.

- a. Repair or replacing the damaged equipments such as inverter within 14 days from the date of acceptance of defect by the OEM (the selected bidder must register the complaint and ensure that the warranty is enforced).
- b. Replacing the defective solar module within 14 days from the date of acceptance of defect by the OEM (The Selected bidder must register the complaint and ensure that the warranty is enforced).
- c. Replacing the faulty Cables/ MCBs / fuses/ Connectors / SPDs so that the system becomes safe for operating it within 7 days.
- d. The penalty applicable for non-rectification of the fault beyond 30 days will be @₹3,000/- (Rupees Three Thousand only) per day. However, the total accumulated penalty during the year shall be sealed to the maximum of 10 % of the annual charge of the AMC.

Note: The selected bidder must have all necessary tools and equipments duly calibrated by accredited laboratories during the AMC.

8	<b>Required civil work and pit digging under the scope of the vendor</b>	
9	<b><u>Additional conditions:</u></b> a) Training to local person for basic Installation and repair maintenance b) Provide extra spare and toolkit to the locally trained persons. c) Share the required pre-requisites with BAIF team, if any	
10	<b>Delivery Timeline</b> Delivery /Commissioning/Installation of goods/ service to be done by the successful tenderer within the stipulated time <b>as provided in special terms and conditions mentioned in this tender document BUT NO LATER THAN MARCH 20<sup>th</sup>, 2025.</b>	
11	<b>Payment Schedule –</b> Kindly refer to Price Bid format in “Annexure II” for details:	

Sr. No.	Deliverables	Payment Terms
11.1	After submission of all technical documents, drawings, bar chart and submission of application to Electrical Inspector for layout and SLD approval and to MSEDCL for net metering/Group Net Metering.	10% of project price within 7 (seven) days of submission of bills duly verified and certified by BAIF Official / Consultant along with necessary supporting documents and subject to deposit of security deposit.
11.2	On installation of Solar Module Mounting structure, walkway, lifeline, safety rails, earthing and lighting arrestor systems.	10% of project price within 7 (seven) days of submission of bills duly verified and certified by BAIF Official / Consultant along with supporting documents.
11.3	On installation Inverter Disconnect Panels, Solar LT panel, Solar Generation Metering Panel, trenching and laying of AC Cables connecting Inverter Disconnect panel to Solar LT Panel, Solar LT Panel to Solar generation metering panel and from Solar Generation Metering Panel to Main LT Panel.	10% of project price within 7 (seven) days of submission of bills duly verified and certified by BAIF Official / Consultant along with supporting documents.
11.4	On Supply of Solar Modules and Solar Inverters.	60% of project price within 7 (seven) days of submission of bills duly verified and certified by BAIF Official / Consultant along with supporting documents.
11.5	On Installation of all equipments.	5% of project price within 7 (seven) days of submission of bills duly verified and certified by BAIF official / Consultant along with supporting documents.
11.6	On Commissioning of Solar PV Plant with net metering and issue of work completion certificate from BAIF Engineer-In-Charge.	5% of project price within 7 (seven) days of submission of bills duly verified and certified by BAIF official / Consultant along with supporting documents.
11.7	The selected bidder has to raise a single invoice at the end of March of every year after completion of three Preventive Maintenance visits.	100% upon submission of the invoice with Preventive Maintenance and Repair Maintenance reports at the end of the financial year.

**Note:** All payments will be made in Indian Rupees

Annexure 1

**TECHNICAL SPECIFICATIONS FOR SOLAR PV**

**FOR 530 kWp DC SOLAR PV SYSTEMS AT 2 LOCATIONS OF BAIF URULI KANCHAN, PUNE MAHARASHTRA**

TENDER NO. BAIF Solar PV Bid/Dec 01/2024-25

DATE OF ISSUE: 5/12/2024

LAST DATE FOR SUBMISSION: **19/12/2024**

**SECTION: 1**

**1. Security Deposit / Performance Guarantee**

A non-interest-bearing Security Deposit (either in the form of Demand Draft/Pay order or RTGS/NEFT/IMPS transfer or by way of Bank Guarantee issued by any schedule bank in favour of BAIF Development Research Foundation of **5% of the Basic Contract value (i.e. Order value excluding taxes)** will be required to be deposited with the Company by the successful tenderer within 10 days of getting work order from the Company. This security deposit will be refundable after three months on completion of defect liability period of 12 months from the date of successful completion of work/contract period/extended contract period. In the event of non-performance of the contract, the security deposit will be forfeited and the contractor will be blacklisted for future tenders. Security deposit has to be paid by the selected vendors.

The Security Deposit / Retention Money shall remain with the Owner as a security for satisfactory execution and completion of the Work(s). Owner will be at liberty to deduct an appropriate amount from the Security Deposit / Retention Money for damages (liquidated or otherwise) and other dues and recoveries from Bidder under this Contract and the amount by which Security Deposit / Retention Money is reduced by such appropriations, will be made by further deductions from subsequent bills of the bidders to make up for the Security Deposit / Retention Money.

**SECTION 2:**

**1. Scope of work**

The Solar PV Grid Interactive Power system will be installed on open land available in 2 locations of BAIF Uruli Kanchan Facilities namely:

- |                                     |                                       |
|-------------------------------------|---------------------------------------|
| <b>A. CRS Campus -</b>              | <b>Minimum 200 kWp DC / 150 kW AC</b> |
| <b>B. New Semen Station (NSS) -</b> | <b>Minimum 330 kWp DC / 265kW AC</b>  |

The scope of work and services includes but is not restricted to the following:

A. Design, Supply, Installation, Commission testing of the Roof Top Grid Interactive

i. Solar Modules of adequate quantity to meet the design requirements.

ii. The Solar Module Mounting structure adequately designed to meet the technical requirements along with necessary mounting rails, clamps, nut bolts, etc.

iii. On Grid String Inverters with Surge Protection Devices (SPD) either within the inverter or externally mounted on the DC Distribution Box (DC DB).

iv. Solar DC Copper Cables

v. LT Power Cables including end terminations and required accessories for AC & DC power.

vi. Inverter Disconnect Panel/s suitable rating of 4 Pole MCCB/s with AC SPD's with phase indication lamps, brass or SS Double compression Glands for Armoured cables and PVC Glands for Flexible copper cable. Separate Inverter Disconnect panels should be provided for each inverter supplied.

vii. 4 core copper cables to be provided from Inverter to Inverter disconnect Panels. All output cables from Inverter disconnect panels to Solar LT Panel should be XLPE Aluminium Armoured cables.

viii. Solar L.T Panel with Phase Indication Lamps, Required capacity MCCB's for incoming and outgoing cables. Digital Panel Meter of 0.5 class accuracy with PF, Voltage, Current, kWh, kW should be provided.

ix. Solar Metering Panel with necessary 4 pole MCCB and CT and Solar Generation Meter as per MSEDCL specifications.

x. Remote Monitoring System with Communication cable.

xi. ESE Lighting Arrestor and Protection system, earthing kits and earthing systems.

xii. PVC Pipe, trenches, Cement Pipes and accessories as required by design.

xiii. Water piping along with module cleaning equipment including hose pipes and water outlets at convenient locations for regular cleaning of the Solar PV Plant. The client will provide water at a single point on the ground floor of the building.

xiv. Fire extinguishers, danger plates, name board etc to be provided as per Electrical Standards.

xv. FRP Walkways for elevated structures to simplify the cleaning and maintenance operation should be provided.

xvi. Stainless Steel Lifeline from the point of entry on the roof to the end of the roof should be provided for the safety of the cleaning and maintenance staff.

xvii. Permanent M.S Staircase with 3 feet width for elevated structures should be provided.

xviii. Transportation, loading, unloading of all materials, equipment's etc.

xix. Training of BAIF nominated executives and technicians.

xx. Testing equipments/material for maintenance, monitoring and regular upkeep of the Solar PV Power Generating system.

xxi. VRLA/ Lead Acid Battery suitable for solar applications with 5 years Warranty.

xxii. Battery Fuses and other protection devices

B. Any other equipment/ material/ service required for successful completion of the respective Solar PV Power Generating Systems. Design of the Grid Interactive Solar Power Generating System and its associated electrical and mechanical auxiliary systems includes preparation of Single Line Diagrams(SLD), Plant Layout drawing, Solar Module Layout drawing, Electrical Layouts, Communication drawing for remote monitoring and sensors, Solar Module Mounting Structure Drawings, Foundation Drawings, Earthing System Drawings, Control Panels/ Electrical Panels drawings and any other drawings as required for construction of the Solar PV Plant.

