



Chhattisgarh State Renewable Energy Development Agency (CREDA)
(Dept. of Energy, Govt. of Chhattisgarh)
Near Energy Education Park, Village Fundhar
VIP Road (Airport Road) Raipur (Chhattisgarh)
Ph.: +91-8770580522, 9916861794
E-mail: credatendercell@gmail.com, Website: www.creda.co.in

BID DOCUMENT No- 88282/GCSRT_1-500kWp/CAPEX/2021-22/Raipur

Date: 06.12.2021

Request for proposal for the tenders/bids from the prospective bidders for “Empanelment of Vendors for Design, Supply, Installation, Testing & Commissioning Including obligated Warranty and Comprehensive Maintenance of 1kWp to 500kWp under Grid Connected Rooftop Photo Voltaic Solar Power Plant Programme of MNRE Phase-II for all the willing consumers excluding Government connections in Chhattisgarh State through rate contract programme under CAPEX Mode”

Particulars	From Date & Time	To Date & Time	Place
Date of issue of notice inviting bid	06.12.2021 05:00 pm	----	-----
Period of availability of bidding document at website	06.12.2021 05:00 pm	05.01.2022 05:00 pm	www.creda.co.in/Tenders https://eproc.cgstate.gov.in
Submission of queries in writing	14.12.2021 11:00 am	15.12.2021 05:00 pm	CREDA, HO, Raipur
Pre-bid meeting	17.12.2021 11:30 am	17.12.2021 01:00 pm	Virtual Prebid Meeting will be informed separately
Submission of Online Bid (Technical + e-Price Bid)	06.12.2021 05:00 pm	05.01.2022 05:00 pm	https://eproc.cgstate.gov.in
Opening of Technical Bid	06.01.2022 12:00 pm onwards		At CREDA, Conference Hall HO (RE-II) Raipur
Opening of e-Price Bid	After conclusion of Technical evaluation and declaration of eligible bidders		At CREDA, Conference Hall HO (RE-II) Raipur

Bid Processing Fee (non- refundable): Rs. 29,500.00 (Including 18% GST) (In words: Rupees Twenty-nine thousand five hundred only) to be deposited in CREDA’s account via RTGS/NEFT as a single transaction.

CHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY
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**Chhattisgarh State Renewable Energy
Development Agency (CREDA)**

Airport (VIP Road) Near Energy Educational Park P.O. Devpuri, Raipur (C.G.)

NIT Ref: 14863/GCSRT_1-500kWp/CAPEX/2021-22/Raipur, Date:- 06.12.2021

NOTICE INVITING TENDER

Tender No: 88282

CREDA invites online tenders/bids from the prospective bidders for "Empanelment of Vendors for Design, Supply, Installation, Testing & Commissioning Including obligated Warranty and Comprehensive Maintenance of 1kWp to 500kWp under Grid Connected Rooftop Photo Voltaic Solar Power Plant Programme of MNRE Phase-II for all the willing consumers excluding Government connections in Chhattisgarh State through rate contract programme under CAPEX Mode".

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Technical bid and Price Bid shall be submitted in online only at <https://www.eproc.cgstate.gov.in>. Bidders are advised to follow the instructions provided for Registration and e-Submission Process accordingly. (For any query about e-bidding please visit user manual at <https://www.eproc.cgstate.gov.in>)

Details of this Bid are mentioned at Bid Documents which can be downloaded from our website www.creda.co.in and from <https://www.eproc.cgstate.gov.in>.

Bidders are requested to submit Pre-Bid queries with their suggestions/objections/ reservations if any with details to avoid any confusion and to ensure clarity and transparency regarding the Bid. CREDA reserves all rights to accept/reject any or all Bids in full/part without assigning any reasons. Any amendment in tender documents shall only be notified through the website of CREDA (www.creda.co.in) as well as Chhattisgarh e-procurement portal (<https://www.eproc.cgstate.gov.in>)

Last date of submission of bid is **05.01.2022 till 05:00 PM.**

BANK DETAILS OF CREDA

1. Details of Beneficiary/ Account Holder

Name of Beneficiary	Chhattisgarh State Renewable Energy Development Agency (CREDA)
Address	Near Energy educational Park, VIP Road (Airport Road), Raipur
Contact Number	Tel.: 9425562821

2. Bank Details

Bank Name	ICICI Bank
Branch Address	Pachpedi Naka, Raipur
Beneficiary Account No.	134601000400
Beneficiary Account Name	C G ST Renewable Energy Dev. Agency (CREDA)
Type of Bank Account	Saving
MICR Code of the Bank	492229006
IFSC Code of the Bank	ICIC0001346

3. Nodal Person for enquiries and clarifications

All correspondence, clarifications in respect of the Bid document and submission of the Bid shall be addressed to:

Designation	CE (RE-V, H.O) CREDA
Address	CREDA, Near Energy Education Park, Village Fundhar VIP Road (Airport Road) Raipur (Chhattisgarh)
Telephone	+91-9826137734 and/or +91-8770580522
E-mail	<u>credatendercell@gmail.com</u>

**Chief Engineer
RE-V, H.O. CREDA
Raipur (CG)**

CHECK LIST OF DOCUMENTS TO BE UPLOADED IN THE E-BIDDING PORTAL

To ensure that your Tender/Bid uploaded on the Chhattisgarh e-Procurement portal i.e., <https://eproc.cgstate.gov.in> is complete in all respects, please go through the following checklist & tick mark for the enclosures attached with your Tender/Bid: -

SN	Envelope	Description	Complied (For Office Use Only)
1.	A. Pre- Qualification	Tender Document Fee submission form of the bidder confirmed by CREDA (as on page 6)	
2.		Integrity Pact as per Format III	
3.		Bid Security Declaration Format IV	
4.		Copy of original tender document duly signed & with stamp on each page, as a confirmation of acceptance of Terms & Conditions (T&C).	
5.		PAN, GSTIN issued in the name of the Bidder	
6.		Self-certificate from Bidder on not being a debarred from Government contract or a blacklisted company.	
7.		Declaration of conflict of interest - by bidder about any relatives working with CREDA and Affidavit as per Format-V	
8.		Copy of Registration: Certificate (or Acknowledgment) as System Integrator of CREDA in SPV Programme valid for FY 2021-22 or undertaking from System Integrator for Registration	
9.	B. Technical and Financial- Qualification	Original Net Worth Certificate duly signed by Chartered Accountant	
10.		Copy of Certificate for last three consecutive year's turnover of works done regarding SPV Projects.	
11.		Copy of ITRs for last three Financial Years of the Bidder	
12.		Technical details and specifications highlighting salient features of the systems and latest test report etc.	
13.		Completion and Performance Certificates of Supply, Installation & Commissioning work of Grid Connected Solar Power Plants in Bidder name in State/Central Gov./SNA. Scheme for any three consecutive Years (i.e., FY 2017-18,2018-19,2019-20/2020-21)	
14.		Format – VII Bidder Details (duly filled, sealed and signed)	
15.		Declaration format associated with implementation of ALMM Order: Format – IX	
16.		Undertaking/Self – Declaration for domestic content requirement fulfilment: Format – X	
17.		List of service center available in Chhattisgarh	

Details of Tender Document Fee

A scanned copy of Tender Document fee transaction shall have to be uploaded in the format below on the Chhattisgarh e-Procurement portal. Details uploaded in incorrect format shall be rejected:

Tender No. and Date	
Name of the Bidder	
Bidder's Bank Account Details	
Name of the bank	
Branch	
IFS Code	
Account No.	
Transaction reference number	
Date of transaction	
Bid Document Fee	

Beneficiary Account Name	C G ST Renewable Energy Dev. Agency (CREDA)
Bank and Branch Address	ICICI Bank, Pachpedi Naka, Raipur
Beneficiary Account No.	134601000400
IFSC Code of the Bank	ICIC0001346

(Sign & Seal of the bidder)

*NOTE –

- (i) The Tender Document Fee shall have to be deposited as a single NEFT/RTGS transaction in CREDA's bank account (amount mentioned above).

DISCLAIMER

The information contained in this Request for Proposal document (hereafter referred to as "RFP") or subsequently provided to Bidder(s), whether verbally or in documentary or any other form, by or on behalf of the Company or any of its employees or advisors, is provided to Applicant(s) on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided.

This RFP is not an agreement and is neither an offer nor an invitation by Chhattisgarh State Renewable Energy Development Agency (CREDA) / Chhattisgarh State Power Distribution Co Ltd (CSPDCL) to the prospective Applicants/Bidders or any other person. The purpose of this RFP is to provide interested parties/Bidders with information that may be useful to them in the formulation of their application/Bid for qualification. The selection thus made will be in pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments arrived at by the CREDA/ CSPDCL in relation to the Projects. Such assumptions, assessments, and statements do not purport to contain all the information that each applicant/Bidder may require. This RFP may not be appropriate for all persons, and it is not possible for the CREDA/ CSPDCL, its employees, or advisors to consider the objectives, financial situation and particular needs of each party who reads or uses this RfP. The assumptions, assessments, statements, and information contained in this RFP may not be complete, accurate, adequate, or correct. Each Applicant should, therefore, conduct its investigations and analysis and should check the accuracy, adequacy, correctness, reliability, and completeness of the assumptions, assessments, statements, and information contained in this RFP and obtain independent advice from appropriate sources.

Information provided in this RFP to the Applicant(s)/Bidder(s) is on a wide range of matters, some of which may depend upon the interpretation of the law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The CREDA/ CSPDCL accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on the law expressed herein.

CREDA/ CSPDCL, its employees and advisors make no representation or warranty and shall have no liability to any person, including any Applicant or Bidder, under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way with selection of Applicants for participation in the Bidding Process.

The CREDA/ CSPDCL also accepts no liability of any nature, whether resulting from negligence or otherwise howsoever caused arising from a reliance of any applicant upon the statements contained in this RFP.

The CREDA/ CSPDCL may, in its absolute discretion but without being under any obligation to do so, update, amend, or supplement the information, assessment, or assumptions contained in this RFP. The issue of this RFP does not imply that the CREDA/ CSPDCL is bound to select and shortlist Applications, and the CREDA/ CSPDCL reserves the right to reject all or any of the Applications or Bids without assigning any reasons whatsoever.

The applicant/Bidder shall bear all its costs associated with or relating to the preparation and submission of its application/Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the CREDA/ CSPDCL or any other costs incurred in connection with or relating to its application. All such costs and expenses will remain with the applicant, and the CREDA/ CSPDCL shall not be liable in any manner whatsoever for the same or any other expenses incurred by an Applicant in preparation or submission of the Application, regardless of the conduct or outcome of the Bidding Process.

Though adequate care has been taken while preparing the Tender document, the Bidders shall satisfy themselves that the document is complete in all respect. Intimation regarding any

discrepancy shall be given to CREDA H.O. (Raipur, Chhattisgarh) immediately. If no intimation is received from any Bidder within Ten (10) days from the date of notification of Tender Notice/issuance of e-Tender documents, it shall be considered that the document is complete in all respect and has been received/acknowledged by the Bidder(s).

Definitions

Definitions:

In this "Bid / RFP Document" the following words and expression will have the meaning as herein defined where the context so admits:

- a) "Affiliate" shall mean a company that either directly or indirectly
 - i. controls or
 - ii. is controlled by or
 - iii. is under common control withA Bidding Company (in the case of a single company) and "control" means ownership by one company.
- b) "Approved Rate" shall be that rate /capital cost requirement per KWp which are discovered & finalized by CREDA separately for each capacity range, after opening of Financial bids of qualified bidders for each range towards work for the capital cost for Design, Supply, Installation, testing and commissioning of grid connected rooftop solar photovoltaic system including its CMC for 05 years in Chhattisgarh State.
- c) "B.I. S" shall mean specifications of Bureau of Indian Standards (BIS).
- d) "Bid / Tender" shall mean the Techno-Commercial and the Price/Financial Bid submitted by the Bidder along with all documents/credentials/attachments, formats, etc., in response to this tender in accordance with the terms and conditions hereof.
- e) "Bidder/Tenderer" shall mean an individual/firm/agencies/organisation/Company/Joint venture of two firms/agencies/companies including its successor, executors and permitted assigns jointly and severally, as the context may require, submitting the Bid in accordance with the provisions of this Bid.
- f) "Bid Deadline" shall mean the last date and time for submission of Bid in response to this bid as specified in Bid Information Sheet and as specified in ITB of this Bid document including all amendments thereto.
- g) "Bid Document" shall mean all Definitions, Sections, Layouts, Drawings, Photographs, Formats etc. as provided in this bid including all the terms and conditions hereof.
- h) "CAPEX" shall mean Capital Expenditure.
- i) "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. Register with the Institute of Chartered Accountants of India (ICAI) having Unique Document Identification Number (UDIN).
- j) "Competent Authority" shall mean CEO, CREDA himself and/or a person or group of persons nominated by CEO, CREDA for the mentioned purpose herein.
- k) "Firm/Agencies/Organisation/Company" shall mean a body incorporated in India under the Companies Act, 2013.
- l) "Completion of Work" means that the project/work for Design, Supply, and Installation of Grid Connected Rooftop Solar Photovoltaic system have been completed operationally and structurally has been attained for the purpose of carrying out performance test(s) as per Technical Specifications specified in this tender.
- m) "Commissioning" (COD) means Successful operation of the full capacity of the Grid Connected Rooftop Solar Photovoltaic system after synchronisation with the Grid and Commissioning Certificate is issued by CSPDCL / CREDA
- n) "Consents, Clearances and Permits" shall mean all authorizations, licenses, approvals, registrations, permits, waivers, privileges, acknowledgements, agreements, or concessions

required to be obtained from or provided by any concerned authority for the purpose of installation of the generation plant or captive consumption of such generation.

- o) "Bid Document" shall mean collectively the Bid Document, Design, Drawings, and Specifications, agreed variations, if any, and such other documents consisting the bid and acceptance thereof.
- p) "CMC" means Comprehensive Maintenance Contract (CMC) including operation and maintenance for 05 years from the date of COD of installed Rooftop Solar Photo Voltaic system.
- q) "Day" means calendar day.
- r) "Defect Liability Period" means the period of validity of the warranties given by the Contractor (commencing at Completion of the Project/Works), during which the Contractor is responsible for defects with respect to the Project/Works.
- s) "Bid Security Declaration" accepting that if they withdraw or modify their bids during period of validity etc., they will be suspended for the time specified in the tender documents.
- t) "Employer" or "CREDA" shall mean Chhattisgarh State Renewable Energy Development Agency.
- u) "Eligibility Criteria" shall mean the Eligibility Criteria as set forth in Section III: Techno-Commercial Conditions of this tender.
- v) "Effective Date" means the date of COD of the installed Rooftop Solar Photo Voltaic system shall be determined.
- w) "GCC" means the General Conditions of Contract contained in this tender.
- x) "Goods" means permanent plant, equipment, machinery, apparatus, articles, and things of all kinds to be provided and incorporated in the Works by the Contractor under the Contract but does not include Contractor's Equipment.
- y) "Guarantee Test(s)" means the test(s) to be carried out to ascertain whether the installed Rooftop Solar Photo Voltaic system is able to attain the functional requirements as per Technical Specifications specified in this tender.
- z) "IEC" shall mean specifications of International Electro-Technical Commission.
- aa) "IFB" Shall mean Information for Bidder.
- bb) "ITB" shall mean Instructions to Bidder.
- cc) "MNRE" shall mean Ministry of New & Renewable Energy.
- dd) "NIT" Shall means Notice Inviting Tender.
- ee) "Parent Company" shall mean a company that holds paid-up equity capital directly or indirectly in the Bidding Company, as the case may be.
- ff) "Price/Financial Bid" shall mean Bidder's Quoted price submitted online only at <https://eproc.cgstate.gov.in> as per the Format-VIII prescribed in this bid. Bids submitted after scheduled time and date shall not be considered.
- gg) "Project/RTS plant/power plant/plant" shall mean "Grid connected rooftop solar photovoltaic system".
- hh) "Prosumer" or "Consumer" shall mean all the consumers of CSPDCL viz. residential, industrial, commercial etc. in Chhattisgarh State having Single phase/ Three phase LT connections and HT connections excluding government connection of supply of Electricity and who have applied online through CSPDCL's Unified Solar Rooftop web portal and fulfilling other stipulated conditions for installation of Rooftop Solar Photo Voltaic system up to their sanctioned load.

