Rate Contract Tender for Empanelment of Vendors for Design, supply, erection, testing and commissioning including warranty, Comprehensive operation & maintenance (5 years) of Grid-Connected Rooftop Solar Plant of various capacities under the Phase-II of Grid Connected Rooftop Solar Scheme of MNRE in the State of Tamil Nadu for a cumulative capacity of 12MW.

Tender Ref No: TEDA/1469/Phase II GCRTS/2021-22 dated: 14.04.2022

State Implementing Agency

Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)
NPKRR Maaligai, 144, Anna Salai,
Chennai- 600 002.
Phone no:

State Nodal and Tendering Agency

Tamil Nadu Energy Development Agency (TEDA)
E.V.K Sampath Maaligai,
5th Floor,No.68,College Road,
Chennai 600 006.
Phone: 044 – 28242800.
Email: dgm2@teda.in,solar@teda.in
Website: www.teda.in

INDEX

Section No.	Contents	Page No.
1	Interpretations	
2	Disclaimer	
3	Notice Inviting Tender	
4	Scope of Work	
5	Bid Information Sheet	
6	Definitions and Abbreviations	
Section – I	A: Introduction, Bid details and instructions to the Bidders B: Conditions of Contract	
Section – II	Evaluation Criteria and CFA Disbursement	
Section –III	Technical Specifications	
Section – IV Price Bid		
Format A	Price Bid Format	
Section – V Formats for Submitting Tender & Checklist		
Format-1	Covering Letter	
Format-2	General Particulars of the bidder	
Format-3	Proforma for Bank Guarantee for Bid Bond / EMD	
Format-4	Format for Performance Bank Guarantee	
Format-5	Check List for Bank Guarantees	
Format-6	Power of Attorney	
Format-7	Financial Eligibility Criteria requirement	
Format-8	EMD undertaking	
Section –VI Annexure (A to X)		
Annexure A	Documents required for Project Sanction	
Annexure B	List of Banks	
Annexure C	Guidelines for O&M	
Annexure D	Sanction Request letter	
Annexure E	Quality Certification, Standards and Testing for Grid-connected Rooftop Solar PV Systems/Power Plants	
Annexure F	Project Report Format	

Annexure G	Declaration for Authorization	
Annexure H	O&M Report Format	
Annexure I	Format Tax Invoice	
Annexure J	Project Completion Report for Grid-Connected Rooftop	
Annexure K	Documents Against Completion of Project	
Annexure L	Vendor/ Customer Registration form	
Annexure M	CFA Claim Letter format	
Annexure N	Joint Inspection Report	
Annexure O	ALMM Declaration Format	
Annexure P	Standard Operating Procedure (SOP) for Installation and Metering Connection	
Annexure Q	Format for Bid Security Declaration	
Annexure R	Undertaking/Self- Declaration for domestic content requirement fulfilment	
Annexure S	Format of agreement between vendor and consumer for additional cost due to desired customization	
Annexure T	Single Line Diagram	

Interpretations

1. Words comprising the singular shall include the plural & vice versa.
2. An applicable law shall be construed as reference to such applicable law including its amendments or re-enactments from time to time.
3. A time of day shall save as otherwise provided in any agreement or document be construed as a reference to Indian Standard Time.
4. Different parts of this contract are to be taken as mutually explanatory and supplementary to each other and if there is any differentiation between or among the parts of this contract, they shall be interpreted in a harmonious manner so as to give effect to each part.
5. The table of contents and any headings or sub-headings in the contract has been inserted for case of reference only & shall not affect the interpretation of this agreement.

Disclaimer

1. Though adequate care has been taken while preparing the Tender document, the Bidders shall satisfy themselves that the document is complete in all respects. Intimation of any discrepancy shall be given to this office immediately. If no intimation is received from any Bidder within seven (7) days from the date of notification of Tender/ Issue of the Tender document, it shall be considered that the Tender document is complete in all respects and has been received by the Bidder.
2. TEDA reserves the right to modify, amend or supplement this Tender document.
3. While this Tender has been prepared in good faith, neither TEDA nor their employees make any representation or warranty, express or implied, or accept any responsibility or liability, whatsoever, in respect of any statements or omissions herein, or the accuracy, completeness or reliability of information, and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of this Tender, even if any loss or damage is caused by any act or omission on their part.

Place: Chennai
Date: _ _ _ _ _ _ _ _ _ _ _ _ _

NOTICE INVITING TENDER

FOR

EMPANELMENT OF VENDORS FOR DESIGN, SUPPLY, ERECTION, TESTING AND COMMISSIONING INCLUDING WARRANTY, COMPREHENSIVE OPERATION & MAINTENANCE (5 YEARS) OF GRID-CONNECTED ROOFTOP SOLAR PLANT OF VARIOUS CAPACITIES UNDER THE PHASE-II OF GRID CONNECTED ROOFTOP SOLAR SCHEME OF MNRE IN THE STATE OF TAMIL NADUBEING IMPLEMNTED BY TAMIL NADU ENERGY DEVELOPMENT AGENCY/TAMIL NADU GENERATION AND DISTRIBUTION CORPORATION LIMITED IN THE STATE OF TAMIL NADU.

The Ministry of New and Renewable Energy, Government of India (MNRE) is implementing Phase-II of Grid Connected Rooftop Solar (GCRTS) Programme wherein central financial assistance (CFA) is being provided for installation of Roof Top Solar (RTS) projects in residential buildings. To implement the RTS activities in respect of the aforesaid programme, respective Power Distribution companies (DISCOMs) have been designated as the implementing agency. Based on this, Tamil Nadu Generation and Distribution Corporation Limited (DISCOM of Government of Tamil Nadu), has decided that TEDA (State Nodal Agency) shall be the tendering and implementing agency for Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO) and will identify L-1 rates and empanel vendors for implementation of the programme. The TEDA/TANGEDCO will execute RTS projects in Tamil Nadu through the empanelled vendors, in accordance with the rates discovered in this tender.

MNRE has accorded the sanction and allocated the capacity of 10 MW for residential sector to TANGEDCO (DISCOM of Tamil Nadu) under the Phase-II of GCRTS programme for 2021-22 vide F:No:318/63/2019- Grid Connected Rooftop dated 19.01.2022. TEDA invites bids from eligible bidders to participate in this Tender for empanelment of vendors for Design, Supply, Erection, Testing and Commissioning including Warranty and 5 years Comprehensive Operation & Maintenance of Grid-Connected Rooftop Solar PV systems for Residential Consumers aggregating to **12 MW** under the Phase-II of Grid Connected Rooftop Solar Scheme of MNRE in the State of Tamil Nadu. This Tender shall be governed by terms of sanction received from MNRE vide F:No:318/63/2019 - Grid Connected Rooftop dated 19.01.2022 for TANGEDCO and The Tamil Nadu Transparency in Tenders Act 1998 and The Tamil Nadu Transparency in Tenders Rules, 2000 and as amended from time to time.

For the implementation of above-mentioned work, Bidders should submit their bid proposal in offline mode, complete in all aspect, on or before Last date of Bid Submission as mentioned on the Bid Information Sheet.

Bidder shall submit bid proposal along with non-refundable bid processing fee and EMD as per the Bid Information Sheet. The Bidder(s) those who are seeking exemption for submission of EMD, shall submit the valid supporting documents and EMD undertaking in the prescribed Format-8. Bids will be opened as per the Bid Information Sheet in presence of authorized representatives of bidders. Bid proposals received without the prescribed bid processing fees and EMD shall automatically be rejected.

In the event of any date mentioned in bid information is declared a Holiday, the next working day shall become operative for the respective purpose mentioned herein.

Only the documents submitted at the time of Bid Submission shall be used in evaluation process. Bidders are advised to ensure that all supporting documents are submitted at the time of Bid Submission as no further clarification/amendments would be entertained in this regard. Bidders are also encouraged to familiarize themselves with the MNRE scheme available at SPIN portal (solarroofotp.gov.in) for efficient execution.

Any amendment(s)/ corrigendum/ clarifications with respect to this Bid shall be uploaded on web page of TEDA and State tender portal. The Bidder should regularly follow up for any Amendment/ Corrigendum/ Clarification on the above websites.

The bidding process under this Rooftop scheme is for 12 MW comprising of CAPEX Model

S. No	Category	Proposed Capacity	Aggregate Capacity (kW)	Min Capacity (kW) (for which the Bidder can submit its Bid)	Max Capacity (kW) (for which the Bidder can submit its Bid)
1.	Part-A	1 kW to 3 kW	5800	50	1500
2.	Part-B	Above 3 kW to 10 kW	2500	50	1000
3.	Part-C	Above 10 kW to100 kW	1500	100	750
4.	Part-D	Above 100 kW to 500 kW	1000	100	750
For open category Bidder			1200	Not applicable	Not applicable

Note: For common facilities in Group Housing Societies/Residential Welfare Associations (GHS/RWA) etc. the allowed RTS capacity shall be limited up to 500 kWp (@ 10 kWp per house), with the upper limit being inclusive of individual rooftop plants already installed by individual residents in that GHS/RWA at the time of installation. Bidders are requested to quote Minimum Capacities in each part as per above table.

TEDA /TANGEDCO reserves the right for diversion of capacity from one bidder/ category to another (including transfer of unallocated capacity to Open Category) for 100% utilization of tendered capacity. Open category will be allotted to Local MSME's (Tamil Nadu Registration s mandatory). No work experience and minimum turn over criteria is required for such category of bidder.

(Name and Designation of Signing Authority

SCOPE OF WORK:

The TEDA invites bids for Design, Supply, Erection, Testing and Commissioning including Warranty, Comprehensive Operation & Maintenance (5 Years) of Grid-Connected Rooftop Solar Plant of Various Capacities Under the Phase-II of Grid Connected Rooftop Solar Scheme of MNRE in the State of Tamil Nadu under CAPEX model.

TEDA will empanel eligible vendors participating in this empanelment process and wish to provide their services on the price/rate discovered through transparent bidding process. The CFA available from MNRE would be limited to 40% of the prevailing Benchmark Cost or Discovered Rate, whichever is lower, for project capacity up to 3 kW. For project capacity above 3 kW the available CFA would be 40 % up to 3 kW Plus 20% for RTS system upto 10 kW. Group Housing Societies/Residential Welfare Associations (GHS/RWA) etc. are allowed to install RTS projects up to 500 kW capacity (@ 10 kW per house), with the upper limit being inclusive of individual rooftop plants already installed by individual residents in that GHS/RWA at the time of installation of RTS for common activity.

TEDA will not be responsible in case any empanelled vendors do not get any work order.
The consumers under this scheme shall be free to install their projects by any empanelled vendors subject to the condition that project shall have to be installed/commissioned in accordance with the scheme guidelines, working instructions and relevant regulations as approved and amended from time to time by the MNRE, TANGEDCO and TNERC.

The empanelled vendors will carry out the design, supply, erection, testing and commissioning including warranty, comprehensive operation & maintenance for a period of 05 years under CAPEX Model of grid interactive rooftop solar PV power plant and shall make all necessary arrangement for evacuation and injection of surplus power to the grid at the interconnection point/ points as per TNERC/TANGEDCO's guidelines issued from time to time.

1. The detailed Scope of Work for empanelled vendors shall essentially cover but not be limited to:

1.1. Identification of prospective beneficiaries and providing necessary assistance to the prospective beneficiary in submitting online applications for installation of RTS project.

1.2. Preparation of Detailed Project Report (DPR) of the proposed Proposal of Rooftop Solar Power Plant.

1.3. Obtaining Net-metering approval from TANGEDCO for providing grid connectivity/net-metering.

1.4. Submission of proposal with all required documents to TEDA/TANGEDCO for sanctioning of the project.

1.5. Execution of the work shall be carried out in an approved manner as per the technical specification of Tender. In case of any dispute, relevant MNRE/BIS/ISI/NABL/ISO/IEC/IS specification shall be followed and work shall be carried out to the reasonable satisfaction of the engineer in charge.

1.6. The vendor shall complete the work of Design, supply, civil work, erection, testing and commissioning of SPV grid connected Power Plant within 6 months from the issuance of the sanction letter. In event of failure to install and commission the RTS system within the mentioned timeframe, the entire Performance Bank Guarantee will be forfeited and may also lead to disqualification of the vendor at the sole discretion of TEDA/TANGEDCO. The penalty for non-completion will be on pro-rata basis.

1.7. The work coversDesign, Supply, Erection, Testing and Commissioning including Warranty, Comprehensive Operation & Maintenance for 5 years.

1.8. Empanelled vendors shall establish a service Centre to cater the 05 Years CMC. In case if it is not economically viable for an individual vendor then Group of vendors can establish a common service Centre. The details of all such service centres (address, contact no. etc.) will be made available on the website of the TANGEDCO & TEDA.

1.9. All the material required for the installation of solar power plant as per the work order issued shall be kept at site in custody of the vendor. TANGEDCO/TEDA shall not be responsible for any loss or damage of any material during the installation. The vendor shall be responsible and take an insurance policy for transit-cum-storage-erection for all the materials.

1.10. The vendor shall take entire responsibility of electrical safety of the installations including connectivity with the grid and follow all the safety rules and regulations applicable as per Indian Electricity Act-2003 and prevailing CEA guidelines and amendments, The Empanelled vendor shall ensure proper safety of all the workmen, material, plants and equipment belonging to him/her. In case any accident occurs during the construction / erection or during guarantee period for work undertaken by Empanelled Vendor thereby causing any minor or major or fatal accident will be the responsibility of the Empanelled Vendor. The successful Vendors shall follow and comply with the employer's safety rules relevant provisions of applicable laws pertaining to the safety of workmen, employees, plant and equipment.

1.11. The Empanelled Vendors must adhere to the Operation and Maintenance procedure given in **Annexure-C** of this document.

1.12. The CFA claims of the systems installed and commissioned shall be processed with following documents:

1.12.1 Dated Claim letter from the bidder on its letter head certifying that the SPV Modules and Cells deployed in the systems installed are Indian Made (DCR Undertaking as prescribed MNRE Format as **Annexure-W**), and all the technical specifications of the components supplied and installed are in accordance with the specifications given in this document and adhere to MNRE requirement and all the information / documents provided along with the claim letter is correct and factual.

1.12.2 Invoice of the System billed to the beneficiary.

1.12.3 Photograph of the system with placard held by the beneficiary and representative of TANGEDCO/ TEDA showing the name of the beneficiary, service connection number sanction number and system capacity.

1.12.4 Certificate of the beneficiary that the system is installed and commissioned in all respect with the date of commissioning, system and inverter capacity, etc. and that he has been provided the 05 (Five) Year Warranty Card and the O&M Manual.

1.12.5 Overwritten certificates/ documents shall be out rightly rejected and will not be processed for CFA payment.

1.12.6 Self-certified copies of documents will be submitted in support of claims made by the Empanelled Vendors.

1.12.7 The CFA shall be released subject to availability and release of funds from MNRE, GoI to TANGEDCO/TEDA.

1.12.8 All the SPV Rooftop systems installed will be inspected by officials of TANGEDCO/TEDA. If a need arises, the Third-party Inspection may also be carried for disbursement of CFA. Third party Inspection will be carried out by the Agency nominated by MNRE or TANGEDCO/TEDA.

Bid Information Sheet

Bid Description	The bidding process under this Rooftop scheme is for 12 MW comprising of Part A, B, C and D 1. **Under PART-A- 1 to 3 kW_P** Total Aggregate capacity 5800 kW_P, Bidder can apply for minimum aggregate capacity of capacity 50 kW_P and maximum aggregate capacity of 1500 kW_P. 2. **Under PART-B- Above 3 to 10 kW_P** Total Aggregate capacity 2500 kW_P, Bidder can apply for the minimum aggregate bid capacity of capacity 50 kW_P and maximum aggregate bid capacity of 1000 kW_P. 3. **Under PART-C- Above 10 to 100 kW_P** Total Aggregate capacity 1500 kW_P, Bidder can apply for the minimum aggregate bid capacity of capacity 100 kW_P and maximum aggregate bid capacity of 750 kW_P. 4. **Under PART-D-Above 100 to 500 kW_P** Total Aggregate capacity 1000 kW_P, Bidder can apply for the minimum aggregate bid capacity of capacity 100 kW_P and maximum aggregate bid capacity of 750 kW_P. 5. **Under Open category** Total Aggregate capacity 1200 kW_P **General category:** Bidder can bid for PART-A or PART-B or Part-C or PART-D as per the eligibility criterion of Tender. Bidders can also bid combination of parts under CAPEX Model and for all four (04) parts subject to meeting the eligibility criterion set forth herewith. **Open category:** Bidder can submit only Techno commercial bid as per the eligibility criterion set forth in the Tender.

Broad Scope	Identification of rooftops / beneficiaries which includes but is not limited to submission of project sanction documents, EPC agreement between Empanelled Vendor and the Consumer(s) at the quoted project cost and Clearances from TANGEDCO as per terms and conditions of Tender for the approval of capacity 12 MW for issue of project specific consent letter(s). Design, Engineering, Manufacture, Supply, Storage, Civil work, Erection, Testing & Commissioning of the Grid-connected Rooftop solar PV project including comprehensive Operation and Maintenance (O&M) of the project for a period of 05 years for CAPEX Model after commissioning of project. Total timeline for the above Scope of Work up to Commissioning of project is 6 Months from the date of the Letter of Allocation (LoA) from dated of MNRE Sanction to TANGEDCO i.e. NOV 2022, whichever is earlier.
Sale of Tender Document	Tamil Nadu Energy Development Agency, 5th Floor, E.V.K. Sampath Maaligai, No.68, College Road, Chennai – 600 006, Phone: 044-28242800 On all working days between 11.00 A.M. to 5.00 P.M. from 14.04.2022 to 10.05.2022 at TEDA office. Alternatively, Tender documents can be downloaded free of cost from www.teda.in and www.tenders.tn.gov.in
Cost of Tender Document	Rs.1000/-(Rupees One Thousand only) per Tender Document for direct purchase from TEDA. The Tender document fee is waived for the downloaded Tender Document.
Pre-Bid Conference/Clarification meeting	Date:28.04.2022 Time: 3.00P.M Venue: TEDA office
Physical submission of documents	Date: 11.05.2022 Time:3.00 P.M
Date of Techno-Commercial bids opening	Date and Time:11.05.2022 and 3.15 P.M Venue: TEDA office
Validity of Bid	Validity of bid shall be minimum 06 months from the date of techno-commercial bid opening date
Validity of Price	12 months after the date of issuance of Letter of Allocation (LoA)/ Work Order or 15 months from date of Sanction [*i.e.* ***Insert Actual Date***], whichever is earlier.

Processing Fee (In favour of *Tamil Nadu Energy Development Agency* **(Non-refundable)**	INR. 5000 + 900 (GST @18%). The processing fee is to be furnished through Demand Draft (DD) drawn in favour of "Tamil Nadu Energy Development Agency" payable at Chennai to be submitted in a separate sealed envelope along with offline document
Bid Bond/Bid Security/EMD	Based on the Bid capacity proposed by the bidder in the bid, EMD shall be furnished. EMD amount = (INR 450) x Bid Capacity in kW EMD shall be submitted separately for different parts respectively. For EMD Exemption: Bidder must submit valid supporting documents as per terms and conditions of Tender.
Bid Process	Two Part (Techno-Commercial Bid & Price Bid)
Name, Designation, Address and other details of Tender Inviting Authority	The General Manager Tamil Nadu Energy Development Agency 5thFloor, EVK Sampath Maaligai,68 College Road, Chennai-600006 Phone: +91-44-28242800 Fax:+91-44-28222971 Email: dgm2@teda.in,solar@teda.in Website: www.teda.in
Important Note: Prospective bidders are requested to remain updated for any notices/amendments/clarifications etc. to the Tender document through the website: www.teda.in www.tenders.tn.gov.in. No separate notifications will be issued for such notices/ amendments/ clarification etc. in the print media or individually. All the information related to this Tender shall be updated in the website.	

DEFINITIONS

	In this "Bid / Tender Document" the following words and expression will have the meaning as herein defined where the context so admits:
1.1	**"Act" or "Electricity Act, 2003"** shall mean the Electricity Act, 2003 and include any modifications, amendments and substitutions issued from time to time;
1.2	**'Allocated capacity'** shall mean the capacity allocated to a bidder by TEDA/ TANGEDCO based on the procedure defined in this tender document. The allocated capacity will be mentioned in the Letter of Allocation (LoA).
1.3	**"Beneficiary"** or **"Customer"** shall mean the residential category Consumers of TANGEDCO.
1.4	"**Bid"** shall mean the Techno Commercial and Price Bid submitted by the Bidder along with all documents/credentials/attachment's annexure etc., in response to this Tender, in accordance with the terms and conditions hereof.
1.5	**"Bidder"** shall mean the vendor who makes a formal offer in pursuance of the Tender.
1.6	**"Bidding Company"** shall refer to such single company that has submitted the response in accordance with the provisions of this Tender.
1.7	**"Bidding consortium or consortium"** shall refer to a group of companies that have collectively submitted the response in accordance with the provisions of this RFP.
1.8	**"Bid Deadline"** shall mean the last date and time for submission of Bid in response to this Tender as specified in Bid information Sheet;
1.9	**"Bid Capacity"** shall means capacity offered by the bidder in his Bid under invitation.
1.10	**"CAPEX"** CAPEX Model.
1.11	**"Capacity Utilization Factor"** (CUF) means the ratio of the annual output of the plant in kWh versus installed plant capacity for number of days. CUF = plant output in kWh / (installed plant capacity in kW * 365 * 24).
1.12	**"CEA"** shall mean Central Electricity Authority.
1.13	**"Central Financial Assistance (CFA)"** shall mean subsidy to be provided by MNRE under the ambit of Phase-II Rooftop Solar Scheme.
1.14	**"Chartered Accountant"** shall mean a person practicing in India or a firm whereof all the partners practicing in India as a Chartered Accountant(s) within the meaning of the Chartered Accountants Act, 1949;
1.15	**"Commissioning"** shall mean successful installation and grid-integration of the Solar Power Project by the Contractor, as defined in Tender.
1.16	**"Competent Authority''** shall mean Chairman and Managing Director (CMD)/Managing Director (MD) of TEDA/TANGEDCO himself and/or a person or group of persons nominated by CMD/MD for the mentioned purpose herein;
1.17	**"Consent Letter"** shall mean the letter provided by TEDA/TANGEDCO for a single or group of PV systems after the approval of the project sanction documents submitted by the contractor.
1.18	**"Contract"** shall mean the agreement to be entered into by the TEDA/TANGEDCO with the Empanelled Agency upon receiving the Letter of Empanelment from TEDA/TANGEDCO for implementation of the Scheme/ Project and shall include the General and commercial terms & condition, scope of work,

	project requirement, technical conditions, schedules, appendixes, drawings and any other conditions specifically agreed between the parties forming a part of the contract.
1.19	**"Company"** shall mean a body incorporated in India under the Companies Act, 1956 or Companies Act, 2013, including any amendment there to.
1.20	**"Date of completion of project**" shall mean that the date of completion of project with project handed over and accepted by the consumer applicant in all respect provided that the assignees, Guarantee and warranty of 05 years shall be applicable as per the Tender Document terms and condition after the date of commissioning.
1.21	**"Distribution Company"** shall mean the Tamil Nadu Generation and Distribution Corporation Limited;
1.22	**"Eligibility Criteria"** shall mean the Eligibility Criteria as set forth in **Clause 5.0** of this Tender.
1.23	**"EMD"** shall mean Earnest Money Deposit which is required to be Paid as per the prevailing terms and conditions of Tender.
1.24	**"Empanelled Vendor(s) / Contractor / Project Developers(s)"** shall mean the Bidder(s) selected by TEDA/TANGEDCO pursuant to this Tender
1.25	**"EPC"** Shall mean Engineering, Procurement and commissioning of the complete project as per the terms and condition of the Tender Document.
1.26	**"Financial Year"** or "FY" shall mean the period starting from 1 April of the first calendar year to 31 March of the consecutive calendar year.
1.27	**"Installed Capacity"** shall mean the capacity of Grid connected Rooftop Solar Photovoltaic Systems installed and commissioned by the bidder during the empanelment period.
1.28	**"Inter-connection point / Delivery / Metering Point"** shall mean the point at distribution voltage level where the power from the solar power Project is injected. Metering shall be done at this interconnection point where the power is injected into the Distribution System i.e. the Delivery Point. For interconnection with grid and metering, the EPC shall abide by the relevant TNERC Regulations and their amendments thereof.
1.29	**"kW"** and **"kW_P"**shall mean Kilo-Watt and Kilo-Watt peak respectively
1.30	**"kWh"** shall mean Kilo-Watthour.
1.31	**"Letter of Intent" or "LOI"** shall mean the letter issued by TEDA/TANGEDCO to the Selected Bidder to secure their Intent for award of the Project.
1.32	**"Limited Liability Partnership (LLP)"** shall mean Limited Liability Partnership as per Limited Liability Partnership Act 2008.
1.33	**"LoA"** shall mean the Letter of Allocation issued by TEDA/TANGEDCO to the selected Bidder for Award of Work.
1.34	**"MNRE"** shall mean Ministry of New and Renewable Energy, Government of India.
1.35	**"Maximum Bid Capacity"** shall mean 10 MW which is the maximum capacity for which the Bidder can submit its Bid against each Part/ Category.
1.36	**"Model"** shall mean CAPEX Model.
1.37	**"Net Meter"** means an appropriate energy meter capable of recording both import and export of electricity or a pair of meters one each for recording the net import