C. Installation work shall be performed with respect to the following but not limited to:

- Clamping and securing the Solar Modules on the Elevated Structures with Aluminium Mid clamps and Earthing Mid clamps and necessary SS fasteners.
- Clamping and securing Solar Modules on Ground Mounted Structures with SS Fasteners and on other structures as per the design requirements.
- Installation of String Inverters, Switchgears, AC Distribution Panels/ Inverter Interaction Panels, Solar LT Panel, Solar Metering Panel and other accessories as per requirements, etc.
- Installation and laying of DC cable from string ends to the inverter through flexible DWC pipes. All underground pipes should be laid below the 3.5 feet to allow agricultural operations. Wherever possible the DC cables should be routed overhead. All ends of the pipes should be sealed with Silicone gel to prevent rodents or insects from damaging the DC cables. DC +ve wires and DC -ve wires should be routed through separate pipes. Tagging of



strings at module end and inverter end is mandatory.

- Installation and laying of underground AC cables (below 3.5 m) through Conduit pipes / Hume Pipes/ Cement pipes. Cable Chambers with covers to be provided at each end for ease of drawing of cables.
- Installation of ESE Lighting Arrestor.

D. Testing of all strings, DC inputs, Control Panels, AC & DC Terminations, Solar LT Panels, Communication systems, earth pits, etc and commissioning of the Solar PV Power Plant.

E. Submission of following documents, drawings, Datasheets, design and engineering information to Project-In-Charge of BAIF & Co Ltd. or its authorized representative for approval.

⇒ Datasheets of all equipments/components.

⇒ Datasheets for LA, Switchgears

⇒ Solar Module Layout drawing

⇒ String Layout and DC Wiring drawings

⇒ SLDs

⇒ O&M Manuals

⇒ IEC Certificates and Factory Test Reports for Inverter.

⇒ IEC Certificates and Flash Test Reports for Solar Modules.

F. Any other document required for approval from Electrical Inspector, Discom or any other authority. The installation shall be carried out by the selected bidder or the licensed electrical contractor holding a valid licence as required by the State Government Authorities. All skilled labour like electricians, welders, fitters etc should possess valid certificates / licences as applicable by local authorities. The selected bidder shall provide the necessary drawings and documents required by statutory authorities and obtain approval before commencement of installation work. It shall be the sole responsibility of the selected bidder to obtain safety certificate/approval from local statutory authorities. Clearing the site after installation work should be carried out by the selected bidder. The site during construction stage should also be regularly cleaned of any unwanted material/plastic packaging/boxes etc.

G. The selected bidder shall furnish a schedule of inspection / testing of major equipment so that BAIF may send its representative to witness the tests. All equipment testing/inspection reports, factory test reports, site commissioning report should be furnished by the selected bidder upon completion of installation and commissioning of the project. However, this shall not absolve the responsibility of the bidder of providing the performance guarantee/warranty.

- H. BAIF team and /or its authorized representative will carry out physical inspection of all the material delivered at site.
- I. All equipment, components and material supplied should adhere to the latest version of international / national standards.
- J. Any other item not specifically mentioned in the specification but which are required for installation, commissioning and satisfactory operation of the Solar Power plant are deemed to be included in the scope of the specification unless specifically excluded on turnkey basis.

**Expected Solar PV Plant Design:**

- The solar modules will be connected in desired series parallel combination with system voltage of not more than 1000V DC. The DC Power generated by the Solar Modules will be converted to AC Power by Grid Interactive String Inverter/s that will deliver 3 Phase, 415V, 50Hz power output duly synchronized with the incoming Utility power.
- The system would prioritize the Solar Power over the Utility power during the day. In case of lower solar irradiance, the balance power requirement over and above the power supplied by the Solar PV System will be supplied by the grid. In case of power requirement before sunrise or after sunset or in case failure of the solar PV system the utility power will feed directly to the loads.
- The Solar PV Plant will be metered at the MSEDCL Metering point (Solar Generation Meter) and then connected to the Main MSEDCL incomer in the Main LT Panel.
- In case of failure of grid power, the Inverters having anti-islanding feature will disconnect the supply of the Solar Power from the Solar PV System to avoid reverse feeding into the grid.
- The system must be designed for maximum safety and durability considering the long life of the solar modules.
- It is proposed to use Mono Crystalline TopCon technology Solar PV Modules. The Solar Modules should be rated above 580Wp and above at STC. Higher efficiency Solar Modules will be preferred.
- The Solar Modules will be mounted as per the proposed designs and the proposed structures.
- The selected bidder will also have to inspect and suitably decide the point of evacuation of energy generated from the Solar PV Plant.

The basic and detailed engineering of the Solar PV Plant shall aim at achieving high standards of operational performance especially considering the following:

- ⇒ Optimum availability of Solar Modules during the day time

- ⇒ Ensure proper layout of Solar Modules and structure to prevent shading of Modules.
- ⇒ Selecting the best On Grid String Inverter with high track record, having excellent after sales support in India and ready availability of spare inverters for quick replacement.
- ⇒ Careful logging of operation data / historical information from Data monitoring systems and sending alerts / notifications etc for quick rectification of faults.
- ⇒ SPV Power plants should be designed to operate satisfactorily with MSEDCL Grid only. (Solar PV Plants will be isolated when MSEDCL electricity fails and will remains isolated till the power is restored).
- ⇒ Based on the Solar Insolation data, the Solar PV Power System should be so designed that it shall take into the peak and lowest temperatures and suitably select the cable so that all AC side line losses are below 3%.
- ⇒ The installation practices should be as per industry standards maintaining all safety standards.
- ⇒ Excellent workmanship is expected and aesthetic look and qualitative performance should be as per international / national standards only.

## **2. Technical Specification of Solar Plant**

### **A. SOLAR PHOTOVOLTAIC MODULES**

- The solar photovoltaic modules to be used for the project should be of Mono Crystalline TopCon technology only.
- The rated capacity of the Solar Modules should be equal to or greater than 580Wp Bifacial Solar Modules to be used only.
- The solar modules shall have suitable encapsulation and sealing arrangements to protect the Silicon cells from the environment. Solar Modules should be supplied from reputed manufacturers with fully automatic production line only.
- Module should be PID Free and of positive Tolerance only.
- Modules should have an efficiency of not less than 22% and the fill factor should be equal to or above 75%.
- SPV modules should be designed and manufactured to meet the recognised standard, which must have been used extensively with an excellent track record of performance. Higher efficiency Solar PV Modules shall be preferred. Bidders should submit the technical literature with detailed technical

specifications of the modules well as the drawings and manuals. <sup>[L]</sup><sub>[SEP]</sub>

- Solar Module manufacturer should be listed in the Approved List of Module manufacturers (ALMM) as per the latest list uploaded on the Ministry of New and Renewable Energy's website.
- The SPV Module should be tested and should have IEC test certificate from any recognized IEC accredited test centres. The Test certificates can be from any NABL/ BIS accredited Testing / calibration laboratories. The test certificates should have validity of at least 6 months from the date of submission of the tender document.
- The SPV modules should conform to the minimum technical specification laid down by MNRE.
- SPV Modules shall be certified as per IEC 61215, IEC 61730 and IEC 61701 amended up to date or equivalent standards.
- The PV Modules shall be tested for Salt Mist Corrosion Test as per MNRE requirement.
- The Solar Modules offered shall have a Power warranty of 27 years. Solar PV modules must be warranted for their output peak watt capacity, which should not be less than 90% of the name plate rated capacity at the end of 12 years and not less than 80% of the rated name plate capacity at the end of 27 years. All specifications refer to the Standard Test Conditions (STC).
- The flash test certificate for each PV Module with Serial Numbers must be submitted along with the Handover documents.
- The Solar PV Modules should also be warrantied against manufacturing defects and workmanship for 12 years.