- ii) "Qualified Bidder" shall mean the Bidder(s) who, after evaluation of their Techno-Commercial Bid as per Eligibility Criteria set forth in Techno-Commercial Conditions of this tender and stand qualified for opening and evaluation of their Price/Financial Bid.
- jj) "Quoted Rate" shall mean the capital cost requirement per KWp quoted by the bidder for respective capacity range (inclusive of all statutory compliances like PF, ESI etc) in accordance with the prescribed Format – VIII and shall be construed to have considered the capital cost for Design, Supply, Installation, testing and commissioning of grid connected rooftop solar photovoltaic system including 05 year Comprehensive Warranty for complete installed plant and further 20 years extended warranty for solar PV module & CMC for five (05) years. The quoted rate shall also include development of necessary evacuation infrastructure and its operation and maintenance.
- kk) Rooftop Solar shall mean solar power plant installed on the rooftop of the residential/institutional/commercial/industrial building and/or on the appurtenant apartment land up to an area equivalent to two time the total super built up area of the residential/institutional/commercial/industrial building. The super built up area shall include all Residential/institutional/commercial/industrial structures being used for these activities and shall also include store, covered parking etc as determined by the appropriate State Authority. The appurtenant land shall be contiguous to the residential/institutional/commercial/industrial structure.
- ll) "RC" shall mean Rate Contract.
- mm) "SNA" shall mean State Nodal Agency.
- nn) "Statutory Auditor" shall mean the auditor of a Company appointed under the provisions of the Companies Act, 2013 or under the provisions of any other applicable governing law.
- oo) "Services" means those entire services ancillaries to the supply of the products, to be provided by the Contractor required for completion of work, e.g., transportation (including loading, unloading and transfer to Site) and provision of marine or other similar insurance, inspection, expediting, carrying out guarantee tests, operations, maintenance etc.
- pp) "Successful Bidder(s) / Contractor(s)/Empanelled Vendor" shall mean the Bidder(s) working as solar power developer selected or empanelled by Employer who are agreed to execute the grid connected solar photovoltaic based RTS project in consumer's premises at rate contract basis on approved rates applicable for such project pursuant to this Bid.
- qq) "Standards" shall mean the standards mentioned in the technical specification of the goods and equipment utilized for the Work or such other standard which ensure equal or higher quality and such standards shall be latest issued by the MNRE.
- rr) "Work" means the "Goods" to be supplied, as well as all the "services" to be carried out which is required for completion of work.

**Introduction, Bid details and Instructions
to the Bidders**

INTRODUCTION, BID DETAILS AND INSTRUCTIONS TO THE BIDDERS

1. INTRODUCTION

CREDA on behalf of CSPDCL invites an online tenders/bids from the prospective bidders for "Empanelment of Vendors for Design, Supply, Installation, Testing & Commissioning Including obligated Warranty and Comprehensive Maintenance of 1kWp to 500kWp under Grid Connected Rooftop Photo Voltaic Solar Power Plant Programme of MNRE Phase-II for all the willing consumers in Chhattisgarh State through rate contract programme under CAPEX Mode".

CREDA may register interested applicants for RTS installation under the MNRE Phase II guidelines vide notification 318/331/2017 dated 20.08.2019 and the same may be shared with empanelled vendors for installation. For identification of applicants/ consumers, CREDA/ CSPDCL may assist empanelled vendors. However, the entire responsibility of finding the applicants/ consumers lies with the vendors. CREDA/ CSPDCL bears no responsibility in this regard.

MNRE Vide Order no.318/38/2018-GCRT dated 18.08.2021, benchmark costs including taxes, were issued for FY 2021-22. Subsequently, applicable Goods & Services Tax (GST) rates have been revised by GST Council for identified renewable energy equipment. To address the recent changes in GST rates and any further changes in GST rates in future, the ministry had decided to issue benchmark costs excluding GST. For the purpose of calculating CFA available under MNRE Scheme, applicable GST rates may be added to the below benchmark costs. Accordingly, MNRE has issued the benchmark costs, excluding GST, for Grid-connected Rooftop Solar PV systems applicable for MNRE Scheme for the year 2021-22. Rooftop solar system capacity-wise benchmark costs are given below:

Sr. No.	Capacity Range	Benchmark Cost (INR/ kW) <i>excluding GST</i>
1.	Upto 1 kW	46,923
2.	Above 1kW Upto 2 kW	43,140
3.	Above 2kW Upto 3 kW	42,020
4.	Above 3kW Upto 10 kW	40,991
5.	Above 10 kW Upto 100 kW	38,236
6.	Above 100 kW Upto 500 kW	35,886

Note:

The above benchmark cost includes cost of Solar PV panels (with domestic cell and modules), inverter (single/3 phase wherever applicable), balance of system e.g., cable, switches/ circuit breaker/ connectors/ junction box, mounting structure, earthing, lightning arrester, and civil works, installation & commissioning, CMC for 5 years, transportation, insurance, etc. The above benchmark costs are excluding of net metering cost and battery back-up costs.

- 1.1. CREDA on behalf of CSPDCL, 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 as per RFP.
- 1.2. The bidders, who are techno-commercially qualified, shall be empanelled who wish to provide their services on the project cost discovered through transparent E-bidding process and CFA shall be calculated on the lower value with compare to the prevailing MNRE Benchmark cost. CREDA/ CSPDCL at its sole discretion and as per the requirement may renew the tenure of empanelled vendors.

- 1.3. The Bidders are advised to carefully read 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.
- 1.4. The bidder shall be deemed to have examined the bid document, 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 know 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 must complete in accordance with the bid documents irrespective of any defects, omissions or errors that may be found in the bid documents.

The Central Financial Assistance (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	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
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 up to 10 kW.
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%

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”.

Bid Information Sheet

BID INFORMATION SHEET

Notice Inviting Tender	NIT Ref:- 14863/GCSRT_1-500kWp/CAPEX/2021-22/ Raipur, Date: 06.12.2021
Bid Document fee (Non-refundable)	Rs.29,500/-incl.18% GST
Bid Document Availability	Upto 05.01.2022 during official days and hours
Bid Document Downloading End Date	05.01.2022
Last date for submission of Techno-commercial and Price/Financial Bid proposals complete in all respects to	05.01.2022 till 05:00 pm at Chhattisgarh e- Procurement portal
Pre-Bid Meeting	17.12.2021 on 12:00 pm – Virtual meeting
Techno-Commercial Bid opening date/time Tender/Bid Validity Period of Empanelment and Rate Contract	06.01.2022 at 12:00 pm 180 days from the date of Opening of tender/Bid. Valid for one Year from the date of empanelment
Contact person	Chief Engineer (Grid Connected, RE- V), CREDA, H.O., Raipur
Techno-Commercial Bid to be addressed to	CE (Grid Connected, RE-V) CREDA , VIP (Airport) Road, Near Energy Education Park P.O. Deopuri, Raipur-492015, Chhattisgarh, India Tel: +91-9826137734 and/or +91-8770580522 E-mail: credatendercell@gmail.com Web: www.creda.co.in

Important Note:

- a) The tender documents are non-transferable includes eligibility criteria, “technical specifications”, various conditions of tender, formats, etc.
- b) Joint venture (JV) of only two firms/agencies/companies, one act as lead partner, is allowed to participate in this tender subject to the condition that JV and anyone or both partners are not blacklisted by any of the State or Central Government and organisations of the State or Central Government including PSUs/SEBs/Utilities. Bids submitted by a joint venture having not more than two partners with one partner as lead partner, if allowed as per stipulated Qualification Requirements, shall comply with the following requirements:
 - Such Bidder has to submit undertaking on valid non-judicial stamp of Rs.300/- as per prescribed format available with tender as format-II (A).
 - The bid shall be signed so as to be legally binding on all partners.
 - One of the partners responsible for performing a key component of the contract shall be designated as leader (lead partner); this authorization shall be evidenced by submitting with the bid a power of attorney signed by legally authorized signatories on valid non-judicial stamp of Rs.300/- for this tender as per prescribed format available with tender as format -II (B).
 - The lead partner shall be authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the joint venture, and the entire execution of the

plant on award given by prosumer, including payment, shall be done exclusively with the lead partner, provided otherwise requested by the joint venture and agreed between the Employer and the lead partner.

- All partners of the joint venture shall be liable jointly and severally for the execution of the plant on award given by prosumer, in accordance with the tender/bid terms and conditions.
- c) A copy of the agreement entered into by the joint venture partners shall be submitted with the bid including inter-alia delineation of responsibilities and obligations of each partners appended thereto, notwithstanding the joint and several liability.
- d) The joint venture agreement should precisely indicate the responsibility of all partners of JV in respect of design, supply, installation, testing, commissioning including 05-year Comprehensive Warranty for complete installed plant and further 20 years extended warranty for solar PV module and comprehensive maintenance/CMC for five years of executed Grid connected Rooftop Solar Photovoltaic Power Plants
- e) All members of JV should have active participation in execution of plant. This should not be varied/modified subsequently without prior approval of the Employer
- f) In order for a joint venture to qualify, only lead partner shall have to fulfil the financial eligibility criteria as stated in clause-6, Tender Schedule. However, both partners of JV jointly shall have to fulfil technical eligibility criteria as stated in clause-6, Tender Schedule and other required technical conditions and specification as mentioned under this tender. Failure to comply with this requirement will result in rejection of the joint venture bid.

A firm can be a partner in only one joint venture; bids submitted by joint ventures or consortia including the same firm as partner will be rejected.

- The bidder shall submit the single bid only. The multiple bids submitted by the bidder shall be rejected.
- Bidder shall submit the Techno-Commercial bid proposal complete in all respect along with Bid Security Declaration in required forms, as per the Bid Information Sheet and Integrity Pact in Bid Information Sheet using the Chhattisgarh e-procurement website. Bidders must ensure that, while submitting techno-commercial bid, all other documents including tender documents and subsequent Amendments/Clarifications, copies of required supporting documents/certificates for determining qualifying eligibility criteria mentioned at Section-III & other technical conditions and specifications must be self-attested by authorized signatory for and on behalf of the bidder, otherwise, the bid shall be summarily rejected.
- The Tender Document Fee shall have to be deposited as a single NEFT/RTGS transaction in CREDA's bank account.

Integrity Pact:

- a) The Bidder shall complete the accompanying Integrity Pact, which shall be applicable for bidding as well as during execution, duly signed on each page by the person signing the bid and shall be returned by the Bidder in originals along with the Techno-Commercial bid in a separate envelope, duly superscripted with 'Integrity Pact'. The Bidder shall submit the Integrity Pact on a non-judicial stamp paper of Rs. 100/- in the prescribed enclosed Format – III.
- b) If the Bidder is a joint venture, the Integrity Pact shall be signed by all the partners or consortium members.
- c) Bidder's failure to submit the Integrity Pact duly signed in Original along with the Bid or subsequently pursuant to ITB shall lead to outright rejection of the Bid.

For authorized signatory:

- In case of bidder is individual or proprietary firm/agencies, bidder has to submit the certificate given in Format –II.

- In case of bidder is individual or partnership firm/agencies/organisation/Company, bidder has to submit the certificate given in format-II along with notarized original power of attorney on valid non-judicial stamp of Rs.300/- for this tender or copy of resolution passed for this tender whichever is applicable.
- In case of bidder is Joint Venture, bidder has to submit the certificate given in format -II along with notarized original power of attorney on valid non-judicial stamp of Rs.300/- for this tender as per prescribed format available with tender as format-II (B).

Bidder shall submit the “Price/Financial Bid” online only at Chhattisgarh e-procurement portal (www.eproc.cgstate.gov.in) as per Format – VIII prescribed in this BID.

Techno-Commercial bid will be open in presence of authorized representatives of bidders who wish to be present. Techno-Commercial Bids not accompanying the Bid Security Declaration, shall not be entertained and in such cases, the bid shall be summarily rejected.

Financial Bid shall be submitted only through online mode with due encryption. For ease of accessing the e-procurement website and registration of the following is to be done by bidder:

- Visit <https://eproc.cgstate.gov.in>
- Prospective bidders are requested to download, read, and understand the Manuals present on the website so as to clearly understand the bid submission process.
- The user will be directed to e-bidding page where all information regarding registration is available along with helpline details.
- Technical bid and Price Bid shall be submitted online only at <https://eproc.cgstate.gov.in> latest by 05.00 PM on 05.01.2022. Bids submitted after scheduled time and date shall not be considered.

In case of any difficulty in submitting the Financial Bid, bidders are advised to contact immediately the e-procurement team on:

Contact Number	1800 419 9140 (Toll free) (From 9.00 AM to 11.00 PM)
Email ID	Helpdesk.Cgeproc@Mjunction.In

The evaluation of submitted bids shall be carried out as per process described in Section-III of bid.

CREDA/ CSPDCL will not be responsible for any delay, loss or non-receipts of Bidding Document sent by post/courier.

Any relaxation/exemption sought by bidders shall only be considered in accordance with relevant clauses Section-II (ITB) regarding submission of Bid Security Declaration and shall be subject to fulfilment of conditions defined in the said clauses. Since all the conditions explained in the said clauses for seeking exemption from submission Bid Security Declaration are self-explanatory, bidders should ascertain about their fulfilment of all conditions and submit their bid accordingly. If at any stage, it is found that false information is furnished or non-compliance of any of the conditions defined at the said clauses, the bid/offer shall be considered as non-responsive and would not be considered for further evaluation.

- CREDA/ CSPDCL reserves the right to cancel / withdraw the tender without assigning any reason whatsoever and in such a case, no bidder / intending bidder shall have any claim arising out of such action.
- **Bidders to note that seeking new/additional documents after bid submission should be stopped. Therefore, Bidders are requested to take due care while submitting the bid that it must be complete in all respect as per this tender requirement to avoid rejection.**

2.3 CONNECTIVITY WITH THE EXISTING VOLTAGE LEVEL OF 132 KV AND BELOW.

- a. The maximum capacity for interconnection of the project with the grid at a specific voltage level shall be governed by the prevailing CSERC's Supply Code and amended from time to time.
- b. The maximum permissible capacity for Grid-connected Rooftop Solar Photo Voltaic system shall not exceed the sanctioned load or contract demand of the Prosumer.
- c. If Prosumer may have voltage levels other than above, then CSPDCL may be consulted before finalization of the voltage level and specification be made accordingly.
- d. For installation of large Grid-connected Rooftop Solar Photo Voltaic system of capacity above 100 kW, the solar power can be connected at low voltage levels and stepped up to 11 kV level through the step-up transformer. The installation of such transformers with all protections, switchgears, Vacuum circuit breakers, cables etc and execution of works of electrical lines shall be carried out by Prosumer only through CSPDCL's registered Class-I/II/III/IV electrical contractors as applicable for the works to be executed under supervision of CSPDCL. All the major materials required to execute such work shall be procured from CSPDCL's approved vendors for such materials.
- e. The prosumer must take approval/NOC from CSPDCL prior to execution of above works.
- f. If the meter installed at interface point of prosumer's premises for recording of CSPDCL's consumption already having bidirectional facility, then such meter need not to be replaced.
- g. If condition stated at (vi) above is not fulfilled and prosumer wishes to procure the meter itself from open market then such meter, to be installed at interface point of prosumer's premises, shall have the facility specified at technical specifications and must be procured from CSPDCL's approved meter manufacturers. In such case, installation of the meter is to be carried out by CSPDCL after successful testing of meter by CSPDCL's lab.

2.4 POWER GENERATION BY SUCCESSFUL BIDDER

CRITERIA FOR GENERATION

The declared annual CUF shall in no case be less than 15%. Successful Bidder shall maintain generation so as to achieve annual CUF of minimum 15% value for warrantee period of 5 years and as per the MNRE guidelines for rest of the period till the end of duration of 25 years. The lower limit will, however, be relaxed by CSPDCL to the extent of non-availability of grid for evacuation which is beyond the control of the Successful bidder. The annual CUF will be calculated every year from 1st April of the year to 31st March next year.

ARBITRATION AND JURISDICTION

If any dispute between the CREDA/ CSPDCL or Beneficiary and the Contractor arising out of Contract will first be resolved amicably between the Parties. In such cases where dispute is not resolved between the Parties, then the Parties may mutually agree to appoint an arbitrator under the provisions of Arbitration and Conciliation Act, 1996 as amended time to time.

Any disputes arising shall be subject to the jurisdiction of the High Court of Bilaspur, Chhattisgarh.

LANGUAGE

All documents, drawings, instructions, design data, calculations, operation, maintenance and safety manuals, reports, labels, and any other data shall be in Hindi/ English Language. The contract agreement and all correspondence between the CREDA/ CSPDCL and the bidder shall be in English language.

OTHER CONDITIONS

- a) The Successful bidder shall not transfer, assign or sublet the work under the contract or any substantial part thereof to any other party without the prior consent of CREDA/ CSPDCL in writing.
- b) The Successful bidder shall not display the photographs of the work and not take advantage through publicity of the work without written permission of CREDA/ CSPDCL and beneficiary of the Rooftop.
- c) The Successful bidder shall not make any other use of any of the documents or information of the contract, except for the purposes of performing the contract.

SEVERABILITY

It is stated that each paragraph, clause, sub-clause, schedule, or annexure of the 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.

2.4.2 SHORTFALL IN GENERATION

During any settlement period (Billing month for April to March) in between the 25 years from the date of commissioning of plant, it is found that the commissioned plant has not been able to generate minimum energy corresponding to the value of annual CUF within the permissible lower limit of CUF i.e. 15% should be maintained after considering the degradation of solar PV modules for a period of 5 years and will be measured at Inverter output level during peak radiation conditions declared by the Successful bidder, on account of reasons solely attribute to the Successful bidder such shortfall in performance shall make the Successful bidder liable to pay the compensation @ rate of Rs/unit as per CSPDCL's tariff applicable to prosumer. This will, however, be relaxed to the extent of non-availability of grid for evacuation which is beyond the control of the successful bidder or due to non-availability of load. If successful bidder fails to provide such eligible compensation to the prosumer within next three months from the settlement period for which annual CUF founds within the permissible lower limit of declared CUF, then such successful bidder may be liable to get punishment includes cancellation of their empanelment, forfeiture of their submitted Performance security, blacklisting of such vendor etc. The Blacklisting may inter-alia include as mentioned below: -Such Vendor will not be eligible to participate in tenders for Government supported projects.

Comprehensive Maintenance Contract (CMC) GUIDELINES TO BE MANDATORILY FOLLOWED BY BIDDERS

The bidder shall be responsible for all the required activities for successful CMC of the Rooftop Solar PV system for a period of 5 years for projects under CAPEX Part from the date of commissioning of the plant.