	and net export of electricity as the case may be.
1.38	**"O&M"** shall mean Operation & Maintenance of Rooftop Solar PV System for a period of 05 years for CAPEX Model.
1.39	**"Performance Ratio"** (PR) means "Performance Ratio" (PR) means the ratio of plant output versus installed plant capacity at any instance with respect to the radiation measured. *PR= (Measured output in kW /Installed Plant capacity in kW * (1000 W/m2/Measured radiation intensity in W/m2).*
1.39	**"Project"** Shall mean the project of the Design, Supply, Installation, testing & Commissioning of Grid connected Rooftop Solar Systems including five years comprehensive maintenance
1.40	**"Project Cost / Project Price"** shall mean the price offered by the Bidder for the Scope of work as per Tender document.
1.41	**"Project capacity"** means Capacity in kW allocated to the Bidder for various locations within the state of Tamil Nadu.
1.42	**"Project Sanction Documents"** shall mean the documents required for sanction of project.
1.43	**"Price Bid"** shall mean Price Bid of the Bid, containing the Bidder's quoted Price as per this Tender;
1.44	**"Project Cost"** shall mean the Cost offered by the bidder for the scope of work as per the Tender document.
1.45	**"PV System" or "SPV" or " SPV System"** shall for the purpose of this Tender mean the Grid-connected Rooftop Solar Photo-Voltaic (PV) system including the PV modules, grid-connected inverter(s), module mounting structure(s), cables and connectors, safety and Earthing equipment, interconnection equipment, and inverter with remote monitoring with other components for Rooftop Solar System that shall be supplied, installed, commissioned and maintained by the Empanelled Vendors .
1.46	**"Qualified Bidder"** shall mean the Bidder(s) who, after evaluation of their Techno Commercial Bid stand qualified for opening and evaluation of their Price Bid;
1.47	**"RFS"** shall mean Request for Selection(Tender) /Bid Document/ Tender Document.
1.48	"**Renewable Energy Meter"** refers to a unidirectional energy meter, installed and used solely to record the renewable energy generation from the Renewable Energy System installed at the consumer's premises.
1.49	**"Rooftop Owner"** shall means owner of roofs at various locations within the state of Tamil Nadu consisting of single or multiple rooftops.
1.50	**"Scheme"** shall mean Phase-II Grid Connected Rooftop Solar Scheme for Providing Grid-connected Rooftop Solar System for Residential Consumers announced by the Ministry of New and Renewable and Renewable Energy, Government of India.
1.51	**"Statutory Auditor"** shall mean the auditor of a Company appointed under the provisions of the Companies Act, 1956 or under the provisions of any other applicable governing law.
1.52	***"SNA"*** shall mean State Nodal Agency.
1.53	**"Solar Power Developer (SPD)"** shall mean Empanelled Vendor(s) to whom the project is/are allocated.

1.54	**"Specification"** shall mean the Tender Document forming a part of the contract along with Proforma, schedules, appendixes and Annexure.
1.55	**"Sub-Division"** shall mean Operation and Maintenance Sub-Division of TANGEDCO.
1.56	**"System"** shall mean the Grid connected Rooftop Solar System as per Tender Document that shall be supplied, installed, commissioned and maintained with all other ancillary required by the vendor for satisfactory operation of the System.
1.57	**"TANGEDCO"** shall mean the Tamil Nadu Generation and Distribution Corporation Limited;
1.58	**"TEDA"** shall mean Tamil Nadu Energy Development Agency
1.59	**"Tender"** shall mean Bid Document/ Tender Document.
1.60	**"Tendered Capacity"** shall mean the Total aggregate capacity in kW indicated by the Vendors through this bidding process as per terms and conditions specified therein.
1.62	**"TNERC"** shall mean the Tamil Nadu Electricity Regulatory Commission.
1.63	"**Wp"** shall mean Watt Peak.
1.64	**"Week"** shall mean the continuous period of seven days.
1.65	**"Work"** shall mean activities of Supply, Installation, testing & commissioning of the Tender Document item for which the offers are invited.
	ABBREVIATIONS
Abbreviations	Full Forms
AC	Alternating Current
ACDB	Alternating Current Distribution Board
Ah	Ampere-hour
ALMM	Approved List of Models and Manufacturers
BOQ	Bill of Quantity
BIS	Bureau of Indian Standards
CCA	Controller of Certifying Authorities
CEA	Central Electricity Authority
CFA	Central Financial Assistance
CEI	Chief Electrical Inspector
CMC	Comprehensive Maintenance Contract
EP	Empanelled Partner
CUF	Capacity Utilization Factor
DC	Direct Current
DCDB	DC Distribution Board

DPR	Detailed Project Report
DG	Diesel Generator
DISCOM	Distribution Company
DPB	Distribution Panel Board
DSP	Digital Signal Processor
EMC	Electromagnetic Compatibility
EMD	Earnest Money Deposit
EMI	Electromagnetic Interference
EN	European Norms
EOI	Expression of Interest
EPDM	Ethylene Propylene Diene Monomers
FF	Fill Factor
GHI	Global Horizontal Irradiance
GHS	Group Housing Society
GI	Galvanised Iron
GPRS	General Packet Radio Service
GPS	Global Positioning System
GRP	Glass Reinforced Plastic
GST	Goods and Services Tax
HDPE	High Density Polyethylene
Hz	Hertz
IEC	International Electro technical Commission
IEEE	Institute of Electrical and Electronics Engineers
IGBT	Insulated-gate bipolar transistor
Imp	Peak Power Current
INR	Indian Rupees
IP	Ingress Protection
IS	Indian Standard
Isc	Short Circuit Current
ISI	Indian Standards Institute
ISO	International Standards Organization
ITB	Instructions to Bidders
JB	Junction Box
kg	Kilogram
km/ hour	kilometres per hour
kVA	kilo-volt-ampere

kW	Kilowatt
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LoA	Letter of Authorization
LoI	Letter of Intent
LPSC	Lightning Protection System Components
LT	Low Tension
MCB	Miniature Circuit Breaker
MCCB	Moulded Case Circuit Breaker
mm	Millimetre
MNRE	Ministry of New and Renewable Energy
MMS	Module Mounting Structure
MOSFET	Metal-Oxide Semiconductor Field-Effect Transistor
MOV	Metal Oxide Varistor
MPPT	Maximum Power Point Tracker
MSME	Micro, Small and Medium Enterprises
MW	Mega Watt
NIB	Notice Inviting Bid
NIT	Notice Inviting Tender
NOC	No Objection Certificate
O&M	Operations and Maintenance
PAN	Permanent Account Number
PBG	Performance Bank Guarantee
PCU	Power Conditioning Unit
PR	Performance Ratio
PGT	Performance Guarantee Test
PSU	Public Sector Undertaking
PV	Photovoltaic
PVC	Polyvinyl Chloride
PWM	Pulse width modulation
RFID	Radio Frequency Identification
RTS	Rooftop Solar
RWA	Residential Welfare Association
SBD	Standard Bid Document
SIM	Subscriber Identification Module
SNA	State Nodal Agency
SPD	Surge Protection Device

SPIN	Solar Photovoltaic Installation
SPV	Solar Photo Voltaic
sq.m	square meter
STC	Standard Testing Condition
THD	Total Harmonic Distortion
TIN	Taxpayer Identification Number
UV	Ultraviolet
V	Volt
VA	Volt Ampere
Vmp	Peak Power Voltage
Voc	Open Circuit Voltage
W	Watt
XLPE	Cross-linked polyethylen
XLPO	Cross-linked Polyolefin
XML	Extensible Mark-up Language

SECTION-I

A: Introduction, Bid details and instructions to the Bidders

B: Conditions of Contract

A. INTRODUCTION, BID DETAILS AND INSTRUCTIONS TO THE BIDDERS

1.0 INTRODUCTION

1.1 The Ministry of New and Renewable Energy, Government of India (MNRE) is implementing Phase-II of Grid Connected Rooftop Solar (GCRTS) Programme wherein central financial assistance (CFA) is being provided for installation of rooftop solar (RTS) projects in residential buildings. To implement the RTS activities in respect of the aforesaid programme, respective Power Distribution companies (DISCOMs) have been designated as the implementing agency. TANGEDCO, Government of Tamil Nadu, has decided that TEDA shall be the common Tendering agency and Implementing Agency for TANGEDCO and will identify L-1 rates and empanel vendors for implementation of the programme. TANGEDCO will execute RTS projects in their operational areas through the empanelled vendors, in accordance with the rates discovered in this Tender.

1.2 This Tender document is in accordance with MNRE Phase II guidelines vide notification 318/331/2017 dated 20.08.2019. The guidelines/scheme documents/amendments for Phase-II of GCRTS programme can be seen on SPIN portal (www.solarrooftop.gov.in).

TANGEDCO may register interested applicants for RTS installation under the scheme and the same may be shared with empanelled vendors for installation. For identification of applicants / consumers, TANGEDCO/TEDA may assist empanelled vendors. However, the entire responsibility of finding the applicants/ consumers lies with the vendors. TANGEDCO/TEDA/MNRE bears no responsibility in this regard.

1.3 This scheme with an aggregate capacity of 12 MW ***as per clause No. 2.2*** for state only envisages installation of grid-connected Rooftop solar projects on the roofs of consumers as specified by **MNRE vide Order No. 318/331/2017 – Grid Connected Rooftop Dated 20th August 2019** and their amendments issued from time to time i.e. broadly in following categories:

Sl. No.	Category	Coverage of Buildings
(i)	Residential	All types of Residential buildings and Group Housing Societies/Residential Welfare Associations (GHS/RWA)

The Ministry of New and Renewable Energy (MNRE), Government of India vide OM No. No. 32/24/2020-SPV Division dated 27.10.2021 has notified the amendments in Benchmark cost for Rooftop Solar Plants for FY 2021-22 as under:

S.No.	Capacity Range*	Benchmark Cost *(INR/Wp)* (excluding GST)
		General Category States /UTs
1.	Upto 1 kWp	46923
2.	> 1 kW upto 2 kW	43140
3.	> 2 kW upto 3 kWp	42020
4.	> 3 kW upto 10 kWp	40991
5.	> 10 upto 100 kWp	38236
6.	Above 100-500 kWp	35886

*The project capacity shall be considered as Inverter capacity or the SPV module array capacity, whichever is lower, for the purpose of determining CFA.

Note:

- All the above benchmark costs are inclusive of total system cost including Photo-Voltaic solar modules, inverters, balance of systems including cables, Switches/Circuit Breakers /Connectors/ Junction Boxes, mounting structure, earthing, Lightening arrester, cost of meters (if any other than net meter), local connectivity cost, cost of civil works, foundations etc. and its installation, commissioning, transportation, insurance, capital cost of online monitoring, comprehensive maintenance charges for five years, applicable fees and taxes etc.
- The above-mentioned benchmark costs are excluding net metering cost, battery back-up and GST.
- The above-mentioned benchmark cost is indicative only. All participating DISCOMs under the phase II of the rooftop solar programme will ensure that the rate is discovered through transparent bidding process. **Prevailing MNRE benchmark cost should NOT be considered as the ceiling rate for any bidding agency.**
- The benchmark cost for financial year 2021-22 will be applicable for all LoAs to be issued/ empanelment of developers/vendors to be done after Date of issuance of Benchmark Order, by the implementing agencies in States/UTs. Moreover, if revised benchmark cost is issued by the Ministry before the final date of bid submission in any Tender, the final date of bid submission shall be extended by minimum 15 days so that the bidders may submit revised bids in accordance with the revised benchmark cost. For such cases, bidders shall not be asked to re-submit any fees/bond, already submitted. The benchmark cost indicated in the LOA issued to an empanelled vendor will be applicable till the project completion timeline specified by MNRE in the sanction order or as specified in the LOA, whichever is earlier.

The CFA structure applicable is as Tabulated below (As per MNRE Guidelines or as applicable at the time of commissioning of the project):

Type of Residential Sector	**Central Financial Assistance (CFA)** (as percentage of benchmark cost or cost discovered through competitive process, whichever is lower)
Residential sector (maximum up to 3 kW capacity)	40 % of Benchmark Cost/discovered cost, whichever is lower
Residential sector (above 3 kW capacity and up to 10 kW capacity)	40 % up to 3 kW Plus 20% for RTS system above 3 kW and upto 10 kW. (benchmark cost/discovered cost, whichever is lower)

Group Housing Societies/Residential Welfare Associations (GHS/RWA) etc. for common facilities up to 500 kWp (@ 10 kWp per house), with the upper limit being inclusive of individual rooftop plants already installed by individual residents in that GHS/RWA at the time of installation of RTS for common activity.	20% of Benchmark Cost/discovered cost, whichever is lower

Note: *Central Financial Assistance (CFA) disbursement will be governed as per MNRE Office Memorandum No.318/331/2017-GCRT Dated 3rd September 2019 on "Clarification on applicability of CFA individual residential households for installation of rooftop solar system under Phase-II of Grid-connected Rooftop Solar Programme".*

1.4 On behalf of TEDA, which expression shall also include its successors and permitted assigns, hereby invites interested vendors to participate in the bidding process for the selection of Empanelment of vendors for implementation of Grid-connected Rooftop Solar Projects for 12000 kW aggregate capacity as per Tender.

1.5 The bidders who are techno-commercially qualified wish to provide their services on the project cost discovered through this bidding process shall be empanelled for implementation of the said project. The CFA shall be calculated as indicated in the above table on the basis of discovered price or MNRE benchmark cost, whichever is lower. The tenure of empanelment shall be 12 Months (the time period shall not be more than MNRE sanction timeline) from the date of empanelment letter issued by TEDA or upto the last date of the sanction period allocated by MNRE to TANGEDCO i.e. [18.01.2024], whichever is earlier. Depending on requirement and with approval of MNRE, TANGEDCO/TEDA may **extend the tenure of empanelled vendors for implementation of the project**.

1.6 The Bidders are advised to read carefully all instructions and conditions appearing in this document and understand them fully. All information and documents required as per the bid document must be furnished. Failure to provide the information and/or documents as required may render the bid technically nonresponsive.

1.7 The bidder shall be deemed to have examined the bid document and MNRE scheme, to have obtained his own information in all matters whatsoever that might affect carrying out the works in line with the scope of work specified elsewhere in the document at the offered rates and to have satisfied himself to the level of sufficiency. The bidder shall be deemed to be in knowledge of the scope, nature and magnitude of the works and requirement of materials, equipment, tools and labour involved, wage structures and as to what all works, he has to complete in accordance with the bid documents irrespective of any defects, omissions or errors that may be found in the bid documents.

1.8 TEDA will list out the approved make of the Solar panel and Inverter based on the Test certificates submitted by Bidder(s) as per conditions laid down in this Tender. If, any additional make of components to be used shall be allowed only with the written permission of TEDA.

2.0 SIZE OF THE PROJECTS AND BID DETAILS:

2.1 The size of each project shall be in the range for each part as under:

Part-A : 1 kW to 3 kW

Part-B : Above 3 kW to 10 kW.

Part-C : Above 10 kW to 100 kW.

Part-D : Above 100 kW to 500 kW.

One part may however comprise of several rooftop units. Each Rooftop unit can separately connect with the grid and may have separate meters.

2.2 Entire allocated capacity is bifurcated into different parts, bidders may quote one or more than one part:

Aggregate Capacity 12000 kW

S. No	Category	Proposed Capacity	Aggregate Capacity (kW)	Min Capacity (kW) *(for which the Bidder can submit its Bid)*	Max Capacity (kW) *(for which the Bidder can submit its Bid)*
1.	Part-A	1 kW to 3 kW	5800	50	1500
2.	Part-B	Above 3 kW to 10 kW	2500	50	1000
3.	Part-C	Above 10 kW to100 kW	1500	100	750
4.	Part-D	Above 100 kW to 500 kW	1000	100	750
For open category Bidder			1200	Not applicable	Not applicable

The bids are invited from the prospective bidders for the Tendered capacity based on the Project Cost. In this part, bidders are to be required to quote the Project Cost for the capacity proposed by the bidder (*in between the minimum and maximum range*). CFA shall be provided to the successful bidders as per the provisions laid down in the MNRE scheme.

However, MNRE vide Office Memorandum **No. 318/331/2017- Grid Connected Rooftop Dated 19th February 2021** has kept a provision of minimum **10% of the total allocated capacity under the Tender to L1 bidder** and in the case L1 vendor does not execute the allocated capacity, as a penalty his/her bank guarantee will be encashed and he/she shall be blacklisted for 5 years from all Government Tenders.

2.3 Bids not in conformity with above provisions & sub-clauses of **Clause 2.2** will not be considered and shall be treated as nonresponsive/incomplete and will be summarily rejected by TANGEDCO/TEDA.

2.4 Further, Empanelled Vendors to whom letter of allocation have been issued will be allowed to submit single proposal for approval and issue of consent letter by TEDA/TANGEDCO for RTS installation, as under:

S. No.	Category	Minimum Capacity for Project sanction
1.	Part-A	
2.	Part-B	
3.	Part-C	
4.	Part-D	

Single consent letter will be issued for the minimum capacity submitted by the bidder for approval as per above.

2.5 Offer of the Vendors who will quote less than the minimum Tendered capacity in respective category will be treated as non-responsive and shall be summarily rejected. However, Offer of the Vendors who have quoted more than the maximum Tendered capacity in respective category will be limited to the maximum category wise Tendered capacity.

3.0 COMPONENTS/PACKAGE OF GRID CONNECTED ROOFTOP SOLAR PV SYSTEM:

3.1 The bidders shall quote price of the complete package essentially covering -"design, supply, erection, testing and commissioning including warranty and 05 years of comprehensive operation & maintenance of grid-connected rooftop solar PV plant. For the purpose of this Tender, the components of a Grid Connected Rooftop Solar PV System shall essentially comprise but not be limited to crystalline solar PV Panels/modules of required number, Inverters/PCU, module mounting structures of minimum 300mm ground clearance at the lowest point from the roof surface, total Cable/wiring up to 30 m/kW in length, cable conduits, required array junction boxes, DC distribution box, AC distribution box, various connectors, nut- bolts, civil and mechanical works, Protection-Earthing, lightning, surges, drawing &manual and other miscellaneous works. The price shall also be inclusive of all taxes, duties and transit insurance of all components as mentioned in the benchmark cost of MNRE. However, the price quoted by the bidders shall be exclusive of GST (Goods and Services Tax).

3.2 The empanelled vendor shall not be allowed to charge any extra amount other than the L-1 price for the package of Grid Connected Rooftop Solar PV system as indicated above. However, in case of any customization desired by the beneficiary/consumer, the vendor is allowed to charge extra amount to the beneficiary/consumer, on actual basis, subject to signing of a declaration in this regard in the format attached at Annexure-R.

4.0 INSTRUCTIONS TO THE BIDDERS

4.1 Bidders should not be blacklisted from any of the agency with direct or indirect control of Central Government Ministries/ Departments/ Public Sector Units (PSUs)/ Institutions, State Government Departments/ Organizations /Institutions etc.

4.2 Bidder should have valid PAN & GST Registration Numbers as per statutory requirement.

4.3 Bidder must meet the eligibility criteria independently as Bidding Company.

4.4 Bidder will be declared as a Qualified Bidder based on meeting the eligibility criteria (Technical and Financial) and as demonstrated based on documentary evidence submitted by the Bidder during the bidding process.

4.5 Bidder will be declared as a Qualified Bidder based on meeting the conditions and as demonstrated based on documentary evidence submitted by the Bidder during the bidding process for the open category.

4.6 Consortium is not allowed in this Bidding Process.

4.7 Bids received without supporting documents for the various requirements mentioned in the tender document are liable to be rejected.

4.8 Bid documents shall be page numbered & bounded, failing which the bid will be summarily rejected. Any loose/unbounded documents or documents which are not page numbered will not be considered for scrutinizing purpose at any circumstances.

4.9 Bidder shall submit the self attested copies of PF Registration with PF Code Number and ESI Registration. This condition shall be applicable to the General Bidders and not applicable for Open category Bidders.

4.10 Bidder must submit valid test certificates of the components as per checklist provided on Annexure- E..Bids without valid test certificates will be rejected.

4.11 It shall be the sole responsibility of the bidders to regularly visit the TEDA/TANGEDCO/State tender website and SPIN portal for any amendment or update on the Tender process of project.

5.0 ELIGIBILITY CRITERIA

5.1 General Condition:

i) To meet the General Conditions of Eligibility Criteria, Bidders must have one of the following credentials:

Bidder should have one of the following:

The Bidder should be either a body incorporated in India under the Companies Act, 1956 or 2013 including any amendment thereto.

Or

The Bidders should be a **Limited Liability Partnership firm.**

Or

The Bidders should be a **Proprietor firm.**

ii) The Bidder should have valid PAN & GST registration certificate for General Bidder, however for MSMEs, Tamil Nadu GST Registration is mandatory.

5.2 TECHNICAL ELIGIBILITY CRITERIA:

i) *FOR GENERAL BIDDERS*:

Bidder should have designed, supplied, installed & commissioned, Grid connected Rooftop Solar Projects having aggregate capacity not less than 2000kW$_P$during the financial years 2018-19, 2019-2020 & 2020-21 (3 years), which should have been commissioned prior to the Techno-Commercial Bid Opening date. Bidder must have to submit ~~scanned~~ copy of the work order and latest performance certificate(s) (not prior to the one year from the last date of Bid Submission) on satisfactory functioning of the system from the Client/ Owner. Installation report/material procurement details/user list will not be considered as performance certificate.

ii) FOR OPEN CATEGORY (STATE REGISTERED MSMEs):

The Bidders who are local MSMEs and registered under the MSME Development Act, 2006 in the State of Tamil Nadu as per Section D, Division 35, Group 351 having NIC 5-digit code of 35105 (Electric power generation using solar energy) are **exempted from the technical eligibility requirements**.

The Bidder being a local MSME must submit a valid copy of the certificate of registration issued by an appropriate authority. This is applicable only for the registered MSMEs in the state of Tamilnadu.

5.3 FINANCIAL ELIGIBILITY CRITERIA:

i) FOR GENERAL BIDDERS:

The Bidders should have minimum Average Annual Turn Over or Net worth as indicated below to qualify under Financial Eligibility Criteria:

The Bidder should have an Annual Turnover or Net worth as indicated below:

A Bidder should cumulatively have an **Average Annual** Turnover in three audited years 2018-19, 2019-20 & 2020-21 should not be less than INR 5 Crore.

OR

A Bidder shall cumulatively have a minimum **Net worth** of Rs.1 Crore in three audited years 2018-19, 2019-20 & 2020-21. The computation of net worth shall be based on unconsolidated audited annual accounts of the company. Share premium can be included in the Net-worth calculation in case of listed companies in India only. **The formula of calculation of net-worth shall be as follows:**

Net-worth = (*Paid up share capital) + {(Free reserves – Share premium) +Share premium of listed companies)} - (Revaluation of reserves) - (Intangible assets) - (Miscellaneous expenditure to the extent not written off and carry forward losses).*

Bidders shall furnish documentary evidence as per the Format-7, duly certified by Authorized Signatory and the Statutory Auditor / Practicing Chattered Accountant of the Bidding Company in support of their financial capability.

ii) FOR OPEN CATEGORY (REGISTERED MSMEs in TAMIL NAU):

The Bidders who are local MSME and registered under the MSME Development Act, 2006 in Tamil Nadu as per Section D, Division 35, Group 351 having NIC 5-digit code of 35105 (Electric power generation using solar energy) are exempted from the financial eligibility requirements. The Bidder being a local MSME must submit a valid copy of the certificate of registration issued by an appropriate authority. This is applicable only for the registered MSMEs in the State of Tamil Nadu.

