



Chhattisgarh State Renewable Energy Development Agency (CREDA)

(Dept. of Energy, Govt. of Chhattisgarh)

Near Energy Education Park, Village Fundhar

VIP (Air Port Road) Raipur 492015 (C.G.)

Phone (No.) : +91-9131332830

E-mail: credatendercell@gmail.com, Website: creda.co.in

E-BID DOCUMENT No. 150515/CREDA-TEED(BSP)/ONGRID/SPVPP/2023-24

Dated: 27.12.2023

INVITATION OF RATES FOR DESIGN, SUPPLY, INSTALLATION AND COMMISSIONING OF GRID CONNECTED ROOF TOP SOLAR PHOTOVOLTAIC POWER PLANT WITH MANDATORY 5 YEARS COMPREHENSIVE MAINTENANCE OF DIFFERENT CUMULATIVE CAPACITIES AT FIVE LOCATIONS IN BHILAI TOWNSHIP OF DISTRICT DURG, CHHATTISGARH.

Particulars	From Date & Time	To Date & Time	Place
Date of issue of notice inviting bid	27.12.2023 05:00 PM	-----	-----
Period of availability of bidding document at website (till Submission Date of Tender upto 30 Days)	27.12.2023 05:00 PM	29.01.2024 05:00 PM	www.creda.co.in/Tenders https://eproc.cgstate.gov.in
Submission of Pre Bid queries in writing and through Email	27.12.2023 05:00 PM	08.01.2024 05:00 PM	To be submitted hard copy at CREDA HO, Raipur or through E-mail at credatendercell@gmail.com
Date of Pre Bid Meeting	09.01.2024 12:00 PM	-----	TEED(BSP) Office, Bhilai
Submission of Online Bid (Technical + e-Price Bid) and submission of documents in hard copy	11.01.2024 11:00 AM	29.01.2024 05:00 PM	https://eproc.cgstate.gov.in
Opening of Technical Bid	30.01.2024 03:00 PM Onwards		At CREDA H.O., Conference Hall, Raipur. (https://eproc.cgstate.gov.in)
Evaluation of technical bid and declaration of eligible bidder (The technical qualification part)	01.02.2024 03:00 PM Onwards		At CREDA H.O., Conference Hall, Raipur.
Opening of e- Price Bid	05.02.2024 03:00 PM Onwards		At CREDA H.O., Conference Hall, Raipur.

Tender Document Cost– Rs.10,000.00 + 18% GST = Rs.11,800.00

(In words Rupees Eleven Thousand Eight Hundred Only) to be deposited in CREDA's account along with EMD via Demand Draft/ Pay Order or RTGS / NEFT.

Document can be downloaded from our website www.creda.co.in or from Chhattisgarh e-Procurement portal i.e. <https://eproc.cgstate.gov.in>.

CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY

CONTENTS

Section	Description	Page No.
	Cover Page, Contents etc.	1-3
	Notice Inviting BID	4-5
	Check List	6
	Details of EMD and Tender Document Fee	7
	Undertaking of the Bidder	8
SECTION - 1	Instruction For Bidder	9
	Eligibility Criteria	9
	Bidding Process/EMD/Submission of Documents/Specification Amendments/GST & PAN/ The Bid Analysis of Rate	10-11
	Registration of Bidder/Validity/Terms & Conditions	11
	CREDA reserves the right/ Communications/ Bid Document Fee and Earnest Money/ Submission / Pre-bid Meeting /Technical Criteria/ Jurisdiction of the court ETC.	11-14
SECTION - 2	General Condition of Contract	15
	Definitions/Proof of Manufacturer/Contract Document/Manner	15
	Variations, Additions & Omissions/Inspection	16
	Completion of work/Eligible SI Default Liability/Force Majeure/Rejection of works/Extension of time	16-17
	Make of Equipment/Warranty Period/Terms of Payment/Penalty/SD/Insurance/Non-Assignment	18-20
	Bid Evaluation Criteria/Evaluation of Price Bid	21
	Allocation of Work/ Bid Rejection	
SECTION - 3	Scope of Work	22
SECTION - 4	General Technical Specification:	23-34
	Array Structure	24
	Junction Boxes	25
	Inverters	26-27
	Data Acquisition System / Plant Monitoring/Other Features	27-28
	Lightning and Over voltage protection/Surge protection device	28
	Electric Cable	29
	Connectivity	30
	Safety measures/ Display Boards	31
	Quality Certification, Standard & Testing for Grid Connected Rooftop Solar PV System/Power Plant	32-34
	Comprehensive Maintenance Contract (CMC) & Guidelines	35-40

Section	Description	Page No.
SECTION - 5	Annexure, Specification, Forms	40-55
	Annexure – I: Certificate of completion	41
	Annexure–II - Format for Affidavit (Declaration of Conflict of Interest)	42-43
	Annexure – III - e-Price Bid	44
	Annexure – IV - Logo for Module	45
	Annexure – V- Draft Tri-Partite Agreement	46-50
	Annexure – VI- Self Declaration of Non Debarment	51
	Schedule- I,II,III,IV	52-55
	Site Clearance Certificate, Lay Out	56-57

NIT Ref. No. 13693/CREDA-TEED(BSP)/ONGRID/SPV-PP/2023-24

Date: 27.12.2023

NOTICE INVITING BID

CREDA invites online bid from registered System integrators of CREDA having 3 years track record in Solar Photovoltaic Power Plants Systems, for On-grid Rooftop (RTS) for Design, Supply, Installation, and Commissioning of Solar Power Plants with five years Comprehensive Maintenance Contract (CMC) and unconditional onsite warrantee of various capacities as details mentioned below-

Sl. No.	Site wise Description	Approximate value of work (In ₹)* (Excluding GST)	Cost of Bid Document (In ₹)	EMD (In ₹)	Essentials
1	Design, Supply, Installation and Commissioning of Grid Connected Rooftop Solar Power Plant with 5 years comprehensive maintenance at : Ispat Bhawan, BSP, Bhilai, District – Durg (CG) Capacity: 300kWp	₹ 107.658 Lakhs			As per clause no. 1A to 1F of Eligibility Criteria (Page no.9)
2	Design, Supply, Installation and Commissioning of Grid Connected Rooftop Solar Power Plant with 5 years comprehensive maintenance at : JLNH Hospital, Sector-9, BSP, Bhilai, District-Durg (CG) Capacity: 500kWp	₹ 179.430 Lakhs			
3	Design, Supply, Installation and Commissioning of Grid Connected Rooftop Solar Power Plant with 5 years comprehensive maintenance at : Sr. Secondary School, Sector-X, BSP, Bhilai, District-Durg (CG) Capacity: 250kWp	₹ 89.715 Lakhs	₹ 10000.00 +18% GST = ₹ 11800.00	₹ 3,00,000.00	
4	Design, Supply, Installation and Commissioning of Grid Connected Rooftop Solar Power Plant with 5 years comprehensive maintenance at : Town Administrative Building (TA Building), BSP, Bhilai, District-Durg (CG) Capacity: 50kWp	₹ 19.118 Lakhs			
5	Design, Supply, Installation and Commissioning of Grid Connected Rooftop Solar Power Plant with 5 years comprehensive maintenance at : Estate Court Building, Maroda, BSP, Bhilai, District-Durg (CG) Capacity: 50kWp	₹ 19.118 Lakhs			
TOTAL		₹ 415.039 Lakhs	₹ 11,800 /-	₹ 3,00,000/-	