For all system sizes, below mentioned guidelines, shall be followed as per RfP.

- a) CMC of Solar Power Plant shall be compliant with grid requirements to achieve committed energy generation.
- b) Ensure availability of qualified and experienced engineer/ technicians during the 5 years of CMC period at project site under CAPEX model.
- c) Periodic cleaning of solar modules. The modules shall be cleaned with a periodic interval of 15 days or as and when required as per actual site conditions. This shall be supported by providing geo-tagged photographs of the site before and after cleaning of the modules. It's

the responsibility of the bidder to get the modules cleaned during CMC Period. Roof Top Owner is responsible for such obligation of bidder so as to achieve guaranteed CUF.

- d) Periodic checks of the Modules, PCUs and BoS shall be carried out as a part of routine preventive and breakdown maintenance.
- e) Immediate replacement of defective Modules, Invertors/PCUs and other equipment as and when required. Any change in the plant post net-metering shall be intimated by the bidder to CREDA and a copy to CSPDCL.
- f) Supply of all spares, consumables and fixtures as required. Such stock shall be maintained for all associated Equipment's and materials as per manufacturer's / supplier's recommendations.
- g) All the testing instruments required for Testing, Commissioning and CMC for the healthy operation of the Plant shall be maintained by the Bidder. The testing Equipment's must be calibrated once in a year from NABL accredited labs and the certificate of calibration must be kept for reference as required.
- h) 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.
- i) Co-ordination with Owner / CREDA/ CSPDCL / CEIG as per the requirement for Joint Metering Report.
- j) The person in charge present at site from bidder's side shall take a joint meter reading in the presence of rooftop owner on a monthly basis. Furnishing generation data each month to CREDA and a copy to CSPDCL positively by 1st week of every month for the previous month.
- k) Online Performance Monitoring, controlling, troubleshooting, maintaining of logs & records. A maintenance record register is to be maintained by the operator with effect from Commissioning to record the daily 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.
- l) An agreement will be signed between the beneficiary and Bidder for any kind of harm/incident at site, there will be no liability of CREDA/ CSPDCL. It will be settled between the beneficiary and bidder itself.
- m) If any jobs covered in CMC Scope as per RFP are not carried out by the contractor/ Bidders during the CMC period, the Engineer-In-Charge shall take appropriate action as deemed fit. CREDA/ CSPDCL/MNRE/ authorised Third party by competitive authority reserves the right to make surprise checks/ inspection visits at its own or through authorized representative to verify the CMC activities being carried out by the Bidder.
- n) The bidder shall submit the Monthly Comprehensive Maintenance Report mandatorily to CREDA and a copy to CSPDCL as per the Format enclosed at Annexure – III, every month. 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 subsidy. However, the decision of Engineer-in -charge shall be final in this regard.

Failure to adhere to above guidelines including the annexure A for CMC will result in blacklisting the bidders. The CREDA/CSPDCL/MNRE reserves the right to blacklist the vendor, blacklisting may inter-alia include the following: -

- a) The Vendor (In JV both the parties) /Firm/Agency will not be eligible to participate in tenders for Govt. supported projects for specified period as decided by the competent authority.

- b) The security deposited by the Firm/Vendor/Agency will be forfeited.
- c) In case, the concerned Director(s) of the firm/company joins another existing or starts/ joins a new firm/company, the company will be deemed considered as blacklisted

3. Bid Security Declaration:

- a) Bid Security Declaration shall be submitted by the Bidder along with their techno-commercial bid, failing which the bid shall be summarily rejected as per the Format – IV in this tender.

4. PERFORMANCE SECURITY:

- a) All successful bidder(s) have to submit the **RTGS/ NEFT of amount Rs.500000/- (Five lac)** within 14 days from the intimation date of selection of empanelment towards PS.
- b) Non-submission of Performance Security may liable to rejection of successful bidder from empanelment.
- c) Performance Security shall be released after 6 years (60 months) from the date of empanelment.
- d) SI registered in CREDA under "B & C" category are exempted from Performance Security.

5 COMMISSIONING:

The Commissioning of the Rooftop Solar Photovoltaic System shall be carried out by the CREDA/ CSPDCL/ CEIG after Declaration of completion of the work by both Successful bidder and prosumer in line with the provisions stipulated in CSERC (Grid Interactive Distributed Renewable Energy Sources) Regulations, 2019 and its amendment issued time to time , CEARegulations,2006, prevailing CSERC's supply code, Indian Electricity Grid code and C. G. State Electricity Grid code, 2011 and its amendment issued time to time followed by successful testing and performance tests of installed system.

4. Selection of Empanelled vendor by Prosumer, Execution & Payment terms:

The successful bidders shall follow the quality control orders and standards for all components of Rooftop Solar Photovoltaic System and its installation procedure, if any, issued by MNRE/CSERC/CSPDCL/ CREDA from time to time.

The successful Bidders have to confirm the Selection of technology in line with the technology indicated in this RFP:

- 1 The successful Bidder has adequate plant and machinery available, to perform the works properly and expeditiously within the time frame specified in the relevant MNRE guidelines/regulations.
- 2 The successful Bidder has established quality assurance systems and organization designed to achieve high level of equipment reliability in manufacturing of the Solar Systems.
- 3 The successful Bidder has adequate financial stability and status to meet the financial obligations as per the financial Qualification Criteria of this tender.
- 4 The successful Bidder has experience of Supply, Installation, Testing, commissioning and maintenance/after sale services in the field of Grid Connected Rooftop Solar Photovoltaic systems.
- 5 The successful Bidder has provided goods after sale services for the works done by him during past years.
- 6 The successful Bidder has Valid Test Certificates of the Solar PHOTO VOLTAIC module as specified and required under this tender.
- 7 The successful Bidders Fulfils all requirements as per various notifications/guidelines of MNRE, GOI and provisions stipulated in relevant CSERC regulations, 2019, Indian Electricity Grid Code, CSERC's supply code and its amendment issued time-to-time.

- 8 The successful Bidders shall be required to have adequate post installation localized service facilities/centres.
- 9 Detailed technical parameters for Grid connected Rooftop Solar Photovoltaic system to be met by Successful bidder are given in this bid. The Bidders shall strictly comply with the technical parameters prescribed in the bid. Further, the Cells and modules used for completion of the work shall be procured only from the models and manufacturers included in the “Approved List of Models and Manufacturers” its amendment issued time to time as published by MNRE and updated as on the date of “completion of the work”.
- k. The Grid connected Rooftop Solar Photovoltaic System installed by successful Bidders shall also comply with the criteria for power generation detailed in Clause in Section-II, Instructions to Bidders (ITB) of tender bid.
- l. The Prosumer will have option of installing Rooftop Solar Photovoltaic System through any of the empanelled vendors. For installation at residential premises, prosumer will have to pay net of subsidy amount i.e. making payment to the selected empanelled vendors after deducting the eligible CFA. The vendor will claim the CFA from the CSPDCL. The CFA for residential sector as stated above shall be permissible only if domestic manufactured Solar Panels (using domestic manufactured Solar cells) are used by the residential prosumer. However, CFA will be limited up to 20% / 40% (as the case may be) of the benchmark cost of Rooftop Solar Photovoltaic System as defined by MNRE from time to time or the rate discovered through transparent bidding by the CREDA/ CSPDCL, whichever is lower.
- m. The subsidy/CFA of the projects will be released through CSPDCL to the empanelled vendor/successful bidders after successful commissioning of Rooftop Solar Photovoltaic System on availability from Government. Post receipt of CFA amount from MNRE, the CSPDCL shall disburse the CFA to the empanelled vendor/successful bidders after successful commissioning of Rooftop Solar Photovoltaic System upon availability of the fund.
- n. The payment to the selected empanelled vendors is to be given by the prosumer on the mutual agreed terms and conditions between them. CSPDCL/ CREDA will not be responsible for any dispute between them.
- o. The Implementing agency or Ministry officials or designated agency may inspect the ongoing installation or installed grid connected Rooftop solar Photovoltaic system. If empanelled vendor violates the provisions of the Integrity Pact provided in this bid during the execution of plant and/or In case the systems are not as per standards, non-functional on account of poor quality of installation, or non-compliance of CMC, the Ministry/CREDA/ CSPDCL reserves the right to award punishment including cancellation of empanelment, forfeiture of Performance Security, blacklisting of empanelled vendor. The Blacklisting may inter-alia include as mentioned below: -
 - 1) Such Vendor will not be eligible to participate in tenders for Government supported projects.
 - 2) In case, the concerned Director(s) of the firm/company joins another existing or starts/ joins a new firm/company, the company will be deemed considered as blacklisted.

7. STRUCTURING OF THE BID SELECTION PROCESS

Two-stage selection process followed by negotiations has been envisaged under this tender. Bidders have to submit both Techno-Commercial Bid and Price/Financial Bid online together in response to this bid. The preparation of bid proposal has to be in the manner described in Section-II, Instructions to Bidders (ITB) of bid.

8. INSTRUCTIONS TO BIDDERS FOR STRUCTURING OF BID PROPOSALS IN RESPONSE TO BID:

- a) The bidder shall submit single bid only. Submission of bid proposals by Bidders following the detailed instructions in response to this tender shall be in the manner described in the checklist for Techno commercial and Financial bid (e-price bid).

- b) Details of all types of Securities/ instruments which are pending conversion into equity whether optionally or mandatorily.
- c) While submitting techno-commercial bid, all other documents such as tender documents and subsequent Amendments/Clarifications, copies of supporting documents/certificates for determining qualifying eligibility criteria & other technical conditions and specifications must be self-attested by authorized signatory by the bidder, otherwise, the bid shall be summarily rejected.

10. IMPORTANT NOTES AND INSTRUCTIONS TO BIDDERS

- 10.1 Wherever information has been sought in specified formats, the Bidders shall fill in the details as per the prescribed formats and must be self-attested by authorized signatory of the bidder. Bidder shall refrain from any deviations and referring to any other document for providing any information required in the prescribed format.
- 10.2 The Bidders shall be shortlisted based on the declarations made by them in relevant schedules of the tender. The documents submitted will be verified in terms of various clauses of Section-II & Section-III of tender.
- 10.3 If the Bidder conceals any material information or makes a wrong statement or misrepresents facts or makes misleading statement in its response to tender, in any manner whatsoever, CREDA/ CSPDCL reserves the right to reject their bid, Bidder shall be solely responsible for disqualification/ blacklisting and based on their declaration in the submission of response to tender bid.
- 10.4 Bids submitted by the Bidders shall become the property of the CREDA and CREDA shall have no obligation to return the same to the Bidder.
- 10.5 The response to bid shall be submitted as mentioned in Clause, Section-II, and Instructions to Bidders (ITB) of bid. No change or supplemental information to a response to bid will be accepted after the scheduled date and time of submission of response to bid. However, CREDA/ CSPDCL reserves the right to Seek additional information from the Bidders, if found necessary, during the course of evaluation of the response to bid.
- 10.7 All the information shall be submitted in English language only.
- 10.8 Bidders shall mention the name of the contact person and complete address and contact details of the Bidder in the covering letter.
- 10.9 The Bid submitted, if found incomplete, which do not substantially meet the requirements prescribed in this tender will be liable for rejection by CREDA.
- 10.10 Bid not submitted in the specified formats will be liable for rejection by CREDA.
- 10.11 Bidders delaying in submission of additional information or clarifications sought will be liable for rejection.
- 10.12 Non-submission and/ or submission of incomplete data/ information required under the provisions of bid shall not be construed as waiver on the part of CREDA of the obligation of the Bidder to furnish the said data/ information unless the waiver is in writing.
- 10.13 Only High Court, Bilaspur, Chhattisgarh shall have jurisdiction in all matters pertaining to this tender.

11. NON-RESPONSIVE BID

The bid along with the documents submitted by the bidder to CREDA shall be scrutinized to establish "Responsiveness of the bid". Each bidder's response to bid shall be checked for compliance with the submission requirements set forth in this bid.

Any of the following conditions shall cause the Bid to be "Non-responsive": -

- 1 Non-submission of Bidding Document fee in form mentioned in the section-II of tender.
- 2 Non-submission of Bid Security Declaration in acceptable form along with bid document.
- 3 If bid received after due date and time of bid submission.
- 4 Any indication of rate in any part of response to the bid, other than in the financial bid submitted online.
- 5 In case, it is found that the Bidding Company have submitted more than one response to this tender, then all such submitted bids shall be treated as non-responsive and rejected.

12. DOCUMENTS TO BE SUBMITTED ONLINE

All the documents including technical and financial Bid should be submitted online on Chhattisgarh e-Procurement portal <https://eproc.cgstate.gov.in> as per the items mentioned in the checklist on page no. 5 in this bid.

13. VALIDITY OF THE RESPONSE TO TENDER

The Bidder shall submit the bid which shall remain valid up to 180 days from the last date of opening of Techno-commercial Bids. CREDA reserves the right to reject any of the submitted bid which does not meet the aforementioned validity requirement.

(a) BID PREPARATION COST

The Bidder shall be responsible for all the costs associated with the preparation of the response to Tender bid. CREDA shall not be responsible in any way for such costs, regardless of the conduct or outcome of the bid process.

(b) CLARIFICATIONS/ ENQUIRES/ AMENDMENTS

CREDA shall furnish clarifications on RfS Documents, if necessary. The Bidders may seek clarifications or suggest amendments to RfS online, also soft copy by e-mail to reach CREDA at the address, date and time mentioned in Bid information sheet

Or

Enquiries / Clarifications may also be sought by the Bidder from:

Designation	Contact Numbers	Email ID
Chief Engineer - RE-V	9826137734	contact.creda@gov.in/credatendercell@gmail.com
Assistant Engineer	8770580522	

The Bidder(s) or their authorized representative(s) is /are invited to attend pre-bid meeting(s), which will take place on the date(s) as specified in Bid information sheet, or any such other date as notified by CREDA.

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

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

(c) RIGHTS OF CREDA TO REJECT A BID:

CREDA reserves the right to reject any or all of the submitted bids or cancel the Tender or annul the bidding process for any project at any stage without assigning any reasons whatsoever and without thereby any liability. In the event of the tender being cancelled at any stage.

14. POST EMPANELMENT OF SUCCESSFUL BIDDER(S) COMPLIANCES:

Timely completion of all the milestones i.e. process for Commissioning, Synchronization etc. will be the sole responsibility of Successful bidder/Prosumer. CREDA/ CSPDC shall not be liable for issuing any intimations/ reminders to Successful bidders for timely completion of milestones and/ or submission of compliance documents.

Any checklist shared with Successful bidder(s) by CREDA for compliance of above-mentioned milestones to be considered for the purpose of facilitation only. Any additional documents required as per Tender conditions and specifications must be submitted by the Successful bidder (s) in time.

15. TERMINATION OF EMPANELMENT:

Unless otherwise extended, the tenure of empanelment for all the successful bidder(s) in all capacity ranges will be one Year from the date of their empanelment. In addition to this, at any stage, if it is found that any empanelled vendor is not commissioning/ has not commissioned the projects and/or violates the provisions of the Integrity Pact provided in this bid during the execution of plant as per CREDA/ MNRE guidelines, then their empanelment is liable to be cancelled. In addition to this, empanelled vendor is also liable to forfeiture of submitted Performance Security and/or blacklisting by CREDA.

Tender Schedule

SECTION – III

TENDER SCHEDULE

1. SCOPE OF WORK:

- 1.11 The scope of work for the bidders includes complete design, shadow analysis of roof top, engineering, supply, Installation & Commissioning of Various Capacities of Grid Connected 1-500kWp Grid Connected Rooftop Solar Photo Voltaic system for all willing consumers except government connections in Chhattisgarh state through Rate Contract programme under CAPEX Mode including its 05 Years CMC.
- 1.12 Mounting Structure within the scope of this tender is for flat RCC roofs. The height of the elevated structure shall not be more than 10ft or 3m from the floor of the roof i.e., the elevated structure shall be above 1 m to up to 3m from the roof/ ground. The Rates of additional electrical work within the premises, Civil work and additional electrical work outside the premises will be decided on the basis of at par rates of Schedule of Rates (SOR), Chhattisgarh and its amendment from time to time.
- 1.13 CREDA on behalf of CSPDCL will empanel various vendors who participate in this empanelment process and wish to provide their services on the price/rate discovered through transparent Bid. MNRE will provide the CFA on the prevailing Benchmark Cost or Discovered Rate, whichever is lower. Bidders can quote Separate rate for each capacity range categories of grid connected Roof Top Solar systems as per the Format VIII- financial/ price bid.
- 1.14 The Successful Bidder(s) shall work closely with the State Government departments, Institutions, non-profit organizations institutions in implementing the above work and ensure success of the program. Installations will have to be generally done as per the provisions stipulated in relevant MNRE guidelines, CSERC (Grid Interactive Distributed Renewable Energy Sources) Regulations, 2019, Indian electricity Grid Code, CEA regulations, 2006 and its amendment issued from time to time.
- 1.15 CREDA/ Special not be responsible in case any empanelled vendors do not get any work order. The successful bidders will have the opportunities to execute the project provided by CREDA/ CSPDCL under Grid-connected Rooftop Solar Photo Voltaic system in accordance with the Technical Specifications & various other requirements as per the relevant directions/ guidelines of MNRE, provisions stipulated in relevant CSERC regulations, 2019 and amendments, Indian Electricity Grid Code, C G State Electricity Grid Code, 2011 & CSERC's supply code and its amendment issued time-to-time along with CREDA and CSPDCL directives in this regard. The consumers under this scheme shall be free to install their projects from any empanelled vendor subject to the condition that project shall have to be installed/commissioned as per the MNRE Phase-II Guidelines and their amendments issued from time to time.
- 1.16 The Successful Bidders selected as described in Clause No. 3 of Section-II above shall be empanelled for one year from date of issuance of Letter of intent (LoI).