The bidders willing/eligible to apply under open category, as indicated above, shall not be allowed to quote price in the bid and can only get empanelled at L-1 rate discovered in the Tender. Such bidders will be allowed to implement rooftop solar projects subject to matching of L-1 price. The tendering authority reserves the right to allocate/sanction project capacities to such bidders in batches.

6.0 BID SUBMISSION BY THE BIDDER

6.1 The information and/or documents shall be submitted by the Bidder as per the formats specified in this document.

6.2. The Bidder shall furnish documentary evidence in support of meeting the Eligibility Criteria to the satisfaction of TEDA.

6.3. The Bidder should designate one person to represent the Bidder in its dealings with TEDA. The person should be authorized to perform all tasks including, but not limited to providing information, responding to enquires, signing of Bid etc. The Bidder should submit, along with Bid, a Power of Attorney in original (**as perFormat-6**), authorizing the signatory of the Bid

6.4. Strict adherence to the formats wherever specified, is required. Wherever, information has been sought in specified formats, the Bidder shall refrain from referring to brochures/pamphlets. Non-adherence to formats and/or submission of incomplete information may be a ground for declaring the Bid as non-responsive. Each format has to be duly signed and stamped by the authorized signatory of the Bidder.

7.0 BIDDING PROCESS:

7.1. The Bid in response to this Tender shall be submitted by the Bidders in the manner provided herein for each part. The Bid shall comprise the following:

7.1.1. General Bidders:

a) ***Envelope – 1***: Techno commercial Bid documents. The envelop shall contain:

i. Copy of PAN & GST Registration, however State GST Registration is mandatory for MSME Bidders,

ii. Certificate of incorporation (or)Scanned copy of MSME certificate under Renewable Energy sector.

iii. Technical Eligibility Criterion: ~~scanned~~ copy of the Work order and performance certificate from the Client/ Owner.

iv. Declaration on bidder's Letterhead for Non blacklisting from any Government Departments/ Public Sector Units (PSUs) / Distribution Companies etc.

v. Financial Eligibility Criterion: Copy of the audited profit and loss account &balance sheet certified by a Chartered Accountant and annual audited financial

statements shall be submitted towards meeting annual turnover Annual Turnover or Net worth criteria and also shall furnish Financial eligibility criterion declaration (**as per Format -7**).

vi. PF Registration with PF Code Number and ESI Registration documents

vii. Test certificates showing requisite quality standards as specified in the Tender.

viii. Covering letter as per **Format-1**.

ix. General Particulars as per **Format-2**.

x. Original copy of the EMD as per **Format -3**in the form of a Bank Guarantee/ DD. Check list as per **Format-5**. However, Bidder seeking exemption for EMD, are required to submit a **"EMD exemption"** Letter on non-judicial stamp of appropriate value.

xi. Self-Declaration, as per **Annexure-G**

xii. Acceptance of Tender terms and conditions including amendments & clarification on letter head of the bidder.

xiii. The blank Tender document in full should be printed, signed by the authorized person and stamped in all pages and should be submitted as a token of acceptance of the conditions.

b) ***Envelope – 2*** The sealed envelope shall contain:
Price Schedule as per the Price Bid FORMAT A of Section IV.

7.1.2. Open Category Bidders:

The Bid in response to this Tender shall be submitted by the Bidders in the manner provided herein. The Bid shall comprise the following:

a) ***Envelope – 1***: Techno commercial Bid documents. The envelop shall contain:

i. Copy of PAN & GST Registration, however State GST Registration is mandatory.

ii. Scanned copy of MSME certificate under Renewable Energy sector.

iii. Declaration on bidder's Letterhead for Non blacklisting from any Government Departments/ Public Sector Units (PSUs) / Distribution Companies etc.

iv. Test certificates showing requisite quality standards as specified in the Tender.

v. Covering letter as per **Format-1**.

vi. General Particulars as per **Format-2**.

vii. Original copy of the EMD as per **Format -3** in the form of a ~~Bank Guarantee~~/ DD. Check list as per **Format-5**. However, Bidder seeking exemption for EMD, are required to submit a **"EMD exemption"** Letter on non-judicial stamp of appropriate value.

viii. Self-Declaration, as per **Annexure-G**

ix. Acceptance of Tender terms and conditions including amendments &clarification on letter head of the bidder.

x. The blank Tender document in full should be printed, signed by the authorized person and stamped in all pages and should be submitted as a token of acceptance of the conditions.

b) ***Envelope – 2*** : Not applicable

7.2. Method of Bid Submission

7.2.1. General Bidders:

i. Bidders shall submit a Bid consisting of two (2) envelopes (i) the Techno-Commercial Bid as described in Clause 7.1.1 (a) of Section I and (ii) the Price Bid as described in Clause 7.1.1 (b) of Section I. The Techno-Commercial Bid shall be opened first and a determination of responsiveness check of the Techno-Commercial Bid shall be made in accordance with Clause 1.2 of Section II. TEDA shall open the Price Bids of the Eligibility Bidders only and determine their responsiveness in accordance with Clause 3.0 of Section II in order to identify the Eligible Bidders.

ii. The two envelopes shall be kept in a single outer envelope. The outer envelope and the two inner envelopes should be superscribed as "Rate Contract Tender for Empanelment of vendors for Implementation of Grid connected Rooftop Solar PV System for CAPEX PART .....& .....kW capacity" along with the details of Tender No, "Bid Due Date and Time" on the envelope.

iii. Additionally the two inner envelopes must be labelled as respectively "*Envelope 1 (Techno commercial Bid)*", "*Envelope 2 (Price Bid*)".

iv. TEDA shall not be responsible for premature opening of the Price Bids in case of non-compliance of above.

7.2.2. Open category:

i. Bidders shall submit a Bid in one envelope (i) the Techno-Commercial Bid as described in Clause 7.1.2 (a) of Section I. The Techno-Commercial Bid shall be opened first and a determination of responsiveness check of the Techno-Commercial Bid shall be made in accordance with Clause 1.2 of Section II. .

ii. A envelope shall be kept in a single outer envelope. The outer envelope and the inner envelope should be superscribed as "Rate Contract Tender for Empanelment of Vendors for Implementation of Grid connected Rooftop Solar PV System for CAPEX under Open category" along with the details of Tender No, "Bid Due Date and Time" on the envelope.

iii. The inner envelope must be labelled as respectively "Envelope 1 (Techno commercial Bid)".

7.3. The Bidders should submit Bid either by registered post; or speed post; or courier; or by hand delivery, so as to reach TEDA office by the Bid Deadline. Documents submitted by telex/telegram/fax/e-mail shall not be considered under any circumstances. TEDA shall not be responsible for any delay in receipt of the Bid. Any Bid received after the Bid Deadline shall be returned unopened.

7.4. It should be noted that except in FORMAT- A of Section IV, no other envelope shall contain any information/document relating to the Price Bid. TEDA shall not be responsible for premature opening of the Price Bids in case of non-compliance of the above.

7.5. All pages of the Bid, except for the EMD, and any other document executed on non-judicial stamp paper, forming part of the Bid and corrections in the Bid, if any, must be signed by the authorized signatory on behalf of the Bidder. It is clarified that the same authorized signatory shall sign all pages of the Bid. However, any published document submitted with the Bid shall be signed by the authorized signatory at least on the first and last page of such document. Bidders shall submit the Bid in original, duly signed by their authorized signatory of the Bidder. No change or supplementary information to a Bid will be accepted after the Bid Due Date and Time, unless the same is requested for by TEDA.

7.6. If any one or more of the envelopes is/are not closed/sealed and not super scribed / labelled as per the specified requirements, TEDA will assume no responsibility for the Bid's misplacement or premature opening.

7.7. All the envelopes shall be sealed properly and shall indicate the name and address of the Bidder. The Bid must be complete in all respects and should contain requisite certificates, documents, informative literature etc. as required in the Bid document. Each page of the Bid document should be signed and stamped. Bids with any type of change or modification in any of the terms/ conditions of this document shall be rejected. If necessary, additional papers may be attached by the Bidder to furnish/ submit the required information. Any term / condition proposed by the Bidder in his Bid which is not in accordance with the terms and conditions of the Tender document or any financial conditions etc. mentioned in the Price Bid shall be considered as a conditional Bid and will make the Bid invalid.

7.8. Bid Due Date and Time

The Bidder should submit the Bid so as to reach the office of TEDA, 5thFloor, EVK Sampath Maaligai, No.68, College Road, Chennai 600006, Tamil Nadu, India, before 15.00 (IST) on 11.05.2022

7.9. Validity of Bid

7.9.1. The bid and the Price Schedule included shall remain valid for the validity of MNRE sanction i.e. 15 months or timeline specified in the work order, whichever is earlier. The bidder shall have no right to withdraw, revoke or cancel his offer or unilaterally vary the offer submitted or any terms thereof during the entire process. In case of the bidder revoking or cancelling his offer or varying any term & conditions in regard thereof or not accepting letter of allocation, TEDA/TANGEDCO shall forfeit the furnished EMD. Confirmation regarding the Bid offer validity shall be clearly mentioned in the covering letter.

7.9.2. In exceptional circumstances when letter of allocation is not issued, TEDA/TANGEDCO may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. The validity of submitted EMD as per Clause 7.11 of Section I shall also be suitably extended. A Bidder may refuse the request without forfeiting its EMD. A Bidder granting the request will neither be required nor permitted to modify the articulated terms and conditions in any manner.

7.10. Cost of Bidding

The bidder shall bear all the costs associated with the preparation and submission of their offer, and the implementing agency will not be responsible or liable for those costs, under any conditions. The Bidder shall not be entitled to claim any costs, charges and expenses of and incidental to, or incurred by him, through or in connection with submission of bid even though TEDA/TANGEDCO may elect to modify/withdraw the invitation of Bid.

7.11. Bid Security/Earnest Money Deposit (EMD)

The Bidder shall furnish Interest free EMD in the form of Bank Guarantee (BG)/ Demand Draft drawn in favour of “Tamil Nadu Energy Development Agency”, payable at Chennai. The validity of EMD shall be for a period of one year from the Bid Deadline. EMD shall be submitted separately for each part. The EMD of unsuccessful bidders shall be returned within 30 days from the date of issue of List of Empanelled Vendors. EMD of Empanelled Vendor shall be released after the receipt of PBG in the format prescribed by TEDA/TANGEDCO and after the receipt of confirmation of their PBG’s from their respective banker. The formula applicable to calculate the EMD amount under different parts will be:

EMD amount = INR 450 X Bid Capacity in kW.

Bidders registered with MSME registered under Renewable Energy sector shall be exempted from the deposition of EMD in all parts. Bidders seeking exemption should enclose a photocopy of valid registration certificate and EMD undertaking.

The EMD shall be denominated in Indian Rupees and shall:

i. At the Bidder's option, be in the form of either a Bank Guarantee / Demand Draft from a List of banks as given in Annexure-B.

ii. Be submitted in its original form, copies will not be accepted, and remain valid for a minimum period of 12 months from the date of Techno Commercial bid opening, or beyond any period of extension subsequently requested under Clause 7.9 of Section I.

iii. State MSMEs are exempted from submission of EMD for which the bidders will be required to submit a "EMD exemption" on non-judicial stamp paper of appropriate value as given in Format -8. However, MSMEs are required to submit a "Bid Security Declaration Letter" on non-judicial stamp paper of appropriate value as given in **Annexure-V**.

iv. Empanelled Vendors shall sign and stamp the Letter of Allocation (LoA) and return the signed & stamped duplicate copy of the same to the address of TEDA within 30 days from the date of its issue.

v. EMD shall be forfeited without prejudice to the Bidder being liable for any further consequential loss or damage incurred to the plant under following circumstances:

a. Hundred percent (100%) of EMD amount of the proposed capacity, if a Bidder withdraws/revokes or cancels or unilaterally varies their bid in any manner during the period of Bid Validity specified in the Tender document and in accordance with the Clause 7.9 of Section-I.

b. Hundred percent (100%) of EMD amount of the proposed capacity, if the Empanelled Vendor fails to unconditionally accept the Letter of Intent (LoI)/LOA/Work Order, whoever is issued first, within 15 days from the date of its issue.

c. Hundred percent (100%) of EMD amount of the proposed capacity, if the Empanelled Vendor fails to furnish the "Performance Bank Guarantee" within 30 days of issuance of Letter of Intent (LoI)/LOA/Work order, whichever is issued first.

7.12. PERFORMANCE BANK GUARANTEE (PBG)

Performance Bank Guarantee:

The bidder has to submit the PBG in the following manner:

Performance Bank Guarantee for Installation and Commissioning (I&C): The bidder shall furnish the performance bank guarantee for installation and commissioning based on the allocated capacity.

PBG amount = INR [Insert the Amount (cost discovered)] Lakhs X 3 % X Allocated Capacity in kW.

The PBG shall be submitted within 30 days from the date of issue of LOI/LOA/Work Order, whichever is issues first, and be valid for 15 months. Bidders should submit Single PBG based on the allocated capacity in each category. The Performance Bank Guarantee shall be released after completion of the empanelment period with the compliance of entire obligations in the contract.

Further, any delay in submission of PBG for I&C period beyond 60 days, TEDA/TANGEDCO at its

sole discretion may cancel the allocated capacity and forfeit 100% of EMD. Such Vendors (who have not submitted PBG) shall be debarred from participating in TEDA/TANGEDCO *i*s future Tenders for a period as decided by Competent Authority. Part PBG shall not be accepted.

Performance Bank Guarantee for Operation and Maintenance:

The bidder shall furnish the performance bank guarantee for O&M based on the installed capacity.

PBG amount = INR [*Insert the Amount (cost discovered)*] Lakhs X 3% X Installed **Capacity in MW.**

The PBG shall be submitted within 30 days from the end of the empanelment period and be valid for 05 year + 3 months. Bidders should submit Single PBG based on the installed capacity in each category. The Performance Bank Guarantee shall be released after completion of the O&M period with the compliance of entire obligations in the contract.

Further, any delay in submission of PBG for O&M period beyond 60 days, TEDA/TANGEDCO at its sole discretion may forfeit 100% of PBG for the I&C period. Such Vendors (who have not submitted PBG) shall be debarred from participating in TEDA/TANGEDCO is future tenders for a period as decided by Competent Authority. Part PBG shall not be accepted.

The Performance Bank Guarantee shall be denominated in Indian Rupees and shall be in the following forms: Bank guarantee from the List of banks as given in **Annexure-B.**

The PBG shall be forfeited as follows without prejudice to the Bidder being liable for any further consequential loss or damage incurred to the Plant.

i. If the Empanelled Vendor is not able to commission the projects to the satisfaction of TEDA/TANGEDCO, PBG (for I&C period) amount on pro-rata basis by the empanelled vendor shall be 100% encashed.

ii. In all the above cases corresponding unidentified/non-commissioned capacity shall stand cancelled.

iii. If the empanelled vendor is unable to submit the PBG (for O&M period), the PBG (for I&C period) shall be encashed.

7.13. OPENING OF BIDS

Bids shall be opened at *3.15 hrs*] on 11.05.2022 at the office of TEDA, in the presence of one representative from each of the Bidders who wish to be present.

The bidders are required to submit the Bid in a Sealed Envelope as per clause 7.2 of Section I above, failing which the Technical bids will be considered as non-responsive.

General Bidders: Name of the Bidder and capacity offered for in Part-A, Part B, Part-C & part D shall be read out to all the Bidders at the time of opening of **Envelope-I** for each part.

For open category: List of the Bidders participated under this category shall be read out to all the Bidders.

7.14. Right to withdraw the Tender and to reject any Bid:

7.14.1. This Tender may be withdrawn or cancelled by TEDA/TANGEDCO at any time without assigning any reasons thereof. The TEDA/TANGEDCO further reserves the right, at its complete discretion, to reject any or all of the Bids without assigning any reasons whatsoever and without incurring any liability on any account.

7.14.2. The TEDA/TANGEDCO reserve the right to interpret the Bid submitted by the Bidder in accordance with the provisions of the Tender and make its own judgment

regarding the interpretation of the same. In this regard the TEDA/TANGEDCO shall have no liability towards any Bidder and no Bidder shall have any recourse to the TEDA/TANGEDCO with respect to the selection process. TEDA/TANGEDCO shall evaluate the Bids with reference to the terms and conditions of this Tender, at its sole discretion. TEDA/TANGEDCO decision in this regard shall be final and binding on the Bidders.

7.14.3. TEDA/TANGEDCO reserves its right to vary, modify, revise, amend or change any of the terms and conditions of the Bid before submission. The decision regarding acceptance of bid by TEDA/TANGEDCO will be full and final.

7.15. ZERO DEVIATION

This is a ZERO Deviation Bidding Process. Bidder is to ensure compliance of all provisions of the Bid Document and submit their Bid accordingly. Tenders with any deviation to the bid conditions shall be liable for rejection.

7.16. EXAMINATION OF BID DOCUMENT

7.16.1. The Bidder is required to carefully examine the Technical Specification, Terms and Conditions of Contract, and other details relating to supplies as given in the Bid Document.

7.16.2. The Bidder shall be deemed to have examined the bid document including the agreement/ contract, to have obtained information on all matters whatsoever that might affect to execute the project activity and to have satisfied himself as to the adequacy of their bids. The bidder shall be deemed to have known the scope, nature and magnitude of the supplies and the requirements of material and labour involved etc. and as to all supplies, he has to complete in accordance with the Bid document.

7.16.3. Bidder is advised to submit the bid on the basis of conditions stipulated in the Bid Document. Bidder's standard terms and conditions if any will not be considered. The cancellation / alteration / amendment / modification in Bid documents shall not be accepted by TEDA/TANGEDCO.

7.16.4. Bid not submitted as per the instructions to bidders is liable to be rejected. Bid shall confirm in all respects with requirements and conditions referred in this bid document.

8.0 CLARIFICATIONS AND PRE-BID MEETING

8.1 The TEDA will not enter into any correspondence with the Bidders, except to furnish clarifications on Tender Documents, if necessary.

8.2 The Bidders may seek clarifications or suggest amendments to the Tender in writing, through a letter or by email to reach TEDA at the address, date and time mentioned in Bid information sheet. However, any amendment in the Tender shall be at the sole discretion of the Tendering authority and in accordance with the MNRE scheme.

8.3 The Bidder(s) or their authorized representative(s) is /are invited to attend pre-bid meeting(s), which will take place on 28.04.2022 @ 3.00 hrs as specified in Bid information sheet, or any such other date as notified by TEDA *on its portal/website*.

8.4 The purpose of the pre-bid meeting will be to clarify any issues regarding the Tender including in particular, issues raised in writing and submitted by the Bidders.

8.5 TEDA is not under any obligation to entertain/ respond to suggestions made or to incorporate modifications sought for.

9.0 AMENDMENTS TO THE BID DOCUMENT

9.1 At any time prior to the Bid Due Date and Time, the TEDA may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Tender document by issuing clarification(s) and/or amendment(s). However, any amendment in the RFP shall be at the sole discretion of the tendering authority and in accordance with the MNRE scheme.

9.2 The clarification(s)/ amendment(s) (if any) shall be notified on website and no separate communication in this regard would be sent to the bidders. If any amendment is required to be notified within two (2) days of the proposed date of submission of the Bid, the Bid Due Date and Time may be extended for a suitable period of time.

9.3 TEDA will not bear any responsibility or liability arising out of non-receipt of the information regarding Tender amendments in time or otherwise. Bidders must check the TEDA website for any such amendment before submitting their Bid.

9.4 In case an amendment is notified after submission of the Bid and prior to the opening of the Eligibility Bids, Bids received by TEDA shall be returned to the concerned Bidders in person on their request and it will be for the Bidders to submit fresh Bids on or before the date notified by the TEDA for the purpose.

9.5 All the notices related to RFP, which are required to be publicized shall be uploaded on Government tender portal and website of *TEDA.*

B: CONDITIONS OF CONTRACT

1.0 SCOPE OF WORK

1.1 The Bidders shall be obliged to complete the Work as per the articulated detailed Scope of work under Clause No. 1 and in accordance with the package of Grid Connected Rooftop Solar PV project defined above.

2.0 PROJECT COST

2.1 The Project cost shall include all the costs related to above Scope of Work. Bidder shall quote for the entire facilities on a “single responsibility” basis such that the total Bid Price covers all the obligations mentioned in the Bidding Documents in respect of Design, Supply, Erection, Testing and Commissioning including Warranty, Operation & Maintenance (for a period of 5 years), goods and services including spares required if any during O&M period. The Bidder has to take all permits, approvals and licenses, insurance etc., provide training and such other items and services required to complete the scope of work as mentioned above.

2.2 The Project cost is on lump sum turnkey basis and the bidder is responsible for the entire scope of work as per Tender.

2.3 The Project cost shall remain firm and fixed and shall be binding on the Successful Bidder till completion of work for payment of CFA amount irrespective of his actual cost of execution of the project. No escalation will be granted on any reason whatsoever. The bidder shall not be entitled to claim any additional charges, even though it may be necessary to extend the completion period for any reasons whatsoever. The bidder shall entitle to claim any additional charges on mutual acceptance, if any customization requested by beneficiary.

2.4 The Project cost shall be inclusive of all duties, taxes and transit insurance etc. The prices quoted by the firm shall be complete in all respect and no price variation /adjustment shall be payable by TEDA/TANGEDCO. However, statutory variation of taxes and duties may be paid by the roof top owner.

2.5 Operation & Maintenance of Solar PV Power Plant would include wear, tear, overhauling, machine

breakdown, insurance, and replacement of defective modules, invertors / Power Conditioning Unit (PCU) spares, consumables & other parts for a period of 05 years projects.

2.6 The Project cost shall be specified in consent letter based on Empanelled Vendor's quote for each project. The project cost shall be in accordance with all terms, conditions, specifications and other conditions of the Contract as accepted by the TEDA/ TANGEDCOand incorporated into the consent letter.

2.7 The Bidder shall submit the Price Bid as per applicable **Format- A** (Section-IV) furnished in the Tender Documents.

3.0 INSURANCE

3.1 The Empanelled Vendor shall be responsible and take an Insurance Policy for all the materials to cover all risks and liabilities for supply and storage of materials at site, installation, testing and commissioning. However, this shall not include insurance of commissioned plant after handing over to the beneficiary.

3.2 Before commencement of work, the Empanelled Vendor shall also take insurance for Third Party Liability covering loss of human life, engineers and workmen and also covering the risks of damage to the third party/material/equipment/properties during execution of the Contract. The Empanelled Vendor will ensure that all its employees and representatives are covered by suitable insurance against any damage, loss, injury or death arising out of the execution of the work or in carrying out the Contract. Liquidation, Death, Bankruptcy etc., shall be the responsibility of bidder.

3.3 The bidder shall also take appropriate insurance during O&M period.

3.4 The Insurance covers as mentioned in clause No. 3.0 (Section- I of B) is mandatory and in case of any violation of not taking Insurance Cover may result in imposition of Penalty. Penalty shall be deducted from the Vendors claim for CFA as under and the CFA. The provision of penalty for not taking insurance is one time only, on repetition of the same, the sanctioned of the particular site will be waived-Off.

4.0 WARRANTEES AND GUARANTEES

The Empanelled Vendor shall provide warrantee covering the rectification of any and all defects in the design of equipment, materials and workmanship including spare parts for a period of 5 years from the date of commissioning for projects.

5.0 Penalty Provisions

5.1 Penalty will be imposed on bidder by TEDA/TANGEDCO if following conditions are encountered:

i. If L1 bidder fails to execute 10% of the total allocated capacity under this Tender, as a penalty his/her bank guarantee will be encashed, and he/she shall be blacklisted for 5 years from all government Tenders.
ii. If bidders demand for additional amount/remuneration against the installation of work on and above the discovered L1 rate for the identified package.
iii. If bidders are defaulting in submission of Bank Guarantee/Required Relevant Documents during the bidding/empanelment process.
iv. If bidders denied implementing projects in allocated districts/regions/clusters etc.
v. Non- performance of the RTS plant based on PR as mentioned in the clause No. 9 (Section- I of B).
vi. If bidders are failed to comply with DCR, ALMM and other mandatory requirements of Phase-II Guidelines and issued Amendments.
vii. Penalties may lead to the encashment of Partial/full Performance Bank Guarantee and subsequently debarring or blacklisting from the future State/Central Government Tender.