#### B. TECHNICAL SPECIFICATION FOR INVERTERS

The Inverter used should be robust, intelligent On-grid string inverters manufactured by reputed international companies having sales and service office in India. The inverter/s must conform to the IEC 61683 and IEC 60068-2, IEC 62116, IEC 61727. The typical specifications required are as under:

- The inverters should be string inverters only with IP65 or IP67 rating for outdoor applications with rated AC Output capacity of maximum 50 kW.
- All inverters should be 3 phase, 415V, 50Hz AC output
- Maximum Input Voltage: 1000V DC
- Euro / CEC Efficiency above 97%
- Frequency: 50Hz +/- 1.5%
- Power Factor > 0.99

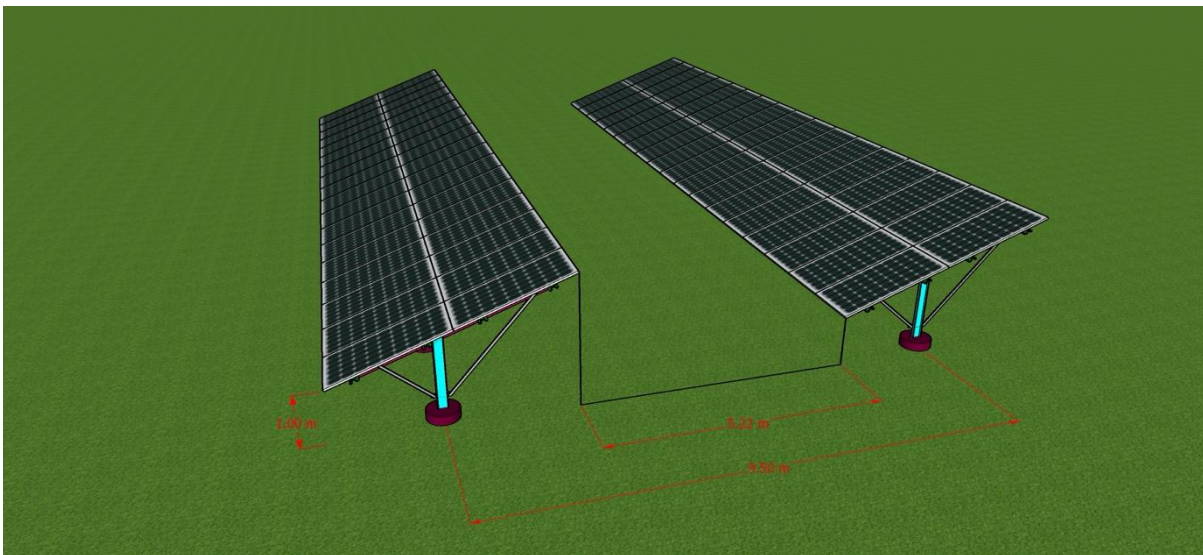
- THD < 3%
- Ambient Temperature range: -20<sup>0</sup> C to + 55<sup>0</sup> C
- Warranty: 5 Years Comprehensive extendable upto 20 years
- Integrated Ground Fault Protection
- In built DC Surge protection or external in DCDB.
- Anti Islanding Feature
- Without Transformer
- Over Voltage/ Under Voltage Protection
- Auto Shut down in case or Over Heat/Over Temperature.
- The Solar On-Grid Inverters should be provided with necessary hardware and software for remote monitoring of the Solar PV System.

**Approved Make of the Inverter are: SMA, Sungrow, Solis, Growatt or any other equivalent make having latest IEC certification. Acceptance of other equivalent make will be the discretion of BAIF.**

#### C. TECHNICAL SPECIFICATION FOR SOLAR MODULE MOUNTING STRUCTURE

There are various type of Solar Module Mounting Structures proposed:

##### i. Ground Mounted MMS with 9.5 m pitch



Ground Mounted Standard with Hot Dip Galvanized Columns, Rafters, Bracing, Hat Shaped Galvalume Purlin, SS 304 Fasteners for Structure and Module mounting. The design should be capable of withstanding wind speed of 160 kmph. The foundations should be of M25 concrete. The piling depth and the entire structural design should be certified by a Structural Engineer.

The steel structures shall be fabricated of structural steel as per latest BIS 2062 (amended up to date) galvanized in compliance of BIS 4759 (amended up to date). The lowest end of the module should be at a height of 1.5 m from the Ground level and the tilt angle of the modules should be 20° from the ground horizontal. The minimum expected weight of the MMS Structure is 25 Tonnes/MWp of installation i.e. For 200kWp installation ~ 5 Tonnes.

## 2. Sloping Roof Structure

The sloping roof structure should be a full rail structure in Anodized aluminium material. The Mid clamps and end clamps should also be of Aluminium material with SS Nuts, bolts, Spring, and ring washers. The structure should be designed for wind speed of 160 kmph and STADD report and the design duly certified by a Structural engineer should be submitted to BAIF.

The installation, testing and commissioning of SPV structures shall be within the scope of the bidders. Any civil/mechanical job for the same shall be done by the Bidder. All materials related to mounting of SPV shall be within the scope of the bidders.

### D. TECHNICAL SPECIFICATION - CABLES & ELECTRICAL CONTROLS

- All the necessary Solar DC cables / wires supplied, shall be of stranded Copper conductor only according to IEC 60228, with XLPO insulation, UV resistant and resistant against water, oil & salt, Halogen free, Low smoke emission, and flame-retardant features. Positive and Negative Solar DC cables and wires have be routed through suitable separate flexible PVC pipes/ Cable trays etc. Solar DC cable / wire maximum temperature rating should be +120 ° C. The solar DC cables should carry out a TUV certification.
- AC cables from Inverter-to-Inverter Interactive Panel should be 1.1kV grade, 4C stranded copper conductor, of suitable rating as per requirement.
- 4/ 3.5 core XLPE Copper / Aluminium Armoured cable of suitable thickness is to be used from Inverter Interaction Panel to the Main L.T Panel conforming to IS:1554/IEC :227.
- All connections should be properly made through suitable lug/terminal crimped with use of suitable proper cable glands.
- The size of cables/wires should be designed considering the line loses, maximum load on line, keeping voltage drop within permissible limit and other related factors. Maximum permissible line losses should be less than 3%.
- The cables and wires should be ISI marked and conform to latest BIS standards as required by MNRE for Solar applications. The ambient temperature range of the cables and wires to be used should be from -5° C to + 90° C and above only.

- All flexible AC cables to be properly dressed in G.I Cable trays with covers.
- Suitable ferrules for DC cables are to be used to number the cables for easy traceability.
- The AC cables are to be terminated in the equipment with suitable lugs that are properly crimped.
- Flexible pipes and conduits are to be suitably used at corners and at places where there is a possibility of the cables getting cut by abrasion.
- All cables shall be of low smoke FRLS type and shall be routed through sand filled trenches between Inverters upto the Main LT Panel and existing LT Panels.