2. The detailed Scope of Work may as follow:

- 2.11 Identification of prospective beneficiaries and providing necessary assistance in online applications for Rooftop Solar on the behalf of beneficiary for CREDA/ CSPDCL and setting up of service centres.
- 2.12 Preparation of Detailed Project Report (DPR) of the proposed Proposal of Rooftop Solar Power Plant.
- 2.13 Obtaining Net-metering approval from concerned CSPDCL/ CREDA for grid connectivity.
- 2.14 Submission of proposal with all required documents to CREDA for sanctioning of the project.
- 2.15 Execution of the work shall be carried out in an approved manner as per the technical specification of RFP, in case of any dispute relevant MNRE/BIS/ISI/NABL/ISO/IEC/IS

- specification shall be followed and work carried out to the satisfaction of the engineer in charge.
- 2.16 The vendor shall complete the work of Design, supply, civil work, erection, testing and commissioning of SPV grid connected Power Plant 6 months from the issuance of the consent letter. In event of failure to install and commission the RTS system within the mentioned timeframe, the PS up to 100% shall be forfeited and may lead to disqualification of the vendor at the sole discretion of CREDA/ CSPDCL. The penalty for non-completion will be on pro-rata basis.
- 2.17 The work covers Design, supply, installation, commissioning and Comprehensive Maintenance Contract (CMC) for 05 (Five) Years.
- 2.18 To ensure effective CMC of the installed plant during 05 years of comprehensive warranty and maintenance of grid connected Rooftop Solar system, the successful bidder should setup their Repair and maintenance centre as per requirement. Successful Bidder(s) shall preferably establish a service centre in each district for supply and installation of the Grid Connected Rooftop Solar Photo Voltaic system. In case, if it is not economically viable for an individual vendor, then Group of empanelled vendors can establish service centre in each District. Their contact details will be available on the CSPDCL's Rooftop solar web portal. These service centres must provide all the necessary services to the Grid Connected Rooftop Solar Photo Voltaic system owners within the timelines specified in the tender, free of cost from the COD of the Rooftop Solar Photo Voltaic system. Non- performing / under-performing Photo Voltaic panel will be replaced free of cost during the obligated warranty period of 25 years from COD of plant. Non-compliance of the service standards by the empanelled vendors will make it ineligible for future work orders by the Government and their empanelment is liable to be cancelled. In addition to this, empanelled vendor is also liable to forfeiture of their submitted Performance Guarantee and/or blacklisting by CREDA.
- 2.19 List of successful Bidder(s)/Empanelled vendors for each capacity range shall be displayed on CSPDCL's online Rooftop Solar Web portal and shall be intimated in writing to the concerned.
- 2.20 In case the Empanelled Vendor fails to provide proper maintenance of the systems to the beneficiary within 3 days (in case of replacement of part(s),15 days) period from lodging of complaint, on further delay in attending and rectifying the fault, penalty @Rs.20/- plus applicable GST per day per kW will be charged by CREDA/ CSPDCL.
- 2.21 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, CREDA/ CSPDCL 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.
- 2.22 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, it shall be responsibility of the vendor to take NOC from concerned authority and engage person as per provisions as per in CEA Rules and Regulations.
- 2.23 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. The Empanelled vendors shall also arrange all certificates and test reports of the module and inverter and other equipment.

3. INSPECTION

- 3.11 All the installed Grid Connected Rooftop Solar Photo Voltaic system will be inspected by the representative of CREDA/CSPDCL/MNRE/Third Party within 15 days of fulfilling the data towards of installation and completion report from Prosumer / empanelled

vendor. The eligible CFA, if applicable, shall be released to the empanelled vendor only after the successful commissioning of Rooftop Solar Photovoltaic System in all respect. During the inspection, if the system installed is found faulty (or not in compliance to the technical specification, the cost of re-inspection by CREDA/CSPDCL/MNRE/Third Party after rectification/replacement shall be borne by the empanelled vendor.

- 3.12 If empanelled vendor violates the provisions of the Integrity Pact provided in this bid during the execution of plant and/or In case the systems are not as per standards, non-functional on account of poor quality of installation, or non-compliance of CMC, then empanelment of such vendors are liable to be cancelled. In addition to this, CREDA/MNRE reserves the right to award punishment to such empanelled vendor, which includes forfeiture of their submitted Performance Security and/or blacklisting. Such Vendor will not be eligible to participate in tenders for Govt. supported projects for specified period as decided by the competent authority.
- 3.13 The bidder needs to install and commission the SPV System within 6 (Six) months from the date of payment of project cost less CFA from beneficiary to vendor. Penalty in the form of Liquidated Damage (LD) shall be charged @ 0.5 % per week or part thereof plus applicable GST and cess on the total system cost subject to a maximum of 10% of total system cost plus applicable GST and cess.

4. INCOME TAX:

- 4.11 During the course of the empanelment period, deduction of income tax and surcharge as in force at source shall be made at the prevailing rate of income tax department issued from time to time of the gross amount of each bill.

5. RATES, TAXES AND DUTIES:

All the rates including Bidder's quoted rate in the tender shall be inclusive of all statutory compliances like PF, ESI, Services Tax, GST, etc. However, any changes made to the tax structure by the government shall be duly considered and appropriate changes made.

6. TECHNO-COMMERIAL CONDITIONS/ ELIGIBILITY CRITERIA:

PART-A: TECHNICAL ELIGIBILITY CRITERIA:

Sr. No.	Capacity range Category of RTS	Technical Requirement	Documents required to examine technical requirement
01	1kW to 10kW	<p>The bidders should have experienced of successful execution of work for design, supply, installation, testing & commissioning of grid connected rooftop photo voltaic solar system as indicated below along with their minimum 01 year of satisfactory performance from COD:</p> <p>a) At least 01kW capacity plant in each year during last 3 consecutive Financial Years (i.e. FY 2017-18, 2018-19, 2019-20/ 2020-21)</p> <p>b) At least two plants having capacity 10kW or above during last 3 consecutive Financial Years (i.e. FY 2017-18, 2018-19, 2019-20/ 2020-21)</p>	<p>Bidder shall submit the copies of sufficient relevant experience documents/ certificates along with their 01 satisfactory performance issues by CREDA/State Govt./ State PSU/ Central PSU/ SEB/ Power Utility/ Any other govt. body/ Semi. Govt. organisation while submitting techno-commercial bid for respective capacity range categories (Note: All such copies must be self-attested</p>

		<p>c) At least 100kW cumulative capacities plants above during last 3 consecutive Financial Years (i.e. FY 2017-18, 2018-19, 2019-20/ 2020-21)</p> <p>SI registered in CREDA under "B & C" category are exempted.</p>	by the authorised signatory)
02	>10kW to 100kW	<p>The bidders should have experienced of successful execution of work for design, supply, installation, testing & commissioning of grid connected rooftop photo voltaic solar system as indicated below along with their minimum 01 year of satisfactory performance from COD:</p> <p>a) At least 10 kW capacity plant in each year during last 3 consecutive Financial Years (i.e. FY 2017-18, 2018-19, 2019-20/ 2020-21)</p> <p>b) At least one plant having capacity 50kW or above during last 3 consecutive Financial Years (i.e. FY 2017-18, 2018-19, 2019-20/ 2020-21)</p> <p>c) At least 500kW cumulative capacities plants above during last 3 consecutive Financial Years (i.e. FY 2017-18, 2018-19, 2019-20/ 2020-21)</p>	
03	>100kW to 500kW	<p>The bidders should have experienced of successful execution of work for design, supply, installation, testing & commissioning of grid connected rooftop photo voltaic solar system as indicated below along with their minimum 01 year of satisfactory performance from COD:</p> <p>a) At least 50kW capacity plant in each year during last 3 consecutive Financial Years (i.e. FY 2017-18, 2018-19, 2019-20/ 2020-21)</p> <p>b) At least one plant having capacity 100kW or above during last 3 consecutive Financial Years (i.e. FY 2017-18, 2018-19, 2019-20/ 2020-21)</p>	

		c) At least 1000kW cumulative capacities plants above during last 3 consecutive Financial Years (i.e. FY 2017-18, 2018-19, 2019-20/ 2020-21)	
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Since this tender is invited with aim to promote only commercially established and operational technologies to minimize the technology risk and to achieve timely commissioning of the installed Rooftop Solar Photo-Voltaic system, hence, bidder may indicate regarding the Selection of technology and its details at the time of submission of bids in the prescribed format-vi.

PART-B: FINANCIAL ELIGIBILITY CRITERIA:

(i) Minimum average annual turnover (MAAT):

Sr. No.	Capacity range Category of RTS.	Minimum average annual turnover in last 3 consecutive Financial Years (i.e., FY 2017-18, 2018-19, 2019-20/ 2020-21)
1.	1kW to 10kW	Rs.50 Lac
2.	1kW to 10kW &>10kW to 100kW	Rs.70 Lac
3.	1kW to 10kW, >10kW to 100kW &>100kW to 500kW	Rs.100 Lac

(ii) Net Worth for each of last 3 consecutive Financial Years (i.e., FY 2017-18, 2018-19, 2019-20/ 2020-21) should be positive. Net worth means the sum of the paid up capital and free reserves (excluding reserves created out of revaluation) reduced by aggregate value of accumulated losses (including debit balance in profit and loss account for current year) and intangible assets.

Important Note:

The bidder should have above financial capability to take up the proposed work to be supported by Audited balance sheet for **last 3 consecutive Financial Years (i.e., FY 2017-18, 2018-19, 2019-20/ 2020-21)** (copies of balance sheet along with CA certificate shall be self-attested by authorized signatory should be submitted with bid).

In case a bid is submitted by a Joint venture of two firms/agencies/companies, all the partners of the JV shall meet, individually, the qualification set forth at part-B (2) whereas only lead partner shall have to fulfil the financial eligibility criteria qualification set forth for part-B (1) above. However, both partners of JV jointly shall have to fulfil the qualification set forth at part-A and other required technical conditions and specification as mentioned under this tender.

The bidder will be required to submit the detailed information as per item no. 09, 10 and 11 duly signed by Chartered Accountant.

The Blacklisted and debarred individual/firm/agencies/organisation/Company/Joint venture and anyone or both partners of two firms/agencies/companies by CSPDCL/ CREDA/State Govt. / Central Govt./State PSU/Central PSU/SEB/Power Utility/State Nodal Agency/any other Govt./Semi Govt. organization shall not be eligible for participation in the tender.

7. FORCE MAJEURE

Notwithstanding the provisions of Clauses contained in this tender, the empanelled vendors shall not be liable to award punishment

- (a) If he is unable to fulfil his obligation under this tender due to force majeure conditions:

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 sovereign or contractual capacity. Such events may include but are not restricted to Acts of god, wars or revolutions, fires, floods, epidemics, quarantine restrictions and fright embargoes etc, whether a "Force majeure" situation exists or not, shall be decided by CREDA and its decision shall be final and binding on the contractor and all other Concerned.

- (b) In the event that the empanelled vendor is not able to perform his obligations under this tender on account of force majeure, he will be relieved of his obligations during the force majeure period. If such force majeure extends beyond six months, CSPDCL/CREDA has the right to terminate the awarded work by Prosumer in which case, the Security deposit shall be refunded to him.
- (c) If a force majeure situation arises, then empanelled vendor shall notify CREDA in writing promptly, not later than 14 days from the date of such situation arises. After examining he cases, CREDA shall decide and grant suitable additional time for the completion of the work, if required.

8. COMMISSIONING / COMPLETION

When the empanelled vendor has successfully executed the work for design, supply, installation, testing of Grid Connected Rooftop Photo Voltaic Solar System (Project) in all respect as per all tender conditions and specifications including their performance test and complied the provisions stipulated in relevant regulations and applicable different code, he shall be eligible to apply for commissioning of such plant.

9. DOCUMENT SUBMISSION FOR ISSUE COMMISSINONING/COMPLETION CERTIFICATE:

- (a) To above the following documents will be deemed to form the completion documents:
- (b) Checklist for inspection of Grid Connected Roof Top Solar Photovoltaic system as per MNRE guidelines/relevant regulations/Tender.
- (c) Satisfaction Certificate given online from concern prosumer regarding Project completion.
- (d) Online declaration to follow the operational guidelines for 05 years CMC given in Annexure – II.

ADDITIONAL GUIDANCE ON REGISTRATION WITH CSPDCL SOLAR WEB PORTAL AND INSTALLING SOLAR PANEL:

- A consumer intending to set up the rooftop SPV system shall show interest by registering/submitting all details like Name, Address, CSPDCL Business Partner Account No., Mobile No., etc. at CSPDCL web portal.
- Afterwards, Consumer shall choose/select vendor from the list of Empanelled Agencies/Vendors approved by CREDA/ CSPDCL and register details regarding proposed solar rooftop plant e.g., sanctioned load, beneficiary Category, Connection/Rooftop, Available Shadow Free Area, Proposed Capacity etc. for approval.
- After checking the feasibility, the applicant shall be issued Letter of Approval and technical feasibility report by CSPDCL within 15 days of receipt of application.
- Once approved by CSPDCL, The Vendor shall set up the plant and submit the work completion report along with Single Line Diagram of the synchronizing and protection arrangement issued by the plant supplier/EPC contractor as standards and specifications approved by the CREDA within 180 days.
- All technical details like capacity, Solar Panel/Module Technology, Sr. no./Make/Capacity and Quantity of Solar Modules, Sr. no./Make/Capacity of Meter, Make/Capacity of PCU etc. as required by MNRE/CSPDCL are required to be registered on web portal.
- Before any application for setting up rooftop solar plant at a particular distribution transformer is rejected by the distribution licensee due to any reason, the consumer shall be served with a 15 days' notice to attend to the observations and remove the deficiencies. In case the approval cannot be considered after availability of the capacity if the consumer so opts.
- After site verification, CSPDCL shall install and seal the Bi-directional energy meter within 10 days of the submission of completion report and plant will be treated as commissioned for net-metering commercial operations from that date.
- In case of delay, the vendor/consumer shall have to get further extension from distribution licensee. Such extension will be granted for a maximum period of 2 months only and the approval granted will lapse automatically if the project is not set-up even in the extended 2 months period. However, the consumer will be eligible to apply afresh in the next financial year, but his application will be kept at the bottom of the list of applicants, such consumer will be permitted to set up the plant only if after allotting the capacity to all successful applicants above him, there is still capacity available for allotment.
- The distribution licensee shall circulate the procedure and formats including standard "Agreement" form after approval from the Commission and upload the same on its website for information of stakeholders within a month of the notification of the regulations.

Note: All other conditions shall be as per CSPDCL Electrical Supply Instruction Manual.

Bid Evaluation and Selection of Successful Bidders

SECTION – IV

BID EVALUATION AND SELECTION OF SUCCESSFUL BIDDERS

1. BID EVALUATION:

Bid evaluation will be carried out considering the information furnished by Bidders as per provisions specified in Section-II, Instructions to Bidders (ITB) of this tender. The detailed evaluation procedure and Selection of bidders are described in subsequent Clauses in this Section.

2. TECHNO-COMMERCIAL EVALUATION OF BIDDERS:

The techno-commercial evaluation of submitted bid by the bidders will be carried out in following manner: -

- a) Firstly, the envelope Super scribed as “Envelope A” of only those bidders will be opened by CREDA whose Techno-commercial bid received on or before due date of submission.
- b) Techno-commercial Bid (as mentioned in the previous Clause) received after due date of submission shall be rejected.
- c) On opening of Envelope, A, examination of prequalification documents as per the checklist, shall be carried out
- d) CREDA will examine all the documents submitted by the Bidders and ascertain meeting of eligibility conditions prescribed in the Tender. During the examination of the bids, CREDA may seek clarifications/ additional documents to the documents submitted etc. from the Bidders if required to satisfy themselves for meeting the eligibility conditions by the Bidders. Bidders shall be required to respond to any clarifications/ additional documents sought by CREDA within 05 (Five) days from the date of such intimation from the CREDA. All correspondence in this regard shall be made through email/ written communication to CREDA H.O only. It shall be the responsibility of the Bidder to ensure that the email id of the authorized signatory of the Bidder is functional. The Bidder may provide an additional email id of the authorized signatory in the covering letter. No reminders in this case shall be sent. It shall be the sole responsibility of the Bidders to remove all the discrepancies and furnish additional documents as requested. CREDA shall not be responsible for rejection of any bid on account of the above. Finally, the bid submitted by the Bidder along with additional clarifications/ additional documents, if required shall be scrutinized to establish techno- Commercial eligibility as per the Tender.
- e) Those bidders who meet the qualifying criteria for respective capacity range shall be eligible to open their submitted online price bids in that capacity range.
- f) After above step, L1 bidder for each capacity range will be declared and shall be invited for the negotiations, if seems reasonable.
- g) The rate must be quote up to two places of decimal only. If it is quote with more than two digits after decimal, it shall be ignored after first two decimal places. (For e.g., if the quoted rate is INR 40.337, then it shall be considered as INR 40.33).
- h) On completion of Techno-Commercial bid evaluation, if it is found that only one or two Bidder(s) is/are eligible for capacity range, opening of the financial bid of the bidder will be at the discretion of CREDA. Thereafter, CREDA will take appropriate action as deemed fit.