* As per benchmark cost released by MNRE vide order no. 32/24/2020 Dated 27.10.2021

The quantity/capacity of Solar Power Plants mentioned in above table is based on the joint survey done by TEED-BSP and CREDA. The capacity may change as per available Rooftop shadow free area requirement, if necessary, with due approval.

Important Events and time schedule for this Bid are as follows –

Particulars	From Date & Time	To Date & Time	Place
Date of issue of notice inviting bid	27.12.2023 05:00 PM	-----	-----
Period of availability of bidding document at website (till Submission Date of Tender upto 30 Days)	27.12.2023 05:00 PM	29.01.2024 05:00 PM	www.creda.co.in/Tenders https://eproc.cgstate.gov.in
Submission of Pre Bid queries in writing and through Email	27.12.2023 05:00 PM	08.01.2024 05:00 PM	To be submitted hard copy at CREDA HO, Raipur or through E-mail at credatendercell@gmail.com
Date of Pre Bid Meeting	09.01.2024 12:00 PM	-----	TEED(BSP) Office, Bhilai
Submission of Online Bid (Technical + e-Price Bid) and submission of documents in hard copy	11.01.2024 11:00 AM	29.01.2024 05:00 PM	https://eproc.cgstate.gov.in
Opening of Technical Bid	30.01.2024 03:00 PM Onwards		At CREDA H.O., Conference Hall, Raipur. (https://eproc.cgstate.gov.in)
Evaluation of technical bid and declaration of eligible bidder (The technical qualification part)	01.02.2024 03:00 PM Onwards		At CREDA H.O., Conference Hall, Raipur.
Opening of e- Price Bid	05.02.2024 03:00 PM Onwards		At CREDA H.O., Conference Hall, Raipur.

Technical Bid and Price Bid shall be submitted online only at <https://eproc.cgstate.gov.in>. However Technical Bid (as per the checklist) also has to be submitted duly signed in hard copy to Tender Cell of CREDA, Raipur. If there is any discrepancy in the e-Bid and hard copy, only the documents in e-Bid shall be valid. **In no case the hard copy of documents shall be evaluated, It is only for record keeping of CREDA and/or TEED.** 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://eproc.cgstate.gov.in>).

Details of tender are updated in CREDA website and Tender Document can be downloaded from our website-www.creda.co.in.

The Bidder shall have to deposit Tender Document cost along with EMD, as mentioned above, through Demand Draft/Pay Order or NEFT/RTGS payable to CREDA Raipur and should submit the proof of same along with tender submission.

Bidders are requested to submit their suggestions/objections/ reservations, if any, with details so as to avoid any confusion and to ensure clarity and transparency regarding the Bid in writing or by e-mail.

Any Addendum/Corrigendum/Amendment Notice if arises will only be uploaded on CREDA's Website.

For any further information, may contact the following:

- Related to CREDA, Shri Vijay Kumar, Executive Engineer, H.O. CREDA, Mob No- +919131332830
- Related to TEED, Shri Dinesh Kumar, General Manager, TEED, Mob No-+919407982197

CREDA reserves all rights to accept/reject any or all tenders in full/part without assigning any reasons.

**Tender Cell
H.O. CREDA, Raipur
(C.G.)**

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

To ensure that your 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 Bid –

S. No.	Envelope	Description of documents to be uploaded in the e-bidding portal	Complied (Yes/ No)	Page No
1.	A. Pre-Qualification	EMD and Tender Document Fee submission form of the bidder confirmed by CREDA (as on page – 7)		
2.		Scanned copy of Undertaking of the Bidder as mentioned on Page –8 of the tender document on the letter head of bidder		
3.		Scanned copy of original tender document duly signed & with stamp on each page, as a confirmation of acceptance of the Terms & Conditions (T&C).		
4.		PAN, GSTIN issued in the name of the bidder		
5.		Self-certificate from Bidder on not being a debarred from Government contract or a blacklisted company.		
6.		Declaration of conflict of interest - by bidder about any relatives working with CREDA/TEED and Affidavit (Annexure II) (Hard Copy to be submitted as per Clause 4d, Section – 1)		
7.		Copy of Registration: Certificate as System Integrator of CREDA in SPV Program valid at the time of submission of bid.		
8.	B. Technical and Financial Qualification	Original Net Worth Certificate duly signed by Chartered Accountant as on 31 st March 2022.		
9.		Original certificate for last three financial years Turnover i.e. 2020-21, 2021-22 & 2022-23 of work done in SPV Project.		
10.		Original ITRs for last three financial Years i.e. 2020-21, 2021-22 & 2022-23 of the bidder.		
11.		Completion and Performance Certificates of installation and commissioning of On-grid SPV Power Plants by the Bidder in Govt. Scheme of any state in last three financial years i.e. 2020-21, 2021-22 & 2022-23 (Annexure I).		
12.		Proof of being Eligible Manufacturer of SPV Modules/ PCU/Batteries/other BOS.		
13.		Manufacture Authorization certificates of major components of solar power plants.		
14.		Technical Data Sheet for each component showing full technical details.		

Note:- Bidders shall have to also submit the original hard copies of the above mentioned documents.

Details of EMD and Tender Document Fee

Name of A/c	CREDA
Bank & Branch Name	ICICI Bank, Panchpedi Naka, Raipur
Bank Account Number	134601000400
Branch IFSC Code	ICIC0001346

Bid No. and Date	
Name of the Bidder	
Bidder's Bank Account Details	
(i) Name of the bank	
(ii) Branch	
(iii) IFSC Code	
(iv) Account No.	
(v) Transaction reference number	EMD - _____ ;Bid Document Fee - _____
(vi) Date of transaction	EMD - _____ ;Bid Document Fee - _____
(vii) EMD	Rs./- In Words (Rs.....)
(viii) Bid Document Fee	Rs./- In Words (Rs.....)