**Solar DC Cables approved Make: LAPP, Siechem, Apar or any other equivalent reputed brand**

**AC cables: Finolex, Polycab, Havells, or any equivalent reputed brand.**

**Lugs: Dowell/ Bracko/Equivalent**

#### E. LIGHTNING, SURGE AND OVER VOLTAGE PROTECTION

- The SPV power plants shall be provided with ESE lightning protection system with 107m radius of coverage. The main aim shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmospheric disturbances, etc.
- Suitable equipments for AC and DC Surge Protection should be provided with the system.
- The area of the Solar PV Yard/ Array shall be suitable protected against lightning by deploying required number of Lightning Arrestors. Lightning arrestors should be as per IEC 62305. The protection against induced high-voltages shall be provided by use of metal oxide varistors (MOVs) and suitable earthing so that induced transients find an alternate route to earth.
- The lightning Masts/ Conductors shall be made as per applicable Indian Standards/International standards to ensure complete protection of the Solar PV Yard and equipments/components therein.
- Necessary support for securely holding the lightning conductor in position should be used taking into consideration the wind speed in the area. Necessary guy wires should be given to ensure that the lightning conductor remains in position in event of heavy winds.
- The Lightning Arrestors must be connected to 2 separate earth pits through suitable size copper cables/wire. The same should be confirm to necessary IS standards.
- A counter must be provided for every ESE Lightning Arrestor.
- All AC SPDs in the field will be of Type I + II.

#### F. EARTHING PROTECTION

- The earthing system shall be in strict accordance with IS: 3043 and electricity rules/Acts.
- The earthing system network / earth mat shall be of interconnected mesh of GI Flats buried in the ground in the plant. Suitable size of GI Flats to be used for the interconnection. The earth conductors shall be free from pitting, laminations, rust, scale and other electrical mechanical defects.
- Metallic frames of all electrical equipment shall be earthed by 2 separate and distinct connections to the earthing system, each of 100% capacity.
- Metallic sheaths/ screens and armour of multicore cable shall be earthed at both ends.
- Neutral connections and metallic conduits / pipes shall not be used for equipment earthing.
- Connections between earth leads and equipment shall be normally of bolted type.
- Back filling material to be placed over buried conductors shall be free from stones and harmful mixtures. Back filling shall be placed in layers of 150mm.
- Minimum spacing between electrodes shall be 3000mm.
- Necessary test point provision shall be made for bolted isolated joints of each earthing pit for necessary periodic checking of earth resistance.
- In compliance to Rule 33 and 61 of Indian Electricity Rules, 1956 (as amended to date), all non-current carrying metal parts shall be earthed with two separate and distinct earth continuity conductors to an efficient earth electrode.
- The Solar structure, inverter, lighting arrester should have separate earth pits. The number of earth pits is to be decided by the Bidder as per the requirements of the electrical inspector or any concerned statutory body for the region.
- The earthing pit shall have to be made as per IS: 3043. All the array structures, equipments and control systems should be compulsorily connected to the earth. The earthing arrangement should also be approved by the electrical inspector.
- The approved drawings from electrical inspector must be submitted to BAIF on completion of the project.
- Total plant earthing system shall be designed to give an earth resistance of less than 1 ohm



all along with earth mesh.

G. INVERTER DISCONNECT PANEL, SOLAR LT PANEL AND SOLAR GENERATION METERING PANEL

- These shall consist of M.S Power coated box with louvers for ventilation.
- The cable entry should have Brass or SS metallic double compression glands for armoured cables and PVC Glands for Flexible copper cables
- Incoming & Outgoing Switchgears- Suitable 4 pole MCCBs with phase barriers, rotary handle with door interlock and defeat, spreader links
- Protection –IP-54 for Outdoor mounting with Canopy.
- Mounting: Inverter Disconnect Panel: Wall Mounted and Solar LT Panel: Floor mounted with Stand.
- Material- CRCA sheet 14 gauge
- Paint- Power coated Siemens grey.
- Unidirectional meter for recording total generation of 0.5 class accuracy with necessary CT.

Approved Makes-

- Switchgear- Schnider/ABB /Siemens/ L&T

Panel Digital Meter: Secure/L&T equivalent

- AC SPD Type I+II : Phoenix/ L&T/ Citel/ Eaton

Insulated Bus Bar of suitable size to be provided.

LED Phase Indicators

**Note: The CTs and unidirectional Solar Generation meter in Solar Generation metering panel will be as per the specifications of MSEDCL.**

H. REMOTE MONITORING SYSTEM:

The Remote Monitoring System should preferably be provided by the inverter company. In case there are On Grid and AC Coupled System, where there may be two makes of inverters, third party hardware and software compatible with the supplied inverters can also be supplied. The function of the Remote Monitoring system is to monitor the daily, weekly, monthly and annual generation data of the Solar PV Plant using GPRS/ LTE or broadband network. The System should also record the errors and faults for early detection and resolution. The access to the data should be provided to the authorized representatives of (Name of client) only.

The Remote Monitoring system shall comprise of the following main components:

- The inverter logs the data and transmits the same to the Data logger. Data Logger can be in-

built or can be externally mounted.

- Data logger gathers information and monitors the performance of the Solar PV Plant.
- An internet router which supports 3G/4G/5G Sim card should be supplied in case the client cannot provide firewall free access for the Remote Monitoring system. The client would have to provide the SIM Card for the same.

Following Sensors to be provided (1 Set per site):

- Ambient Temperature, Module Temperature, Anemometer, Irradiance.
- For AC Coupled System, in addition to the above, Battery Temperature Sensors should be provided.

All the Sensors provided, should be compatible with the Remote Monitoring System provided.

#### I. SOLAR MODULE CLEANING FACILITY

- The bidder should provide for a system using water for periodic cleaning of Solar Modules.
- All necessary accessories for removing the soiled modules for dry and wet cleaning must be provided.
- All pipes and fittings should be of CPVC material with suitable PVC valves to adjust the water flow and pressure.
- The water for cleaning of the Solar Modules will be provided by the client for the AMC activities.
- A brush with a telescopic cleaning rod is to be provided.
- The client will provide water at one location near the Solar PV Plant. The water storage facility (using 2 Litre/module/cycle as benchmark) should be provided along with a pump and filter by the bidder.

#### J. OTHER FACILITIES FOR INSTALLATION

Net Meter and Solar Generation meter.

The existing Main Meter will be replaced with a Bi-Directional Net Meter. The specifications of this meter will be as per MSEDCL guidelines. The Solar Generation meter will be unidirectional and will be as per MSEDCL Specifications. Supply, testing an installation of both these meters will be within the scope of the bidder. The testing fees for the same will be paid by (Name of client) to MSEDCL. Replacement of existing CT/PT/ Metering Kiosk.

The metering kiosk was purchased and installed in 2018. MSEDCL may request changing the metering kiosk with a new kiosk as per the new regulations. The bidder has to quote separately for supply, installation, testing and commissioning of the new metering Kiosk with CT and PT as per MSEDCL specification. CLIENT will place a separate Purchase Order for the same with the selected bidder if MSEDCL makes a request to replace the existing Metering Kiosk.