6.0 TYPE AND QUALITY OF MATERIALS AND WORKMANSHIP

6.1 The design, engineering, manufacture, supply, installation, testing and performance of the equipment shall be in accordance with latest appropriate IEC/ Indian Standards as detailed in the Section- III (Technical specifications) of the bid document.

6.2 The specifications of the components should meet the technical specifications mentioned in Section III.

6.3 Any supplies which have not been specifically mentioned in this Contract but which are necessary for the design, engineering, manufacture, supply & performance or completeness of the project shall be provided by the Bidder without any extra cost and within the time schedule for efficient and smooth operation and maintenance of the SPV plant.

7.0 OPERATION & MAINTENANCE (O&M) GUIDELINES TO BE MANDATORILY FOLLOWED BY BIDDERS

7.1 The bidder shall be responsible for all the required activities for successful operation and maintenance of the Rooftop Solar PV system for a period of 5 years from the date of commissioning of the plant.

7.2 Below mentioned guidelines, shall be followed for O&M practices, which is not limited to **Annexure-D.**

i. O&M of Solar Power Plant shall be compliant with grid requirements to achieve committed energy generation.

ii. Deputation of qualified and experienced engineer/ technicians till the O&M period at project site as & when required.

iii. Quarterly checks of the Modules, PCUs and BoS shall be carried out as a part of routine preventive and breakdown maintenance.

iv. Immediate replacement of defective Modules, Invertors/PCUs and other equipment as and when required.

v. Supply of all spares, consumables and fixtures as required. Such stock shall be maintained for all associated equipment and materials as per manufacturer/ supplier's recommendations.

vi. If negligence/ mal-operation on part of the Bidder's operator results in failure of equipment, such equipment should be repaired/ replaced by the Bidder free of cost.

vii. Co-ordination with Owner / TEDA/TANGEDCO / CEIG as per the requirement for Joint Metering Report (JMR). The person in charge present at site from bidder's side shall take a joint meter reading in the presence of rooftop owner as per billing cycle. Furnishing generation data each month to TEDA/TANGEDCO positively by 1st week of every month for the previous month. ***Failure to adhere may result in non-disbursal of CFA.***

7.3 A maintenance record register is to be maintained by the operator/technician/bidder with effect from Commissioning to record the generation, regular maintenance work carried out as well as any preventive and breakdown maintenance along with the date of maintenance, reasons for the breakdown, duration of the breakdown, steps taken to attend the breakdown, etc. Failure to adhere to above shall result in non-disbursal of CFA/ any other penal action subject to the decision of TEDA/TANGEDCO.

7.4 If any jobs covered in O&M Scope as per Tender are not carried out by the contractor/ Bidders during the O&M period, the designated Official shall take appropriate action as deemed fit. TEDA/ TANGEDCO reserves the right to make surprise checks/ inspection visits at its own or through authorized representative to verify the O&M activities being carried out by the Bidder. ***Failure to***

adhere to above guidelines will result in penal action including debarring from participation in next Tender.

7.5 The Bidders should have a service centre in each District. In case if it is not economically viable for an individual vendor then Group of vendors can establish service centre in each District. The Bidder shall provide address of service centre in O&M manual. A copy of the same shall also be provided to the TEDA/TANGEDCO shall establish a service centre in each District.

7.6 The bidder shall use the original parts in case of any fault in the PCU/Inverter during the AMC period of 5 years. In case the original part/parts are not available with the manufacturer of the PCU/Inverter (Based on certificate from the manufacturer), the bidder shall use the new parts of other standard brands available in the market or will use the repaired parts.

7.7 If Bidders are fail to comply with the O&M guidelines, it may lead to debar or blacklisting from the future State/Central Government Tender.

8.0 METERING AND GRID CONNECTIVITY

Metering and grid connectivity of the Solar Rooftop Plants under this scheme would be the responsibility of the Empanelled Vendor in accordance with the terms and conditions laid down in bid document and prevailing guidelines/regulation of TANGEDCO/TNERC/Central Electricity Authority (CEA) and issued amendments.

9.0 PLANT PERFORMANCE EVALUATION

The Empanelled Vendor shall be required to meet minimum guaranteed generation with Performance Ratio (PR) at the time of commissioning as per the radiation levels of the location during the O&M period. PR should be shown minimum of 75% at the time of inspection for initial commissioning acceptance to qualify for release of CFA. The PR will be measured at Inverter output level during peak radiation conditions.

10.0 PROGRESS REPORT

The bidder shall submit the monthly progress report to TEDA/TANGEDCO in Prescribed Performa during the period of installation. TEDA/TANGEDCO will have the right to depute its representatives to ascertain the progress of contract at the premises of works of the empanelled vendors.

11.0 Submission of Project Completion Report (PCR)

The Empanelled Vendor shall submit the Project Completion Report in (soft copy and signed copy) after commissioning of the project as per the Scope of Tender to TEDA/TANGEDCO as per the Format given in Annexure J. Non submission of the report shall be considered as “Breach of Contract” and shall attract punitive actions as per the relevant provisions of the Contract including non-release of CFA.

12.0 Submission of O&M Report (OMR)

The bidder shall submit the quarterly O&M Report mandatorily to TEDA/TANGEDCO as per the Format enclosed at **Annexure H**. Non submission of the report shall be considered as “Breach of Contract” and shall attract punitive actions as per the relevant provisions of the Contract including non-release of CFA.

13.0 INVOICE TO CONSUMER

The selected bidders shall raise the Tax invoice to the consumers after completion of the project as per the **Annexure I**. The tax invoice should contain all invocable items with the applicable tax as per GoI GST slabs. The net invoice amount shall not exceed per kW discovered rate.

14.0 CHANGE IN LAW

In the event a Change in Law results in any adverse financial loss/ gain to the Empanelled Vendor then, in order to ensure that the Empanelled Vendor is placed in the same f inancial position as it would have been had it not been for the occurrence of the Change in Law, the Empanelled Vendor/ TANGEDCO on behalf of residential consumer shall be entitled to compensation by the other party, as the case may be, subject to the condition that the quantum and mechanism of compensation payment shall be determined and shall be effective from such date as decided by the TEDA/TANGEDCO.

In these Guidelines, the term Change in Law shall refer to the occurrence of any of the following events after the last date of the bid submission, including (i) ***the enactment of any new law*****; or (ii)** ***an amendment, modification or repeal of an existing law*****; or (iii)** ***the requirement to obtain a new consent, permit or license;*** **or (iv)** ***any modification to the prevailing conditions prescribed for obtaining an consent, permit or license, not owing to any default of the empanelled vendor*****; or (v)** ***any change in the rates of any Taxes which have a direct effect on the Project*****.** However, Change in Law shall not include any change in taxes on corporate income or any change in any withholding tax on income or dividends.

The bidders are required to study carefully the conditions of the Tender document, the enclosed specifications and the relevant provision of the relevant BIS/IS/MNRE specifications wherever necessary before submitting the proposal. Technical particulars of the material offered must comply with the enclosed specifications and the relevant provisions of the BIS/IS/MNRE as far as possible.

Any changes in the constitution of the firm/company shall be notified forth with by the Empanelled Vendor in writing to the TEDA and such change shall not relieve the Tenderer from any liability under the contract.

Bidder will have to submit GST registration certificate number and GST clearance certificate from the competent authority concerned along with the proposal without which proposals may not be considered provided that the purchasing authority has reason to believe (to be recorded in writing) that the bidder has not been able to submit clearance certificate of GST on bona-fide grounds, the authority may consider the Tender asking the bidder to furnish the certificate later on but in any case before the execution of the agreement by the successful bidder.

The bidder shall sign on each page at the end in token of acceptance of all the terms and it would be attached with the proposal along with the declaration. He should also sign at the bottom of each of the pages of his Tender.

The authorisation for installing SPV system can be repudiated at any time by the TEDA/TANGEDCO if the systems are not supplied and installed to its satisfaction. The reasons for repudiation shall be recorded by the TEDA/TANGEDCO. In case of non-performance in any form and shape of the terms & conditions of the agreement Appropriate Authority, of the TEDA/TANGEDCO has power to cancel the authorisation pertaining to the supply and installation of systems.

If a bidder imposes conditions, which are in addition to/or in contravention with the conditions mentioned herein, his Tender is liable to be summarily rejected. In any case none of such conditions will be deemed to have been accepted unless specifically mentioned in the letter of authorisation issued by TEDA/TANGEDCO.

If any question is raised or issue arises between the consumer and Empanelled Vendor and matter is taken to a consumer court, the TEDA/TANGEDCO and the holding company shall not be responsible in any manner and shall not be made a party in it.

15.0 PROJECT INSPECTION

All project progress will be monitored by TEDA/TANGEDCO and the projects can be inspected for quality at any time during commissioning or after the completion of the project by officer(s) from MNRE and/or TEDA/TANGEDCO and/or any agency/ experts designated / authorized by MNRE and/or TEDA/TANGEDCO from time to time. TEDA/TANGEDCO shall depute a technical person from its office or from list of empanelled experts/ agencies updated from time to time for inspection, third party verification, monitoring of system installed to oversee the implementation as per required standards. The cost of inspection at the time of commissioning shall be borne by the implementing agency. However, if the project is not found to be installed in an appropriate manner, all arrangement for the next visit of the authorized representative of the implementing agency shall be made by the vendor. There shall be no separate charges/fees for the inspections. The inspection shall be broadly governed by the following mechanism:

15.1 After complete installation of the system, the Bidders shall immediately intimate to TEDA/TANGEDCO in writing for such inspections. The TEDA/TANGEDCO will complete the inspection of the PV system within 7days of the receipt of the intimation. Visual inspection shall be carried for 100% of SPV systems. All cost pertaining to this inspection shall be borne by the TEDA/TANGEDCO.

15.2 The material/installation found sub-standard or faulty is to be replaced by the bidder with new material as per the specifications. The systems shall be offered for inspection again after necessary rectification. Expenses for such re-inspection shall be borne by the Bidders. TEDA/TANGEDCO at its discretion may also pick up samples from the lot of systems being supplied by the vendor at random from the warehouse for quality check only. The samples picked up will be tested for acceptance test as decided by TEDA/TANGEDCO at MNRE/ Government approved laboratory in presence of representatives of supplier and TANGEDCO as per relevant IEC/IS/BIS specifications.

15.3 The test results will be binding on the suppliers and TEDA/TANGEDCO, in general will not allow re-sampling. If the material fails in any of the acceptance tests carried out, those components that fail the test shall be rejected, and the Bidder shall have to supply and install the new component as per the specifications. The loss of generation during such time when the system is taken away for testing shall be at the cost of the Bidder, who shall compensate the Beneficiary for such loss of generation as per the pro-rata PR as per Tender.

15.4 The Bidders will offer Solar PV Systems for inspection at their site/warehouse by MNRE or TEDA/TANGEDCO or its authorized quality inspection agency. MNRE/TEDA/TANGEDCO may carry out random testing/inspection of SPV systems at the site. However, all costs towards such inspection shall be borne by MNRE/TEDA/TANGEDCO.

15.5 TEDA/TANGEDCO reserves the right to inspect any number of SPV systems, at the addresses of the beneficiaries given by the Bidders. Pre-dispatch inspection of the components is not mandatory as 100% visual inspection is being carried out by the implementing agencies and declaration for DCR modules is being furnished by the bidder. However, pre-dispatch inspection may be carried out by the implementing agency at the works of OEM (Original Equipment Manufacturer), where SPV (Solar Photovoltaic) panels are being manufactured. Any cost towards pre-dispatch inspection shall be solely borne by the implementing agency. It shall be the utmost duty of the implementing agency that pre-dispatch inspection, if being done, shall not cause delay in implementation of the project and be a basis of extension request/complaints from the vendors of manufacturers.

16.0 Cost of inspection:

All the expenses related to inspection team like lodging, boarding, travelling, air tickets to be borne by the TEDA/TANGEDCO.

17.0 SETTLEMENT OF DISPUTE

17.1 All disputes and differences arising out of or under the contract including, however, without prejudice to the generality of the aforesaid, any question regarding the existence, validity or termination, in respect thereof, the parties at the first instance shall endeavour to resolve such dispute or differences amicably by mutual consultation.

17.2 If the parties fail to resolve, the disputes or differences amicably by mutual consent, within 45 days of its arising, the disputes or differences shall be referred to arbitration either party may refer the disputes or differences to arbitration as provided hereinafter, by giving notice in writing to the other party of its intention to refer the disputes or differences to arbitration and such arbitration proceedings shall commence with the receipt of the aforesaid notice by the other party. Any dispute in respect of which a notice of intention to refer the same to arbitration has been given in terms of subclause No. 20 (Section I of B), shall be finally settled by arbitration.

17.3 IN CASE THE CONTRACTOR IS A PUBLIC SECTOR ENTERPRISE OR A GOVERNMENT DEPARTMENT.

In case the Contractor is a Public Sector Enterprise or a Government Department, the dispute shall be referred by either party for Arbitration to the sole Arbitrator to be nominated by the Secretary (Energy Department), Tamil Nadu.

17.4 IN ALL OTHER CASES

In case the contractor is not a public sector enterprise or a Govt. Deptt. And in all other cases, any dispute referred to arbitration by a party shall be heard by an arbitration panel composed of three arbitrators, in accordance with the provisions as set forth below.

i. The TEDA/TANGEDCO and the Contractor shall each appoint one arbitrator, and these two arbitrators shall jointly appoint a third arbitrator, who shall chair the arbitration panel. If the two arbitrators do not succeed in appointing a third arbitrator within twenty (20) days after the latter of the two arbitrators has been appointed, the third arbitrator shall, at the request of either party, be appointed by the Appointing Authority for third arbitrator who shall be the Secretary (Energy Department) or Managing Director (TEDA) or Chairman and Managing Director (TANGEDCO), of Tamil Nadu.
ii. If one party fails to appoint its arbitrator within thirty-two (32) days after the other party has named its arbitrator, the party which has named an arbitrator may request the Appointing Authority to appoint the second arbitrator.
iii. If for any reason an arbitrator is unable to perform its function, the mandate of the Arbitrator shall terminate in accordance with the provisions of applicable laws and a substitute shall be appointed in the same manner as the original arbitrator.
iv. The venue of arbitration shall be chennai or a place of mutual consent. The provisions of Arbitration and Conciliation Act, 1996, as amended from time to time shall govern the Arbitration proceedings conducted in respect of the disputes and the differences arising out of or under the contract, except to the extent, otherwise agreed herein by the parties.
v. The decision of a majority of the arbitrators (or of the third arbitrator chairing the arbitration panel, if there is no such majority) shall be final and binding and shall be enforceable in any court of competent jurisdiction as decree of the court. The parties thereby waive any objections to or claims of immunity from such enforcement.
vi. The arbitrator(s) shall give honorarium as per the extant rules of the govt.

17.5 Notwithstanding any reference to the arbitration herein, the parties shall continue to perform their respective obligations under the agreement unless they otherwise agree.

17.6 Cost of arbitration shall be equally shared between the Parties.

18.0 FORCE MAJEURE

18.1 Notwithstanding the provisions of clauses contained in this Tender document; the contractor shall not be liable to forfeit (a) PBG for delay and (b) termination of contract; if he/she is unable to fulfil his obligation under this contract due to force majeure conditions.

18.2 For purpose of this clause, "Force Majeure" means an event beyond the control of the contractor and not involving the contractor's fault or negligence and not foreseeable, either in its so vereign or contractual capacity. Such events may include but are not restricted to Acts of God, wars or revolutions, fires, floods, epidemics, quarantine restrictions, curfew, Grid Problems/ shutdowns and fright embargoes etc. Whether a “Force majeure” situation exists or not, shall be decided by TEDA/TANGEDCO and this decision shall be final and binding on the contractor and all other concerned.

18.3 In the event that the contractor is not able to perform his obligations under this contract on account of force majeure, he will be relieved of his obligations during the force majeure period. In the event that such force majeure extends beyond Six (06) months, TEDA/TANGEDCO has the right to terminate the contract in which case, the PBG shall be refunded to the vendor.

18.4 If a force majeure situation arises, the contractor shall notify TEDA/TANGEDCO in writing promptly, not later than 14 days from the date such situation arises. The contractor shall notify TEDA/TANGEDCO not later than 3 days of cessation of force majeure conditions. After examining the cases, TEDA/TANGEDCO shall decide and grant suitable additional time for the completion of the work, if required.

19.0 LANGUAGE

All documents, drawings, instructions, design data, calculations, operation, maintenance and safety manuals, reports, labels and any other date shall be in English Language only. The contract agreement and all correspondence between the TEDA/TANGEDCO and the bidder shall be in English language. O&M manual and warranty card should be in English & local languages.

20.0 OTHER CONDITIONS

20.1 The Empanelled Vendor shall not transfer, assign or sublet the work under this contract or any substantial part thereof to any other party without the prior consent of TEDA/TANGEDCO in writing.

20.2 The Empanelled Vendor or its subcontractors shall not display the photographs of the work and not take advantage through publicity of the work without written permission of TEDA/TANGEDCO / consumer.

20.3 The Empanelled Vendor or its subcontractors shall not make any other use of any of the documents or information of this contract, except for the purposes of performing the contract.

20.4 TEDA/TANGEDCO will not be bound by any Power of Attorney granted/ issued by the Empanelled Vendor or its subcontractors or by any change in the composition of the firm made during or subsequent to the execution of the contract. However, recognition to such Power of Attorney and change (if any) may be given by TEDA/TANGEDCO after obtaining proper legal advice, the cost of which will be chargeable to the Empanelled Vendor concerned.

21.0 SUCCESSORS AND ASSIGNEES:

In case the TEDA/TANGEDCO or Empanelled Vendor may undergo any merger or amalgamation or a scheme of arrangement or similar re-organization & this contract is assigned to any entity(ies) partly or wholly, the contract shall be binding mutatis mutandis upon the successor entities & shall continue to remain valid with respect to obligation of the successor entities.

22.0 SEVERABILITY:

[

It is stated that each paragraph, clause, sub-clause, schedule or annexure of this contract shall be deemed severable & in the event of the unenforceability of any paragraph, clause, sub-clause, schedule or the remaining part of the paragraph, clause, sub-clause, schedule annexure & rest of the contract shall continue to be in full force & effect.

23.0 COUNTERPARTS:

This contract may be executed in one or more counterparts, each of which shall be deemed an original & all of which collectively shall be deemed one of the same instruments.

24.0 RIGHTS & REMEDIES UNDER THE CONTRACT ONLY FOR THE PARTIES

This contract is not intended & shall not be construed to confer on any person other than the TEDA/TANGEDCO & Empanelled Vendor hereto, any rights and / or remedies herein.

25.0 CORRESPONDENCE

Bidder requiring any Techno-Commercial clarification of the bid documents may contact in writing or by Fax /E Mail.

Name & Designation	Contact Number	Email id

verbal clarifications and information given by the TEDA/TANGEDCO or its employees or its Representatives shall not be in any way entertained.

TEDA/TANGEDCO role is limited to selection of vendors and disbursement of CFA after successful installation of the solar PV plant. The vendor will be solely responsible for plant performance and maintenance and any liability arising on this account shall lie solely with the vendors, provided the beneficiary has given proper access and facilitation to the vendor for regular O&M and there has not been alteration in solar irradiance due to alteration in building or its surrounding over which the vendor has no control.

SECTION – II

[Bid Evaluation Criteria and CFA Disbursement]

1.0 EVALUATION CRITERIA AND CFA DISBURSEMENT

1.1 BID EVALUATION AND CFA DISBURSEMENT

BID EVALUATION

The evaluation process comprises the following four steps:

Step I	Responsiveness check of Techno Commercial Bid
Step II	Evaluation of Bidder's fulfilment of Techno-Financial Eligibility Criteria as per Clause 5.0 of Section-I
Step III	Evaluation of Price Bid for all Techno-Commercial Qualified Bidders except Open category Bidder(s)
Step IV	Successful Bidders(s) selection /empanelment

1.2 RESPONSIVENESS CHECK OF TECHNO COMMERCIAL BID

The Techno-Commercial Bid submitted by Bidders shall be scrutinized to establish responsiveness to the requirements laid down in the Tender subject to **Clause 5.0 of Section-I**. Any of the following may cause the Bid to be considered "*Non-responsive*", at the sole discretion of TEDA:

i. Bids that are incomplete, i.e. Not accompanied by any of the applicable formats inter alia covering letter, EMD, "EMD exemption" on non-judicial stamp paper. etc.
ii. Bid not signed by authorized signatory and /or stamped in the manner indicated in this Tender.
iii. Material inconsistencies in the information /documents submitted by the Bidder, affecting the Eligibility Criteria.
iv. Bid without page numbered and bounded.
v. Bid without requisite Test Certificates.
vi. Information not submitted in the formats specified in this Tender.
vii. Bid being conditional in nature.
viii. Bid not received by the Bid Deadline.
ix. Bid having Conflict of Interest.
x. Bidder delaying in submission of additional information or clarifications sought by TEDA/TANGEDCOas applicable.
xi. Bidder makes any misrepresentation.

Each Bid shall be checked for compliance with the submission requirements set forth in this Tender before the evaluation of Bidder's fulfilment of Eligibility Criteria is taken up. Clause 5.0 of Section-I shall be used to check whether each Bidder meets the stipulated requirement.

1.3 PRELIMINARY EXAMINATION

- The TEDA/TANGEDCO will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed and stamped and whether the Bids are otherwise in order.
- Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total Amount that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total amount shall be corrected. If there is a discrepancy between words and figures, the amount written in words will prevail.

2.0 EVALUATION OF BIDDER'S FULFILMENT OF ELIGIBILITY CRITERIA

2.1 Evaluation of Bidder's Eligibility will be carried out based on the information furnished by the Bidder as per the prescribed Formats and related documentary evidence in support of meeting the Eligibility Criteria as specified in Clause 5.0 of Section-I. Non-availability of information and related documentary evidence for the satisfaction of Eligibility Criteria may cause the Bid non- responsive.

3.0 EVALUATION OF PRICE BID

Price Bid (s) of the Qualified Bidders shall be opened in presence of the representatives of such Qualified Bidders, who wish to be present, on a date as may be intimated by TEDA/TANGEDCO to the Bidders through TEDA/TANGEDCO: website www.teda.in or dgm2@teda.in, solar@teda.in The evaluation of Price Bid shall be carried out based on the information furnished in Financial Bid (Price Bid). The Price Bid submitted by the Bidders shall be scrutinized to ensure conformity with the Tender. Any Bid not meeting any of the requirements of this Tender may cause the Bid to be considered "**Non-responsive**" at the sole decision of the TEDA/TANGEDCO.

3.1 PART-A, PART-B, PART-C & Part-D:

The Price bids for the CAPEX **PART-A, PART-B, PART-C& Part-D** shall be evaluated separately and lowest quoted bidder in each category shall be declared as L1 and CFA will be determined on the basis of discovered rate and prevailing Benchmark Cost for that respective category, whichever is lower. The Project Cost shall be calculated up to two decimal places. However, in case of a tie, capacity shall be allocated to the bidder having **the maximum proposed capacity as per the covering letter.**

4.0 SUCCESSFUL BIDDER(S) SELECTION

i. Bids qualifying in Clause 5.0 of Section-I shall only be evaluated in this stage.

ii. Project Cost quoted in all Price Bids of Qualified Bidders shall be ranked from the lowest to the highest for PART-A, PART-B, PART-C & PART-D separately.

5.0 Allocation of Capacity and Empanelment of Vendors for CAPEX Part-A, Part-B, Part-C & Part D.

5.1 **PART-A, PART-B, PART-C & PART-D:** Based on the price bid quoted by the bidders, TEDA/TANGEDCO shall arrange the bids in the ascending order i.e. L1, L2, L3, _ _ _ (L1 being the lowest quote).