(Sign & Seal of the bidder)

***NOTE –**

1. The EMD and the Tender Document Fee shall have to be deposited as mentioned in the NIT in CREDA's bank account (amount mentioned above). Bidder shall have to upload the transaction details as above or a scanned copy of the DD (if transaction is done through DD)
2. In case the transaction is done through DD, the original DD has to be submitted in envelope as per Clause 4(d).

**UNDERTAKING OF THE BIDDER
(To be submitted on letter head)**

I/We have visited the site prior to submission of the bid documents and found that following sites are clear and suitable for installation and also inspected the probable terminating point of Grid Synchronization:

- 1) Ispat Bhawan, BSP,Bhilai, District: Durg (CG) (300kWp)**
- 2) JLNH Hospital, Sector-9, BSP,Bhilai, District: Durg (CG) (500kWp)**
- 3) Sr. Secondary School, Sector-X, BSP,Bhilai, District: Durg (CG) (250kWp)**
- 4) Town Administrative Building (TA Building), BSP,Bhilai, District: Durg (CG) (50kWp)**
- 5) Estate Court Building, Maroda, BSP,Bhilai, District: Durg (CG) (50kWp)**

I/We have read carefully and examined the notice inviting Bid, schedule, General Rules and terms and conditions of the contract, special conditions, Schedule of Rates and other documents and Rules referred to in the Bid document for the supply.

I/We hereby tender my rates for the execution of the work for CREDA on the behalf of TEED, BSP as specified within the time stipulated in the schedule in accordance with all aspects with the specifications, designs, drawings and instructions with such conditions so far as applicable.

I/We agree to keep the Bid valid for One Hundred Eighty (180) days from the due date of submission thereof and not to make any modifications in its terms and conditions.

A sum of Rupees 300000.00 (Three Lakhs Only) is hereby forwarded as Earnest Money in the form of crossed Demand draft/Pay order / RTGS / NEFT payable to CREDA at Raipur (C.G.). If I/We fail to commence or complete the sanction ordered in specified time or fail to fulfill any condition of Bid document, I/We agree that the CREDA shall, without prejudice to any other right or remedy, be at liberty to forfeit the said Earnest Money absolutely. The said Earnest Money shall be retained by CREDA towards security deposit to execute all the works referred to in the Bid documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be required by CREDA.

I/We hereby declare that I/We shall treat the Bid documents, specifications and other records connected with the work as secret/confidential and shall not communicate information derived there from to any person other than a person to whom I/We have authorized to communicate the same or use the information in any manner prejudicial to the safety of CREDA/TEED/Government.

I/We shall abide to all the laws and shall be responsible for making payments of all the taxes, duties, levies and other Govt. dues etc. to the appropriate Govt. departments.

Our GST Registration No. _____ . The PAN No. under the Income Tax Act is _____.

I/We shall be responsible for the payment of the respective taxes to the appropriate authorities and should I/we fail to do so, I/we hereby authorize CREDA and/or TEED (BSP) to recover the taxes due from us and deposit the same with the appropriate authorities on their demand.

I/We declare that none of our relatives is working in CREDA& TEED, BSP either on Regular/Contract/Placement basis or I/We don't have any partnership/subcontract obligation with any employee working in CREDA & TEED, BSP at present directly or indirectly and we will not enter in such obligation in future also. If any breach of declaration is found than we will be responsible for our debarment and any other action taken by CREDA.

Dated:

Signature

Place:

Name of Bidder with seal.....

Witness:

Signature:

Name:

Postal Address:

.....

.....

.....

SECTION - 1 INSTRUCTIONS FOR BIDDERS

1. ELIGIBILITY CRITERIA-

a. MINIMUM EXPERIENCE

The bidders should have experience of successful execution of work for design, supply, installation & commissioning/synchronization of grid connected rooftop solar photo voltaic systems of cumulative capacity of **at least 1000 kWp with capacity of rooftop Solar PV Systems of 50kWp and above during last 3 consecutive Financial Year (i.e. FY 2020-21, 2021-22 & 2022-23).**

b. Bidders will have to submit experience & satisfactory performance certificates of Installed Systems (**as mentioned above at 'a'**), while submitting techno-commercial bid for respective capacity. All such documents must be self-attested by the authorized signatory. Experience certificate shall be submitted in attached format (as per **Annexure-I**) or in other format containing similar information shall be considered. Certificates should be in Hindi or English Language only. At the time of opening of technical bid, bidders shall have to present original documents, if required.

c. Bidders must have a **Positive Net worth (Positive Net worth means "Net value of the Assets minus (-) Net value of liabilities")** as on **31st March 2023**. They shall have to submit an **Original CA Certified Certificate** duly signed by a qualified and registered Chartered Accountant having UDI number as a proof.

d. Bidders should have aggregate turnover of **Rs. 10 crore** in last three consecutive years i.e. **(FY 2020-21, 2021-22 & 2022-23)** in SPV On-grid Power Projects. Certified copies of the annual returns and audited balance sheet submitted to the Registrar of Companies/Income Tax Authorities should be enclosed. For the preceding years a Copy of **Original Summarized Sheet** of turnover certified by registered CA must be enclosed. **CREDA reserves the right to call for these documents once audited from such bidders anytime during the validity of the bid.**

e. Bidder who is debarred from business by Govt. /Govt. Agency in any state would not be eligible to participate in this bid. A self-declaration in prescribed format (as per **Annexure-VI**) should be submitted by the bidder to this effect, failing which bid shall be rejected.

f. Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

- i. Made misleading or false representations in the forms, statements, affidavits and attachments submitted in proof of the qualification requirements; and/or
- ii. Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion litigation history, or financial failures etc; and/or
- iii. Participated in the previous bidding for the same work and had quoted unreasonably high or low bid prices and could not furnish rational justification for it to CREDA.

2. BIDDING PROCESS-

For ease of accessing the e-bidding website and registration the following is to be done by bidder -

a. Visit <https://eproc.cgstate.gov.in>

b. Prospective bidders are requested to download, read and understand the Manuals present on the website so as to clearly understand the bid submission process.

c. The user will be directed to e-bidding page where all information regarding registration is available along with helpline details.

d. Technical bid and Price Bid shall be submitted online only at <https://eproc.cgstate.gov.in> latest by **05.00 PM on 29.01.2024**. Bids submitted after scheduled time and date shall not be considered.