If the quoted rate is same for two or more Bidders for capacity range, then all the Bidders with same (L1) lowest rate shall be eligible for negotiations.

3. SELECTION OF SUCCESSFUL BIDDER:

- a) The lowest rate (i.e., L-1) for each capacity range received (and in turn approved by the competent authority) would be considered as "Lowest Rate" for that capacity range. If required, CREDA reserves the right to negotiate with Lowest Rate (L-1) bidder before finalization of the "Approved rate" for each capacity range category.
 - b) "Approved Rate" for each capacity range would be offered to other bidders (i.e. L-2, L-3 and so on) whose rates are within L1+25% (i.e. 25% above the approved lowest rates) to get empanelled and work on lowest approved rates.
 - c) All successful bidder(s) can get work directly from prosumers.
 - d) The successful bidder(s) will provide training to the prosumers.
 - e) CREDA reserves the right to accept any bid and to reject any or all of the bids without assigning reasons thereof.
- 4.** In case of a bid found so low that it raises material concerns i.e., Abnormally Low Bid in combination with/ without other elements of the Bid. CREDA/ CSPDCL may in such cases seek written clarifications from such bidder, including detailed price analyses of its bid price in relation to scope, schedule, allocation of risks and responsibilities, and any other requirements of the bid's document. If, after evaluating the price analyses, CREDA / CSPDCL determines that the bidder has substantially failed to demonstrate its capability to deliver the contract at the offered price, the CREDA / CSPDCL may reject the bid/ proposal.

Technical Specifications

TECHNICAL SPECIFICATIONS

The Grid connected Solar Rooftop Photo Voltaic (RTS) system shall be completed/commissioned as per the technical specifications given below.

Competent Authority's decision will be final and binding on the bidder.

DEFINITION:

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 Chhattisgarh State Renewable Energy Development Agency]. 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 Performance security shall be forfeited. Competent Authority's decision will be final and binding on the bidder.

1. DEFINITION

A Roof Top Solar (RTS) Photo Voltaic (PV) system shall consist of following equipment/components:

1. Solar Photo Voltaic (SPV) modules consisting of required number of Crystalline PV modules
2. Inverter/PCU
3. Module Mounting structures
4. Energy Meter
5. Array Junction Boxes
6. DC Distribution Box
7. AC Distribution Box
8. Protections – Earthing, Lightning, Surge
9. Cables
10. Drawing & Manuals
11. Miscellaneous

1. Solar PV modules

- 1.1. The PV modules and Solar Cell used should be made in India.
- 1.2. The PV modules used must qualify to the latest edition of IEC standards or equivalent BIS standards, i.e. IEC 61215/IS14286, IEC 61853-Part I/IS 16170-Part I, IEC 61730 Part-1 & Part 2 and IEC 62804 (PID). For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701/IS 61701.
- 1.3. The rated power of solar PV module shall have maximum tolerance up to +3%.
- 1.4. 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.
- 1.5. 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.
- 1.6. The temperature co-efficient power of the PV module shall be equal to or better than - 0.45%/°C.
- 1.7. Solar PV modules of minimum capacity 250 Wp to be used.
- 1.8. The PV Module efficiency should be minimum 16%.
- 1.9. Solar PV modules of minimum fill factor 75%, to be used.
- 1.10. All electrical parameters at STC shall have to be provided

- 1.11. 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:
 - i. An IP 65 rated enclosure is suitable for most outdoor enclosures that won't encounter extreme weather such as flooding.
 - ii. An IP 67 rated enclosure is suitable at locations which may encounter temporary submersion at depths of up to one meter.
 - iii. An IP 68 enclosure is recommended if there may exist situations of submergence for extended periods of time and at substantial depths.
- 1.12. 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.
- 1.13. 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:
 - 1.14. Defects and/or failures due to manufacturing.
 - 1.15. Defects and/or failures due to quality of materials.
 - 1.16. 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.
 - 1.17. PV modules must be tested and approved by one of the NABL accredited and BIS approved test centers.
 - 1.18. 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, I_m , V_m 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.
 - 1.19. 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 P_{max} 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.

- 1.20. 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.

2. Inverter/PCU

- 2.1. Inverters/PCU should comply with applicable IEC/equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683, IS 16221 (Part 2), IS 16169 and IEC 60068-2(1,2,14,30) /Equivalent BIS Std.
- 2.2. Maximum Power Point Tracker (MPPT) shall be integrated in the inverter/PCU to maximize energy drawn from the array. Charge controller (if any) / MPPT units environmental testing should qualify IEC 60068-2(1, 2, 14, 30)/Equivalent BIS standard. The junction boxes/enclosures should be IP 65 or better (for outdoor)/ IP 54 or better (indoor) and as per IEC 529 Specifications.
- 2.3. All inverters/PCUs shall be IEC 61000 compliant for electromagnetic compatibility, harmonics, Surge, etc.
- 2.4. The PCU/ inverter shall have overloading capacity of minimum 10%.
- 2.5. Typical technical features of the inverter shall be as follows-
 - i. Switching devices: IGBT/MOSFET
 - ii. Control: Microprocessor/DSP
 - iii. Nominal AC output voltage and frequency: as per CEA/State regulations
 - iv. Output frequency: 50 Hz
 - v. Grid Frequency Synchronization range: as per CEA/State Regulations
 - vi. Ambient temperature considered: -20°C to 60°C
 - vii. Humidity: 95 % Non-condensing
 - viii. Protection of Enclosure: IP-54 (Minimum) for indoor and IP-65(Minimum) for outdoor.
 - ix. Grid Frequency Tolerance range: as per CEA/State regulations
 - x. Grid Voltage tolerance: as per CEA/State Regulations
 - xi. No-load losses: Less than 1% of rated power
 - xii. Inverter efficiency (Min.): >93% (In case of 10 kW or above with in-built galvanic isolation) >97% (In case of 10 kW or above without inbuilt galvanic isolation)
 - xiii. Inverter efficiency (minimum): > 90% (In case of less than 10 kW)
 - xiv. THD: < 3%
 - xv. PF: > 0.9 (lag or lead)
 - xvi. Should not inject DC power more than 0.5% of full rated output at the interconnection point and comply to IEEE 519.
- 2.6. 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.
- 2.7. 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:
 - i. The name or trademark of the manufacturer or supplier;
 - ii. A model number, name or other means to identify the equipment,
 - iii. A serial number, code or other marking allowing identification of manufacturing location and the manufacturing batch or date within a three-month time period.
 - iv. Input voltage, type of voltage (a.c. or d.c.), frequency, and maximum continuous current for each input.
 - v. 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.

- vi. The Ingress Protection (IP) rating
- 2.8. 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.
- 2.9. 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.
- 2.10. Inverter/PCU shall be capable of complete automatic operation including wake-up, synchronization & shutdown.
- 2.11. 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.
- 2.12. For CFA calculation, minimum of following two shall be considered:
 - i. Solar PV array capacity in KWp
 - ii. Inverter Capacity in KW
- 2.13. Integration of PV Power with Grid & Grid Islanding:
 - i. 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.
 - ii. 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.
 - iii. MCB/MCCB or a manual isolation switch, besides automatic disconnection to grid, would have to be provided at utility end to isolate the grid connection by the utility personnel to carry out any maintenance. This switch shall be locked by the utility personnel.

3. Module Mounting Structure (MMS):

- 3.1. Supply, installation, erection and acceptance of module mounting structure (MMS) with all necessary accessories, auxiliaries and spare part shall be in the scope of the work.
- 3.2. Module mounting structures can be made from three types of materials. They are Hot Dip Galvanized Iron, Aluminium and Hot Dip Galvanized Mild Steel (MS). However, MS will be preferred for raised structure.
- 3.3. MMS Steel shall be as per latest IS 2062:2011 and galvanization of the mounting structure shall be in compliance of latest IS 4759. MMS Aluminium shall be as per AA6063 T6. For Aluminium structures, necessary protection towards rusting need to be provided either by coating or anodization.

- 3.4. All bolts, nuts, fasteners shall be of stainless steel of grade SS 304 or hot dip galvanized, panel mounting clamps shall be of aluminium and must sustain the adverse climatic conditions. Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts.
- 3.5. 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.
- 3.6. The Mounting structure shall be so designed to withstand the speed for the wind zone of the location where a PV system is proposed to be installed. The PV array structure design shall be appropriate with a factor of safety of minimum 1.5.
- 3.7. 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.
- 3.8. Suitable fastening arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed. The Empanelled Agency shall be fully responsible for any damages to SPV System caused due to high wind velocity within guarantee period as per technical specification.
- 3.9. 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.
- 3.10. 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.
- 3.11. The structure shall be designed to withstand operating environmental conditions for a period of minimum 25 years.
- 3.12. The Rooftop Structures may be classified in three broad categories as follows:
 - i. Ballast structure**
 - a. The mounting structure must be Non-invasive ballast type and any sort of penetration of roof to be avoided.
 - b. The minimum clearance of the structure from the roof level should be in between 70-150 mm to allow ventilation for cooling, also ease of cleaning and maintenance of panels as well as cleaning of terrace.
 - c. The structures should be suitably loaded with reinforced concrete blocks of appropriate weight made out of M25 concrete mixture.
 - ii. Tin shed**
 - a. The structure design should be as per the slope of the tin shed.
 - b. The inclination angle of structure can be done in two ways-
 - b.1. Parallel to the tin shed (flat keeping zero-degree tiling angle), if the slope of shed in Proper south direction
 - b.2. With same tilt angle based on the slope of tin shed to get the maximum output.
 - c. The minimum clearance of the lowest point from the tin shade should be more than 100mm.
 - d. The base of structure should be connected on the Purlin of tin shed with the proper riveting.
 - e. All structure member should be of minimum 2 mm thickness.
 - iii. RCC Elevated structure:** It can be divided into further three categories:

A. Minimum Ground clearance (300MM – 1000 MM)

- a. The structure shall be designed to allow easy replacement of any module and shall be in line with site requirement. The gap between module should be minimum 30MM.
- b. Base Plate – Base plate thickness of the Structure should be 5MM for this segment.
- c. Column – Structure Column should be minimum 2MM in Lip section / 3MM in C-Channel section. The minimum section should be 70MM in Web side and 40MM in flange side in Lip section.
- d. Rafter - Structure rafter should be minimum 2MM in Lip section / 3MM in C-Channel section. The minimum section should be 70MM in Web side (y-axis) and 40MM in flange side (x-axis).
- e. Purlin - Structure purlin should be minimum 2MM in Lip section. The minimum section should be 60MM in Web side and 40MM in flange side in Lip section.
- f. Front/back bracing – The section for bracing part should be minimum 2MM thickness.
- g. Connection – The structure connection should be bolted completely. Leg to rafter should be connected with minimum 12 diameter bolt. Rafter and purlin should be connected with minimum 10 diameter bolt. Module mounting fasteners should be SS-304 only and remaining fasteners either SS-304 or HDG 8.8 Grade.
- h. For single portrait structure the minimum ground clearance should be 500MM.

B. Medium Ground clearance (1000MM – 2000 MM)

- a. Base Plate – Base plate thickness of the Structure should be Minimum 6MM for this segment.
- b. Column – Structure Column should be minimum 2MM in Lip section / 3MM in C-Channel section. The minimum section should be 80MM in Web side and 50MM in flange side in Lip section.
- c. Rafter - Structure rafter should be minimum 2MM in Lip section / 3MM in C-Channel section. The minimum section should be 70MM in Web side and 40MM in flange side in Lip section.
- d. Purlin - Structure purlin should be minimum 2MM in Lip section. The minimum section should be 70MM in Web side and 40MM in flange side in Lip section.
- e. Front/back bracing – The section for bracing part should be minimum 2MM thickness.
- f. Connection – The structure connection should be bolted completely. Leg to rafter should be connected with minimum 12 diameter bolt. Rafter and purlin should be connected with minimum 10 diameter bolt. Module mounting fasteners should be SS-304 only and remaining fasteners either SS-304 or HDG 8.8 Grade.

C. Maximum Ground clearance (2000MM – 3000 MM)

- a. Base Plate – Base plate thickness of the Structure should be minimum 8 MM for this segment.
- b. Column – Structure Column thickness should be minimum 2.6MM in square hollow section (minimum 50x50) or rectangular hollow section (minimum 60x40) or 3MM in C-Channel section.
- c. Rafter - Structure rafter should be minimum 2MM in Lip section / 3MM in Channel section. The minimum section should be 80MM in Web side and 50MM in flange side in Lip section.

- d. Purlin - Structure purlin should be minimum 2MM in Lip section. The minimum section should be 80MM in Web side and 50MM in flange side in Lip section.
- e. Front/back bracing – The section for bracing part should be minimum 3MM thickness.
- f. Connection – The structure connection should be bolted completely. Leg to rafter should be connected with minimum 12 diameter bolt. Rafter and purlin should be connected with minimum 10 diameter bolt. Module mounting fasteners should be SS-304 only and remaining fasteners either SS-304 or HDG 8.8 Grade.

D. Super elevated structure (More than 3000 MM)

D.1. Base structure

- a. Base Plate – Base plate thickness of the Structure should be 10MM for this segment.
- b. Column – Structure Column minimum thickness should be minimum 2.9MM in square hollow section (minimum 60x60) or rectangular hollow section (minimum 80x40).
- c. Rafter - Structure Rafter minimum thickness should be minimum 2.9MM in square hollow section (minimum 60x60) or rectangular hollow section (minimum 80x40).
- d. Cross bracing – Bracing for the connection of rafter and column should be of minimum thickness of 4mm L-angle with the help of minimum bolt diameter of 10mm.

D.2. Upper structure of super elevated structure –

- a. Base Plate – Base plate thickness of the Structure should be minimum 5MM for this segment.
- b. Column – Structure Column should be minimum 2MM in Lip section / 3MM in Channel section. The minimum section should be 70MM in Web side and 40MM in flange side in Lip section.
- c. Rafter - Structure rafter should be minimum 2MM in Lip section / 3MM in Channel section. The minimum section should be 70MM in Web side and 40MM in flange side in Lip section.
- d. Purlin - Structure purlin should be minimum 2MM in Lip section. The minimum section should be 60MM in Web side and 40MM in flange side in Lip section.
- e. Front/back bracing – The section for bracing part should be minimum 2MM thickness.
- f. Connection – The structure connection should be bolted completely. Leg to rafter should be connected with minimum 12 diameter bolt. Rafter and purlin should be connected with minimum 10 diameter bolt. Module mounting fasteners should be SS-304 only and remaining fasteners either SS-304 or HDG 8.8 Grade.

D.3. If distance between two legs in X-Direction is more than 3M than sag angle/Bar should be provide for purlin to avoid deflection failure. The sag angle should be minimum 2MM thick, and bar should be minimum 12Dia.

D.4. Degree - The Module alignment and tilt angle shell be calculated to provide the maximum annual energy output. This shall be decided on the location of array installation.

D.5. Foundation – Foundation should be as per the roof condition; two types of the foundation can be done- either penetrating the roof or without penetrating the roof.

- a. If penetration on the roof is allowed (based on the client requirement) then minimum 12MM diameter anchor fasteners with minimum length 100MM can be use with proper chipping. The minimum RCC size should be 400x400x300 cubic mm. Material grade of foundation should be minimum M20.
- b. If penetration on roof is not allowed, then foundation can be done with the help of 'J Bolt' (refer IS 5624 for foundation hardware). Proper Neto bond solution should be used to adhere the Foundation block with the RCC roof. Foundation J - bolt length should be minimum 12MM diameter and length should be minimum 300MM.

3.13. Material standards:

- i. Design of foundation for mounting the structure should be as per defined standards which clearly states the Load Bearing Capacity & other relevant parameters for foundation design (As per IS 6403 / 456 / 4091 / 875).
- ii. Grade of raw material to be used for mounting the structures so that it complies the defined wind loading conditions (As per IS 875 - III) should be referred as follows (IS 2062 – for angles and channels, IS 1079 – for sheet, IS 1161 & 1239 for round pipes, IS 4923 for rectangular and square hollow section)
- iii. Test reports for the raw material should be as per IS 1852 / 808 / 2062 / 1079 / 811.
- iv. In process inspection report as per approved drawing & tolerance should be as per IS 7215.
- v. For ascertaining proper welding of structure part following should be referred:
 - a. D.P. Test (Pin Hole / Crack) (IS 822)
 - b. Weld wire grade should be of grade (ER 70 S - 6)
- vi. For ascertaining hot dip galvanizing of fabricated structure following should be referred: -
 - a. Min coating required should be as per IS 4759 & EN 1461.
 - b. Testing of galvanized material
 - Pierce Test (IS 2633)
 - Mass of Zinc (IS 6745)
 - Adhesion Test (IS 2629)
 - CuSO4 Test (IS 2633)
 - Superior High-Grade Zinc Ingot should be of 99.999% purity (IS 209) (Preferably Hindustan Zinc Limited or Equivalent).
- vii. Foundation Hardware – If using foundation bolt in foundation then it should be as per IS 5624.

3.14. Design Validation- The Structure design and drawing should be duly verified by a licensed Structural designer before installation for all types of structure arrangements including the extension made, as per specification.

4. Metering

- 4.1. A Roof Top Solar (RTS) Photo Voltaic (PV) system shall consist of following energy meters:
 - i. Net meter: To record import and export units
 - ii. Generation meter: To keep record for total generation of the plant.

- 4.2. The installation of meters including CTs & PTs, wherever applicable, shall be carried out by the Empanelled Vendor as per the terms, conditions and procedures laid down by the concerned SERC/DISCOMs.