5.2 Lowest bidder will be declared as the L1 against each Part/Category. The L1 bidder's quoted capacity shall be allocated to the L1 successful bidder subject to the condition that it should not be less than 10% of aggregated capacity for respective part/category. On acceptance, capacity will be allocated to the L1 bidder. In case L-1 bidder did not accept the maximum bid capacity or 10% of L1 aggregated capacity for the respective part/category, then Submitted Bank Guarantee will be encashed, and L-1 bidder shall be blacklisted from all the Government Tenders for 5 Years.

5.3 The bids will be arranged in ascending order starting from L1, L2, L3.....The Approved Lowest Rate against each part/category will be the project cost and bidder will be allocated their quoted capacity as on the cover letter. The remaining bidders, i.e. L2, L3, L4……, will be given 7 Days time to submit the letter of acceptance of L1 Rate. The bidders, who provide their consent to work on L1 Rate, will be allocated their quoted capacity in the order of merit, till the entire capacity is exhausted. If quantity/capacity is left unallocated in any category, TEDA/TANGEDCO reserves the right to reallocate the left-over capacity to the bidders' subject to their consent and at the sole discretion of TEDA/TANGEDCO.

5.4 The selection process shall stand completed once the Tender Capacity has been achieved through the summation of the capacity offered by the Successful Bidders.

5.5 At any step during the selection of Successful Bidder(s) in accordance with the provision laid down in Tender, the TEDA/TANGEDCO reserves the right to increase/decrease the Tender Capacity of the capacity indicated to achieve the balance Tender Capacity and select the Successful Bidder with the lowest Project Cost/ lowest evaluated price amongst the remaining Bids.

5.6 The Letter(s) of Intent (LoI) shall be issued to all such Empanelled Vendors(s) selected as per the provisions laid down in Tender document.

5.7 Each Empanelled Vendor shall acknowledge the LoI and return duplicate copy with signature of the authorized signatory of the Empanelled Vendor to the TEDA/TANGEDCO within Fifteen (15) days of issue of LoI.

5.8 If the Empanelled Vendor, to whom the LoI has been issued does not fulfil any of the conditions specified in Bid document, the TEDA/TANGEDCO reserves the right to annul/cancel the award of the LoI of such Empanelled Vendor.

5.9 The vendors have to submit the Performance Bank Guarantee (PBG) of appropriate value as per Clause No. 7.12 of Section 1 (As per Format-4) along with submission of signed copy of LoI for further issuance of Letter of Allocation.

5.10 TEDA/TANGEDCO will allocate the tentative capacity (as initial allocation) in the LoA to the Open category Bidders. Based on that, the bidders have to submit the Performance Bank Guarantee (PGB) of appropriate value as per Clause No. 7.12 of Section 1 (As per Format-4). Allocation of capacity to the Empanelled Vendors under Open Category at the sole discretion of TEDA/TANGEDCO.

5.11 The TEDA/TANGEDCO at its own discretion, has the right to reject any or all the Bids without assigning any reason whatsoever, at its sole discretion.

5.12 **Duration of Empanelment**

The Successful Bidders shall be empanelled for one year or upto 24 Months from Date of MNRE Sanction 19.01.2022 whichever is earlier and TEDA/TANGEDCO shall be issued Letter of Allocation (LOA) indicating the allocated capacity & Project Cost etc.

5.13 The list of the empanelled bidder/firm will be circulated to the registered applicant and has to be uploaded on TEDA/TANGEDCO's Portal/Website.

6.0 INCREASE/DECREASE OF BIDDER ALLOCATED CAPACITY

6.1 TEDA/TANGEDCO reserves the right to increase/decrease the Bidder(s) Allocated Capacity at the sole discretion of TEDA/TANGEDCO.

6.2 In case capacity is enhanced by TEDA/TANGEDCO, Empanelled Vendor shall submit the equivalent amount of PBG to TEDA/TANGEDCO within 15 days from the date of issue of LoA, failing which sanctioned capacity shall stands cancelled.

7.0 TRANSFER OF CAPACITY

7.1 Capacity can be transferred from PART A, B, C& D or vice-versa, in such case lowest rate of that part shall be the reference price for capacity execution.

Note: TEDA/TANGEDCO reserves the right for diversion of capacity from one bidder/ category to another (including transfer of unallocated capacity to Open Category) for 100% utilization of tendered capacity. It is also the discretion of TEDA/TANGEDCO to increase/decrease/transfer the Empanelled Vendor allocated capacity on bidder's request.

8.0 NOTIFICATION TO SUCCESSFUL BIDDERS

The name and contact details of Empanelled Vendors shall be notified indicating the allocated capacity and the offered price on TEDA/TANGEDCO website and also shall be notified individually through letter of allocation.

9.0 PROJECT ALLOCATION AND SANCTION

9.1 The identification of the projects (roof tops) at the time of bidding is not mandatory. The Bidders, however, in their own interest are advised to make a preliminary survey of availability of roof tops for which they intend to Bid and as prescribed in the Tender, as well as issue of Grid connectivity, as non- availability of roof tops and non-completion of other formalities after allocation of project will result in forfeiture of EMD/PBG amount submitted by them.

9.2 The Successful Bidders shall be empanelled for timeline specified in the Work order or 15 months from Date of MNRE Sanction, whichever is earlier. TEDA/TANGEDCOshall be issued Letter of Allocation (LOA) indicating the allocated capacity & Project Cost etc.

9.3 For identification of projects, TEDA/TANGEDCO may provide help. However, the entire responsibility of finding the buildings lies with the Bidder.

9.4 Documentation like finalizing the Project report and entering into agreements with the buildings/rooftops owners lies with the Empanelled Vendor within the above-mentioned time frame even for the buildings/rooftops identified by TEDA/TANGEDCO for preferential installation.

9.5 After the Project Consent Documents have been submitted by the Empanelled Vendor/ Project Developer and accepted by TEDA/TANGEDCO will issue the Consent Letter(s) for the Project (s) indicating the CFA amount(s) which will be disbursed in line with the provisions of the Tender document. The Empanelled Vendor shall complete the design, engineering, manufacture, supply, storage, civil work, erection, testing & commissioning of each project 6 months from the date of issue of the Consent Letter.

9.6 If the Empanelled Vendor fails to commission the sanctioned project within specified time, no CFA will be disbursed by TEDA/TANGEDCO.

10.0 CFA DISBURSEMENT & PAYMENT CLAUSES:

10.1 For PART-A, Part-B, Part-C & Part-D

For CFA calculation, minimum of following two shall be considered:

i. Solar PV array capacity in KW
ii. Inverter Capacity in KW

The vendor shall be allowed to charge only balance of the project cost, excluding CFA amount, from the consumer. The proportion of admissible CFA shall be disbursed by TEDA/TANGEDCO to the empanelled vendor directly after successful commissioning of the project as per MNRE Operational Guidelines issued vide OM No. 318/ 331/2017- Grid Connected Rooftop Dated 20th August 2020 and their amendments. The admissible CFA would be 40% of the benchmark cost or Tender cost, whichever is lower, for capacity up to 3 kW. For project capacity above 3 kW and upto 10 kW, the admissible CFA would be 20% of project cost or the MNRE benchmark cost, whichever is lower. For CFA calculation, the project capacity would be decided based on PV array capacity or inverter capacity, whichever is lower. The consumers are allowed to install the capacity higher than 10 KW, however, the quantum of CFA would be limitedto 10 KW capacity

only. The maximum permissible limit for group housing societies would be up to 500 kW and the admissible CFA would be 20% of the benchmark cost or Tender cost, whichever is lower.

The net amount of project cost (i.e. project cost - CFA) shall be paid by the concerned roof top owner to any of the empanelled vendors as per the following methodology:

- 20% payment in advance after signing of agreement.
- 20% payment after installation of structure
- 20% payment after installation of SPV modules and inverters at site
- 20% payment after completing plant installation (including net-metering) and submission of written inspection request to the TEDA/TANGEDCO.
- Final 20% payment after commissioning of the plant and injection of power to the grid.

It shall be noted that beneficiary/customer shall be solely responsible for financial transaction with the vendor for the net of CFA (Total cost – Admissible CFA) amount. The beneficiary/customer are advised to thoroughly check the documents/claims of the vendors and shall make only online payments wherever required. TEDA/TANGEDCO in no way shall be responsible for disputes arising out of payments of agreements between vendor and the beneficiary.

10.2 The CFA as calculated under Clause No. 5 of Section-II for Parts under CAPEX Model will be released on submission of following documents-

- Joint Inspection Report (JIR) **as per Annexure-O**.
- Claim Letter as per the **Annexure - M**.
- Guarantee certificate on Letter Head of the Vendor.
- Geo-coordinates and photos of the site

10.3 The CFA shall be released by TEDA/TANGEDCO, only after receipt of the same from MNRE.

10.4 The CFA shall be released to the Vendor only after the completion and successful commissioning of the Project(s) as per terms & conditions vide Clause No. 10 of Section-II.

10.5 The whole or part of the CFA shall be recovered from the Vendor's PBG or future Payments (to be released), in case of violation of any Terms & Conditions of MNRE/TEDA/TANGEDCO.

11.0 OTHER CONDITIONS

Bidder has to obtain all the necessary approvals/Consents/Clearances required for Erection, Testing, Commissioning and O&M of the project including Grid connectivity. TEDA/TANGEDCO shall not have any responsibility in this regard.

12.0 EMD SUBMISSION:

EMD shall be submitted as per Bid Information Sheet and as per clause 7.11 of Section 1. However, MSMEs are exempted from submission of EMD and " EMD exemption" on non-judicial stamp paper.

13.0 TAX EXEMPTIONS:

Price bids are invited inclusive of Taxes and duties and exclusive of GST. However, Tax exemptions including certificates of any sort, if available may be dealt with the concerned Department of Govt. of India/ Govt. of Tamil Nadu by the bidder. TEDA/TANGEDCO in no case will be responsible for providing any tax exemptions to the bidder.

14.0 Eligibility of standalone system:

Standalone system is not allowed under this scheme. The system should be Grid-connected Rooftop Solar System.

15.0 Requirement of approvals on makes of the Components:

The Modules and Cells should be manufactured in India and should be complied with the prevailing Approved List of Models and Manufacturers of Solar Photovoltaic Modules (*Requirement for Compulsory Registration*) Order 2019 - Implementation issued vide OM NO. 283/54/2018-GRID SOLAR -Part (I) Dated 10th March 2021 and subsequent amendments Rest of the components can be procured from any source. However, these items should meet the Technical specification and standards mentioned in Tender. A reference bidders' Declaration format associated with Implementation of ALMM (**Annexure T)** order will also be required to be signed by the bidder as per the format provided vide MNRE OM No. 283/54/2018-GRID SOLAR - Part (I) Dated 2nd June 2021.

16.0 OPERATION OF THE SYSTEM DURING WEEKENDS AND GENERAL HOLIDAYS AND CALCULATION OF CUF

N/A

17.0 LIQUIDATED DAMAGES (LD) FOR DELAY IN PROJECT IMPLEMENTATION

17.1 TEDA/TANGEDCO will issue the consent letter(s) for the Project (s) indicating the CFA amount(s) which will be disbursed in line with the provisions of the Tender document. The Bidder shall complete Design, Engineering, Manufacture, Supply, storage, civil work, erection, testing & commissioning of each project within stipulated timeline. [date to be included] (Excluding any Extension any further extension), whichever is earlier.

17.2 If the bidder fails to commission the sanctioned project within specified time, the project will get cancelled and CFA will not be disbursed by TEDA/TANGEDCO.

18.0 TIME OF COMPLETION OF SANCTIONED CAPACITY

18.1 The Empanelled Vendor shall complete the roofs identification, submission of project sanction documents as per the requirement of TEDA/TANGEDCO, Design, Engineering, Manufacture, Supply, storage, civil work, erection, testing & commissioning of each project within 6 months from the date of issue of consent letter.

18.2 The period of execution given in time schedule includes the time required for mobilization as well as testing, rectifications if any, re-testing and completion in all respects to the entire satisfaction of the Engineer-in- Charge.

19.0 UPDATING THE PROJECT PROGRESS ON MONTHLY BASIS

Empanelled Vendor's authorized representative, in whose name power of attorney has been executed and submitted along with the bid, shall update the project progress on biweekly basis in the consent letter. Empanelled Vendor should update the info as per the requirement. Non-updating of the progress shall be considered as no progress and shall attract punitive actions as per the relevant provision of the Contract. However, the decision of Engineer-in - charge shall be final in this regard.

20.0 INSPECTION AND AUDIT BY THE GOVERNMENT

The Empanelled vendor shall permit the TEDA/TANGEDCOto inspect the site, accounts and records relating to the performance and to have them audited by auditors appointed by the TEDA/TANGEDCO, if so required by the TEDA/TANGEDCO any time.

21.0 COMMISSIONING/COMPLETION CERTIFICATE:

Application for completion/commissioning certificate:

When the Empanelled Vendor fulfils his obligation under the Contract, he shall be eligible to apply for Completion/Commissioning Certificate. The Engineer- in-Charge shall normally issue the Completion Certificate to the Empanelled Vendor within one month after receiving any application therefore from the Empanelled Vendor after verifying from the completion documents and satisfying himself that the work has been completed in accordance with and as set out in Contract documents. The Empanelled Vendor, after obtaining the Completion Certificate, is eligible to avail the CFA as per the Clause No. 10 of Section-II.

22.0 DOCUMENT SUBMISSION FOR ISSUE OF COMMISSIONING/ COMPLETION CERTIFICATE:

For the purpose of Clause No. 21 of Section-II the following documents will be deemed to form the completion documents:

i. Checklist for inspection of Roof top power plants as per TEDA/TANGEDCO format.
ii. Project completion/satisfaction certificate from roof top owner's/project developers.

23.0 DEDUCTIONS FROM THE CONTRACT PRICE:

23.1 All costs, damages or expenses which TEDA/TANGEDCO may have paid or incurred, which under the provisions of the Contract, the Empanelled Vendor is liable/will be liable, will be claimed by the TEDA/TANGEDCO. All such claims shall be billed by the TEDA/TANGEDCO to the Contractor within 15 (fifteen) days of the receipt of the payment request and if not paid by the Empanelled Vendor within the said period, the TEDA/TANGEDCO may, then, deduct the amount from any moneys due i.e., PBG or becoming due to the contractor or Empanelled Vendor under the contract or may be recovered by actions of law or otherwise, if the Empanelled Vendor fails to satisfy the TEDA/TANGEDCO of such claims.

24.0 CORRUPT OR FRAUDULENT PRACTICES

The TEDA/TANGEDCO requires that Empanelled Vendors/ Contractors should follow the highest standard of ethics during the execution of contract. In pursuance of this policy, the TEDA/TANGEDCO defines, for the purposes of this provision, the terms set forth as follows:

24.1 "**corrupt practice**" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the bid process or in contract execution; and

24.2 **"fraudulent practice"** means a misrepresentation of facts in order to influence a bid process or the execution of a contract to the detriment of the TEDA/TANGEDCO / Govt scheme, 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 them of the benefits of free and open competition;

24.3 A firm will be declared ineligible/debarred, either indefinitely or for a specific period of time, a GOVT contract if at any time it is found that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a Government/ TEDA/TANGEDCOschemes.

25.0 DEBARRED FROM PARTICIPATING IN TEDA/TANGEDCO'S Tender

25.1 TEDA/TANGEDCO reserves the right to carry out the performance review of each Bidder from the time of submission of Bid onwards. In case it is observed that a bidder has not fulfilled its obligations in meeting the various timelines envisaged, in addition to the other provisions of the Tender, such Bidders may be debarred from participating in TEDA/TANGEDCO's any future Tender for a period as decided by TEDA/TANGEDCO.

SECTION – III

TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

1.0 Introduction:

In grid-tied Solar Photo-Voltaic (SPV) systems, solar energy is fed into the building loads that are connected to the public electricity grid through a service connection with surplus energy being fed into the grid and shortfall being drawn from the grid. Production of surplus energy may happen when solar energy produced exceeds building load energy demand. This surplus is fed into the grid. During the night, or when during the day energy demand in the building exceeds solar energy production, energy is drawn from the grid. Grid-tied solar PV systems have no battery storage and will not work during grid failure. For buildings with grid-tied solar PV systems, the service connection meter needs to be of the bidirectional type, whereby import KWh and export KWh are separately recorded.

The proposed projects shall be commissioned as per the technical specifications given below. Any shortcomings will lead to cancelation of CFA in full or part as decided by TEDA/TANGEDCO. Domestic Modules are to be used failing which it will be assumed that system is not matching the requirement of the scheme and bidder's PBG shall be forfeited. Competent Authority's decision will be final and binding on the bidder.

2.0 Quality and Workmanship:

Solar PV modules are designed to last 25 years or more. It is therefore essential that all system components and parts, including the mounting structures, cables, junction boxes, distribution boxes and other parts also have a life cycle of at least 25 years. Therefore all works shall be undertaken with the highest levels of quality and workmanship. During inspection, TEDA/TANGEDCO and its representatives will pay special attention to neatness of work execution and conformity with quality and safety norms. Non compliant works will have to be redone at the cost of the Installer.

3.0 System configuration:

Name of the Beneficiary	Domestic Consumers
System capacity	Upto 500 kW
Total Power output of panel(s) under STC	should not be less than the respective capacities mentioned above
Type of PV Module	Indigenous Crystalline module
Minimum rated power of each module	Not less than 300Wp
Solar Grid Inverter minimum KVA	Minimum KVA is as per the respective required capacity

4.0 Specifications of Solar PV Modules

Solar PV modules should be of the crystalline silicon type, manufactured in India. Detailed specifications of the solar PV modules are given below:

Type	Crystalline Silicon
Origin	Manufactured in India
Efficiency	>=16%
Rated power Tolerance	+3%
Fill factor	>=75%
warranty	All PV modules should carry a performance warranty of >90% during the first 10 years, and >80% during the next 15 years. Further, module shall have performance warranty of >97% during the first year of installation–degradation of the module below 1 % per annum. • 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 five (05) years from the date of commissioning: • Defects and/or failures due to manufacturing. • Defects and/or failures due to quality of materials. • Nonconformity 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 Owners sole option.
Module frame	Non-corrosive and electrolytically compatible with the mounting structure material
Termination box	The PV modules shall be equipped with IP 65 or better protection level junction box with required numbers of bypass diodes of appropriate rating and appropriately sized output power cable of symmetric length with MC4 or equivalent solar connectors. The IP level for protection may be chosen based on following conditions: An IP 65 rated enclosure is suitable for most outdoor enclosures that won't encounter extreme weather such as flooding.
Blocking diodes	Schottky type
Module minimum rated power	The nominal power of a single PV module shall not be less than 300Wp.
RF Identification tag for each solar module &RF Identification tag data	1.1. Modules deployed must use a RF identification tag laminated inside the glass. The following information must be mentioned in

	the RFID used on each module: i. Name of the manufacturer of the PV module ii. Name of the manufacturer of Solar Cells. iii. Month & year of the manufacture (separate for solar cells and modules) iv. Country of origin (separately for solar cells and module) v. I-V curve for the module Wattage, Im, Vm and FF for the module vi. Unique Serial No and Model No of the module vii. Date and year of obtaining IEC PV module qualification certificate. viii. Name of the test lab issuing IEC certificate. ix. Other relevant information on traceability of solar cells and module as per ISO 9001 and ISO 14001. x. Nominal wattage +3%. xi. Brand Name, if applicable.
Power output rating	To be given for standard test conditions (STC). I-V curve of the sample module shall be submitted.
Compliance with standards and codes	IEC61215 and IS14286. IEC 61853-1:2011/ IS16170-1. IEC 62716. IEC61730-1,2. IEC 62804.(PID)
Salt Mist Corrosion Testing	As per IEC 61701
	• The peak-power point current of any supplied module string (series connected modules) shall not vary by +1% from the respective arithmetic means for all modules and/or for all module strings (connected to the same MPPT), as the case may be. • The peak-power point voltage of any supplied module string (series connected modules) shall not vary by + 2% from the respective arithmetic means for all modules and/or for all module strings (connected to the same MPPT), as the case may be. • The temperature co-efficient power of the PV module shall be equal to or better than -0.45%/°C.

	• PV modules must be tested and approved by one of the NABL accredited and BIS approved test centers.
Other details as per IS/IEC 61730-1 clause 11 should be provided at appropriate place. In addition to the above, the following information should also be provided: i. The actual Power Output Pmax shall be mentioned on the label pasted on the back side of PV Module. ii. The Maximum system voltage for which the module is suitable to be provided on the back sheet of the module. iii. Polarity of terminals or leads (colour coding is permissible) on junction Box housing near cable entry or cable and connector.	
Unique Serial No, Model No, Name of Manufacturer, Manufacturing year, Make in India logo and module wattage details should be displayed inside the laminated glass.	

5.0 Solar PV Mounting Structure

The PV modules shall be mounted on fixed metallic structures having adequate strength andasper specifications given below which can withstand the load of the modules and high wind velocities. The array structure will be made of hot dip galvanized Iron hot dip galvanized mild steel and Aluminium . MS will be prepared for raised structure. MS angles of size not less than 50mm x 50mm x 6mm size / Aluminium (L-angle – 50mm x 50mm x 5mm, U-channel – 33mm x 30mm x 33mm x 3mm). The support structure shall be hot dip galvanized steel or aluminium. Detailed specifications for the mounting structure are given below:

Wind velocity withstanding capacity	150 km / hour
Structure material	Hot dip galvanised steel with a minimum galvanisation thickness of 120 microns and the structural patterns shall be made before galvanizing.
Bolts, nuts, panel mounting clamps, fasteners (with spring washers)	Stainless steel SS 304 or hot dip galvanised
Panel mounting clamps	Aluminium and must sustain the adverse climatic condition
Mounting arrangement for elevated structures	The elevated structure has to be securely anchored to the supporting surface. Concrete foundations of appropriate weight and depth for elevated structures mounted directly on the ground; Bolted with anchor bolts of appropriate strength for elevated structures mounted on RCC Surfaces.
Mounting arrangement for RCC flat roofs installation.	With removable concrete ballast made of pre-fabricated PCC (1:1:2), M25. The structures shall be designed for simple mechanical onsite installation. There shall be no requirement of welding or complex machinery at the site.
Minimum distance between roof edge and mounting structure.	500 mm
Access for panel cleaning and maintenance.	All solar panels must be accessible from the top for cleaning and from the bottom for excess to the module

	junction box.
Panel tilt angle	North – south orientation with a fixed tilt angle of 11 – 13 degrees (depending on location), south facing.
Compliance with standards and codes	MMS steel- IS2062:2011 Galvanization of MMS -IS4759 MMS Aluminium -AA6063 T6
	• Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. • The module mounting structures should have angle of inclination as per the site conditions to take maximum insolation and complete shadow-free operation during generation hours. However, to accommodate more capacity the angle of inclination may be reduced until the plant meets the specified performance ratio requirements. • The upper edge of the module must be covered with wind shield so as to avoid build air ingress below the module. Slight clearance must be provided on both edges (upper & lower) to allow air for cooling. • Suitable fastening arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed. The Empanelled Vendor shall be fully responsible for any damages to SPV System caused due to high wind velocity within guarantee period as per technical specification. • The structures shall be designed to allow easy replacement, repairing and cleaning of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels. Necessary testing provision for MMS to be made available at site. • Adequate spacing shall be provided between two panel frames and rows of panels to facilitate personnel protection, ease of installation, replacement, cleaning of panels and electrical maintenance. • The structure shall be designed to withstand operating environmental conditions for a period of minimum 25 years.