3. EMD AND BID DOCUMENT FEE-

a. Earnest Money Deposit of ₹3,00,000.00 & Document Fees of ₹11,800.00 shall be submitted in the form of Demand Draft/Pay Order or RTGS/NEFT as mentioned in the NIT vide no.

13693/CREDA-TEED(BSP)/ONGRID/SPV-PP/2023-24 Date: 27.12.2023, EMD submitted in any other form e.g. **Cash/Bank Guarantee/FDR/TDR etc. shall not be accepted.**

- b. The EMD shall be released to the bidder after successful completion of allocated work.

4. SUBMISSION OF DOCUMENTS -

- a. 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 Check list on page no.06 in this bid.
- b. Bidders are advised to finish all the bidding portal related activities such as registration, USB certificate/token approval, and payments etc. well in advance so as to avoid last minute difficulties during the bid submission.
- c. Bidders are also advised to make themselves fully aware with the bid submission mechanism to avoid last minute hassles and doubts during bid submission. CREDA shall only entertain genuine technical issues/glitches, provided that the bidder submits evidence regarding the same.
- d. Additionally, the bidders shall also have to submit all the documents, in original hard copy, as required in this bid as per the checklist on page 06 during the opening of technical bid. Bidders shall have to submit only the documents as per the checklist in the following envelopes.

Envelope A –Pre Qualification Documents (original DD should be submitted in this envelope)

Envelope B –Financial Qualification Documents (GST, PAN, Net worth, Turnover, ITR and Balance Sheet)

Envelope C –Technical Qualification Documents

Note: The Envelopes mentioned above are only for submission sake only and must not be related with the Envelopes mentioned in the context of the checklist on page-06. The documents submitted in hard copy (offline) before CREDA officials must match with those submitted in the Chhattisgarh e-Procurement portal. Any document other than the uploaded document shall not be considered. CREDA's tender committee will only evaluate the documents submitted on Chhattisgarh e-Procurement portal. **In no case the hard copy of documents shall be evaluated, they shall be only for record keeping by CREDA.**

5. SPECIFICATION AMENDMENTS-

- a. The Specifications of components of On-grid Rooftop Solar Power Plant should be as per as Specified on National Portal for Rooftop Solar of MNRE. If any amendments are issued by MNRE/CREDA in due course of time, in this context, then those shall be applicable under this Bid.
- b. CREDA reserves the right to amend or change minor specifications of the entire or any component of Solar Power Plant system even after the issuance of work order as per the site conditions.

6. GST & PAN-

Bidder shall have to submit copies of GST registration number and PAN numbers issued by the appropriate authority.

7. THE BID-

- a. The Pre-Qualification, Technical-Financial Qualification Documents, Price Bid and, other related documents must be uploaded in the portal i.e. <https://eproc.cgstate.gov.in> **from 11.01.2024 11:00 AM onward till 29.01.2024 up to 05:00 PM.**
- b. Nobody is authorized to receive or grant receipt for Bid delivered on behalf of CREDA. **Bid received through any other means shall not be considered and shall be rejected.**

8. ANALYSIS OF RATE -

Bidder should quote their rates considering variation of site conditions and all other factors in price of different components and keeping the quantum and quality of work in mind.

9. REGISTRATION OF BIDDER–

Bid shall be rejected of all those bidders who are not registered as System Integrator with CREDA at the time of submission of bid.

10. VALIDITY-

Full descriptive particulars and complete specifications should accompany the offer. Offers should be kept open for acceptance for at least **180 days** from the date of opening. After finalization

of this Bid the approved rates shall be valid till two year from the date of award; however CREDA shall have liberty to increase or decrease this validity if needed.

11. TERMS & CONDITIONS-

- a. The terms, conditions and specifications mentioned in Bid document shall be binding on the Bidders and no condition or stipulation contrary to the conditions shall be acceptable. It may please be noted that the Bidders who do not accept terms and conditions stipulated in this Bid documents, their offers shall be liable to be rejected out-rightly without assigning any reason whatsoever.
- b. Each page of Bid document & enclosures shall be signed by the Bidder and seal affixed. All the pages of the documents issued must be submitted along with the technical offer. In case of any corrections / alterations in the Bid, the Bidder should attest the same; otherwise Bids may not be considered.
- c. Bidders are also instructed to submit their Bids in properly arranged manner (with index, proper paging and with flags on important documents). Incomplete, lose, conditional or improper arranged Bids will not be accepted.

12. CREDA RESERVES THE RIGHT-

- a. To reject or accept any or all Bids fully or partly without assigning any reason on the grounds considered advantageous to CREDA, whether it is the lowest Bid or not.
- b. To split the quantities against the Bid further for the same items/work, if required. No reason will be assigned by CREDA for this and will be binding on the Bidders.
- c. To increase or decrease of aggregate quantities/capacities as per discretion or circumstances, if required.
- d. Due to large quantum of work & limitation of the time period for completion of the work CREDA may, if required, take consent from other eligible Bidders if they agree to work on rates approved by CREDA.
- e. CREDA reserves the right to amend or change minor specifications of the entire or any component of Solar Power Plant system even after the issuance of work order by TEED as per the site conditions.

13. COMMUNICATIONS -

- a. All the communication between Bidder and CREDA shall be in writing. Notice sent by Fax or other Electronic means shall be effective on confirmation of the transmission. Notice sent by registered post or speed post shall be effective of delivery or at expiry of normal delivery period as under taken by Postal Service.
- b. Offers through Telegraph/Fax/Emails/Post/Courier or open offers etc. received shall be summarily rejected.

14. BID DOCUMENT FEE AND EARNESTMONEY DEPOSIT-

- a. Each Bidder should submit Bid Document Fee and earnest money in the form of Demand Draft/Pay Order or RTGS/NEFT. Each bidder should submit Tender Document Fee and Earnest Money Deposit (EMD) in the form of RTGS/NEFT as single transaction only as mentioned in the Bid No. **150515/CREDA-TEED(BSP)/ONGRID/SPV-PP/2023-24 Dated 27.12.2023**.
- b. Tender Document Fee and EMD submitted in any other form e.g. Cash/Bank Guarantee/FDR/TDR etc. shall not be accepted.

15. PRE-BID QUERIES SUBMISSION IN WRITING-

- a. All suggestions, doubts, confusion, request, queries etc., shall have to be presented to CREDA in writing or through email to credatendercell@gmail.com on or before **08-01-2024 till 05:00 PM**. After that any representation in this regard shall not be considered.
- b. The purpose of pre-bid queries is to clarify issues and questions related to this Bid that can

be raised at that stage. Any amendments in the bid documents which may become necessary as a result of pre-bid queries received shall be part of original Bid document and communicated through corrigendum on CREDA website www.creda.co.in and on Chhattisgarh e-Procurement Portal <https://eproc.cgstate.gov.in>.