5. Array Junction Boxes:

- 4.1 The junction boxes are to be provided in the PV array for termination of connecting cables. 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 JB's 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.
- 4.2 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.
- 4.3 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.
- 4.4 Suitable markings shall be provided on the bus bar for easy identification and the cable ferrules must be fitted at the cable termination points for identification.
- 4.5 Junction boxes shall be mounted on the MMS such that they are easily accessible and are protected from direct sunlight and harsh weather.

5 DC Distribution Box (DCDB):

- 5.1 May not be required for small plants, if suitable arrangement is available in the inverter.
- 5.2 DC Distribution Box are to be provided to receive the DC output from the PV array field.
- 5.3 DCDBs shall be dust & vermin proof conform having IP 65 or better protection, as per site conditions.
- 5.4 The bus bars are made of EC grade copper of required size. Suitable capacity MCBs/MCCB shall be provided for controlling the DC power output to the inverter along with necessary surge arrestors. MCB shall be used for currents up to 63 Amperes, and MCCB shall be used for currents greater than 63 Amperes.

6 AC Distribution Box (ACDB):

- 6.1 AC Distribution Panel Board (DPB) shall control the AC power from inverter, and should have necessary surge arrestors, if required. There is interconnection from ACDB to mains at LT Bus bar while in grid tied mode.
- 6.2 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.
- 6.3 The isolators, cabling work should be undertaken as part of the project.
- 6.4 All the Panel's shall be metal clad, totally enclosed, rigid, floor mounted, air -insulated, cubical type suitable for operation on $1-\phi/3-\phi$, 415 or 230 volts, 50 Hz (or voltage levels as per CEA/State regulations).
- 6.5 The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.
- 6.6 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.
- 6.7 Should conform to Indian Electricity Act and CEA safety regulations (till last amendment).

- 6.8 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.
- i. Variation in supply voltage: as per CEA/State regulations
 - ii. Variation in supply frequency: as per CEA/State regulations
- 6.9 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.

7 Protections

The system should be provided with all necessary protections like earthing, Lightning, and Surge Protection, as described below:

7.1 Earthing Protection

- i. The earthing shall be done in accordance with latest Standards.
- ii. Each array structure of the PV yard, Low Tension (LT) power system, earthing grid for switchyard, all electrical equipment, inverter, all junction boxes, etc. shall be grounded properly as per IS 3043-2018.
- iii. All metal casing/ shielding of the plant shall be thoroughly grounded in accordance with CEA Safety Regulation 2010. In addition, the lightning arrester/masts should also be earthed inside the array field.
- iv. Earth resistance should be as low as possible and shall never be higher than 5 ohms.
- v. 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 arrester earthing.

7.2 Lightning Protection

- i. The SPV power plants shall be provided with lightning & over voltage protection, if required. The main aim in this protection shall be to reduce the overvoltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc.
- ii. The entire space occupying the SPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors (LAs). Lightning protection should be provided as per NFC17-102:2011/IEC 62305 standard.
- iii. The protection against induced high-voltages shall be provided by the use of Metal Oxide Varistors (MOVs)/Franklin Rod type LA/Early streamer type LA.
- iv. The current carrying cable from lightning arrester to the earth pit should have sufficient current carrying capacity according to IEC 62305. According to standard, the minimum requirement for a lightning protection system designed for class of LPS III is a 6 mm² copper/ 16 mm² aluminum or GI strip bearing size 25*3 mm thick). Separate pipe for running earth wires of Lightning Arrester shall be used.

7.3 Surge Protection

- i. Internal surge protection, wherever required, shall be provided.
- ii. It will consist of three SPD type-II/MOV type surge arrestors connected from +ve and -ve terminals to earth.

8 CABLES

- 8.1 All cables should conform to latest edition of IEC/equivalent BIS Standards alongwith IEC 60227/IS 694, IEC 60502/IS 1554 standards.
- 8.2 Cables should be flexible and should have good resistance to heat, cold, water, oil, abrasion etc.
- 8.3 Armored cable should be used and overall PVC type 'A' pressure extruded insulation or XLPE insulation should be there for UV protection.
- 8.4 Cables should have Multi Strand, annealed high conductivity copper conductor on DC side and copper/FRLS type Aluminum conductor on AC side. For DC cabling, multi-core cables shall not be used.
- 8.5 Cables should have operating temperature range of -10°C to +80°C and voltage rating of 660/1000 V.
- 8.6 Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop less than 2% (DC Cable losses).
- 8.7 The size of each type of AC cable selected shall be based on minimum voltage drop. However; the maximum drop shall be limited to 2%.
- 8.8 The electric cables for DC systems for rated voltage of 1500 V shall conform to BIS 17293:2020.
- 8.9 All cable/wires are to be routed in a RPVC pipe/ GI cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable is easily identified.
- 8.10 All cable trays including covers to be provided.
- 8.11 Thermo-plastic clamps to be used to clamp the cables and conduits, at intervals not exceeding 50 cm.
- 8.12 Size of neutral wire shall be equal to the size of phase wires, in a three phase system.
- 8.13 The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e. 25 years.

9 DRAWINGS & MANUALS:

- 9.1 Operation & Maintenance manual/user manual, Engineering and Electrical Drawings shall be supplied along with the power plant.
- 9.2 The manual shall include complete system details such as array lay out, schematic of the system, inverter details, working principle etc.
- 9.3 The Manual should also include all the Dos & Don'ts of Power Plant along with Graphical Representation with indication of proper methodology for cleaning, Operation and Maintenance etc.
- 9.4 Step by step maintenance and troubleshooting procedures shall also be given in the manuals.
- 9.5 Vendors should also educate the consumers during their CMC period.

10 Miscellaneous:

- 10.1 Connectivity: The maximum capacity for interconnection with the grid at a specific voltage level shall be as specified in the SERC regulation for Grid connectivity and norms of DISCOM and amended from time to time.
- 10.2 Safety measures: Electrical safety of the installation(s) including connectivity with the grid must be taken into account and all the safety rules & regulations applicable as per Electricity Act, 2003 and CEA Safety Regulation 2010 etc. must be followed.
- 10.3 Shadow analysis: The shadow analysis report with the instrument such as Solar Pathfinder or professional shadow analysis software of each site should be provided and the

consumer should be educated to install the system only in shadow free space. Lower performance of the system due to shadow effect shall be liable for penalty for lower performance.

- 10.4 Firefighting system - Portable fire extinguishers/sand buckets shall be provided wherever required as per norms.

11 CONFIRMATION TO MNRE TECHNICAL SPECIFICATIONS AND STANDARDS:

The Tender should ensure that all components and systems used under this scheme shall strictly adhere to the Technical Specifications and Guidelines issued by the MNRE, and as amended from time to time.

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

Solar PV Modules/Panels	
IEC 61215 and IS 14286	Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules
IEC 61701:2011	Salt Mist Corrosion Testing of Photovoltaic (PV) Modules
IEC 61853- 1:2011 / IS 16170-1:2014	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 etc)
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 method for detection of potential-induced degradation. IEC 62804-1: Part 1: Crystalline Silicon
Solar PV Inverters	
IEC 62109 or IS : 16221	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 or better for outdoor mounting, IP 54 or better for indoor mounting)
IS/IEC 61683 latest (as applicable)	Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)
IEC 60068-2 /IEC 62093 (as applicable)	Environmental Testing of PV System – Power Conditioners and Inverters
IEC 62116:2014/ IS16169	Utility-interconnected photovoltaic inverters - Test procedure of islanding prevention measures
Fuses	
IS/IEC 60947 (Part 1, 2 & 3), EN 50521	General safety requirements for connectors, switches, circuit breakers(AC/DC): 1)Low-voltage Switchgear and Control-gear, Part 1: General rules

	2) Low-Voltage Switchgear and Control-gear, Part 2: Circuit Breakers 3) Low-voltage switchgear and Control-gear, Part 3: Switches, disconnectors switch-disconnectors and fuse-combination units 4) EN 50521: Connectors for photovoltaic system-Safety requirements and tests
IEC 60269-6:2010	Low-voltage fuses - Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems
Solar PV Roof Mounting Structure	
IS 2062/IS 4759/AA6063 T6	Material for the structure mounting
Surge Arrestors	
BFC 17-102:2011/ NFC 102:2011/ IEC 62305	Lightening Protection Standard
IEC 60364-5-53/ IS 15086-5 (SPD) IEC 61643- 11:2011	Electrical installations of buildings - Part 5-53: Selection and erection of electrical equipment - Isolation, switching and control 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)/ IEC 69947 (as applicable)	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
Earthing /Lightning	
IEC 62561/IEC 60634 Series (Chemical earthing) (as applicable)	IEC 62561-1: Lightning protection system components (LPSC) - Part: 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 or better protection for outdoor use, and IP 54 or better protection for indoor use

**SAMPLE FORMS & FORMATS FOR BID
SUBMISSION**

Format-I COVERING LETTER

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

BIDDERS UNDERTAKING COVERING LETTER

(Letter shall be submitted on Bidder(s) Letter Head)

Ref:.....

Date:.....

TO,

The CE (Grid Connected Section, RE-II),

Chhattisgarh State Renewable Energy Development Agency
(CREDA)

VIP (Airport) Road, Near Energy Education Park
P.O.Deopuri, Raipur-492015,Chhattisgarh, India

Dear Sir,

Sub: Design, Supply, Installation, Testing & Commissioning Including 05 year Comprehensive Warranty for complete installed plant and further 20 years extended warranty for solar PV module and 05 years CMC of 1kwp to 500kwp Grid Connected Rooftop Solar System as per tender under reference for all the willing consumers excluding government connections in Chhattisgarh State through Rate Contract Programme under CAPEX Mode

Tender Reference No:- 88282/GCSRT_1-500kWp/CAPEX/2021-22/Raipur, Date 06.12.2021

1. We have examined the Tender for Design, Supply, Installation, Testing Commissioning Including 05 year Comprehensive Warranty for complete installed plant and further 20 years extended warranty for solar PV module and Commissioning of Grid connected Solar Power plants as specified in the Tender. We undertake to meet the requirements and Service's as required and as Set out in the Tender document.
2. We attach our Techno-commercial Bid completed in all respect as required under reference Tender and submitting "**Price/Financial Bid**" online only at <https://www.eproc.cgstate.gov.in> portal both of which together constitute our proposal, in full conformity with the referred Tender.
3. We have read the provisions of Tender and confirm that these are acceptable to us. We further declare that additional conditions, variations, deviations, if any, found in our response shall not be given effect to.
4. We undertake, if our Bid is accepted, to adhere to the requirements as specified in the Tender or such modified plan as may subsequently be agreed.
5. We agree to unconditionally accept all the terms and conditions Set out in the Tender document and also agree to abide by this Bid response for a period as mentioned in the Tender from the date fixed for bid opening and it shall remain binding upon us with full force and virtue till assigned empanelment period on empanelled. This Bid response, together with your written acceptance thereof in your notification of empanelment, shall constitute a binding contract with CREDA.
6. We affirm that the information contained in the Technical Bid or any part thereof, including its schedules, and other documents, etc. delivered or to be delivered to CREDA is true, accurate, and complete. This proposal includes all information necessary to ensure that the statements therein do not in whole or in part mislead CREDA as to any material fact.
7. We also agree that you reserve the right in absolute Sense to reject all or any of the products/ Services specified in the bid response without assigning any reason whatsoever.
8. It is hereby confirmed that I/We are entitled to act on behalf of our company/ organization and empowered to sign this document as well as such other documents, which may be required in this connection.
9. We agree to use only indigenous photo-voltaic modules for completion of work of residential prosumer.

10. We also declare that our individual/firm/Agencies/Company/Organisation/Joint Venture, anyone or both partners is not blacklisted by any of the State or Central Government and organisations of the State or Central Government including PSUs/SEBs/Utilities.
11. We undertake to use the BOS components other than PHOTO VOLTAIC Modules and Solar grid tie Inverters as per the standards stipulated.

Signature of the authorised person:

Name of the authorised person:

Designation:

Name and Address of Bidder

Stamp of bidder

Format-II CERTIFICATE OF AUTHORISED SIGNATORIES

I, Certify that I am (Name).....
(Designation).....,and

that (Name)..... who signed the above Bid has been duly authorized to sign the

same on behalf of our individual/firm/agencies/organisation/company/Joint venture.

Date:
Sealed &Signature (Authorized Signatory)

Format-II (a) FORM OF UNDERTAKING BY THE JOINT VENTURE PARTNERS

THIS JOINT DEED OF UNDERTAKING executed on this day of.....Two Thousand and by a company incorporated under the laws of..... and having its Registered Office at..... (herein after called the "Party No.1" which expression shall include its successors,executors and permitted assigns) and M/s a company incorporated under the laws ofand having its registered Office at (herein after called the "Party No.2" which expression shall include its successors,executors and permitted assigns) which expression shall include its successors,executors and permitted assigns) for the purpose of making a bid against the Specification No..... for (insert name of the tender).....of (*insert name of the Employer*), a Company incorporated under the Companies Act of 1956 /2013 (with amendment from time to time) having its registered office at(*insert registered address of the Employer*)..... (hereinafter called the "Employer").

WHEREAS the Party No.1, Party No.2 have entered into an Agreement dated.....

AND WHEREAS the Employer invited bids for empanelment of Vendors for Design, Supply, Installation, Testing & Commissioning Including 05 year Comprehensive Warranty for complete installed plant and further 20 years extended warranty for solar PV module and Comprehensive Maintenance/CMC for five years of 1kwp to 500kwp Grid Connected Rooftop Photo Voltaic Solar System for all the willing consumers excluding Government connections in Chhattisgarh State through rate contract programme under CAPEX Mode .

AND WHEREAS Section-II, ITB and Eligibility Criteria of Section-III forming part of the Bidding Documents, inter-alia stipulates that an Undertaking of two qualified firms/agencies/companies as partners, meeting the requirements of Eligibility Criteria, as applicable may bid, provided, the Joint Venture fulfils all other requirements of bid and in such a case, the Bid Forms shall be signed by all the partners so as to legally bind all the Partners of the Joint Venture, who will be jointly and severally liable for successful performance under this bid and all obligations hereunder.

The above clause further states that this Undertaking shall be attached to the bid will be as per the format enclosed with the Bidding Documents without any restrictions or liability for either party.

AND WHEREAS the bid is being submitted to the Employer vide proposal No.....dated by Party No.1 based on this Undertaking between all the parties; under these presents and the bid in accordance with the requirements of Section-II, ITB and Eligibility Criteria of Section-III and all other requirements of bid forming part of the Bidding Documents, has been signed by all the parties.

NOW THIS UNDERTAKING WITNESSETH AS UNDER:

In consideration of the above premises and agreements all the parties of this Deed of Undertaking do hereby declare and undertake:

1. In requirement of the tender/bid issued by the Employer, we, the Parties of Joint Venture Partners do hereby Undertake that M/s..... the Party No.1, shall act as Lead Partner and further declare and confirm that we the parties to the Joint Venture shall jointly and severally be bound unto the Employer for the successful under this tender and shall be fully responsible Design, Supply, Installation, Testing & Commissioning Including 05 year Comprehensive Warranty for complete installed plant and further 20 years extended warranty for solar PV module and Comprehensive Maintenance/CMC for five years of 1kwp to 500kwp Grid Connected Rooftop Photo-Voltaic Solar System for all the willing consumers in accordance of this tender:
2. In case of any breach or default of the any tender conditions by any of the parties to the Joint Venture, the party(s)

do hereby undertake to be fully responsible for the successful performance of the Contract and to carry out all the obligations and responsibilities under the Contract in accordance with the requirements of the Contract.

3. Further, if the Employer suffers any loss or damage on account of or default of the any tender conditions or any shortfall in the performance of the plant in meeting the performances guaranteed as per the specification in terms of the tender, the Party(s) of these presents undertake to promptly make good such loss or damages caused to the Employer, on its demand without any demur. It shall not be necessary or obligatory for the Employer to proceed against Lead Partner to these presents before proceeding against or dealing with the other Party, the Employer can proceed against any of the parties who shall be jointly and severally liable for the performance and all other liabilities/obligations under this tender to the Employer.
4. The financial liability of the Parties of this Deed of Undertaking to the Employer, with respect to any of the claims rising out of the performance or non-performance of the obligations set forth in this Deed of Undertaking, read in conjunction with the relevant conditions of the Contract shall, however, not be limited in any way so as to restrict or limit the liabilities or obligations of any of the Parties of this Deed of Undertaking.
5. It is expressly understood and agreed between the Parties to this Undertaking that the responsibilities and obligations of each of the Parties shall be as delineated to this Deed of Undertaking. It is further undertaken by the parties that the above sharing of responsibilities and obligations shall not in any way be a limitation of joint and several responsibilities of the Parties under the Contract.
6. It is also understood that this Undertaking is provided for the purposes of undertaking joint and several liabilities of the partners to the Joint Venture for submission of the bid and performance as per tender condition and specification and that this Undertaking shall not be deemed to give rise to any additional liabilities or obligations, in any manner or any law, on any of the Parties to this Undertaking or on the Joint Venture, other than the express provisions of the tender.
7. This Undertaking shall be construed and interpreted in accordance with the provisions of the tender.
8. It is further agreed that this Deed of Undertaking shall be irrevocable and shall form an integral part of the bid and shall continue to be enforceable till the Employer discharges the same or upon the completion of the period of empanelment in accordance with its provisions, whichever is earlier. It shall be effective from the date first mentioned above for all purposes and intents.