6.0 Solar Array Fuse

The (+ve and –ve) cables from the array strings to the solar grid inverters shall be provided with DC Over current fuse protection with suitable current rating. Fuses shall have a voltage rating and current rating as required. The fuse shall have DIN rail mountable fuse holders and shall be housed in thermoplastic IP 65 enclosures with transparent covers.Fuses shall comply withthe standards IS/IEC60947 (Part 1, 2 &3), EN50521 & IEC60269-6:2010

7.0 Solar Grid Inverter

The solar grid inverter converts the DC power of the solar PV modules to grid-compatible AC power. The detailed specifications of the solar grid inverter are given below

Total output power (AC)	To match solar PV plant capacity while achieving optimum system efficiency.
Input DC voltage range	As required for the solar grid inverter DC input.(should not exceed 1000V).
Maximum power point (MPPT) tracking	Shall be incorporated.
Number of independent MPPT inputs	1 or more.
Operation AC voltage	For single phase Service connection - Single phase Inverter 230V
	(+ 12.5%, -20%)
	For Three phase Service connection - Three phase Inverter 415V
	415V (+ 12.5%, -20%)
Operating Frequency range	47.5 – 50.5 Hz
Nominal frequency	50 Hz
Power factor of the inverter	>0.98 at nominal power
Total harmonic distortion	Less than 3%
Built-in Protection	AC high / low voltage; AC high/low frequency.
Anti-islanding protection	As per VDE 0126-1-1 / IEC 60255.5/ IEC 60255.27 / IEC 62116. • The output power from SPV would be fed to the inverters/PCU which converts DC produced by SPV array to AC and feeds it into the main electricity grid after synchronization. • In the event of a power failure on the electric grid, it is required that any independent power-producing inverters attached to the grid turn off in a short period of time. This prevents the DC-to-AC inverters from continuing to feed power into small sections of the grid, known as “islands.” Powered islands present a risk to workers who may expect the area to be unpowered, and they may

	also damage grid-tied equipment. The Rooftop PV system shall be equipped with islanding protection. In addition to disconnection from the grid (due to islanding protection) disconnection due to under and over voltage conditions shall also be provided, if not available in inverter.
Operating ambient temperature	-20 C - +60 °C range
Humidity	0 – 95% Rh
Inverter efficiency	>=95%
Inverter weighted efficiency	>=94%
Protection degree	IP 65 for outdoor mounting, IP 54
Communication interface	RS 485 / RS 232 / RJ45
Safety compliance	IEC 62109-1, IEC 62109-2
Environmental Testing	IEC 60068-2 (1,2,14,30 & 64)
Efficiency Measurement Procedure	IS/IEC 61683
Cooling	Convection
Display type	LCD for data display. LCD / LED for status display.
Display parameters to include	Output power (W), cumulative energy (Wh), DC voltage (V), DC current (A), AC voltage (V), AC frequency (Hz), AC current (A), Cumulative hours of operation (h).
Switching Device	IGBT / MOSFET
Electromagnetic compatibility	IEC61000
Overloading capacity	Minimum 10%
Technical features	• Switching devices: IGBT/MOSFET • Control: Microprocessor/DSP
No load losses	<1% of rated power
DC power injection	Not more than 0.5% of full rated output at the inter connection point and complete to IEEE 519
	• The output power factor of inverter should be suitable for all voltage ranges or sink of reactive power, inverter should have internal protection arrangement against any sustain fault in feeder line and against the lightning on feeder. • All the Inverters should contain the following clear and indelible Marking Label & Warning Label as per IS16221 Part II, clause 5. The equipment shall, as a minimum, be permanently marked with: • The name or trademark of the manufacturer or supplier; • A model number, name or other means to identify the equipment, • A serial number, code or other marking allowing identi-

	fication of manufacturing location and the manufacturing batch or date within a three-month time period. • Input voltage, type of voltage (a.c. or d.c.), frequency, and maximum continuous current for each input. • Output voltage, type of voltage (a.c. or d.c.), frequency, maximum continuous current, and for a.c. outputs, either the power or power factor for each output. • The Ingress Protection (IP) rating • Marking shall be located adjacent to each fuse or fuse holder, or on the fuse holder, or in another location provided that it is obvious to which fuse the marking applies, giving the fuse current rating and voltage rating for fuses that may be changed at the installed site. • In case the consumer is having a 3-ϕ connection, 1-ϕ/3-ϕ inverter shall be provided by the vendor as per the consumer's requirement and regulations of the State. • Inverter/PCU shall be capable of complete automatic operation including wake-up, synchronization & shutdown. • The Inverter should have a provision of remote monitoring of inverter data through sim card. Required website/mobile app platform, where the user (Consumer) can access the data, should be provided/explained to consumer while installation. Additionally, if inverter has the facility of in-built wi-fi module, that should also be explained to the consumer. On demand, Inverter should also have provision to feed the data to the remote monitoring server using relevant API/ protocols. All the inverter data should be available for monitoring by giving web access. • Integration of PV Power with Grid & Grid Islanding:

8.0 DC Combiner Box

A DC Combiner Box shall be (if necessary) used to combine the DC cables of the solar module arrays with DC fuse protection for the outgoing DC cable(s) to the DC Distribution Box.

9.0 DC Distribution Box& AC Distribution Box

A DC distribution box shall be mounted close to the solar grid inverter. The DC distribution box shall be of the thermo-plastic IP65 DIN-rail mounting type and shall comprise the following components and cable terminations:

- Incoming positive and negative DC cables from the DC Combiner Box;
- DC circuit breaker, 2 pole (the cables from the DC Combiner Box will be connected to this circuit breaker on the incoming side);
- DC surge protection device (SPD), class 2 as per IEC60364-5-53;
- Outgoing positive and negative DC cables to the solar grid inverter.

As an alternative to the DC circuit breaker a DC isolator may be used inside the DC Distribution

Box or in a separate external thermoplastic IP 65 enclosure adjacent to the DC Distribution Box. If a DC isolator is used instead of a DC circuit breaker, a DC fuse shall be installed inside the DC Distribution Box to protect the DC cable that runs from the DC Distribution Box to the Solar Grid Inverter.

AC Distribution box

The AC output of the solar grid inverter through AC distribution box shall be connected to the building's electrical system after the TANGEDCO service connection meter and main switch on the load side. The solar grid inverter output shall be connected to a dedicated module in the Main Distribution Board (MDB) of the building. It shall not be connected to a nearby load or socket point of the building. The connection to the electrical system of the building shall be done as shown in typical wiring diagram 1 in the Annexure S.

For buildings or loads with diesel generator backup, the wiring of the solar grid inverter shall be such that the solar grid inverter can run in parallel with the diesel generator with proper protection as per TNERC regulations/TANGEDCO working instructions. This implies that the solar grid inverter must be connected to a distribution board on the grid side of the automatic or manual change-over switch.

- All switches and the circuit breakers, connectors should conform to IEC 60947:2019, part I, II and III/ IS 60947 part I, II and III.
- The isolators, cabling work should be undertaken as part of the project.
- All the Panel's shall be metal clad, totally enclosed, rigid, floor mounted, air -insulated, cubical type suitable for operation on 1-ϕ/3-ϕ, 415 or 230 volts, 50 Hz (or voltage levels as per CEA/State regulations).
- The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.
- All indoor panels will have protection of IP 54 or better, as per site conditions. All outdoor panels will have protection of IP 65 or better, as per site conditions.
- Should conform to Indian Electricity Act and CEA safety regulations (till last amendment).
- All the 415 or 230 volts (or voltage levels as per CEA/State regulations) AC devices / equipment like bus support insulators, circuit breakers, SPDs, Voltage Transformers (VTs) etc., mounted inside the switchgear shall be suitable for continuous operation and satisfactory performance under the following supply conditions.
- Variation in supply voltage: as per CEA/State regulations.
- Variation in supply frequency: as per CEA/State regulations
- The inverter output shall have the necessary rated AC surge arrestors, if required and MCB/ MCCB. RCCB shall be used for successful operation of the PV system, if inverter does not have required earth fault/residual current protection.

10.0 Cables:

All cables shall be supplied conforming to IEC 60227/ IS 694, IEC 60502/ IS 1554 (Part 1&2) IEC69947 (as applicable) &BSEN 50618. Voltage rating: 1,100V AC, 1,500VDC.

For the DC cabling, Solar cables with multi stranded copper conductors XLPE or XLPO insulated and sheathed with the voltage rating of 1500 V DC or higher UV stabilised single core flexible copper cables shall be used. Multi-core cables shall not be used.

For the AC cabling, PVC or XLPE insulated and PVC sheathed single or multi-core flexible copper cables shall be used. Outdoor AC cables shall have a UV-stabilized outer sheath.

The total voltage drop on the cable segments from the solar PV modules to the solar grid inverter shall not exceed 2.0%.

The total voltage drop on the cable segments from the solar grid inverter to the building distribution board shall not exceed 2.0%.

The DC cables from the SPV module array shall run through a UV- stabilised PVC conduit pipe of adequate diameter with a minimum wall thickness of 1.5mm or through a High Density Poly Ethylene (HDPE) conduit. The conduits shall not run across the path way of the terrace. Flexible corrugated PVC conduits shall not be used.

Cables and wires used for the interconnection of solar PV modules shall be provided with solar PV connectors (MC4) and couplers of the same make as used on cables fitted to the PV module by the manufacturer.

All cables and conduit pipes shall be clamped to the rooftop, walls and ceilings with thermo-plastic clamps at intervals not exceeding 50 cm. The minimum DC cable size shall be 4.0 mm2 copper. The minimum AC cable size shall be 4.0 mm2 copper for up to 10kWp and 16.0mm2 for above 10kWp / required standard size. In three phase systems, the size of the neutral wire shall be equal to the size of the phase wires. The following colour coding shall be used for cable wires:

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

- Cables and conduits that have to pass through walls or ceilings shall be taken through a PVC pipe sleeve.
- Cable conductors shall be terminated with tinned copper end-ferrules to prevent fraying and breaking of individual wire strands. The termination of the DC and AC cables at the Solar Grid Inverter shall be done as per instructions of the manufacturer, which in most cases will include the use of special connectors.
- Cable lugs and end -ferrules for all cable conductor and wire terminations shall be crimped with crimping pliers and end-ferrule pliers.
- All cable ties shall be UV resistant.
- The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e. 25 years.

11.0 Earthing:

All exposed metal parts of the PV modules, including metal frames of modules, supporting structures, inverters, SPD's etc should be bonded together and connected to earth effectively.

The sizes of earthing conductors, earthing system components and generally the design of the earthing system shall comply with BIS 3043-2018 & BIS 16997 / IEC 60364-7-712. The earthing system of PV installations should be tested for satisfactory values of resistance to earth and earth loop impedance on completion of works.

A dedicated earth electrode must be used for the earthing of DC side and AC side separately.

The earth electrodes shall have a precast concrete enclosure with a removable lid for inspection and maintenance. The entire earthing system shall comprise non-corrosive components.

Earth resistance should be as low as possible and shall never be higher than 5 ohms.

For 10 KW and above systems, separate three earth pits shall be provided for individual three earthings viz.: DC side earthing, AC side Earthing and Lightning arrestor earthing.

12.0 Surge protection:

- Surge protection shall be provided on both the DC and the AC side of the solar system.
- The DC surge protection devices (SPDs) shall be installed in the DC distribution box adjacent to the solar grid inverter. Or this can be inside the inverter as standard component by the inverter manufacturer.
- The AC SPDs shall be installed in the AC distribution box adjacent to the solar grid inverter, or this can be inside the inverter as standard component by the inverter manufacturer.
- The SPDs earthing terminal shall be connected to earth through the above mentioned dedicated earthing system.
- The SPDs shall comply with IEC 60364-5-53/ IS15086-5(SPD), IEC 61643- 11:2011.

13.0 Lightning Protection

Lightning protection for PV installation should comply with I NFC 17- 102:2011,IEC 62561/IEC 60634. Lightning protection should be mandate for above 10kW.

14.0 Junction Boxes

- Junction boxes and solar panel terminal boxes shall be of the thermo plastic type with IP 65 protection for outdoor use and IP 54 protection for indoor use.
- Cable terminations shall be taken through thermo-plastic cable glands. Cable ferrules shall be fitted at the cable termination points for identification.
- Standards shall comply with IEC 60529.
- The Junction Boxes (JBs) shall be made of GRP/FRP/Powder Coated aluminum /cast aluminum alloy with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JBs shall be such that input & output termination can be made through suitable cable glands. Suitable markings shall be provided on the bus-bars for easy identification and cable ferrules will be fitted at the cable termination points for identification.
- Copper bus bars/terminal blocks housed in the junction box with suitable termination threads Conforming to IP 65 or better standard and IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry, Single /double compression cable glands should be provided.
- Polyamide glands and MC4 Connectors may also be provided. The rating of the junction box shall be suitable with adequate safety factor to interconnect the Solar PV array.

- Junction boxes shall be mounted on the MMS such that they are easily accessible and are protected from direct sunlight and harsh weather.

15.0 Data Monitoring:

a) For online monitoring, a data logging system shall be provided and the same shall be fixed at a reachable height.

b) Net / SIM based Data logging system shall be provided. The data storage facility has to be provided in the Inverter. The net charges will have to be borne by the installer till the completion of 5 year CMC period.

16.0 Tools, Tackles and Spares:

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

- Screw driver suitable for the junction boxes and combiner boxes; Screw driver and / or Allen key suitable for the connectors, power distribution blocks, circuit breaker terminals and surge arrestor terminals;
- Spanners / box spanners suitable for the removal of solar PV modules from the solar PV module support structure;
- Solar panel mounting clamps;
- Cleaning tools for the cleaning of the solar PV modules, spare fuses

17.0 Caution Signs

In addition to the standard caution and danger boards or labels as per Indian Electricity Rules and also as per regulation 18 of CEA (MSES) Regulations, 2010, the AC distribution box near the solar grid inverter and the building distribution board to which the AC output of the solar PV system is connected, shall be provided with a non-corrosive caution label with the following text:

WARNING – DUAL POWER SOURCE

EB &SOLAR

The size of the caution label shall be 105mm (width) x 20mm (height) with white letters on a red background. Caution labels as may be prescribed by TANGEDCO shall be fixed as per TANGEDCO specifications.

18.0 Metering

The existing service connection meter needs to be replaced with a bidirectional (import kWh and export kWh) service connection meter for the purpose of net-metering for eligible categories as per TANGEDCO/TNERC regulations and amended thereof. Installation of the net meter will be carried out by TANGEDCO. Beneficiary will submit application to TANGEDCO to enable the connectivity of Solar rooftops with Grid and to avail net metering benefits. Meter cost shall be borne by beneficiary.

19.0 Documentation

The Installer shall supply the following documentation:

a) System description with working principles.

b) System single line diagram.

c) Solar PV array lay-out.

d) Routing diagram of cables and wires.

e) Data sheets and user manuals of the solar PV panels and the solar grid inverter.

f) A system operation and maintenance manual.

g) Name, address, mobile number and email address of the service centre to be contacted in case of failure or complaint.

h) Warranty certificates or cards of all components and complete system.

i) Maintenance registers.

SECTION – IV

FORMATS FOR PRICE BID

FORMAT: A

PRICE BID

(To be submitted online separately)

Performa for submission of rates of different capacity of roof top Solar Power Projects under Tender No. _____by TEDA/TANGEDCO.

Name of Bidder: - _____

Scope of Work	Description	Bid Capacity (in kW)	Rate per kW (in INR)	Rate per kW in words
Design, supply, erection, testing and commissioning including warranty, Comprehensive operation & maintenance of grid connected rooftop solar power plant of various capacities in the State of Tamil Nadu under Phase-II Scheme.	Part A			
	Part B			
	Part C			
	Part D			

- Rates quoted will be inclusive of all Taxes and duties as applicable and exclusive of GST.
- In cases of discrepancy between the cost quoted in Words and in Figures, the lower of the two will be considered.

SECTION – V

FORMATS FOR SUBMITTING Tender

Format-1

Covering Letter

(The covering letter should be on the Letter Head of the Bidding Company)

Ref.No._____ **Date:**

From:_____(Insert name and address of Bidding Company)

_____

_____

Tel.#: Fax#:
E-mail address#

To,
The General Manager,
Tamil Nadu Energy Development Agency (TEDA)
E.V.K Sampath Maaligai
5th Floor, No. 68, College Road,
Chennai- 600 002.

Sub: Rate Contract Tender for the empanelment of vendors for "Design, supply, erection, testing and commissioning including warranty, Comprehensive operation & maintenance of grid connected rooftop solar power plant of various capacities in the State of Tamil Nadu for Part-A/ Part-B/ Part C/ Part- D.

Dear Sir/Madam,

1. We, the undersigned….[*insert name of the 'Bidder'*] having read, examined and understood in detail the Tender Document for Implementation of Grid connected Roof Top Solar System hereby submit our Bid comprising of Price Bid and Techno Commercial Bid. We confirm that neither we nor any of our Parent Company / Affiliate/Ultimate Parent Company has submitted Bid other than this Bid directly or indirectly in response to the aforesaid Tender.

2. We give our unconditional acceptance to the Tender, dated……and Tender Documents attached thereto, issued by TEDA/TANGEDCO, as amended. As a token of our acceptance to the Tender documents, the same have been initiated by us and enclosed with the bid. We shall ensure that we execute such Tender as per the provisions of the Tender and provisions of such Tender Documents shall be binding on us.

   Bid Capacity: We have bid for the capacity of ..... kW for Part-A/ Part-B/ Part C/ Part- D as per Tender terms and conditions.

   Bid Bond: We have enclosed a EMD of Rs…….(Insert Amount), in the form of bank guarantee no…….(Insert number of the bank guarantee) dated.....[Insert date of bank guarantee] as per Format ……from ……..(Insert name of bank providing EMD) and valid up to.....in terms of Clause ……of this Tender. The offered quantum of power by us is ……(*Insert total capacity offered*) kW in_____(Part-A/ Part-B/ Part C/ Part- D).

3. We have submitted our Price Bid strictly as per Section IV of this Tender, without any deviations, conditions and without mentioning any assumptions or notes for the Price Bid in the said format(s).

4. In case we are a Empanelled Vendor, we shall furnish a declaration at the time of commissioning of the project to the affect that neither we have availed nor we shall avail in future any CFA other than received from TEDA/TANGEDCO for implementation of the project.

5. Acceptance:

We hereby unconditionally and irrevocably agree and accept that the decision made by TEDA/TANGEDCO in respect of any matter regarding or arising out of the Tender shall be binding on us. We hereby expressly waive any and all claims in respect of Bid process.

We confirm that there are no litigations or disputes against us, which materially affect our ability to fulfil our obligations with regards to execution of projects of capacity offered by us.

6. Familiarity with Relevant Indian Laws & Regulations

We confirm that we have studied the provisions of the relevant Indian laws and regulations as required to enable us to submit this Bid and execute the Tender Documents, in the event of our selection as successful bidder. We further undertake and agree that all such factors as mentioned in Tender have been fully examined and considered while submitting the Bid.

7. Contact Person

Details of the contact person are furnished as under:

Name	:	.....
Address	:	.....
Phone Nos.	:	.....
Fax No.	:	.....
E-Mail	:	.....

8. We have furnished the Envelope-I - Techno-Commercial documents as per clause 7.1.1 (a) and Price Bids as per clause 7.1.1 (b) containing duly signed formats, each one duly sealed separately.

(Or)

We have furnished the Envelope-I - Techno-Commercial documents as per clause 7.1.2 (a) under open category.

9. It is confirmed that our Bid is consistent with all the requirements of submission as stated in the Tender and subsequent communications from TEDA/TANGEDCO. The information submitted in our Bid is complete, strictly as per the requirements stipulated in the Tender and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our Bid. We confirm that all the terms and conditions of our Bid are valid for acceptance for a period of 6 month from the Bid deadline. We confirm that we have not taken any deviation so as to be deemed non-responsive.

Dated the …… day of ....., 2022

Yours faithfully,

Signature:
Name:
Designation with Seal
Name, Designation and Signature of Authorized Person in whose name Power of

Attorney/Board Resolution/Declaration (Annexure G).

Format-2

General Particulars of the bidder

S. No.	Particulars	Details
1.	Name of the Company	
2.	Registered Office Address	
3.	E-mail ID	
4.	Web site	
5.	Authorized Contact Person(s) with name, designation Address and Mobile Phone No., E- mail address/ Fax No. to whom all references shall be made	
6.	Year of Incorporation/Registration	
7.	Have the bidder/Company ever been debarred by any Govt.Dept. / Undertaking for undertaking any work	
8.	Reference of any document information attached by the Bidder other than specified in the Tender.	
9.	Whether company is MSME as on the bidding date	Yes/No
10.	Whether the Company has valid GST Registration Number (Enclose a Copy)	
11.	PAN number (enclosed a copy)	
12.	Bank Account Details	

Please strike-off whichever is not applicable.

Signature:

Name:

Designation with Seal:

Format-3

PROFORMA FOR BANK GUARANTEE FOR EMD

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)

Ref.: Date:
Bank Guarantee No.:

To,

The General Manager,
Tamil Nadu Energy Development Agency (TEDA)
E.V.K Sampath Maaligai
5th Floor, No. 68, College Road,
Chennai- 600 002.

In consideration of the ----- [Insert name of the Bidder] (hereinafter referred to as 'Bidder') submitting the response to Tender inter alia for selection of the Project of the capacity of..... MW [Insert Capacity of Plant] in response to the Tender No._____Dated ..... by Tamil Nadu Energy Development Agency (TEDA), E.V.K Sampath Maaligai, 5th Floor, No. 68, College Road, Chennai- 600 002 (hereinafter referred to as TEDA) and TEDA considering such response to the Tender of .....[insert the name of the Bidder] as per the terms of the Tender, the [insert name & address of bank] hereby agrees unequivocally, irrevocably and unconditionally to pay to Tamil Nadu Energy Development Agency at Chennai forthwith on demand in writing from TEDA or any Officer authorized by it in this behalf, any amount up-to and not exceeding Rupees [Insert amount not less than that derived on the basis of INR]. [*Insert the amount*] Lakhs per MW of cumulative capacity proposed in each part separately, on behalf of M/s. [*Insert name of the Bidder*].

This guarantee shall be valid and binding on this Bank up to and including [insert date of validity in accordance with **Clause 7.11** (Section I) of this Tender and shall not be terminable by notice or any change in the constitution of the Bank or the term of contract or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed with or without our knowledge or consent, by or between parties to the respective agreement.

Our liability under this Guarantee is restricted to [*Insert the Value of Amount in INR*]. Our Guarantee shall remain in force until [insert date of validity in accordance with **Clause 10.9** of this Tender].TEDA shall be entitled to invoke this Guarantee till [Insert date which is [*Insert the Number of*] days after the date in the preceding sentence].

The Guarantor Bank hereby agrees and acknowledges that the TEDA shall have a right to invoke this BANK GUARANTEE in part or in full, as it may deem fit.

The guarantor bank acknowledged that this Bank Guarantee may be assigned by the TEDA, in whole or in part (whether absolutely or by way of security) to the successor entity (ies) coming into being as a result of any merger or amalgamation or scheme of arrangement or similar re-organization of the TEDA.

The Guarantor Bank hereby expressly agrees that it shall not require any proof in addition to the written demand by TEDA, made in any format, raised at the above mentioned address of the Guarantor Bank, in order to make the said payment to TEDA.

The Guarantor Bank shall make payment hereunder on first demand without restriction or conditions and notwithstanding any objection by ---------- [*Insert name of the Bidder*] and/or any other person. The Guarantor Bank shall not require TEDA to justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against TEDA in respect of any payment made hereunder.

This BANK GUARANTEE shall be interpreted in accordance with the laws of India and the courts at Chennai shall have exclusive jurisdiction.

The Guarantor Bank represents that this BANK GUARANTEE has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor Bank in the manner provided herein.

This BANK GUARANTEE shall not be affected in any manner by reason of merger, amalgamation, restructuring or any other change in the constitution of the Guarantor Bank.

This BANK GUARANTEE shall be a primary obligation of the Guarantor Bank and accordingly TEDA shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against the Bidder, to make any claim against or any demand on the Bidder or to give any notice to the Bidder or to enforce any security held by TEDA or to exercise, levy or enforce any distress, diligence or other process against the Bidder.

Notwithstanding anything contained hereinabove, our liability under this Guarantee is restricted to Rs. (Rs. only) and it shall remain in force until [*Date to be inserted on the basis of* ***Clause ...*** *of this Tender*] with an additional claim period of Ninety (90) days thereafter.

We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if TEDA serves upon us a written claim or demand.

Signature
Name
Power of Attorney No.

For
[Insert Name of the Bank]
Banker's Stamp and Full Address. Dated this _____day of _ , 2022

Note: 1. (*) the amount shall be as specified in the Bid document.
(#) Complete mailing address of the Head Office of the Bank to be given.

The Performance Bank Guarantee (PBG) shall be executed by any of the Bank from the List of Banks enclosed as per Annexure-B.

2. The Stamp Paper of appropriate value shall be purchased in the name of guarantee issuing

Bidder/bank issuing the guarantee.