16. TECHNICAL CRITERIA-

The Bidder should have sufficient technically qualified and well-experienced manpower for execution of the project and after sales service of the systems. These details may be called by CREDA and in case there is any deficiency found the Bidder may be debarred.

17. FORFEITURE OF EARNEST MONEY DEPOSIT-

It should be clearly understood that in the event of Bidder failing to enter into the agreement in the prescribed format on their quoted rates and also fails to execute assigned works under any Scheme of CREDA/TEED, within stipulated time, if he is so communicated within the validity period of the offer, the full amount of earnest money will be forfeited and Bidder shall be debarred from future business with CREDA/TEED including future participation in bids up to three years. CREDA's decision in this regard will be final and binding on the Bidders.

18. PRICE OF SUPPLY OF SOLAR POWER PLANT SYSTEMS WITH INSTALLATION, COMMISSIONING AND TESTING -

- a. The Price quoted for each of the grid-connected rooftop solar power plant systems should with 5 years system warranty and 5 years CMC. The GST shall be paid extra as per prevailing rate (the GST regulation notification no. 08/2021-Central tax (Rate) dated 30.09.2021). The prices shall be filled exactly as per **e-Price Bid enclosed**.
- b. Any change in GST shall be become applicable during the period of contract.
- c. In this regard if there is any change in the composition ratio of goods and services by any Authority/ Courts, same shall be applicable.
- d. **There shall be no escalation of rates under any circumstances.**

19. ENGINEERING DOCUMENT-

Successful Bidders will have to submit site-wise Engineering Documents with technical details, drawings, Specifications of components and make etc. to CREDA for approval, as and when asked by CREDA. Works may only be started out only after approval of the Engineering Document and their samples.

20. COMPREHENSIVE MAINTENANCE CONTRACT (CMC) AND ANNUAL MAINTENANCE CONTRACT (AMC) -

Comprehensive Maintenance Contract of 5 years shall have two distinct components as described below-

- a. **Preventive / Routine Maintenance:** This shall be done by the successful bidder on monthly basis regularly including activities such as cleaning and checking the health of the SPV Power Plant, cleaning of module surface, tightening of all electrical connections and any other activity that may be required for proper functioning of the On-grid SPV Power Plant as a whole.
- b. **Breakdown / Corrective maintenance:** Whenever a complaint is lodged by the user/CREDA/TEED(BSP), the successful bidder shall attend to the same within a reasonable period of time (not exceeding 03 days from the date of complaint) and rectify the defects, within specified period of time as maximum 07 days for minor replacement/repair and 15 days for major replacement/repair. Replacement of the defective component/ spares, if required, as and when such requirement would arise. The replacement work shall be carried out within the specified time limit i.e. maximum 07 days for minor replacement/repair and 15 days for major replacement/repair. It is mandatory that the successful bidder shall submit a certificate, about the rectification/replacement work done, to the TEED(BSP), failing which it will be assumed that the successful bidder has not performed its duties. Major and minor replacement/repair shall be defined by TEED(BSP) separately.

For carrying out the maintenance service during CMC effectively, the successful bidder shall establish one local service center at Bhilai/Durg.

Failure to adhere to the CMC guidelines (as on page no. 34) will result in penal action

including debaring from participation in next tender.

- c. Facilities at the local Service Center: The successful bidder shall maintain the following facilities at the Local Service Centre established at Bhilai/Durg for ensuring highest level of services to the end user:
 - i. Adequately trained manpower specifically trained by the successful bidder for carrying out the service activities.
 - ii. Sufficient spare parts, to extend services to keep the installed Solar Power Plant/Plants operational smoothly.
- d. The successful bidder shall submit certificates of maintenance / monthly visits in the enclosed format (**Format A**) to TEED(BSP) on quarterly basis, along with the service reports.
- e. If the successful bidder fails to repair the systems against the complaints of breakdown /Corrective maintenance to ensure 100% working status during CMC period in stipulated period i.e. maximum 30 days, repair / replacement work will be done by TEED from their SD or any other due payments available with TEED(BSP).
- f. A detailed methodology stating the plan to undertake the work of Maintenance Contract, proposed network of service centers should be submitted by successful bidder at the time of Contract.
- g. Spare string inverter @ 10% (at least one number) of total installed string inverter should be provided by successful bidder at the end of five years warranty period. Warranty of spare string inverter should starts from the date of the end of system's five years warranty, period/date of supply whichever is latest.

Extended Annual Maintenance Contract (AMC) for 20 years after 5 years of CMC :

- a) Annual Maintenance of the Solar PV Power System includes module cleaning, Inverter testing, and connection testing however Replacement of Solar PV plant material Solar and some consumable items are not covered under AMC should be done it with a chargeable basis. Qualified technician should be engaged by successful bidder for AMC.
- b) Extended AMC provision may be provided by the bidder for complete life of Solar PV Power Plant (for twenty-five years), effective after five years warrantee period, on annual basis for further twenty years, for which a separate rates may be quoted in the price bid (optional). AMC work should be done by successful bidder according to the CMC guidelines (as on page no. 34).

21. SAMPLES –

If required, samples of the components shall have to be displayed for CREDA/TEED in prescribed manner after receipt of notification of CREDA for testing, verification purpose without any additional cost.

22. INSPECTIONS -

CREDA reserves right to inspect the material at Godowns/Temporary stores of successful bidder before dispatch and also at works sites.

23. MANDATORY DEDUCTION -

This deduction is One Percent of the cost of installation only and it is mandatory to deposit to labour welfare department as per state/central govt. norms. So while quoting the financial bid keep this in mind.

24. CORRUPT OR FRAUDULENT PRACTICES -

- a. CREDA requires the bidder to strictly observe the laws against fraud and corruption in force in India, namely, Prevention of Corruption Act, 1988.
- b. It is required that each bidder (including their respective officers, employees and sub-contractors) adhere to the highest ethical standards, and report to the Government/ Department all suspected acts of fraud or corruption or coercion or collusion of which it has knowledge or become aware, during the tendering process and throughout the negotiation or award of contract.