IN WITNESS WHEREOF, the Parties to this Deed of Undertaking have through their authorised representatives executed these presents and affixed Common Seals of their companies, on the day, month and year first mentioned above.

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

For Lead Partner (Party No.-1)
For and on behalf of M/s
.....

Name

Designation

Signature

(Signature of the authorized
Representative)

WITNESS :

I.

II.

For Party No.-2
For and on behalf of M/s.....

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

(Signature of the authorized
Representative)

Name

Designation

Signature

WITNESS :

I.

II.

Note:

1. For the purpose of executing the Joint Deed of Undertaking, the non-judicial stamp papers of appropriate value shall be purchased in the name of Joint Venture.
2. The Undertaking shall be signed on all the pages by the authorised representatives of each of the partners and should invariably be witnessed.

Format-II (b) FORMAT OF POWER OF ATTORNEY FOR JOINT VENTURE

KNOW ALL MEN BY THESE PRESENTS THAT WE, the Partners whose details are given here under..... have formed a Joint Venture Under the laws of and having our Registered Office(S)/Head Office(s) at.....

(herein after called the 'Joint Venture' which expression shall unless repugnant to the context or meaning thereof, include it s

successors, administrators and assigns) acting through M/s being the

Partner in-charge do hereby constitute, nominate and appoint M/s..... a Company incorporated under the laws of and having its Registered/Head Office at

as our duly constituted lawful Attorney (hereinafter called "Attorney" or "Authorized Representative" or "Partner In-charge") to exercise all or any of the powers for and on behalf of the Joint Venture in regard to Specification No.....

Package the bids for which have been invited by Chief Engineer (RE-II), CREDA, Raipur (herein after called the 'Employer') to undertake the following acts:

- i) To submit proposal and participate in the aforesaid Bid Specification of the Employer on behalf of the "Joint Venture".
- ii) To negotiate with the Employer the terms and conditions for award of the Contract pursuant to the aforesaid Bid and to sign the Contract with the Employer for and on behalf of the "Joint Venture".
- iii) To do any other act or submit any document related to the above.
- iv) To receive, accept and execute the Contract for and on behalf of the "Joint Venture".

It is clearly understood that the Partner In-charge (Lead Partner) shall ensure performance as per tender provisions and if one or both partner fail to perform their respective portions as per tender provisions, the same shall be deemed to be a default by all the partners.

It is expressly understood that this Power of Attorney shall remain valid binding and irrevocable till completion of the Defect Liability Period towards executed project.

The Joint Venture hereby agrees and undertakes to ratify and confirm all the whatsoever the said Attorney/Authorised Representatives/Partner in-charge quotes in the bid, negotiates and signs the Contract with the Employer and/or proposes to act on behalf of the Joint Venture of this power of Attorney and the same shall bind the Joint Venture as id done by itself.

IN WITNESS THEREOF the Partners Constituting the Joint Venture as aforesaid have executed these presents on this.....day of under the Common Seal(s) of their Companies.

For and on behalf of the Partners of Joint Venture

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

The Common Seal of the above Partners of the Joint Venture:
The Common Seal has been affixed there unto in the presence of:
WITNESS

1. Signature.....

Name

Designation

Occupation

2. Signature.....

Name

Designation

Occupation

Note:

1. For the purpose of executing the Agreement, the non-judicial stamp papers of appropriate value shall be purchased in the name of Joint Venture.
2. The Agreement shall be signed on all the pages by the authorised representatives of each of the partners and should invariably be witnessed.

Format-III PRE-CONTRACT INTEGRITY PACT

General

The pre-bid, pre-contract Agreement (hereinafter called the integrity Pact) is made on days of the month of between on the hand the CREDA, Raipur acting through Shri C.E. (Grid Sanction RE-II), CREDA, Raipur (hereinafter called the "EMPLOYER" which

Expression shall mean and include unless the context otherwise requires his successors in office and assigns) of the First Part and M/s. (Name of Bidder) represented by Shri (hereinafter called the 'BIDDER' which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the EMPLOYER proposes to procure the tendered facility and the BIDDER is willing to offer/has offered the same and

WHEREAS the BIDDER is a Bidder/Tenderer shall mean an individual/firm/agencies/organization/Company/Joint venture of two firms/agencies/companies including its successor executors and permitted assigns jointly and severally as the context may require constituted in accordance with the relevant law in the matter and the EMPLOYER is a Utility performing its functions on behalf of the State Govt. of C.G.

NOW, THEREFORE

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealing prior to during and subsequent to the currency of the contract to be entered into with a view to –

Enabling the EMPLOYER to obtain the desired rate contract for execution of plant at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption, and

Enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competition will be abstain from bribing and other corrupt practices and the EMPLOYER will commit to prevent corruption, in any form by its officials by following transparent procedures.

The parties hereto hereby agree to enter into the integrity Pact and agreed as follows –

Commitments of the EMPLOYER

- 1.1 The EMPLOYER undertakes that no official of the EMPLOYER connected directly or indirectly with a bid will demand take a promise for or accept directly or through intermediates any bribe consideration gift reward favour or any material or immaterial benefit or any other the BIDDER either for themselves or for any person organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation contracting or implementation process related to the contract.
 - 1.2 The EMPLOYER will, during the [pre-bidding stage treat at BIDDERS alike and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison in other BIDDERS.
 - 1.3 All the officials of the EMPLOYER will report to the appropriate Govt. office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.
-
- 2.0 In case any such preceding misconduct on the part of the such official(s) is reported by the BIDDER to the EMPLOYER with full and verifiable facts and the same is prime facie

found to be correct by the EMPLOYER necessary disciplinary proceedings or any other action as deemed fit, including criminal proceedings may be initiated by the EMPLOYER and such a person shall be debarred from further dealings related to the contract Process in such a case while an enquiry is being conducted by the EMPLOYER the proceedings under the contract would not be stalled.

Commitments of BIDDERS

- 3.0 The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following.
- 3.1 The BIDDER will not offer directly or through intermediaries any bribe, gift, consideration, reward, favour any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the EMPLOYER connected directly or indirectly with the bidding process or to any person organization or third party related to the contract in exchange for any advantage in the bidding evaluation contracting and implementation of the contract.
- 3.2 The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the EMPLOYER or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the Government for showing or for being to show favour or disfavour to any person in relation to the contract or any other contract with Government.
- 3.3 BIDDERS shall disclose the name and address of agent and representatives and Indian BIDDERS shall disclose their foreign principals or associates.
- 3.4 BIDDERS shall disclose the payments to be made by them to agents/brokers or any other intermediary in connection with the bid/contract.
- 3.5 The BIDDER further confirms and declares to the EMPLOYER that the BIDDER is the original manufacturer/integrator/authorized government sponsored entity required under this tender and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the EMPLOYER or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid promised or intended to be paid to any such individual firm or company in respect of any such intercession, facilitation or recommendation.
- 3.6 The BIDDER either while presenting the bid or during the negotiations before empanelment, shall disclose any payments he has made is committed to or intends to make to officials of the EMPLOYER or their family members agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
- 3.7 The BIDDER will not collude with other parties interested in the contract to impair the transparency fairness and progress of the bidding process, bid evaluation, empanelment and implementation of the plant as per the tender condition and specifications.
- 3.8 The BIDDER will not accept any advantage in exchange for any corrupt practice unfair means and illegal activities.
- 3.9 The BIDDER shall not use improperly for purposes of competition or personal gain, or pass on to other, any information provided by the EMPLOYER as part of the business relationship, regarding plans technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- 3.10 The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- 3.11 The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- 3.12 If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER either directly or indirectly is a relative of any of the officers of the EMPLOYER, or alternatively, if any relative of an officer of the EMPLOYER has financial interest/stake

in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filing of bid/tender.

The term relative for this purpose would be as defined in Section 6 of Companies Act 1956/2018.

- 3.13 The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the EMPLOYER.

4. Previous Transgression

- 4.1 The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprises in India or any Government Department in India that could justify BIDDER's exclusion from the tender process.
- 4.2 The BIDDER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

5. Bid Security Declaration:

- 5.1 While submitting techno-commercial bid, the BIDDER shall submit Bid Security Declaration – as specified in the Tender in which the bidder is participating to CREDA, Raipur.
- 5.2 In case of the successful BIDDER, a clause would also be incorporated in the Article pertaining to Performance Security/Bond in the tender that the provisions of Sanctions for Violation shall be applicable for forfeiture of Performance Security in case of a decision by the EMPLOYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

1. Sanctions for violations

- 1.1 Any breach of the aforesaid provisions by the BIDDER or anyone employed by it or acting on

Its behalf (whether with or without the knowledge of the BIDDER) shall entitle the EMPLOYER to take all or any one of the following actions, wherever required.

(i) To immediately call off the pre contract negotiations without assigning any reason or giving any compensation to the BIDDER. However the proceedings with the other BIDDER(s) would continue.

Deposit/Performance Security (after the contract is signed) shall stand forfeited either fully or partially, as decided by the EMPLOYER and the EMPLOYER shall not be required to assign any reason, therefore.

(iii) To immediately cancel the contract, if already signed without giving any compensation to the BIDDER.

(iv) To recover all sums already paid by this EMPLOYER and in case of an Indian BIDDER with interest thereon at 2% higher than the UBOR if any outstanding payment is due to the BIDDER from the EMPLOYER in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.

(v) To en cash the advance performance security if furnished by the BIDDER in order to recover the payment is due to the BIDDER from the EMPLOYER in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.

(vi) To cancel all or any other Contracts with the BIDDER the BIDDER shall be liable to pay compensation for any loss or damage to the EMPLOYER resulting from such cancellation/rescission and the EMPLOYER shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.

(vii) To debar the BIDDER from participating in future bidding processes of the Government of India for a minimum period of five years, which may be further extended at the discretion of the EMPLOYER.

(viii) To recover all sums paid in violation of the Pact by BIDDER(s) to any middleman or agent or broker with a view to securing the contract.

(ix) In cases where irrevocable Letter of Credit have been received in respect of any contract signed by the EMPLOYER with the BIDDER the same shall not be opened.

(x) Forfeiture of Performance Security/Bond in case of a decision by the Employer to forfeit the same without assigning any reason for imposing sanction for violation of this pact.

6.2 The EMPLOYER will be entitled to take all or any of the actions mentioned at para 6 1(i) to (x) of this Pact also on the Commission by the BIDDER or anyone employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) of an offences as defined in Chapter (X) of the Indian Penal Code 1880 or Prevention of Corruption Act 1988 or any other statute enacted to prevention of corruption Act 1988 or any other statute enacted for prevention for corruption.

6.3 The decision of the EMPLOYER to the effect that a breach of the provisions of this Pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the independent.

7. Fall Clause

7.1 The BIDDER undertakes that it has not supplied/is not supplying similar product/system or subsystem at price lower than that offered in the present bid in respect to any other ministry/department of the Govt. of India or PSU and if it is found at any stage that similar product/system or subsystem was supplied by the BIDDER to any other Ministry/department of the Govt. of India or a PSU at a lower price than that very price with due allowance for elapsed time will be applicable to the present case and the offence in the cost would be refunded by the BIDDER to the EMPLOYER, if the contract has already been concluded.

8. Independent Monitors

8.1 The EMPLOYER has appointed independent Monitors (hereinafter referred to as Monitors) For the Pact in consultation with the Centre Vigilance to as Monitors) for the Pact in Consultation with the Central Vigilance Commission (Names and Address of the Monitors to be given).

8.2 The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.

8.3 The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.

8.4 Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement including Minutes of Meeting.

8.5 As soon as the Monitors notices or has reason to believe a violation of this Pact, he will so inform the Authority designated by the EMPLOYER.

- 8.6 The BIDDER(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the EMPLOYER including that provided by the BIDDER. The BIDDER will also grant the Monitor, upon his request and demonstration of a valid interest unrestricted and unconditional access to this project documentation. The same is applicable to Subcontractors. The same is applicable to Subcontractors. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER/Subcontractor(s) with confidentiality.
- 8.7 The EMPLOYER will provide to the Monitor sufficient information about all meeting among the parties related to the Project provided such meeting could have an impact on the contractual relations between parties. The parties will offer to the Monitor the option to participate in such meetings.
- 8.8 The Monitor will submit a written report to the designated Authority of EMPLOYER/Secretary in the Department/with 8 to 10 weeks from the date of reference or intimation to him by the EMPLOYER/BIDDER and should the occasion arise submit proposals for correcting problematic situations.

9. Facilitation of Investigation

In case of any allegation of violation of any provisions of the Pact or payment of commission, the EMPLOYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

10. Law and Place of Jurisdiction

The Pact is subject to Indian Law. The place of performance and jurisdiction is the seat of the EMPLOYER.

11. Other Legal Actions

The actions stipulated in this integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

12. Validity

- 12.1 The validity of this integrity Pact shall be from date of its signing and extend till warranty period as applicable for executing several plants to the satisfaction of both the EMPLOYER and the BIDDER. In case BIDDER is unsuccessful this Integrity Pact shall expiry after six months from the date of the opening of techno-commercial bid.
- 12.2 Should one or several provisions of this Pact turn out to be invalid, the reminder of this Pact shall remain valid. In the case the parties will strive to come to an agreement to their original intentions.

13. The parties hereby sign this Integrity Pact at on

EMPLOYER	BIDDER
Name of the Officer	CHIEF EXECUTIVE OFFICER
Designation	
Deptt/PSU	

Witness –

1 1.....
 2 2.....

*Provisions of these clauses would need to be amended/deleted in line with the policy of the EMPLOYER in regard to involvement of Indian agent of foreign suppliers.

Format IV Format for Bid Security Declaration

(To be submitted separately for each Project Group)

(To be stamped on non – judicial stamp paper as per the stamp act of the state where the document is made)

Ref: _____

Declaration No.: (Insert Name of Project Group)

Date: _____

Subject: Declaration of bid security requirement.

We, _____(insert name of the Bidder) hereby provide this undertaking to [**Insert the name of Implementing Agency**], in respect to our response to RfP vide RfP No. _____ dated _____. We undertake that we will abide by the provisions of the RfP for the activities pertaining to submission of response to RfP, during the bid validity period. We undertake not to withdraw or modify our bid during the bid validity period, in line with provisions of the RfP. In case we withdraw or modify our response to the RfS during the bid validity period, or violate other provisions of the RfP which make the bid non-responsive under Clause 4.2 of the RfP, we, _____ (insert name of the bidder) including our Parent, Ultimate Parent, and our Affiliates shall be suspended/debarred from participating in upcoming tenders issued by any department of [**Insert the name of State**] Government for a period of 5 years from the date of default as notified by [**Insert the name of Implementing Agency**].

(Name and Signature of the Authorized Signatory)

Format V Format of Affidavit for Declaration of Conflict of Interest

(Note: This affidavit should be on a non-judicial stamp paper of Rs. 100/- and shall be attested by Magistrate/Sub-Judge/ Notary Public)

I, (Name of the bidder authorized representative of the bidder) son/ daughter of..... resident of (Full address), aforesaid solemnly affirm and state as under:

1. I hereby certify that all the information furnished with the bid submitted in response to notice inviting bid no. 88282/GCSRT_1-500kWp/CAPEX/2021-22/DT. 06-12-2021 issued by CREDA/CSPDCL (authority inviting bids) for Empanelment of Vendors for Design, Supply, Installation, Testing & Commissioning Including obligated Warranty and Comprehensive Maintenance of 1kWp to 500kWp under Grid Connected Rooftop Photo Voltaic Solar Power Plant Programme of MNRE Phase-II for all the willing consumers excluding Government connections in Chhattisgarh State through rate contract programme under CAPEX Mode are true and correct.
2. I hereby certify that I have been authorized by..... (Company name) to sign on their behalf, the bid mentioned in Sr.No.1 above.*
3. Information furnished in the bidding documents is correct in all respects to the best of my knowledge and belief.
4. The near relations, as per clause 30(A) in Section - 02, in CREDA, are not in employment of the firm/company. (Note:-By the term near relatives is meant Wife, Husband, Parents and Son, Brother, Sister, Brother-in-law, Father-in-law, Mother-in-law etc.) (if working mention the name/names)
.....
.....
5. The name of near relative (if any) as per Clause 31(B) who retired/removed within the last two years. (If None, clearly State None)
.....
.....
6. No near relative is working as Financial Accountant in the CREDA. (if working mention the name)
.....
.....
7. No person is working in the company in any capacity, who are near relatives to any Officer in Chhattisgarh State Renewable Energy Development Agency (CREDA) (If working mention the name)
.....
.....
1. Our company/firm/ or otherwise is not under the clarification of ineligibility for corrupt and fraudulent practices by the Central Government, the State Government or any

public undertaking, autonomous body, authority by whatever name called under the Central or the State Government as mention in clause 1(F) of tender document.

2. I hereby authorize the CREDA Officials to get all the documents verified from appropriate sources (s).

Deponent

Place:

Date:

* Not applicable if the bidder is an individual and is signing the bid on his own behalf.

Verification

I..... S/o.....do here by affirm that contents stated in Para 1 to 09 above and contents submitted in technical & financial bid are true to the best of my knowledge and believe and are based on my/our record.

Verified that this date of at (Place).....