### **3. Warranties & Guarantees**

- A. The selected bidder shall give full warranty that all the equipment/devices/instruments/systems/sub-systems/any materials supplied under the CONTRACT shall be new and of first quality according to the specifications and shall be free from defects (even concealed faults, materials & workmanship).
- B. If there is any trouble or defect, originating from the design, material, workmanship, performance of any material/ equipment any time prior during DLF, the selected bidder shall, at his own expense and as promptly as possible, make such alterations, repairs and replacements as may be necessary to permit the materials to function in accordance with the specifications and to fulfil the foregoing guarantees.
- C. The mechanical structures, electrical works and overall workmanship of the Grid Connected Solar PV Plant must be warrantied for 1 year from the date of commissioning of the plant. The date of commissioning that would be considered is the day on which the inverter is synchronized with the MSEDCL grid with all permissions pertaining from Electrical inspectors' office and MSEDCL and power supplied to BAIF.
- D. Each solar PV module used in the solar power plant, shall be warrantied by the manufacturer with free replacement if the output peak wattage capacity under standard test condition (STC), falls below 90% in first 12 (twelve) years and falls below 80% in 27 (twenty-seven) years, from the date of successful commissioning of SPV power plant. The Solar Modules shall also be warrantied against manufacturing defects for 10 years from the date of commissioning of the Solar PV plant. The warranty shall be transferred in the name of BAIF after commissioning of the Solar PV Plant.
- E. String Inverters and data monitoring system shall be warrantied for 5 years provided by OEM. The warranty shall be transferred in the name of BAIF after commissioning of the Solar PV Plant. The Warranty of the Solar Inverter should be extendable up to 20 years by the OEM with payment of necessary additional warranty charges.
- F. All other components, equipment is like Inverter Disconnect Panels, Solar LT Panel, AC & DC cables, connectors, Module Mounting Structure, foundations, metering cubicles etc. should be warrantied

for one year from date of commissioning of the Solar PV Plant. The warranty from all OEM equipments shall be transferred in the name of BAIF after commissioning of the Solar PV Plant.

#### **4. Inspection & Testing**

- i. Successful bidder to provide BAIF the Quality assurance plan (QAP) and drawings for approval before starting the installation work. [SEP] Drawings shall include, SLD of Solar PV System, String design drawings, Earth pit Drawing, Solar PV Plant Layout drawing showing all components/equipment locations, Solar Module Mounting Structure GA drawing, Foundation drawing for mounting structure, Solar LT Panel GA drawing with metering arrangement, other foundation drawings, LA location drawing with protection radius clearly shown as per the requirements of the Electrical Inspector.
- ii. Tests certificate from the manufacturer for all the major equipments such as Solar modules, inverters, DC Cables. AC Cables, battery etc. shall be submitted while handing over the documents

#### **5. Permission**

The selected bidders should seek necessary permission from the office of the Electrical Inspector for connecting the Solar PV Plant to the Grid as per the Electricity Act of 2003 and the amendments upto 2023.

The selected bidder should seek necessary permission from MSEDCL for connecting the Solar PV Plant under net metering policy of 2019 and latest amendments thereof.

#### **6. Document submission at various Stages**

##### **1. Documents to be submitted for Technical Evaluation**

- a. Datasheets of Solar Modules (Only 1 make to be selected)
- b. Datasheets of Solar String Inverters (Only 1 make to be selected)
- c. Proposed SLD
- d. Proposed Solar Module Layout
- e. LA Coverage area drawing.
- f. PV SYST report for the site with expected annual generation in kWh.

Documentary evidence for establishing work experience and financial capabilities as per tender requirement

Check list for Compliance and Deviation

**2. Documents to be submitted by Selected Bidder for Notice to Commence (NOC) work from BAIF (Submission within 10 days from date of LOI or PO whichever is earlier)**

- a. Activity Bar chart
- b. Solar PV Plant Layout Drawing indicating locations Inverters, Inverter Disconnect Panel, LA, Earthpits, Solar LT panel, etc.
- c. LA Coverage drawing
- d. Single Line Diagram for Solar PV Power Generating System
- e. Earthing System drawing
- f. Any other drawings required by BAIF.

**3. Handing Over documents (Within 7 days from Successful Commissioning of the Solar PV Plant)**

- a. In-built drawings
- b. Operation manuals
- c. Maintenance manual

Three sets of installation manual / user / operation and maintenance manual shall be supplied. The manual shall include complete system details such as array layout, schematic of system, inverter details, technical catalogue of all major components of the system, warranty certificates, working principle etc. Step by step maintenance and troubleshooting procedure shall be given in the manuals. The following minimum details must be provided in the Manual:

- About Solar Photovoltaic Module<sup>[1]</sup><sub>[SEP]</sub>, String Inverter.
- Clear instructions about mounting and maintaining of Solar PV module and string inverter and other equipments
- DO's and DONT's,
- Clear instructions on regular maintenance and Trouble Shooting of the power plants.<sup>[1]</sup><sub>[SEP]</sub>
- Name and Address of the person or Centre to be contacted in case of failure or complaint.
- Approved Layout and Electrical Single Line diagram by Electrical Inspectors office.
- Meter, CT testing fee receipts or any receipts for fee payment done to Government departments by selected bidder.
- DISCOM sanction letter for Net metering of Solar PV Power Plant.
- Net metering Agreement between DISCOM and BAIF.
- Factory Test Certificates and IEC Certificates for Solar Inverters and other OEM items.

- Flash Test report of Individual Solar Modules.
- ACDB, Solar LT Panel factory test certificate
- ESE LA factory test report
- Earth resistance report for individual earth pits.
- Solar PV Plant Installation Report
- Solar PV Plant commissioning report

**7. Site Details: A. CRS Campus**

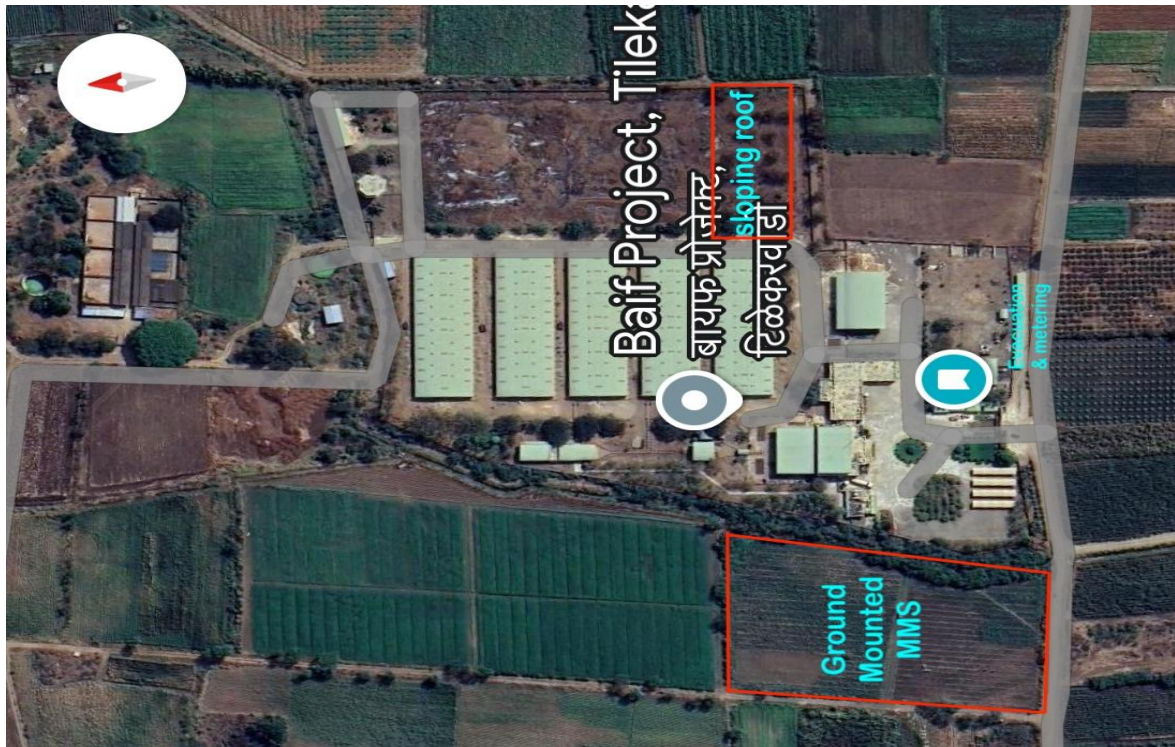


The proposed area for the location is as per the picture shown above. The Solar PV System proposed is a ground mounted Solar System under net metering. The system will be connected to the main bus bar at the LT room near the transformer.