25. MANDATORY EMPLOYMENT-

Qualified diploma engineer with minimum wage rupees 15000/- per month for works above rupees 20 lacs and Qualified graduate engineer with minimum wage rupees 25000/- per month for works above rupees 01 crore shall have to be deployed by the Successful Bidder. (As per CG Govt.'s order no. F7-17/2020/1-6 Dated 02.12.2020)

26. TAX OBLIGATIONS-

TEED (BSP) shall deduct TDS for Income Tax, applicable cess on Civil Work etc. under various acts and deposited with the appropriate authority. Costs and taxes before execution of agreement with TEED (BSP), so as to ensure tax deposition as per Government Rules accordingly.

27. JURISDICTION OF THE COURT-

Any dispute arising out of the contract shall be subject to the jurisdiction of Hon'ble High Court of Chhattisgarh.

SECTION - 2 GENERAL CONDITIONS OF CONTRACT

1. DEFINITIONS -

In writing General Conditions of Contract, the specifications and bill of quantity, the following words shall have the meanings hereby indicated, unless there is something in the subject matter or content inconsistent with the subject.

- a. **CREDA** shall mean the Chhattisgarh State Renewable Energy Development Agency, Government of Chhattisgarh Undertaking, registered under society act 1973 working under the administrative control of Energy Department, Govt. of Chhattisgarh its office at Raipur (CG) represented through the Chief Engineer/Superintending Engineer.
- b. **TEED** shall mean the Town Electrical Engineering Department of Bhilai Steel Plant (BSP) and its office at Bhilai Chhattisgarh represented through the Chief General Manager.
- c. **Work** shall mean any work entrusted to the Bidder as mentioned in the scope of work and Work Order.
- d. The "**Engineer in charge**" shall mean the Engineer or Engineers authorized by CREDA and/or TEED (BSP) for the purpose of this contract. Inspecting Authority shall mean any Engineering person or personnel authorized by CREDA and/or TEED (BSP) to supervise and inspect the erection of the On-grid Roof Top SPV Power Plant.
- e. "**The Successful Bidder**" shall mean the Bidder awarded with the contract or their successors and permitted assigns.
- f. "**Contract Price**" shall mean the sum named in or calculated in accordance with the provisions of the contract as the contract price.
- g. "**General Conditions**" shall mean the General conditions of Contract.
- h. "**Specifications**" shall mean the specifications annexed to these General Conditions of contract and shall include the schedules and drawings attached thereto or issued to the successful bidder from time to time, as well as all samples and pattern, if any,
- i. "**Month**" shall mean calendar month.
- j. "**Writing**" shall include any manuscript, typewritten, printed or other statement reproduced in any visible form whether under seal or written by hand.

2. PROOF OF MANUFACTURER-

Those bidders who are also manufacturers of major component of SPVPP such as SPV Modules, PCU/String Inverters, Structures of On-grid SPV Power Plant (SPVPP) shall have to submit proof of their manufacturing unit and appropriate registration documents and list of Machineries and Equipment's.

3. CONTRACT DOCUMENT-

The term "Contract" shall mean and include the General conditions, specifications, schedules, drawings and Work Orders etc., issued against the contract schedule of price or their final general conditions, any special conditions applying to the particular contract specification and drawings and agreement to be entered into. Terms and conditions not herein defined shall have the same meaning as are assigned to them in the Indian contract Act or any other Act in vogue or by any person of common knowledge and prudence.

4. MANNER OF EXECUTION-

- a. The role of CREDA in this bid is to work as Project Management Consultant (PMC) for "selection of the firm (System Integrator) with price discovery so that the Order placement on successful bidder shall be done by the TEED(BSP)". In the manner as under: (a) Preparation of bid documents, (b) Issue of NIT, conducting pre bid meet, tender evaluation, Price discovery & submission of recommendation (c) Assistance for establishing grid connectivity with CSPDCL for remote area, where BSP infrastructure is not available, (d) Supervision and progress monitoring of awarded work order shall also be done by CREDA up to commissioning of each of the project.
- b. The role of TEED(BSP) in this bid is placement of the Work Order to successful bidder and release of payment related to the firm against the work done based on the recommendation of CREDA through a prescribed joint inspection Report (JIR) / joint commissioning certificate (JCC). Supervision and progress monitoring of awarded work shall also be done by TEED (BSP). Post Commissioning of the project the successful bidder shall have to directly report to

TEED till the completion of warranty and CMC period.

- c. Execution of work shall be carried out under CAPEX Mode Scheme of TEED(BSP) in an approved manner as outlined in the technical specifications specified by guideline/Regulation/Notification of MNRE/CEA/CSERC/DISCOM or where not outlined, in accordance with desired Specifications laid down by CREDA and/or TEED, to the reasonable satisfaction of the Engineer in charge.
- d. Successful Bidder / Bidder here-in-after called the **SI** (System Integrator).
 - i. After receipt of LOI from TEED the eligible SI shall conduct a detailed survey of site and submit site details feasibility report in prescribed format (**Form A & B**) after due verification and signatures of beneficiary department of TEED (BSP) to CREDA. All necessary documents and survey details shall have to be submitted to CREDA in prescribed manner.
 - ii. The eligible SI shall also have to submit layout plan duly consented and signed by authorized signatory/competent authority of beneficiary department and/or TEED (BSP) to CREDA.
 - iii. The eligible SI shall also submit detailed engineering drawings, documents and test reports to Engineer-in-Charge of CREDA.
 - iv. Engineer-in-Charge of CREDA and TEED shall examine these reports. After due verification process the same shall be forwarded to Superintending Engineer (SE) of Durg Zonal Office of CREDA. Engineer-in-charge may visit the site if he/she is not satisfied with survey report.
 - v. Superintending Engineer of Zonal Office Durg CREDA will confirm the technical feasibility and layout plan of site taking due consent of TEED. Superintending Engineer may visit the site if he/she is not satisfied with survey report, as per tender norms.
 - vi. After satisfaction Superintending Engineer Zonal Office, CREDA, Durg will forward the site clearance report with technical feasibility to Engineer-in-charge CREDA, Raipur.
 - vii. Engineer-in-charge, CREDA, Raipur shall be final authority to approve or reject site finalization recommended by Zonal Office Durg.
 - viii. Engineer-in-Charge of CREDA after his/her satisfaction, as per tender norms, shall send recommendation to TEED(BSP) to issue work order. The work order to eligible SI for installation of On-grid Rooftop SPV Power Plant shall be issued from TEED (BSP).
 - ix. After issuance of Work Order(s), Superintending Engineer of Zonal Office Durg CREDA jointly with TEED shall finally approve site layout in writing in prescribed format to eligible SI.
 - x. The SI shall start work within 15 days after the date of approval of site layout.
- e. All the materials required for the installation of On-grid Rooftop SPV Power Plant as per Work Order issued shall be kept at site in the custody of the eligible SI. CREDA and/or TEED (BSP) shall not be responsible for any loss or damage of any material during the installation.
- f. All the electrical works should be done as per various provisions of Indian Electricity Act/DISCOM and TEED norms. The persons engaged for carrying out electrical works should have a valid **A-class** license or above issued by licensing board of Chhattisgarh.
- g. After work is started, CREDA and/or TEED (BSP) may carry out inspections at various stages at its discretion.
- h. After installation, joint inspection shall be done in presence of eligible SI, TEED(BSP) and CREDA and after successful commissioning & Synchronization with Grid of On-grid Rooftop SPV Power Plant and its approval from CREDA, a JCC shall be signed and the necessary documents shall be forwarded for payments to TEED, as per guidelines and procedures of TEED(BSP). Recommendation for payment with necessary documents will be forwarded to TEED(BSP) from CREDA. Payment shall be done by TEED(BSP) as per their payment procedure.