Format-4

FORMAT FOR PERFORMANCE BANK GUARANTEE (PBG)

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)

In consideration of the.....[Insert name of the Bidder] (Hereinafter referred to as selected Solar Power Developer') submitting the response to Tender inter alia for selection of the Project under CAPEX Model (Part-A/ Part-B/ Part C/ Part- D) of the capacity of ..... kW / MW under Roof Top scheme in response to the Tender no. ..... dated .....issued by TEDA and TEDA considering such response to the Tender of ..... insert the name of the selected Solar Power Developer] (which expression shall unless repugnant to the context or meaning thereof include its executers, administrators, successors and assignees) and selecting the Solar Power Project of the Solar Power Developer and issuing Letter of allocation no.....to (Insert Name of selected Solar Power Developer) as per terms of Tender and the same having been accepted. As per the terms of the Tender, the ..... [insert name & address of bank] hereby agrees unequivocally, irrevocably and unconditionally to pay to Tamil Nadu Energy Development Agency at Chennai forthwith on demand in writing from TEDA or any Officer authorized by it in this behalf, any amount upto and not exceedin g Rupees..... [total value] only, on behalf of M/s ..... [Insert name of the selected Solar Power Developer / Project Company] This guarantee shall be valid and binding on this Bank up to and including.....and shall not be terminable by notice or any change in the constitution of the Bank or the term of contract or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed with or without our knowledge or consent, by or between parties to the respective agreement.

Our liability under this Guarantee is restricted to INR.....

Our Guarantee shall remain in force until.....TEDAshall be entitled to invoke this Guarantee till ..... [Insert date which is [*Insert the number*] of days after the date in the preceding sentence].

The Guarantor Bank hereby agrees and acknowledges that TEDAshall have a right to invoke this BANK GUARANTEE in part or in full, as it may deem fit.

The Guarantor Bank hereby expressly agrees that it shall not require any proof in addition to the written demand by TEDA, made in any format, raised at the above mentioned address of the Guarantor Bank, in order to make the said payment to TEDA.

The Guarantor Bank shall make payment hereunder on first demand without restriction or conditions and notwithstanding any objection by ----------[Insert name of the selected bidder]. The Guarantor Bank shall not require TEDAto justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against TEDA in respect of any payment made hereunder.
This BANK GUARANTEE shall be interpreted in accordance with the laws of India and the courts at Chennai shall have exclusive jurisdiction.

The Guarantor Bank represents that this BANK GUARANTEE has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor Bank in the manner provided herein.

This BANK GUARANTEE shall not be affected in any manner by reason of merger, amalgamation, restructuring or any other change in the constitution of the Guarantor Bank.

This BANK GUARANTEE shall be a primary obligation of the Guarantor Bank and accordingly TEDA shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against the selected Solar Power Developer / Project Company , to make any claim against or any demand on the Empanelled Vendor or to give any notice to the selected Solar Power Developer / Project Company or to enforce any security held by TEDA or to exercise, levy or enforce any distress, diligence or other process against the selected Solar Power Developer / Project Company.

Notwithstanding anything contained hereinabove, our liability under this Guarantee is restricted to INR..... (INR..... only) and it shall remain in force until ..... [Insert date which is [*Insert the number*] of days after the date in the preceding sentence]. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if TEDAserves upon us a written claim or demand.

Signature
Name
Power of Attorney No.

For,
..... [Insert the bank name]
Banker's Stamp and Full Address.
Dated this day of , 2022

Witness:

1. ..... Signature Name and Address	2. ..... Signature Name and Address

Notes:

1. The Stamp Paper should be in the name of the Executing Bank and of appropriate value.
2. The Performance Bank Guarantee (PBG) shall be executed by any of the Bank from the List of Banks enclosed as per Annexure-B.

Format-5

CHECK LIST FOR BANK GUARANTEES

Sl. No.	Details of checks	YES/NO.
a)	Is the PBG on non-judicial Stamp paper of appropriate value, as per applicable Stamp Act of the place of execution	
b)	Whether date, purpose of purchase of stamp paper and name of the purchaser are indicated on the back of Stamp paper under the Signature of Stamp vendor? (The date of purchase of stamp paper should be not later than the date of execution of BG and the stamp paper should be purchased either in the name of the executing Bank or the party on whose behalf the BG has been issued. Also, the Stamp Paper should not be older than six months from the date of execution of BG).	
c)	Has the executing Officer of BG indicated his name, designation and Power of Attorney No. /Signing Power no. on the BG?	
d)	Is each page of BG duly signed / initiated by executants and whether stamp of Bank is affixed thereon? Whether the last page is signed with full particulars including two witnesses under seal of Bank as required in the prescribed Performa?	
e)	Does the Bank Guarantees compare verbatim with the Performa prescribed in the Bid Documents?	
f)	Are the factual details such as Bid Document No. / SpecificationNo., / LoA No. (if applicable) / Amount of BG and Validity of BG/correctly mentioned in the BG	
g)	Whether overwriting/cutting if any on the BG have been properly authenticated under signature & seal of executants?	
h)	Contact details of issuing bank including email id, mobile number etc.	

Format-6

POWER OF ATTORNEY

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)

(a) Power of Attorney to be provided by the Bidding Company in favour of its representative as evidence of authorized signatory's authority.

Know all men by these presents, We..... name and address of the registered office of the Bidding Company as applicable) do hereby constitute, appoint and authorize Mr./Ms ..... (name & residential address) who is presently employed with us and holding the position of ..... as our true and lawful attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to submission of our Bid for implementation of grid connected Roof top solar in response to the Tender No..... dated .... issued by TEDA, including signing and submission of the Bid and all other documents related to the Bid, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document which the TEDA may require us to submit. The aforesaid attorney is further authorized for making representations to the TEDA, and providing information / responses to TEDA, representing us in all matters before TEDAand generally dealing with TEDA in all matters in connection with Bid till the completion of the bidding process as per the terms of the above mentioned Tender.

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

All the terms used herein but not defined shall have the meaning ascribed to such terms under the Tender.

Signed by the within named

..... (Insert the name of the executant's company) through the hand of

Mr. .....

duly authorized by the Board to issue such Power of Attorney

Dated this ..... day of .....

Accepted.....

Signature of Attorney

(Name, designation and address of the Attorney)

Attested.....
(Signature of the executant)

(Name, designation and address of the executant) .....
Signature and stamp of Notary of the place of execution

Common seal of..... has been affixed in my/our presence pursuant to Board of Director's Resolution dated.....

Witness:

1. ..... Signature Designation Name and Address	2. ..... Signature Designation Name and Address

Notes:

i. The mode of execution of the power of attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and the same should be under common seal of the executant affixed in accordance with the applicable procedure. Further, the person whose signatures are to be provided on the power of attorney shall be duly authorized by the executant(s) in this regard.

ii. The person authorized under this Power of Attorney, in the case of the Bidding Company / Lead Member being a public company, or a private company which is a subsidiary of a public company, in terms of the Companies Act, 1956, with a paid up share capital of more than Rupees Five crores, should be the Managing Director / whole time director/manager appointed under section 269 of the Companies Act, 1956. In all other cases the person authorized should be a director duly authorized by a board resolution duly passed by the Company.

iii. Also, wherever required, the executant(s) should submit for verification the extract of the chartered documents and documents such as a Board resolution / power of attorney, in favour of the person executing this power of attorney for delegation of power hereunder on behalf of the executant(s).

Format -7

FINANCIAL ELIGIBILITY CRITERIA REQUIREMENT
(AS PER CLAUSE 5.3 of Section-I)
(To be submitted on the letterhead of Bidding Company)

To,

The General Manager,
Tamil Nadu Energy Development Agency (TEDA)
E.V.K Sampath Maaligai
5th Floor, No. 68, College Road,
Chennai- 600 002.

***Sub: Bid for Implementation of Grid connected Roof Top Solar System scheme in response to the Tender No:* TEDA/1469/Phase II GCRTS/2021-22 dated: 14.04.2022**

Dear Sir,

We submit our Bid/Bids for the total capacity of ..... kWp in Part-A/ Part-B/ Part C/ Part- D put together for which details of our Financial Eligibility Criteria Requirements are as follows.

We certify that the Bidder had an Annual Turnover as follows:
The Average Annual turnover of Rupees ……. Crore during 3 financial years 2018-19, 2019-2020 & 2020-2021.

OR

Net worth (strike out whichever is not applicable) of Rs……Crore computed as per instructions provided in **Clause 5.3 of Section 1** of this Tender based on unconsolidated audited annual accounts (refer Note-1 below) any of the last 3 Years immediately preceding the Bid Deadline.

Name of the Bidder	Financial year	Year of Incorporation	Annual Turnover (Rs. Crore)	Net worth as per **Clause 5.3** (in Rs. Crore)

Yours faithfully

(Signature and stamp (on each page) of Authorized Signatory of Bidding Company.

Name: .....
Date: .....
Place: .....

(Signature and stamp (on each page) of Chartered Accountant/Statutory Auditors of Bidding Company.

Name: .....
Date: .....
Place: .....

Format- 8

DRAFT UNDERTAKING in LIEU of EMD

(To be furnished in non-judicial stamp paper of value not less than Rs.80/)
THIS DEED OF UNDERTAKING EXECUTED AT.....ON THISTHE..... DAYOF TWO THOUSANDAND TWENTY TWO BY M/s..... a company registered under companies Act 1956, having its registered office at ..... hereafter called "Bidder" (which expression shall where the context so admits mean and include their Agents, Representatives, Successors-in- office and Assigns)

TO AND IN FAVOUR OF TAMIL NADU ENERGY DEVELOPMENT AGENCY having its office at 5thFloor,EVK SampathMaaligai, 68, College Road, Chennai – 600 006, herein called the "TEDA" (which expression shall where the context so admits mean and include its successors in office and Assigns).

WHEREAS the Bidder is required to pay Earnest Money Deposit of Rs.....for participation in the Rate Contract Tender for Empanelment of Vendors for Design, supply, erection, testing and commissioning including warranty, Comprehensive operation & maintenance of Grid-Connected Rooftop Solar Plant of various capacities under the Phase-II of Grid Connected Rooftop Solar Scheme of MNRE in the State of Tamil Nadu in terms of specification No.
AND WHEREAS the Bidder is exempted from payment of EMD as per , subject to the Bidder executing an undertaking to the value of Rs. (Rupees only) representing the amount equivalent to the amount of EMD specified to be paid to TEDA in the event of non-fulfilment or breach of any of the conditions of the tender by the Bidder as mentioned here under.

AND WHEREAS in consideration of the acceptance by TEDA of the above proposal, the Bidder has agreed to pay to TEDA the said amount of Rs. In the event of:-

i. Withdrawing his tender before the expiry of the validity period
ii. Withdrawing his tender after acceptance or fails to remit the Security Deposit.
iii. Violating any of the conditions of the tender issued by the competent authority.

NOW THE CONDITION OF THE above written undertaking is such that if the Bidder shall duly and faithfully observe and perform the conditions specified as above, then the above written undertaking shall be void, otherwise it shall remain in full force.

The Bidder undertakes not to revoke this guarantee till the contract is completed under the terms of contract.

The expression, 'Bidder' and 'TEDA' hereinafter before used shall include their respective successors and assign in office.

IN WITNESS WHERE OF THIRU.....acting for and on behalf of the Bidder has signed this deed on the day, month and year herein before first mentioned.

SIGNATURE
NAME IN BLOCK LETTERS
SEAL OF THE COMPANY

In the presence of Witnesses
Signature
Name and Address Signature

Name and Address

Section – VI

Annexure

(A to X)

Annexure A

DOCUMENTS REQUIRED FOR PROJECT SANCTION

Following documents will be required to be submitted for project sanction:

Check List

For issuance of Sanction Order

S. No.	Documents	Yes / NO	Page No.
1.	Sanction Request letter on Letter head (**Annexure D**)		
2.	Copy of CAPEX Agreement		
3.	NOC/ Acknowledgement from DISCOM		
4.	Copy of Electricity Bill		
5.	Coloured Site Photos with Date & Time stamping		
6.	BOM & SLD		
7.	Solar PV Module Specs Sheet		
8.	Solar PV Module IEC Certificates		
9.	Inverter Specs Sheet		
10.	Inverter IEC Certificates		

Signature

Annexure B

List of Banks

1. SCHEDULED COMMERCIAL BANKS	2. OTHER PUBLIC SECTOR BANKS
SBI AND ASSOCIATES	1. IDBI Bank Ltd.
1. State Bank of India	**3. FOREIGN BANKS**
2. State Bank of Bikaner & Jaipur	1. Bank of America NA
3. State Bank of Hyderabad	2. Bank of Tokyo Mitsubishi UFJ Ltd.
4. State Bank of Indore	3. BNP Paribas
5. State Bank of Mysore	4. Calyon Bank
6. State Bank of Patiala	5. Citi Bank N.A.
7. State Bank of Travancore	6. Deutsche Bank A.G
NATIONALISED BANKS	7. The Hong Kong and Shanghai Banking Corpn. Ltd.
1. Allahabad Bank	8. Standard Chartered Bank
2. Andhra Bank	9. SocieteGenerale
3. Bank of India	10. Barclays Bank
4. Bank of Maharashtra	11. Royal Bank of Scotland
5. Canara Bank	12. Bank of Nova Scotia
6. Central Bank of India	13. Development Bank of Singapore (DBS, Bank Ltd.)
7. Corporation Bank	14. Credit Agricole Corporate and Investment Bank
8. Dena Bank	**4. SCHEDULED PRIVATE BANKS**
9. Indian Bank	1. Federal Bank Ltd.
10. Indian Overseas Bank	2. ING Vysya Bank Ltd.
11. Oriental Bank of Commerce	3. Axis Bank Ltd.

12. Punjab National Bank	4. ICICI Bank Ltd.
13. Punjab & Sind Bank	5. HDFC Bank Ltd.
14. Syndicate Bank	6. Yes Bank Ltd.
15. Union Bank of India	7. Kotak Mahindra Bank
16. United Bank of India	8. IndusInd Bank Ltd
17. UCO Bank	9. KarurVysya Bank
18. Vijaya Bank	19. Bank of Baroda

Annexure C

Operation and Maintenance Guidelines of Grid Connected PV Plants for Part A & B, C& D

1. For the optimal operation of a PV plant, maintenance must be carried out on a regular basis.
2. All the components should be kept clean. It should be ensured that all the components are fastened well at their due place.
3. Maintenance guidelines for various components viz. solar panels, inverter, wiring etc. are discussed below:

SOLAR PANELS

Although the cleaning frequency for the panels will vary from site to site depending on soiling, it is recommended that

i. The panels are cleaned at least once every fifteen days.
ii. Any bird droppings or spots should be cleaned immediately.
iii. Use water and a soft sponge or cloth for cleaning.
iv. Do not use detergent or any abrasive material for panel cleaning.
v. Iso-propyl alcohol may be used to remove oil or grease stains.
vi. Do not spray water on the panel if the panel glass is cracked or the back side is perforated.
vii. Wipe water from module as soon as possible.
viii. Use proper safety belts while cleaning modules at inclined roofs etc.
ix. The modules should not be cleaned when they are excessively hot. Early morning is particularly good time for module cleaning.
x. Check if there are any shade problems due to vegetation or new building. If there are, make arrangements for removing the vegetation or moving the panels to a shade-free place.
xi. Ensure that the module terminal connections are not exposed while cleaning; this poses a risk of electric shock.
xii. Never use panels for any unintended use, e. g. drying clothes, chips etc.
xiii. Ensure that monkeys or other animals do not damage the panels.

CABLES AND CONNECTION BOXES

i. Check the connections for corrosion and tightness.
ii. Check the connection box to make sure that the wires are tight, and the water seals are not damaged.
iii. There should be no vermin inside the box.
iv. Check the cable insulating sheath for cracks, breaks or burns. If the insulation is damaged, replace the wire
v. If the wire is outside the building, use wire with weather-resistant insulation.
vi. Make sure that the wire is clamped properly and that it should not rub against any sharp edges or corners.
vii. If some wire needs to be changed, make sure it is of proper rating and type.

INVERTER

i. The inverter should be installed in a clean, dry, and ventilated area which is separated from, and not directly above, the battery bank.
ii. Remove any excess dust in heat sinks and ventilations. This should only be done with a dry

cloth or brush.

iii. Check that vermin have not infested the inverter. Typical signs of this include
iv. Spider webs on ventilation grills or wasps' nests in heat sinks.
v. Check functionality, e.g. automatic disconnection upon loss of grid power supply, at least once a month.
vi. Verify the state of DC/AC surge arrestors, cable connections, and circuit breakers.

SHUTTING DOWN THE SYSTEM

i. Disconnect system from all power sources in accordance with instructions for all other components used in the system.
ii. Completely cover system modules with an opaque material to prevent electricity from being generated while disconnecting conductors.
iii. To the extent possible, system shutdown will not be done during daytime or peak generation.

INSPECTION AND MAINTENANCE SCHEDULE:

Component	Activity	Description	Interval	By
PV Module	Cleaning	Clean any bird droppings/ dark spots on module	Immediately	Beneficiary
	Cleaning	Clean PVmodules with plain water or milddishwashing detergent. Do not use brushes, any types of solvents, abrasives, or harsh detergents.	Fortnightly or as per the site conditions	Beneficiary
	Inspection (forplants> 100kW)	Use infrared camera to inspect for hot spots; bypass diode failure	Annual	Technician

Component	Activity	Description	Interval	By
PV Array	Inspection	Check the PV modules and rack for any damage. Note down location and serial number of damaged modules.	Annual	User/Technician
	Inspection	Determine if any new objects, such as vegetation growth, are causing shading of the, array and move them if possible.	Annual	User/Technician

	Vermin Removal	Remove bird nests or Vermin from array and rack area.	Annual	User/Technician
Junction Boxes	Inspection	Inspect electrical boxes for corrosion or intrusion of water or insects. Seal boxes if required. Check position of switches and breakers. Check operation of all protection devices.	Annual	Electrician
Wiring	Inspection	Inspect cabling for signs of cracks, defects, loose connections, overheating, arcing, short or open circuits, and ground faults.	Annual	Electrician
Inverter	Inspection	Observe	Quarterly	Electrician
Component	Activity	Description	Interval	By
		Instantaneous operational indicators on the faceplate of the inverter to ensure that the amount of power being generated is typical of the conditions. Inspect Inverter housing or shelter for physical maintenance, if required.		
Inverter	Service	Clean or replace any air filters.	As needed	Electrician
Instruments	Validation	Spot-checkmonitoring instrumentspyranometeretc.) withstandard instrumentsto ensure that they are operationaland within specifications.	Annual	PV Specialist
Transformer	Inspection	Inspect transformer oil level, temperature gauges, breather, silica gel, meter, connections etc.	Annual	Electrician
Tracker (if present)	Inspection	Inspect gears, gear boxes, bearings as required.	Annual	Technician
	Service	Lubricate tracker mounting bearings, gearbox as required.	Bi-annual	Technician

Plant	Monitoring	Daily Operation and Performance Monitoring	Daily	Beneficiary
Inverter	Inspection	Observeinstantaneous operational indicators on the faceplate of the inverter to ensure that the amount of power being generatedis typical of the conditions. Inspect Inverter housing or shelter for physical maintenance, if required.	Quarterly	Electrician
Inverter	Service	Clean or replace any air filters.	As needed	Electrician
Instruments	Validation	Spot – check monitoring instruments(pyranometer etc.) with standard instruments to ensure that they are operational and within specifications.	Annual	PV Specialist
Transformer	Inspection	Inspect transformer oil level, temperature gauges, breather, silica gel, meter, connections etc.	Annual	Electrician
Tracker (if present)	Inspection	Inspect gears, gear boxes, bearings as required.	Annual	Technician
	Service	Lubricatetracker mounting bearings, gearbox as required.	Bi-annual	Technician
Plant	Monitoring	Daily Operation and PerformanceMonitoring	Daily	Beneficiary
Spare Parts	Management	Manage inventory of spare parts.	As needed	Site in charge
Logbook	Documentation	Document all O&M activities in a workbook available to all service personnel	Continuous	Site in charge

Operation and Maintenance Guidelines of Grid Connected PV Plants

i. Periodic cleaning of solar modules, preferably once every fortnight. As this task has to be done by the beneficiary, the vendors shall apprise the beneficiary on the importance and proper technique for cleaning.

ii. O&M of Solar Power Plant shall be compliant with grid requirements to achieve committed energy generation.

iii. Periodic checks of the Modules, PCUs and BoS shall be carried out as a part of routine preventive and breakdown maintenance.

iv. Immediate replacement of defective Modules, Invertors/PCUs and other equipment as and when required.

v. Supply of all spares, consumables and fixtures as required. Such stock shall be maintained for all associated equipment and materials as per manufacturer/ supplier's recommendations.

vi. All the equipment testing instrument required for Testing, Commissioning and O&M for the healthy operation of the Plant shall be maintained by the Bidder. The testing equipment must be calibrated once every 2 years from NABL accredited labs and the certificate of calibration must be kept for reference as required.

vii. If negligence/ mal operation on part of the Bidder's operator results in failure of equipment, such equipment should be repaired/ replaced by the Bidder free of cost.

viii. If any jobs covered in O&M Scope as per Tender are not carried out by the contractor/ Bidders during the O&M period, the Engineer-In-Charge shall take appropriate action as deemed fit.

ix. TEDA reserves the right to make surprise checks/ inspection visits at its own or through authorized representative to verify the O&M activities being carried out by the Bidder. Failure to adhere to above guidelines will result in penal action including debarring from participation in next Tender

Annexure D

Sanction Request Letter

(On Letterhead of the Vendor)

Letter No. XX/XXX/2022-23/XXX Dated XX.XX.XXXX

To,

The General Manager,
Tamil Nadu Energy Development Agency (TEDA)
E.V.K Sampath Maaligai
5th Floor, No. 68, College Road,
Chennai- 600 002.

Sub: Application for approval of project sanction for disbursement of CFA for Installation and Commissioning of Solar PV Plant under XXXX Model in Part X

Ref: 1. Your Allocation Letter XXXX/XXX/XXX dated XX.XX.XXXX

2. Project Sanction documents received vide letter number XXX dated XX.XX.XXXX

Dear Sir,

In reference to the above allocation letter dated XX.XX.XXXX, allocating us an aggregate capacity of XX kW (allocated capacity in the category) Solar PV Project under XXXX model under Part X, we request you to kindly issue this consent letter for installation and commissioning of solar PV projects in Tamil Nadu Energy Development Agency (TEDA) area under the grid connected rooftop scheme as per the following details:

Total allocated capacity	Project Cost (Rs/ kW)	Capacity Sanctioned (kW)	CFA Amount
1.			
2.			
3.			