A standard MMS as per the specifications is to be provided at this location.

Model Type	No. of Modules of 580Wp	DC capacity	Minimum Inverter Capacity & Qty.	Proposed AC output
Standard MMS 9.5 m pitch, 1.5 m module height lower end, 20 ° Tilt angle	Minimum 345 No.	200.1 kWp	50 x 3 No.	Minimum 150 kW

**B. New Semen Station**



There are 2 locations in New Semen Station. The Standard ground mounted structure with 1.5 m height at the lower end of solar modules is required with a row-to-row pitch of 9.5 m. Other requirements are as per the Technical Specifications mentioned.

There is a shed under construction which will have the trapezoidal profile colour-coated roof sheet of 0.5 mm thickness. Full rail structure as per the mentioned technical specification has to be provided. FRP walkway and SS lifelines have to be provided for the safety of personnel during maintenance and cleaning operations. Ladder to access the roof area will also have to be provided.

Model Type	No. of Modules of 580 Wp	DC capacity	Inverter Capacity & Qty.	Proposed AC output
Standard MMS 9.5 m pitch, 1m module height lower end	Minimum 518 No.	300.44 kWp	110 kW x 2 No. 20 kW x 1 No.	240 kW
Sloping roof south facing	Minimum 52 Nis	30.16 kWp	33kW x 1	33 kW
<b>Total</b>	<b>570 No.</b>	<b>330.60 kWp</b>		<b>273 kW</b>

**8. Generic:**

**Site Visit:** The tenderer has to visit and examine the delivery site/client office and obtain all the information that may be necessary for preparing the Bid. The costs of visiting the site shall be borne by the tenderer.

The successful tenderer has to supply all essential accessories required for the successful installation and commissioning of the goods/services supplied.

## **9. Special Terms & Conditions**

### **A. Completion Period**

The time schedule for total work according to the contract shall be maximum three months from the date of placement of order and the last date for completion of the installation of the project is 25<sup>th</sup> March 2025.

### **B. Service Timelines**

Timely servicing / rectification of defects during warranty period and CMC period: After having been notified of the defects / service requirement during warranty period, the seller has to complete the required service / rectification as per the instruction/requirement of the owner.

### **C. Pre-Dispatch Inspections (goods)**

Before shipment, vendor should completely test the system in its factory.

**Materials:** To be checked by the Vendor

**Construction and Mounting:** To be checked by the Vendor

### **D. Preventive Maintenance visit**

Vendor must conduct the pre -visit to ascertain preventive maintenance requirement.

### **E. Availability of spares**

The bidder shall ensure that necessary spares are always available with their service centres in Mumbai/Navi Mumbai/Pune to provide necessary after-sales service to BAIF during the performance guarantee period and AMC period. Documentary evidence or declaration letter for the details of service centres situated within 200 km distance from the plant site should be enclosed with the offer.

### **F. Installation, Commissioning and Training**

The installation, testing and commissioning of the equipment shall be carried out by competent engineers/technicians of the Tenderer at the work site. During installation / commissioning, the Tenderer's engineer / technician shall impart necessary training to the Owner's personnel in driving and servicing the equipment to the level of clear understanding / adoptions. No separate charges will be paid by the Owner for these aspects.

### **G. Quantity Variation**

The quantity as mentioned in the Schedule of Work/ Price Bid is indicative. The selected bidder/Vendor shall however ascertain the exact quantity required at site, obtain approval from the owner on quantity,



supply and install accordingly. As the work progresses, it is possible that there will be quantity variations to any extent and omission of items especially, the quantity of cables and steel structure may vary extensively based on detailed design requirement/site conditions. Under such circumstances, the rates should be fixed

#### **H. Testing & Inspection**

All materials required for the execution of the work should be new and should conform to applicable standard specification and approved by the Engineer-in-Charge before actual use. Commencement of work without prior approval shall be entirely at the risk and cost of the Vendor. No delay due to non-availability of the materials, tools, equipment etc. will be entertained by the Owner. In the case of certain Machinery/ Equipment, the Engineer-in-Charge may inspect the item for approval, before they are brought to the site. The Owner shall be entitled at all times at the risk of the Vendor to inspect and/or test by themselves or through any independent person(s) or agency (agencies) appointed by the owner and/or to direct the vendor to inspect and/or test all material(s), items and components whatsoever supplied or proposed for supply, for incorporation in the work inclusive, during the course of manufacture or fabrication by the Vendor and/or at the Vendors work or otherwise, such materials or items or components. The inspection and/or test shall be conducted at the expense of the Vendor and if conducted by the Vendor, may be directed by the Owner to be conducted by agency (ies) nominated by Owner and/or in the presence of witness (ess) nominated by the Owner.

The Vendor shall furnish specifications, contract documents and adequate samples of material intended for incorporation in the works to the Engineer-in-Charge for approval as and when required. Such samples are to be submitted before the work commences, permitting sufficient time for tests, examination(s) thereto by the Engineer-in-Charge. All materials furnished and incorporated in the work shall conform to the sample(s) in all respects.

The Engineer-in-Charge shall be entitled to reject at any point of time, any defective materials, item or components, (including special manufactured or fabricated items or components) supplied by the Vendor for incorporation in the works.

The Vendor shall at all times ensure highest standard of workmanship, relating to the work to the satisfaction of the Engineer-in-Charge. The Engineer-in-Charge shall have the power to inspect the work as also to test or instruct the vendor to test the works or any structure, material or component thereto at the risk and cost of the Vendor, either by the Vendor or by any agency(ies) nominated by the Engineer-in-Charge or Site Engineer on his behalf.

The Vendor shall provide all facilities, instruments material / labour and accommodation required for testing the works (including checking the set time out of work) and shall provide Engineer-in-Charge all assistance necessary to conduct the test whenever and wherever required.

If the Engineer-in-Charge on inspection or test is not satisfied with the quality or workmanship of any work, structure, material, component (decision of the Engineer-in-Charge being final in this behalf), the Vendor shall re-perform, replace, re-install and / or re-erect as the case may be such work, structure material or component, as no such rejected work, structure, material, item or component shall be used again without the prior permission of the Engineer-in-Charge.

Notwithstanding any condition provided in the foregoing clauses hereto and notwithstanding the fact that the Engineer-in-Charge/ or his representative has inspected tested and/or approved any particular work,

structure, material or component, such inspection, test or approval shall not absolve the Vendor of his full responsibilities under the contract inclusive or relative to the specification and performance guarantee. The said inspection and test procedure being intended basically for satisfaction of the Owner / prima-facie erection and/or material and equipment supplied for incorporation in the work is in order.

On no account shall the Vendor proceed with the covering up or otherwise placing beyond reach of inspection or measurement any work before necessary inspection, entries are filled in the Site Inspection Register by the Engineer-in-Charge or his authorised representative. Should the vendor do so, the same shall be uncovered at the risk and expense of the vendor for carrying out the inspection and measurement. Measurement of Work shall be recorded as per the direction of Engineer-in-Charge.

If any tests are required to be carried out in connection with the work or materials or workmanship is not supplied by the Vendor, such tests shall be carried out by the Vendor as per the instructions of the Engineer-in-Charge and cost of such tests shall be reimbursed by the Owner.