Deponent

Format VI
TURN OVER DETAILS OF LAST THREE CONSECUTIVE YEARS ITEM/PRODUCT
FY 2017-18 TO FY 2019-20 OR 2018-19 TO 2020-21

S.No	Fin. Year	Amount (Rs in Lac)

List of Major Customers – FY 2017-18 TO FY 2019-20 OR 2018-19 TO 2020-21

S. No	Customer Full Address	Details of Supplies made	Turn Over (Rs. In Lac)

Format-VII Bidder Details

PART 'A': GENERAL INFORMATION

(Strike off whichever is not applicable. Separate sheets should be used, wherever necessary)

- 01.** Name & Address of the Bidder :
- 02.** Name & Address of the firm/Company etc. :
- a) Registered office :
- b) Factory/works address :
- c) Fax Nos. :
- d) Telephone / Mobile Nos. :
- e) Email id :
- 03.** Confirm whether Bidder is Manufacturer : Yes/No
- 04.** Only manufacturer to give following particulars
- a) Address of factory :
- b) Year of starting manufacture :
- c) Whether same/similar materials :
Manufactured earlier
(if yes, give reference) :
- d) Yearly/monthly production capacity :
- e) Maximum yearly production :
Achieved so far :
- 05.** Whether the firm is SSI Unit of : Yes/No
Chhattisgarh State:
- a) If yes, write registration No. :
- b) Whether documentary evidence :
Regarding registration enclosed :
- c) Items for registration :
- d) Period of registration :
- d) Whether latest copy Competency/ : Yes/No
Certificate furnished :
- 06.** Whether the firm is 100% owned by : Yes/No
- a) State Government : Yes/No
- b) Central Government : Yes/No
If yes, Notification/certificate issued from : Yes/No
The competent authority to this effect is
Enclosed :
- 07.** a) Whether the bidder is old participant : Yes/No
with CREDA
- b) If yes, whether documentary : Yes/No
Evidence is enclosed.
- 08.** Any other information that bidder may like : If yes, give details
to give in order to highlight his bid

PLACE:

SIGNATURE OF BIDDER

NAME IN FULL

DATE:

DESIGNATION/STATUS

FIRM/COMPANY SEAL

PART 'B': COMMERCIAL INFORMATION

(Strike off, whichever is not applicable. Separate sheets should be used. Wherever necessary)

- 01. Whether the offer is valid for 6 months : Yes/No
from the date of opening of commercial/technical bid.
- 02. Rate of Sales Tax on the date of bid :
(exclusive in the rate quoted)
- 03. **DISCOUNT:**
 - a) Whether any rebate/discount is offered. : Yes/No
 - b) If yes, whether the rebate is unconditional/conditional : Yes/No
Rate/amount of rebate/discount
 - c) If conditional State condition : Yes/No
- 04. **PAYMENT TERMS:**
Whether CREDA's terms of payment is acceptable to Bidder : Yes/No
- 05. **COMPLETION PERIOD OF WORK:**
Whether Bidder is agreeing for completion period of work as : Yes/No
Specified in the Bid
- 06. **PENALTY CLAUSE:**
Whether agreeable to CREDA's Penalty Clause : Yes/No
- 07. Whether agreeable to CREDA's clause of warrantee period : : Yes/No
- 08. **SECURITY DEPOSIT:**
Whether Security Deposit clause is understood : Yes/No
- 09. Indicate State, Central Sales Tax Registration Number State :
Yes/No
Central:
(Please Note that in case of non-registration with Commercial Tax,
Department Purchase Tax as admissible shall be deducted by
the Purchaser from the Bills of the supplier)
- 10. Please mention whether rates offered are : Yes/No
applicable for part quantities.

PLACE:

DATE:

SIGNATURE OF BIDDER

NAME IN FULL

DESIGNATION/STATUS

FIRM/COMPANY SEAL

PART 'C': TECHNICAL INFORMATION

(Strike off whichever is not applicable. Separate sheets should be used. Wherever necessary)

- 01.** Whether material offered is exactly as per technical specification : Yes/No
- 02.** Whether the copies of completion certificate received during last 3 years : Yes/No
from other State Nodal Agency or from other Organization for supply
of inverters enclosed.
- 03.** Whether pamphlets/technical details literatures along with drawing etc. : Yes/No
furnished with the offer (if yes, give details)
(if yes, give details)
- 04.** Whether the Bidder agrees to furnish material test certificates in : Yes/No
respect of chemical composition and physical properties from Govt./
Govt. approved lab with each batch of supplies.
- 05.** Whether the Bidder has furnished details of manufacturing : Yes/No
equipments and short history of plant (if yes, give details)
- 06.** Whether details of manufacturing process furnished with offer. : Yes/No
(If yes, give details)
- 07.** a) Whether all testing facilities are available. : Yes/No
If so, give details and in case of non-availability of facilities indicate
approved lab available in surrounding areas where tests are proposed to be conducted.

PLACE
DATE

SIGNATURE OF BIDDER
NAME IN FULL
DESIGNATION/STATUS
FIRM/COMPANY
SEAL

Format-VIII Financial/Price Bid

(Financial/ Price Bid shall be submitted through online only at <https://www.eproc.cgstate.gov.in>)

Name of the Bidder:

Design, Supply, Installation, Testing and Commissioning of Grid Connected Rooftop Solar Photovoltaic Power Plant and power evacuation system and other necessary infrastructures including 05 year Comprehensive Warranty for complete installed plant and further 20 years extended warranty for solar PV module and Maintenance/CMC of Grid Connected Rooftop Solar Photovoltaic Power Plants and Power Evacuation system in various districts in the state of Chhattisgarh as per technical specifications, Terms and Conditions of the tender documents: -

Sr. No.	Capacity Range	Quoted Rate per KW for RTS Power plant including CMC for 5 years (in INR, excluding GST)
1.	Upto 1 kW	(In Words)
2.	Above 1 kW Upto 2 kW	(In Words)
3.	Above 2 kW Upto 3 kW	(In Words)
4.	Above 3 kW Upto 10 kW	(In Words)
5.	Above 10 kW Upto 100 kW	(In Words)
6.	Above 100 kW Upto 500 kW	(In Words)

Notes:

1. Certified that quoted rates above are for the Rooftop Solar PHOTO VOLTAIC system as per MNRE guidelines/requirements/specifications, terms & condition mentions in this tender.
2. GST will be applicable as notified from GST council from time to time for Grid-connected Rooftop Solar PV systems applicable for MNRE Scheme for the year 2021-22.
3. The rates are inclusive of all taxes & duties, storage, transportation up to site, insurance etc., and any other job required to properly execute the completion of work on the basis of such rate.
4. MNRE has issued the current year bench-mark cost for each capacity range mentioned above for completion of work of RTS plant on such basis. Therefore, the quoted rate should not be more than the benchmark cost for respective capacity range.
5. In the event that the discovered lowest price is higher than that the benchmark cost on MNRE, in such case the benchmark cost shall only be treated as lowest price, However, CREDA has right to reject/review very low or unrealistic rates.

6. Design, Supply, Installation, Testing & Commissioning including 05 years Comprehensive warranty for complete installed plant and further 20 years extended warranty for solar PV module and 05 years CMC of 1 kwp to 500 kwp Grid Connected Rooftop Solar System as per tender under reference for all the willing consumers excluding government connections in Chhattisgarh State through Rate Contract Programme under CAPEX Mode.
7. In case of a bid found so low that it raises material concerns i.e., *Abnormally Low Bid* in combination with/ without other elements of the Bid. CREDA/ CSPDCL may in such cases seek written clarifications from such bidder, including detailed price analyses of its bid price in relation to scope, schedule, allocation of risks and responsibilities, and any other requirements of the bid's document. If, after evaluating the price analyses, CREDA / CSPDCL determines that the bidder has substantially failed to demonstrate its capability to deliver the contract at the offered price, the CREDA / CSPDCL may reject the bid/ proposal.

Format – IX Reference Bidders' Declaration Format associated with Implementation of ALMM Order

(on the letter head of the bidder)

Declaration

To Whomsoever this may concern

Reference: (RFP no. and description)

1. We hereby declare that we are fully aware of the binding provisions of the ALMM order and the Lists thereunder, while quoting the rate in the tender no. [*tender number*] floated by [*name if tendering authority*]
2. 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 from the List – I of the ALMM order applicable on the date of invoicing of such modules.
3. We further understand and accept that we shall be liable for penal action, including but not limited to blacklisting and invocation of Performance security, if we are found not complying with the provisions of ALMM Order, including those mentioned above.

Name:

Designation:

Organization:

Date:

(Signature and Stamp)

Format – X
Undertaking/Self- Declaration for domestic content requirement fulfilment
(On a plain Paper)

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- I PROJECT REPORT FORMAT

Format for Summary Project Report for Grid Connected Rooftop and Small Solar Photovoltaic system

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 prosumer
6. Specifications of the Components and Bill of Material/ Quantities

Sl. no	Component	Specification	
		Quantity	Make
A	Solar PHOTO VOLTAIC module		
A.1	Aggregate Solar PHOTO VOLTAIC capacity (kWp)		
B	Grid connected inverter (Type and Capacity)		
B.1	Aggregate Inverter capacity (kVA)		
C	Module mounting structure (Certified by a Structural Engineer (Mandatory for 101 kWp to 500 kWp))		
D	Array Junction Box		
E	AC Distribution Board		
F	Cable (All type)		
G	Earthing Kit (maintenance free)		
I	Online monitoring system		
J	Any other component		
K	Transformer		

7. Unit cost of solar power generation
8. Cost benefit analysis, payback period
9. Expected output/annum.
10. Respective drawings for layout, electrical wiring connections, earthing, components etc.
11. Connectivity details with grid and metering arrangement (with sketch diagram)
12. Copy of electricity bill of the prosumer and consumer/BP number
13. Any other information
14. Documentary proof regarding prosumer type

Annexure-II- Operation and Maintenance Guidelines of Grid Connected PV Plants

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 to 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

- ii. The inverter should be installed in a clean, dry, and ventilated area which is separated from, and not directly above, the battery bank.
- iii. Remove any excess dust in heat sinks and ventilations. This should only be done with a dry cloth or brush.
- iv. Check that vermin have not infested the inverter. Typical signs of this include
 - v. Spider webs on ventilation grills or wasps' nests in heat sinks.
- vi. Check functionality, e.g. automatic disconnection upon loss of grid power supply, at least once a month.
- vii. 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	User/Technician
	Cleaning	Clean PV modules with plain water or mild dishwashing detergent. Do not use brushes, any types of solvents, abrasives, or harsh detergents.	Fortnightly or as per the site conditions	User/Technician
	Inspection (for plants > 100 kWp)	Use infrared camera to inspect for hot spots; bypass diode failure	Annual	Technician
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	Monthly	Electrician

		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
Instrument s	Validation	Spot-check monitoring instruments (pyranometer etc.) with standard instruments to ensure that they are operational and within specifications.	Annual	PV Specialist
Transform er	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	Site in charge
Inverter	Inspection	Observe 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.	Monthly	Electrician
Inverter	Service	Clean or replace any air filters.	As needed	Electrician
Instrument s	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	Lubricate tracker mounting bearings, gearbox as required.	Bi-annual	Technician
Plant	Monitoring	Daily Operation and Performance Monitoring	Daily	Site in charge
Spare Parts	Management	Manage inventory of spare parts.	As needed	Site in charge
Logbook	Documentation	Document all CMC activities in a workbook available to all service personnel	Continuous	Site in charge

Additional Points:-

1. Periodic cleaning of solar modules, preferably once every fortnight.
2. CMC of Solar Power Plant shall be compliant with grid requirements to achieve committed energy generation.
3. Periodic checks of the Modules, PCUs and BoS shall be carried out as a part of routine preventive and breakdown maintenance.
4. Immediate replacement of defective Modules, Invertors/PCUs and other equipment as and when required.
5. Supply of all spares, consumables and fixtures as required. Such stock shall be maintained for all associated equipment's and materials as per manufacturer/ supplier's recommendations.
6. 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's must be calibrated ones every 2 years from NABL accredited labs, and the Certificate of calibration must be kept for reference as required.
7. 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.
8. If any jobs covered in CMC Scope as per tender are not carried out by the contractor/ Bidders during the CMC period, the Engineer-In-Charge shall take appropriate action as deemed fit.

9. CREDA & CSPDCL reserves the right to make surprise checks/ inspection visits at its own or through authorized representative to verify the CMC 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 –III- Monthly Comprehensive Maintenance Report

Month and- year:

Name of the System Integrator:

Project:

Capacity:

Name 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 dish washing detergent.			
	Inspection (for plants > 100kWp)	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	<input type="checkbox"/> Inspect electrical boxes for corrosion, intrusion of water or vermin. <input type="checkbox"/> Check position of switches and Breakers. <input type="checkbox"/> Check status of all protection devices.			
Wiring	Inspection	Inspect cabling for Signs of cracks, defects, lose connections corrosion,			

Component	Activity	Description	Date	Name/ Signature	*Remarks
		overheating, arcing, Short or open circuits and ground faults.			
Inverter	Inspection	<input type="checkbox"/> Observe instantaneous operational indicators on the faceplate. <input type="checkbox"/> Inspect Inverter housing or shelter for Any physical maintenance. <input type="checkbox"/> 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 with intolerance limits.			
Transformer	Inspection	Inspect transformer oil level, temperature gauges, breather, silica gel, meter, connection set c.			
Plant	Monitoring	Daily Operation and Performance Monitoring.			
Spare Part	Management	Manage inventory of Spare Part.			
Log Book	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 shutdown(planned/forced), breakdown, etc under remarks.

*Daily register is to be maintained by the bidder at each location greater than 10kWp. The same may be inspected by CREDA or its authorized representative at any time 5 years of Comprehensive Maintenance period. The Register will have the information about the daily generation, Inverter down time if any, Grid outages.

Part B

Date of Month	Generation in KWh	Grid outage (hh:mm)	Inverter down period (hh:mm)	Remarks
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

Total generation for the month in kWh:

Cumulative generation since commissioning in kWh:

CUF for month in %:

Cumulative CUF since commissioning in %:

Date:

(Name: _____)

Signature of the Authorized signatory of the System Integrator

(Name: _____)

Signature of the Authorized signatory of the Beneficiary

Format for Solar Generation Reading

Table[i]	
-----------------	--

Solar Generation					
S.No.	Previous Month reading	Current Month Reading	Total Reading(3-2)	MF	Total Generation KWh (A)= (4*5)
1	2	3	4	5	6
Table[j]					
Solar Power Exported to CSPDCL Grid					
S.No.	Previous Month reading	Current Month Reading	Total Reading(3-2)	MF	Total export power in KWh (B)=(4*5)
1	2	3	4	5	6
Table[k]					
Power Imported from CSPDCL Grid					
S.No.	Previous Month reading	Current Month Reading	Total Reading(3-2)	MF	Total import power in KWh (C)=(4*5)
1	2	3	4	5	6

Exported KWh% of Total Generation (B/A)*100:-
Solar Power Utilized by Beneficiary in KWh (A-B) :-
% of Solar Power Utilized by Beneficiary [(A-B)/A]*100:-
Total Power Consumption of Beneficiary (A-B+C):-
Remark if any

Annexure –IV Quality Certification, Standards and Testing for Grid-connected Rooftop Solar Photo Voltaic Systems/Power Plants

Quality Certification and standards for grid-connected rooftop solar PHOTO VOLTAIC 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 PHOTO VOLTAIC system/ plant must conform to the relevant standards and Certifications given below:

Solar PHOTO VOLTAIC 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/	Photovoltaic (PV) module performance testing and energy rating –: Irradiances and temperature performance measurements, and
IS 16170: Part 1	power rating
	Photovoltaic (PV) Modules – Ammonia (NH3) Corrosion Testing (As per the site condition like dairies, toilets)
IEC 62716	Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for
IEC 61730-1,2	Construction, Part 2: Requirements for Testing
	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)
IEC 62804	Photovoltaic (PV) modules – Transportation testing, Part 1:
IEC 62759-1	Transportation and shipping of module package units

Solar PHOTO VOLTAIC Inverters

Safety of power converters for use in photovoltaic power systems – Part

- 1: General requirements, and Safety of power converters for use in IEC 62109-1, IEC 62109-2 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 (as applicable)	Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)

BS EN 50530 (as applicable)	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.
IEC 62116/ UL 1741/ IEEE 1547 (as applicable)	Inverters - Test Procedure of Utility-interconnected Photovoltaic Islanding Prevention Measures
IEC 60255-27	Measuring relays and protection equipment requirements – Part 27: Product safety
IEC 60068-2 (1, 2, 14, 27, 30 & 64)	Environment 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
IEC 61000 – 2,3,5 (as applicable)	Electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC) testing of PHOTO VOLTAIC Inverters

Fuses

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, c) Low-voltage switchgear and Control-gear, connectors, switch-dis connectors and fuse-combination units d) EN 50521: Connectors for photovoltaic systems – Safety requirements and tests	Part 2: Circuit Breakers Part 3: Switches, dis
IEC 60269-6	Low-voltage fuses - Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems	
Surge Arrestors		
IEC 62305-4	Lightening Protection Standard	
IEC 60364-5-53/ IS 15086-5 (SUCCESSFUL BIDDER)	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 devises - Part 11: Surge protective devises 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	

Earthing /Lightning:

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
Energy Meter	At interface point : As per technical specification clause 8 At Generation point: Meter shall be provided by CSPDCL

Solar PHOTO VOLTAIC Roof Mounting	Structure
IS 2062/IS 4759	Material for the structure mounting

Note:-

- Equivalent standards may be used for different system components of the plants. In case of clarification following person/agencies may be contacted.
- Ministry of New and Renewable Energy (Govt. of India) National Institute of Solar Energy
- The Energy Recourse's Institute TUV / Rhineland / UL