We shall complete the Installation & Commissioning of the sanctioned projects as per the terms and conditions of the Tender document and work order issued by the Tamil Nadu Energy Development Agency (TEDA)

Please find the check list of documents attached for sanction of projects

S.No	Documents	Yes/ No	Page No.
1.	Covering letter on Letterhead		
2.	NOC/ Acknowledgement from DISCOM		

3.	Copy of Electricity Bill		
4.	Coloured Site Photos with Date & Time Stamping and Geo-coordinates		
5.	BOM & SLD		
6.	Solar PV Module Specs Sheet		
7.	Solar PV Module IEC Certificates		
8.	Inverter Specs Sheet		
9.	Inverter IEC Certificates		
10.	DCR Undertaking (individually for each project)		

Thanking You

Yours Faithfully,
(Name of Authorized signatory of the Vendor)
(Designation)

Annexure E

Quality Certification, Standards and Testing for Grid-connected Rooftop Solar PV Systems/Power Plants

Quality certification and standards for grid-connected rooftop solar PV systems are essential for the successful mass-scale implementation of this technology. It is also imperative to put in place an efficient and rigorous monitoring mechanism, adherence to these standards. Hence, all components of grid-connected rooftop solar PV system/ plant must conform to the relevant standards and certifications given below:

Solar PV Modules/Panels	
IEC 61215/ IS 14286	Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules
IEC 61701	Salt Mist Corrosion Testing of Photovoltaic (PV) Modules
IEC 61853- Part 1/ IS 16170: Part 1	Photovoltaic (PV) module performance testing and energy rating: Irradiance and temperature performance measurements, and power rating
IEC 62716	Photovoltaic (PV) Modules – Ammonia (NH3) Corrosion Testing (As per the site condition like dairies, toilets)
IEC 61730-1,2	Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction, Part 2: Requirements for Testing
IEC 62804	Photovoltaic (PV) modules - Test methods for the detection of potential-induced degradation. IEC TS 62804-1: Part 1: Crystalline silicon (mandatory for applications where the system voltage is > 600 VDC and advisory for installations where the system voltage is < 600 VDC)
Solar PV Inverters	
IEC 62109-1, IEC 62109-2	Safety of power converters for use in photovoltaic power systems – Part 1: General requirements, and Safety of power converters for use in photovoltaic power systems Part 2: Particular requirements for inverters. Safety compliance (Protection degree IP 65 for outdoor mounting, IP 54 for indoor mounting)
IEC/IS 61683	Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)

	Overall efficiency of grid-connected photovoltaic inverters: This European Standard provides a procedure for the measurement of the accuracy of the maximum power point tracking (MPPT) of inverters, which are used in grid- connected photovoltaic systems. In that case the inverter energizes a low voltage grid of stable AC voltage and constant frequency. Both the static and dynamic MPPT efficiency is considered.
VDE 0126-1-1 / IEC 60255.5/ IEC 60255.27 / IEC 62116	Utility-interconnected Photovoltaic Inverters - Test Procedure of Islanding Prevention Measures
IEC 60068-2 (1, 2, 14, 27, 30 & 64)	Environmental Testing of PV System – Power Conditioners and Inverters a) IEC 60068-2-1: Environmental testing - Part 2-1: Tests - Test A: Cold b) IEC 60068-2-2: Environmental testing - Part 2-2: Tests - Test B: Dry heat c) IEC 60068-2-14: Environmental testing - Part 2-14: Tests - Test N: Change of temperature d) IEC 60068-2-27: Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock e) IEC 60068-2-30: Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle) f) IEC 60068-2-64: Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance
Fuse	
IS/IEC 60947 (Part 1, 2 & 3), EN 50521	General safety requirements for connectors, switches, circuit breakers (AC/DC): a) Low-voltage Switchgear and Control-gear, Part 1: General rules b) Low-Voltage Switchgear and Control-gear, Part 2: Circuit Breakers c) Low-voltage switchgear and Control-gear, Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units d) EN 50521: Connectors for photovoltaic systems – Safety requirements and tests
IEC 60269-6	Low-voltage fuses - Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems
Surge Arrestors	
IEC 60364-5-53/ IS 15086-5 (SPD)	Electrical installations of buildings - Part 5-53: Selection and erection of electrical equipment - Isolation, switching and control
IEC 61643-11:2011	Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and test methods
Cables	

IEC 60227/IS 694, IEC 60502/IS 1554 (Part 1 & 2)/ IEC69947	General test and measuring method for PVC (Polyvinyl chloride) insulated cables (for working voltages up to and including 1100 V, and UV resistant for outdoor installation)
BS EN 50618	Electric cables for photovoltaic systems (BT(DE/NOT)258), mainly for DC Cables
Lightning Protection	
NF C17-102:2011/	Lightening Protection Standard a) Environmental Testing b) Mechanical Test c) Withstand current Test. d) Advance time Test.
IEC 62561 Series (Chemical earthing)	IEC 62561-1: Lightning protection system components (LPSC) - Part 1: Requirements for connection components IEC 62561-2: Lightning protection system components (LPSC) - Part 2: Requirements for conductors and earth electrodes IEC 62561-7: Lightning protection system components (LPSC) - Part 7: Requirements for earthing enhancing compounds
Junction Boxes	
IEC 60529	Junction boxes and solar panel terminal boxes shall be of the thermo-plastic type with IP 65 protection for outdoor use, and IP 54 protection for indoor use

Note: Equivalent standards may be used for different system components of the plants. In case of clarification following person/agencies may be contacted.

i. Ministry of New and Renewable Energy (Govt. of India)
ii. National Institute of Solar Energy
iii.The Energy & Resources Institute
iv. TUV

Annexure F

PROJECT REPORT FORMAT

Format for Summary Project Report for Grid Connected Rooftop Solar Plants

1. Name of Bidder:
2. Tender no.
3. Project details (Site location & Address):
4. Brief about the Rooftop Solar Power Generation System:
5. Details of the beneficiary:
6. Specifications of the Components and Bill of Material/ Quantities:

S. No.	Component	Specifications	Quantity	Make
A	Solar PV module			
A.1	Aggregate Solar PV capacity (kWp)			
B	Grid Tie inverter (Type and Capacity)			
B.1	Aggregate Inverter capacity (kVA)			
C	Module mounting structure			
D	Array Junction Box			
E	AC Distribution Board			
F	Cable (All type)			
G	Earthing Kit (maintenance free)			
H	Meters			
I	Online monitoring system			
J	Any other component			
K	Transformer			

7. Unit cost of solar power generation:
8. Expected output/annum:
9. Respective drawings for layout, electrical wiring connections, earthing, components etc.
10. Connectivity details with grid and metering arrangement (with sketch diagram)
11. Copy of electricity bill of the beneficiary and consumer number
12. Any other information.
13. Documentary proof regarding beneficiary type as per of the Tender document.

Annexure G

DECLARATION of AUTHORIZATION

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)

I/ We..... (name and address of the registered office of the Bidding Company as applicable) do hereby constitute, appoint and authorize Mr./Ms. ..... (name & residential address) who is presently employed with us and holding the position of..... to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to submission of our Bid for implementation of grid connected Roof top solar projects in response to the Tender No ..... dated ..... issued by TEDA/TANGEDCO, including signing and submission of the Bid and all other documents related to the Bid, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document which the TEDA/TANGEDCO may require us to submit.

The aforesaid undertaking is further authorized for making representations to the TEDA/TANGEDCO and providing information / responses to Tamil Nadu representing us in all matters before TEDA/ TANGEDCO and generally dealing with TEDA/TANGEDCO in all matters in connection with Bid till the completion of the bidding process as per the terms of the above mentioned Tender.

We hereby agree to ratify all acts, deeds and things done by our said undertaking pursuant to this undertaking and that all acts, deeds and things done by our aforesaid undertaking shall be binding on us and shall always be deemed to have been done by us.

All the terms used herein but not defined shall have the meaning ascribed to such terms under the Tender.

Signed by …….. (Insert the name of the executants' company) Name: Company:

Phone
E-mail: Address :
Sincerely

Annexure H

Quarterly O&M report

Month and year:
Name of the bidder:
Tender ref no.:
Project Capacity:
Address of the site:

Part A

Component	Activity	Description	Date	Name / Signature	*Remarks
PV Module	Cleaning	Immediately clean any bird droppings/dark spots on module.			
	Cleaning	Clean PV modules with plain water or mild dishwashing detergent.			
	Inspection (for plants> 100 kW)	Infrared camera inspection for hot spots; bypass diode failure.			
PV Array	Inspection	Check the PV modules and rack for any damage.			
	Inspection	If any new objects, such as vegetation growth etc., are causing shading of the array. Remove if any.			
	Vermin Removal	Remove bird nests or vermin from array and rack area.			

Junction Boxes	Inspection	Inspect electrical boxes for corrosion, intrusion of water or vermin. Check position of switches and breakers. Check status of all protection devices.			
Wiring	Inspection	Inspect cabling for signs of cracks, defects, lose connections, corrosion, overheating, arcing, short or open circuits, and ground faults.			
Inverter	Inspection	Observe instantaneous operational indicators on the faceplate. Inspect Inverter housing or shelter for any physical maintenance. Check for connection tightness.			
Inverter	Service	Clean or replace any air filters.			
Instruments	Validation	Verify monitoring instruments (pyranometer etc.) with standard instruments to verify their operation within tolerance limits.			
Transformer	Inspection	Inspect transformer oil level, temperature gauges, breather, silica gel, meter, connections etc.			

Plant	Monitoring	Daily Operation and Performance Monitoring.			
Spare Parts	Management	Manage inventory of spare parts.			
Logbook	Documentation	Maintain daily log records.			
Tracker (if any)	Inspection	Inspect gears, gear boxes, bearings, motors.			
	Service	Lubricate bearings, gear as required.			

*****Provide details of any replacement of systems/components, damages, plant/inverter shut down (planned/forced), breakdown, etc under remarks.

The same may be inspected by Tamil Nadu Energy Development Agency (TEDA) or its authorized representative at any time 5 years of O&M period. The Register will have the information about the daily generation, Inverter downtime if any, Grid outages.

Annexure I

(Tax Invoice on Company letter Head with GST No.)	
Invoice No.: Invoice Date:	Place of Supply:
Bill To	
Name, contact no. and Address of the consumers	

Sl No	Item and Description	HSN/SAC	Qty	Rate	CGST		SGST		Amt
					%	Amt	%	Amt	
Total									x

Total in Words	Total amount	x
	Admissible CFA @ 40%	y
Terms and Conditions	Amount billed to consumer, excluding CFA	Rs. (x-y)
	Total	

Authorized Signature

Annexure J

Project Completion Report for Grid-Connected Rooftop

Financial year * :			
Approval No. * :			
Proposal Title :			
Installed by agency :			
Title of the Project* :		SPV Capacity (kWp)*:	
Category of the organization/ beneficiary*:		Name of the contact person* :	
Address of contact person* :			
State* :		District/City*:	
Mobile* :		Email*:	
Aadhaar Card Number (For Residential) Copy to be attached.		Latitude:	
		Longitude:	
Other info			
Electricity Distribution Company Name :		Sanction Load	
Electricity consumer account no. as per electricity bill :			

Technology Description & System Design /Specification			
(Compliance to BIS/ IEC Standards is mandatory – Attach Copies)			
1. Solar PV Module:			
Power of each PV Module / Nos.(Wp)* / Make			
Cumulative Capacity of Modules(kWp):			
Solar cell technology :		Tilt Angle of Modules:	
Module efficiency (in Percentage) :		Azimuth	
Indigenous or imported		RFID passed inside or outside:	
2. Inverters:			
Type of inverter :			
Power of each PCU/ Nos. of inverters (kVA)* / Make			
Capacity/Power of PCU/inverters (kVA) :		Type of Charge Controller / MPPT	

Inverter efficiency (Full load) : (in percentage)			
Grid connectivity level phase	Single Phase/ Three Phase	Grid connectivity level Voltage	230 V/ 415 V
3. Mounting Structures			
Type		Surface Finish	
Material		Wind Speed Tolerance	
4. Cables:			
DC Cable Make & Size		Length:	
AC Cable Make & Size (Inverter to ACDB)		Length:	
AC Cable Make & Size (ACDB to Electric Panel)		Length:	
Conductor	Multi strand high conductivity Copper	Insulation/sheath	PVC /XLPE Insulated
5. JUNCTION BOX & DISTRIBUTION BOARDS			
Type	weatherproof, dust & vermin proof	Nos.:	
Make			
6. EARTHING & LIGHTNING PROTECTION			
EQUIPMENT EARTHING			
AC (Nos.)		Earth Resistance	
DC (Nos.)		Earth Resistance	
LIGHTNING ARRESTORS (LA)			
Type			
LA (Nos.)		Earth Resistance	

(Signature of Vendor)
With Stamp

Annexure K

Check List

Documents against Completion of Project

Name of Vendor:_____Allocated Capacity :_____kW
Allocation letter No.: _____
Consent letter No. : _____
Name of Beneficiary:_____Installed Capacity:____kW

S. No.	Documents	Yes / NO	Page No.
1.	Claim letter for CFA		
2.	Solar System Warrantee Certificate for 5 / 25 years		
3.	Copy of Inspection report		
4.	Copy of Completion report - Annexure J		
5.	Solar PV module & Solar Inverter Serial No.		
6.	Solar PV module & Solar Inverter warranty certificates		
7.	Net Metering Installation report		

Signature

Annexure L

INTIMATION TO TEDA/TANGEDCO FOR IMPLEMENTATION OF GRID CONNECTED ROOFTOP SOLAR PV PLANT UNDER SCHEME

To, Date:

_____(Designated Officer, TEDA/TANGEDCO)

1.	Name of SPD/Implementing Agency	
2	Name of the Consumer*	
Site Details*		
3	Address of the Rooftop Project Site:*	H No:
		Street Name:
		Village Name:
		District Name:
		State:
		Pin Code:
4	Phone / Mobile no. *	
5	Email Id:	
6	Electricity Consumer No. *	
7	Category (Please) *	◉ Residential
8	Installed Plant Capacity (kW)*	
9	Connected load (kVA)*	
10	Voltage level at interconnection*	☐ 415 V ☐ 11 kV ☐ above 11 kV
11	Nearest Transformer Details	Location: Capacity:
12	Details of Inverter with Anti-Islanding Protection* Phase (Φ): (Please) Galvanic Isolation (Please)	Make: Capacity: ◉ Single phase ☐ 3-Phase ◉ Inside Inverter ☐ Outside Inverter
14	Both AC and DC components of the SPV power plants Earthed*: ☐	
15	CEIG Inspection required*	☐ Yes ☐ No
16	If, Yes, Inspection date * (Attach copy of CEIG Certificate)	
18	Bank Account details	Account No. Bank Branch
19	Date of Grid Synchronization*	
20.	Net metering and grid connectivity (Attach acknowledgment from DISCOM, if received)	Applied on:
		Fees Deposited On:

*to be provided mandatorily

It is certified that the information furnished above is true to the best of my knowledge.

Consumer /Authorised Signatory of Implementing Agency on behalf of consumer

Annexure M

(CFA Claim Letter on Company letter Head)

Ref No..... Date: .....

To,

The General Manager,
Tamil Nadu Energy Development Agency (TEDA)
E.V.K Sampath Maaligai
5th Floor, No. 68, College Road,
Chennai- 600 002.

Sub: Claim Letter for release of CFA for Solar Power Plant of ..... kW capacity installed at .....

Ref:

1. Tamil Nadu Energy Development Agency (TEDA) Allocation letter No. .....
2. Tamil Nadu Energy Development Agency (TEDA) Consent letter No.....

Dear Sir,

This is in reference to Tamil Nadu Energy Development Agency (TEDA allocation and consent letter, We, ... (Name of Company) has successfully commissioned the ..... kW capacity rooftop solar plant installed at ..... (Name, CA No. & Address Site).

As per the sanction order, ... (Name of Company) is entitled to CFA of Rs... ..... , post successful installation, commissioning and inspection of the rooftop Solar Power Plant.

Therefore, kindly release the CFA of Rs. ..... (Rs..... In words) at the earliest.

Thanks, and regards,

(Signature)

Signed and Stamp

Annexure N

Joint Inspection Report

It is to certify that a Grid Connected Solar PV Power Plant has been installed with following details:

1. Name of the beneficiary: _____
2. Address of installation with pin code: _____
3. Electricity consumer number: _____
4. Solar PV module capacity (DC):_____kWp
5. Inverter capacity (AC) (Nominal output power):_____kW
6. Date of installation: _____
7. Date of commissioning (after installation of net-meter):_____
8. Date of Joint inspection: _____
9. Metering arrangement:_____(Net meter/Gross meter/Net billing)

The above system is as per BIS/MNRE specifications and has been checked for its performance on _____and it is working satisfactorily.

DISCOM	**EMPANELLED AGENCY**	**CONSUMER**	
Name	_____	_____	_____
Designation	_____	_____	
Date	_____	_____	_____
Sign	_____	_____	_____
Seal	_____	_____	

It is to certify that the above system has been purchased with following details:

1. Total project cost ₹ _____
2. CFA amount ₹ _____
3. Amount paid by beneficiary ₹ _____

EMPANELLED AGENCY	**CONSUMER**	
Name	_____	_____
Designation	_____	
Date	_____	_____
Sign	_____	_____
Seal	_____	

Annexure O

Reference Bidders' Declaration Format associated with Implementation of ALMM Order

(on the letter head of the bidder)

Declaration

To Whomsoever this may concern

Reference: (Tender no. and description)

We hereby declare that we are fully aware of the binding provisions of the ALMM order and the Lists there under, while quoting the rate in the Tender no. **TEDA/1469/Phase II GCRTS/2021-22 dated: 14.04.2022** floated by TEDA

1. We understand that the List – I (Solar PV Modules) of ALMM Order, Annexure – I of the O M, issued by MNRE on 10th March 2021 will be updated by MNRE from time to time. We also understand that the Modules to be procured for this project, shall be f rom the List - I of the ALMM order applicable on the date of invoicing of such modules.

2. We further understand and accept that we shall be liable for penal action, including but not limited to blacklisting and invocation of Performance Bank Guarantee, if we are found not complying with the provisions of ALMM Order, including those mentioned above.

Name:
Designation:
Organization:
Date:

(Signature and Stamp)

Annexure P

Standard Operating Procedure (SOP) for Installation and Metering Connection of Grid Connected Solar Rooftop PV Systems by TANGEDCO

ACTIVITY	RESPONSIBILITY	TIMELINE (Max Working Days)
Submission of Application	CONSUMER	***Zero Date***
Acknowledgment of Application by DISCOM	TEDA/TANGEDCO	***02***
Site Verification / Technical Feasibility & issuance of Letter of Approval (LOA) / Termination	TEDA/TANGEDCO	***15***
In-Principle Approval for CFA	TEDA/TANGEDCO	10
Execution of Metering Agreement	TANGEDCO & CONSUMER	15-20
Installation of Rooftop Solar System	TEDA/TANGEDCO, Empanelled Vendor & CONSUMER	90-180
Meter Procurement Intimation	CONSUMER	15 (prior intimating TANGEDCO on system readiness)
Submit Work Completion Report / Certificate	CONSUMER &Empanelled Vendor	90-180 (from LOA) (depending upon capacity)
Inspection by CEIG (if applicable)	CEIG	15 -20
Issuance of Safety Certificate	CEIG (if applicable)	5-10
Intimation to Install Meter	CONSUMER	7-10
Inspection by TANGEDCO, Installation of Meter [2] and Commissioning of the System	TANGEDCO	15 – 20 (after CEIG approval)
Inspection for Release of CFA [4	TEDA/TANGEDCO	07-10
Release of CFA	TEDA/TANGEDCO	05-10
Billing Process	TEDA/TANGEDCO	30 (After synchronization with Grid)

Annexure Q

Undertaking/Self- Declaration for domestic content requirement fulfilment
(**Letter Head**)

This is to certify that M/S.....[Company Name] has installed .....KW [Capacity] Grid Connected Rooftop Solar PV Power Plant for..... [Consumer Name] at ..... [Address] under sanction number.....dated.....[sanction date] issued by... .....[DISCOM Name].

It is hereby undertaken that the PV modules installed for the above-mentioned project are domestically manufactured using domestic manufactured solar cells. The details of installed PV Modules are follows:

1. PV Module Capacity:
2. Number of PV Modules:
3. Sr No of PV Module
4. PV Module Make:
5. Purchase Order Number:
6. Purchase Order Date:
7. Cell manufacturer's name
8. Cell GST invoice No

The above undertaking is based on the certificate issued by PV Module manufacturer/supplier while supplying the above-mentioned order.

I, ...on behalf of M/S.....[Company Name] further declare that the information given above is true and correct and nothing has been concealed therein. If anything is found incorrect at any stage then the due Central Financial Assistance (CFA) that I have not charged from the consumer can be withheld and appropriate criminal action may be taken against me and my company, as per law, for wrong declaration. Supporting documents and proof of the above information will be provided as and when requested by MNRE/state implementing agency.

(Signature With official Seal)
For M/S.....
Name.....
Designation.....
Phone.....
Email.....

Annexure R

Agreement between Vendor and beneficiary for additional cost

This agreement is signed between two parties i.e.,M/s (Name of Vendor)registered at address, who is an empanelled vendors in the Tender floated by TEDA/TANGEDCO for implementation of grid connected rooftop solar (GCRTS) PV projects in the state/operational area of name of state/Name of Discom, hereby referred to in as the 'Vendor'or 'first party' AND (Name of Consumer, residing at…….) , hereby referred to in as the 'customer' or 'second party'.

Both the parties mentioned above, by mutual consent, are entering into an agreement for installation of grid connected rooftop solar project under Phase-II of grid connected rooftop solar programme of MNRE, being implemented by Name of implementing agency in the state/operational area of TamilNadu. The second party has satisfied itself that the first party is an empanelled vendor in the Tender floated by TEDA and rooftop solar project of kW capacity will be installed by first party at the residence of second party, under the Tender floated by TEDA.

Both the parties referred above, do hereby declare that they are aware of the fact that the L-1 price discovered in the Tender floated by TEDA is Rs. /kW. However, the second party has agreed to pay additional cost to the first party for desired customization in the project which is in the form of (mention the customizations). Due to these customizations, the per KW cost of the rooftop project comes out to be (Rs.).

The first party hereby declares that the invoice raised to the second party for amount mentioned above, is on actual basis after taking into account the cost of any customization and no other extra/hidden charges are being charged to the second party. The second party hereby declares that they are aware of the provisions of the scheme and do hereby consent to pay the additional cost of customization to the first party for the desired customizations. MNRE and the implementing agency shall not be, in any case, be held responsible for any dispute arising out of this agreement/financial transactions.

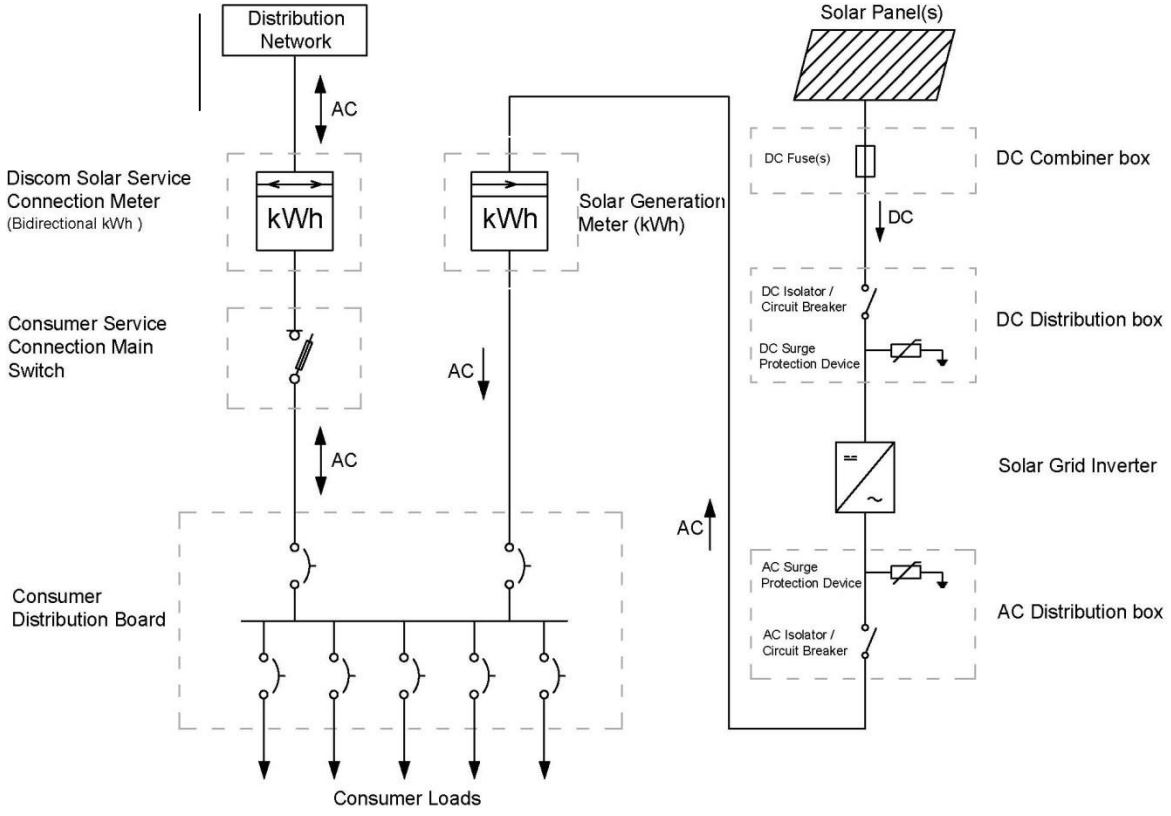
This agreement is entered into ……..day of the month of..... in year……

For First Party
(Name of Company)

For Second Party
(Name of Consumer)

Annexure- S

1. Typical wiring diagram for grid-tied solar PV system *without* diesel generator.



2. Typical wiring diagram for grid-tied solar PV system *without* diesel generator.