The owner reserves the right to inspect the Equipment at Tenderer's works by them or through a third party nominated by the Owner. Tenderer will provide all assistance to the Inspector deputed by the owner for carrying out inspection at Tenderer's work free of charge.

#### **I. Site Particulars**

The intending tenderers shall be deemed to have visited the site and familiarised themselves thoroughly with the site conditions before submitting the tender. Non-familiarity with the site conditions will not be considered reason either for extra claims or for not carrying out the work in strict conformity with the drawings and specifications.

#### **J. Supply Of Material**

- i. All materials required for the work shall be supplied by the Vendor. In addition, all materials required for temporary and enabling work shall be arranged and provided by the Vendor. All incidental expenses, loading, unloading, transportation, handling etc. shall be the responsibility of the Vendor and cost towards such expenses should be included in the finished item rates.
- ii. All other materials, as required to complete the works in all respects according to the contract rates shall be inclusive of all freights, taxes, duties, loading, unloading, transporting, handling and storage charges etc. GST shall be payable separately as per applicable rate.

#### **10. Time for Completion of Work**

The tenderer shall submit the plan to complete the work within the stipulated time allowed for the execution of work as given in the Tender Documents and NIT.

- a. The Vendor shall complete the work in all respects in accordance with the Contract and ensure that the entire work at each job site is completed within the time specified in the Time Schedule.
- b. If the Owner so desires, the Progress Schedule in the form of CPM, giving the latest date of

starting and latest date of finishing of various operations and the activities in the critical path and latest date for achievement of specific work so as to complete them in all respects (including testing and consequential operations) within the time provided in the Time Schedule, has to be presented. This Progress Schedule should also indicate the interlinking of the various activities and bring to light the specific/critical items on which the inputs from the owner/ Engineer-in-Charge/Consultant or other agencies, if any, would be required, to ensure adherence to the schedule.

- c. If the Vendor shall fail to submit to the Owner/ EIC a Progress Schedule as envisaged above or if the Owner/EIC and Vendor fail to agree upon the Progress Schedule as envisaged above, then the Engineer-in-Charge shall prepare the Progress Schedule (the dates of progress as fixed by the Engineer-in-Charge being final and binding upon the Vendor except as herein otherwise expressed provided), and shall issue the Progress Schedule so prepared to the Vendor, which shall then be the Approved Progress Schedule and all the provisions of clauses b. shall apply thereto.
- d. Any reference in the Contract Documents to the Approved Progress Schedule” or to the “Progress Schedule” shall mean the “Approved Progress Schedule” specified in clause b. above or the “Progress Schedule” prepared and issued by the Engineer-in-Charge as specified in clause c. above, whichever shall be in existence. In the absence of such approved Progress Schedule or Progress Schedule prepared by the Engineer-in-Charge, the Progress Schedule first prepared by the Vendor (with incorporation of the Owner’s / Engineer-in-Charge’s comments thereon if any), shall until such approved Progress Schedule or such Progress Schedule prepared by the Engineer-in-Charge comes into existence, be deemed to be the Progress Schedule for the purpose of the contract.
- e. Within 7 (seven) days of the occurrence of any act, event or omission which, in the opinion of the Vendor, is likely to lead to a delay in the commencement or completion of any particular work(s or operation(s) or the entire work at any job site (s) and as such would entitle the Vendor to an extension of the time specified in the Progress Schedule(s), the Vendor shall inform the Site Engineer and the Engineer-in-Charge in writing - the occurrence of the act, event or omission and the date of commencement of such occurrence. Thereafter, if even on the cessation of such an act or event or the fulfilment of the omission, the Vendor feels that an extension of the time specified in the Progress Schedule relative to the

particular operation(s) or item(s) or work or the entire work at the job site(s) is necessary, the Vendor shall within 7 (seven) days after the cessation or fulfilment as aforesaid make a written request to the Engineer-in-Charge for extension of the relative time specified in the Progress Schedule and the Engineer-in-Charge may at any time prior to the completion of the work extend the relative time of completion in the Progress Schedule for such period(s) as he considers necessary, if he is of the opinion that such an act, event or omission constitutes a ground for extension of time in terms of the Contract and that such an act, event or omission has in fact resulted in insurmountable delay to the Vendor.

- f. The application for extension of time made by the Vendor to the Engineer-in-Charge should contain full details of

### **11. Liquidated Damages**

- i. If the Vendor is unable to complete the jobs specified in the scope of work within the period specified in NIT, it may request the owner for extension of the time with unconditionally agreeing for payment of LD. Upon receipt of such a request, the owner may at its discretion extend the period of completion and shall recover from the Vendor's running account bill, as an ascertained and agreed Liquidated Damages, a sum equivalent to 0.5% of basic contract value for each week of delay or part thereof. The LD shall be limited to 5% of the total of basic contract value. The parties agree that the sum specified above is not a penalty but a genuine pre-estimate of the loss/damage which will be suffered by the owner on account of delay/breach on the part of the Vendor and the said amount will be payable without proof of actual loss or damage caused by such delay/breach by the Owner.
- iii. Notwithstanding what is stated in Clause above, the Owner shall have the right to employ any other agency to complete the remaining work at the risk and cost of the Vendor, in the event of his failing to complete the work within the stipulated time or in the event of the Vendor's work being behind schedule, as judged by the Engineer-In-Charge.
- iv. Then the Engineer-In-Charge upon receiving necessary approval from the competent Authority may in writing make a fair and reasonable extension of time for completion of the works as per provision of clauses, provided the Vendor shall make best effort to proceed with the works to the satisfaction of the Engineer-In-Charge. Nothing herein shall prejudice the rights of the Vendor under clause herein above.

- v. The vendor may seek extension of time for delay or anticipated delay as per clause No. 14.0.5 for reasons not attribute to them and in such a case, the extension may be given without imposition of LD, subject to the satisfaction of the Engineer-In-Charge.

## **12. Insurance**

Vendor shall at his own expense carry out and maintain insurance with reputable companies to the satisfaction of the Owner as follows:

### **Employee's Compensation and Liability Insurance:**

Vendor shall obtain Workmen Compensation policy in his name in respect of Vendor's employees to be engaged for the work towards compensation as admissible under the Employee's Compensation Act, 1923 and Rules framed thereunder upon death/ disablement and also medical treatment of a worker and the same has to be submitted to the Engineer-in-Charge before commencement of the work. The Owner should be mentioned as Beneficiary. The Vendor shall indemnify the Owner against all losses and claims in respect of injuries or damage to any person, including any employee of the Owner, material or physical damage to any property whatsoever including that of the owner arising out of the execution of the work or in carrying out of the contract, and shall insure against his liability with an insurer until the completion of this contract in terms approved by the owner. Whenever required, the Vendor shall produce the insurance policy and the current premium receipts to the Owner.

In addition to what it is stipulated above, the successful Vendor shall execute Indemnity Bond to indemnify and hold harmless the Owner for complying with the provision of the following:

- i) Provident Fund Act for P.F. Scheme for labourers engaged by the Vendor / Sub-Vendors
- ii) Interstate Migrant Workmen ("Regulation of Employment and Conditions of Services) Act - 1979
- iii) Minimum Wages Act - 1948
- iv) Equal Remuneration Act - 1976
- v) Employee's Compensation Act - 1923
- vi) Contract Labour (Regulation & Abolition) Act - 1970

If any of the work is sublet, after necessary approval by the Owner, the Sub-Vendor has to provide Employee Compensation and Liability Insurance for his employees, in case such employees are not covered under Insurance by the Vendor.

## **13. Contractor's Responsibility**

The contractor will be responsible for the welfare and discipline of his employees inside BAIF premises. He must also undertake to comply with all the statutory regulations for employment of his workmen. Any

expenses incurred by us under these regulations will have to be reimbursed by him. The contractor will be deemed to be the ultimate employer of his men.