5. VARIATIONS, ADDITIONS & OMISSIONS-

CREDA and/or TEED(BSP) shall have the right to alter, amend, omit, split the terms & conditions and other contents of bid, by notice in writing to the eligible SI. The eligible SI shall carry out such variation in accordance with the rates specified in the contract so far as they may apply and where such rates are not available; those will be mutually agreed between CREDA and/or TEED(BSP) and the eligible SI.

6. INSPECTION-

- a. The Engineer-in-Charge or his authorized representative(s) shall be entitled at all reasonable times to inspect and supervise and test during supply, installation and commissioning. Such inspection shall not relieve the eligible SI from their obligations under this contract.
- b. Material can be inspected before dispatch or in transit by the authorized representatives of

CREDA and/or TEED(BSP) at the factory/godown at the cost of the eligible SI, if desired by CREDA and/or TEED(BSP).

- c. CREDA and/or TEED(BSP) will undertake real time performance and quality test of randomly selected components of solar power plant during the course of execution as per the specifications and guidelines as per Section-4 of tender document to ensure quality and performance of solar power plants and its components.

7. COMPLETION OF WORK-

Time being the essence of contract, the installation of the On-grid Rooftop SPV Power Plant shall have to be completed within 90 days from the issuance date of the work order by TEED.

8. SYSTEM INTEGRATOR'S LIABILITY IN CASE OF DEFAULT-

CREDA and/or TEED (BSP) may by written notice of default to the eligible SI, terminate the contract in circumstances detailed here under -

- a. If in the opinion of the CREDA and/or TEED (BSP), the eligible SI fails to complete the work within the time specified in the Work Order or within the period for which extension has been granted by TEED(BSP) to the eligible SI.
- b. If in the opinion of CREDA and/or TEED (BSP), the eligible SI fails to comply with any of the provisions of this contract.
- c. In the event of TEED(BSP) terminating the contract in whole or in part as provided in paragraph (a) above, CREDA reserves the right to recommend to TEED(BSP) for engagement of another eligible SI or agency upon such terms and in such a manner as it may deem appropriate and the eligible SI shall be liable to CREDA and/or TEED (BSP) for any additional costs or any losses caused to TEED (BSP) as may be required for the completion of erection of the On-grid Rooftop SPV Power Plant and/or for penalty as defined under this Bid document until such reasonable time as may be required for the final completion of the work. CREDA may debar such a defaulter SI for up to three years from taking participation in taking part in all activities of CREDA and/or TEED (BSP).
- d. In the event CREDA and/or TEED (BSP) does not terminate the contract as provided in paragraph (a) the eligible SI shall continue performance of the contract, in which case he shall be liable to TEED (BSP) for penalty for delay as set out in clause 15 until the work is completed.

9. FORCE MAJEURE-

The eligible SI shall not be liable for any penalty for delay or for failure to perform the contract for reasons of FORCE MAJEURE such as of God, acts of public, enemy, LWE problems, acts of government, cyclone, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes provided that if SI shall submit delay notice with appropriate cause of delay to the CREDA and/or TEED (BSP) in writing within **15 days** of force majeure. TEED (BSP) shall verify the facts and may grant such extension as facts justify. Delay in supply of any accessories of solar power plants etc. by the related vendors, to whom the Bidder has placed order, shall also not be treated as force majeure.

10. REJECTION OF WORKS -

In the event of any of the material supplied/work done by the eligible SI is found defective in material or workman ship or otherwise not in conformity with the requirements of this contract specifications, CREDA and/or TEED (BSP) shall either reject the material and/or work and advise the eligible SI to rectify the same. **TEED (BSP) may impose penalty for such rejection up to the 200% cost of the entire system. Habitual/repeated offenders shall be black listed/debarred to participate in the any Bid/ Activity of CREDA till further orders.** The eligible SI on receipt of such notices shall rectify or replace the defective material and rectify the work free of cost. If the eligible SI fails to do so TEED (BSP) may-

- a. At its option replace or rectify such defective materials and/or work and recover the extra cost so involved from the eligible SI plus **15%** service charges of the cost of such rectification, from the eligible SI and/ or terminate the contract for balance work/ supplies with enforcement of penalty as stated above.
- b. Defective materials/workmanship will not be accepted under any conditions and shall be rejected outright without compensation. The eligible SI shall be liable for any loss/damage sustained by CREDA and/or TEED (BSP) due to defective work with enforcement of penalty as stated above.

11. EXTENSION OF THE TIME-

If the completion of installation is delayed due to any reason beyond the control of the eligible SI, the eligible SI shall without delay give notice to the CREDA and/or TEED (BSP) in writing of his claim for an extension of time. TEED (BSP) on receipt of such notice may or may not agree to extend the contract/delivery date of the On-grid Rooftop SPV Power Plant as may be reasonable but without prejudice to other terms and conditions of the contract. TEED (BSP) has full right for unconditional time extension.

12. MAKES OF EQUIPMENTS TO BE USED IN THE WORK-

- a. The Solar Modules, String Inverter, DC/AC Junction boxes with isolators & Other BOS should be as per BIS/IEC/CE/IES standards.
- b. The eligible SI has to ensure that equipment's are as per Technical Requirements of guidelines of MNRE/CEI/CSERC/DISCOM as complied with. The material/works for which MNRE or BIS or ISI specification is not available, engineer-in-charge of the works will examine and approve the material/works, preferably of all makes on which CREDA and/or TEED (BSP) has report of satisfactory performance.
- c. Manufacturer Authorization Form (MAF) on Manufacturer's Letter head of Solar Modules/ String Inverter, which the SI is intending to use in the installation, shall be submitted with technical bid.