All personnel employed by the contractor are to be engaged as their own employees in all respects and absolve BAIF of any responsibility to this effect.

The laid down safety and security rules and regulation of BAIF shall have to be adhered to. The tenderer shall allow only those workers who have the authorized gate entry permit and will ensure that they use the requisite safety equipment. All entry / exit permit for vehicle, equipment, men and material shall be arranged by the tenderer without any extra cost. The contractor shall ensure that proper uniforms are provided to the personnel deployed by them.

The responsibility to comply with provisions of various labour laws of the country such as Factories Act, Minimum Wages Act, Workmen's Compensation Act, Contract Labour Act, E.S.I Act, Bonus and Gratuity Act, etc. or any other Acts/Rules, which are applicable as per the Statute, will be that of the contractor.

**ANNEXURE II**

**Price Bid**

Tender notice: BAIF Solar PV Bid/Dec 01/2024-25, date- 05/12/2024

**Last Date of Submission: 19/12/2024**

Tender for supply, installation, and commissioning of Solari PV Power Systems for Agrivoltaics (Agri PV) applications at Urulikanchan village of the Pune District, Maharashtra.

**Table 1: Offer summary**

**PRICE BID FORMAT**

**A. For \_\_\_\_\_ kWp AC Solar PV plant (Schedule "A")**

Item No.	Brief Description	Unit	Quantity	In INR	
				UNIT PRICE	TOTAL PRICE
1	Turnkey Design, Supply, Installation, Testing & Commissioning of _____kWp DC / _____ kW AC on Grid Solar PV Plant at CRS	No.	1		
2	Turnkey Design, Supply, Installation, Testing & Commissioning of _____ kWp DC / _____kW AC on Grid Solar PV Plant at New Semen Station (Ground and Roof)	No.	1		
3	GST @ 12% for supply of _____ kWp Solar PV Plant.	No.	1		
4	GST @ 18% for services for _____kWp Solar PV Plant	No.	1		
5	Basic Grand Total				
6	GST @ _____%				
7	Grand Total (Including GST)				

**Total Amount in words Rs.** \_\_\_\_\_  
\_\_\_\_\_ )

**Table 2: AMC Summary**  
**For AMC (Schedule "C")**

Item No.	Brief Description	Unit	Qty.	In INR	
				UNIT PRICE	TOTAL PRICE
1	Annual Maintenance Contract for _____ kWp Solar PV Plant Year 1	No.	1		
2	Annual Maintenance Contract for _____ kWp Solar PV Plant Year 2	No.	1		
3	Annual Maintenance Contract for _____ kWp Solar PV Plant Year 3	No.	1		
4	Annual Maintenance Contract for _____ kWp Solar PV Plant Year 4	No.	1		
5	Annual Maintenance Contract for _____ kWp Solar PV Plant Year 5	No.	1		

**GST will be as applicable.**

**Place** \_\_\_\_\_

**Signature of Tenderer**

**Date** \_\_\_\_\_

**Name & Address**

Signature with seal of bidder

Note: Price Bid and AMC summary must strictly adhere to the above format and must be typed and printed on A4 page.

Signature and seal required on all pages of the Price Bid and AMC summary.

\*\*\*The work by selected vendors will be periodically reviewed by BAIF team and based on quality of material and service, further orders can be released for additional work.



**ANNEXURE III**

**List of previous works if any**

<b>SN</b>	<b>Location</b>	<b>Date of commission</b>	<b>Capacity</b>	<b>Client</b>	<b>Reference contact (name, tel. no.&amp; email)</b>
1					
2					
3					
4					
5					

Signature of bidder with seal

Note: Annexure III should be typed and printed on A4 page adhering to the above format.

**ANNEXURE IV**

**Undertaking**

Date: \_\_\_\_\_

To

\_\_\_\_\_

\_\_\_\_\_

Ref.: Tender notice: BAIF Solar PV Bid/Dec 01/2024-25, date- 05/12/2024

Tender for supply, installation, and commissioning of Solari PV Power Systems for Agrivoltaics (Agri PV) applications at Urulikanchan village of the Pune District, Maharashtra.

Dear Sir,

In response to the tender invited by you, I/We have examined the notice, conditions, specifications and terms of the Tender and I/We agree to abide by all the instructions in these documents attached hereto and hereby bind myself/ourselves to execute the work as per the schedule stipulated in the tender notice.

I/We further agree to sign and execute all agreements/bonds as may be required by BAIF to abide by all conditions of the Tender and to carry out all work as per specifications, failing which, I/We shall have no objection for the forfeiture of the security money deposited with BAIF.

I / We also undertake that I / We have not been blacklisted by any entities any time.

I / We enclose herewith the required documents.

Yours sincerely

Signature of bidder with seal

Encl.:

1. Techno-commercial bid with supporting documents
2. Price bid
3. List of previous works

**Qualifying Criteria for Bidders:**

**To become eligible, each bidder must satisfy the following;**

SN	Criteria	Specific Requirement	Documents required
1.	<b>Applicant Entity</b>	Legal entities duly registered firm under the Companies Act 1956/2013. Or public/semi-public entities, which are financially sound.	Certificate of incorporation / registration GST Registration Certificate; PAN details
2.	<b>Technical</b>	The Vendors shall have experience of having successfully carried out and completed similar works during the last 3 years ending last day of the previous month in which applications were invited.	Work completion certificate for similar nature of work (copy of work order and satisfactorily completion report).
3.	<b>Financial</b>	<p>Annual Financial Turnover during the last 3 consecutive financial years should be at least Rs. 2.5 to 3 crores. Net worth should be positive.</p> <p>The bidder should submit the following,</p> <ul style="list-style-type: none"> <li>i] Valid Income Tax Clearance Certificate</li> <li>ii] Balance Sheet for the last 3 years.</li> <li>iii] Profit &amp; Loss account for the last 3 years</li> </ul>	Proof of Income tax return, audited balance sheet and profit & loss account (certified by CA).
4.	<b>Other Technical Requirements:</b>	<ul style="list-style-type: none"> <li>• The bidder shall be located within the territory of India and shall be approachable either by road/rail/air.</li> <li>• The bidder shall be fully equipped with the required Infrastructure and facilities as per scope of the work.</li> <li>• The bidder shall have qualified and experienced manpower and skilled workers as per the scope of the work.</li> </ul>	<ul style="list-style-type: none"> <li>• Proof address; registered office and operational sites in Maharashtra</li> <li>• List of available infrastructure and facilities at operational sites located in India</li> <li>• List of skilled staff with the company giving their experience and qualifications.</li> </ul>

Requested to submit the Proposal and duly sealed and signed Tender in a sealed envelope till 19.12.2024 up to 5.00 pm at our Head Office – BAIF Development Research Foundation, BAIF Bhawan, Dr. Manibhai Desai Nagar, Warje, Pune 411058, India. Each page of the tender document must be sealed and signed. Your signature on the Tender document will be considered as confirmation of your having read and accepted all the conditions laid down in the documents. Along with the tender document, the DD of the Earnest Money must be submitted. The tender will not be accepted without the earnest money. The tender will not be accepted after closure of the time for submission as mentioned above. Prior to submitting a tender, the tenderer shall also inspect the site of the work and acquaint himself with the local conditions, means of access to the site of work, nature of work and all other matters pertaining thereto. The tenderer will be deemed to have satisfied himself by actual inspection of the site and the locality of the works.

Application received after date and time will not be considered. All the hard copies have to be sent to the following address:

BAIF Development Research Foundation  
Dr. Manibhai Desai Nagar, Warje  
Pune 411058, India  
**Contact Number- +91 9975117673 +91 8459205353**  
**Email: maheshlade@baif.org.in**