13. WARRANTEE PERIOD AND POST INSTALLATION SERVICES-

The work done/material supplied by the eligible SI should be warranted for satisfactory operation and against any defect in material and workmanship including String Inverter and Structures and other balance of equipment, at least for a period of 5 (five) years, from the date of commissioning of the On-grid Rooftop SPV Power Plant & other works as per scope of work.

- a. Warrantee on SPV Modules shall be for **10 (ten) years and will be covered by OEM** through successful bidder from the date of commissioning of the On-grid Rooftop SPV Power Plants must be warranted for their output peak watt capacity, which should not be less than **90%** at the end of **10 years** and not less than **80%** at the end of **25 years**.
- b. The above warrantee certificates shall be furnished to the CREDA for approval. Any defect noticed during this period should be rectified by the supplier free of cost upon written notice from TEED (BSP) provided such defects may be due to bad workmanship or bad materials used.
- c. **The warrantee period shall be extended by the period during which the plant remains non-operative due to reasons within control of the eligible SIs. The warrantee period extension shall be done by TEED (BSP), if required.**
- d. This warrantee must be an unconditional onsite warrantee and the eligible SI will have to replace the defective material within **07 days** positively from the date of information given to him by TEED (BSP).
- e. Care should necessarily be taken to make the On-grid Rooftop SPV Power Plants operational, once the reporting of the fault/non-operational status is done, within 5 days. If the On-grid Rooftop SPV Power Plant is not made operational within **07 days** TEED (BSP) may rectify the same at the cost of SI and the warrantee period shall be extended accordingly for delay period.

14. System Integrators shall have to establish their service station at Bhilai/Durg and shall have to keep sufficient quantity of spares and man power to ensure proper service network for taking care of smooth functioning of On-grid Rooftop SPV Power Plant installed by them.

15. TERMS OF PAYMENT-

All payments shall be released by TEED(BSP).

- a. 50% of the cost of the work order (including GST) after successful Installation of System at the Site on submission of the Joint Installation Report (JIR) from CREDA & TEED, after recommendation from CREDA.
- b. 45 % of the cost of the work order (including GST) after successful commissioning and Synchronization of the Solar Power Plant with grid and submission of JCC in hard copy, after recommendation from CREDA.
- c. Balance 5% of the eligible payment excluding GST i.e. **Security Deposit** shall be released by TEED (BSP) after successful completion of CMC for a period of **60 Months** from the date of synchronization.

- d. Payment shall be released by TEED (BSP) for COMPREHENSIVE MAINTENANCE CONTRACT (CMC) shall be paid every quarter (3 months) from the Date of Commissioning till the end of 60th month, on submission of CMC report to TEED in the prescribed format.
- e. Payment for subsequent CMC after initial 60 Months CMC will be made by TEED on their satisfaction on quarterly basis as per the rates approved.

16. PENALTY FOR DELAY IN COMPLETION OF CONTRACT-

- a. If the eligible SI fails to complete the assigned work within the schedule time specified in the Work Order or any extension granted there to, TEED (BSP) will recover from the SI as penalty of up to **Two percent (2%)** per month of the system price excluding GST for every delayed system. For this purpose, the date of commissioning shall be reckoned as the date of completion. The total penalty shall not exceed **5% (Five Percent)** of the cost. The eligible SI shall not be liable for any penalty for delay or for failure to perform the contract for reasons of FORCE MAJEURE.
- b. Joint review of the progress of installation of Solar Power Plant allocated to SI shall be done from time to time by CREDA and/or TEED (BSP) and if the progress of installation is found unsatisfactory, CREDA shall recommend allocation of entire remaining uninstalled system or their part of can be re-allocated to other SI as per discretion of CREDA and/or TEED (BSP).

17. SECURITY DEPOSIT (SD)-

- a. The Earnest Money shall be retained by CREDA up to the duration of validity of Tender, after Agreement is done to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be required by CREDA. CREDA shall transfer the EMD amount to TEED, if unutilized, after the commissioning of Solar Power Plant.
- b. Beside this, **5%** of the cost shall also be retained by TEED (BSP) as SD during the five years of warrantee period. No interest shall be payable on the SD.
- c. Period for which EMD and SD are to be retained may be extended in case the warrantee period is extended due to nonperformance of the system.
- d. All costs of damages and delays for which the eligible SI is liable to the CREDA and/or TEED (BSP) will be deducted from any money due to the eligible SI including the security deposit of project under.

18. INSURANCE-

The eligible SI shall arrange insurance coverage for the materials and Solar Power Plant System at his/beneficiary's custody for the work under execution and successful commissioning and subsequent handover to the beneficiary. The eligible SI shall take up insurance or such other measures for the manpower so as to cover the claim for damage/accident under workmen's compensation Act and other applicable State/Central laws. CREDA and/or TEED (BSP) shall not bear any responsibility on this account.

19. PENALTY DUE FROM THE ELIGIBLE SI-

All costs of damages and delays for which the eligible SI is liable to the TEED (BSP) will be deducted from any money due to the eligible SI including the security deposit of project under TEED (BSP).

20. RESPONSIBILITY OF ELIGIBLE SI-

Notwithstanding anything mentioned in the specifications of subsequent approval or acceptance of the On-grid SPV Power Plant by TEED (BSP), if any, the ultimate responsibility for satisfactory performance of the entrusted work shall rest with the eligible SI. If in any case the eligible SI does not complete the work as per the Work Orders issued to them then TEED (BSP) may take over the task & complete the project at the risk and cost of eligible SI.

21. RESPONSIBILITY TO RECTIFY THE LOSS AND DAMAGE-

If any loss or damage occurs to the work or any part thereof or materials/plant/equipment's for incorporation therein the period for which the eligible SI is responsible for the cause thereof or from any cause whatsoever, the eligible SI shall at his own cost rectify/replace such loss or damage, so that the permanent work confirms in every respect with the provision of the contract to the satisfaction of the Engineer in charge. The eligible SI shall also be liable for any loss or damage to the work/equipment's occasioned by him in course of any operation carried out to him during performing the contract.

22. RESPONSIBILITY TOWARDS THE WORKMAN OR OUTSIDERS-

- a. The eligible SI shall have to take insurance coverage from any authorized Insurance Company against Workmen Compensation due under Workmen Compensation Act and submit copy of the insurance document before issuance of Work Order.
- b. The eligible SI shall ensure all safety measures during execution and repairs of the work. CREDA and/or TEED (BSP), will, in no case be responsible for any accident fatal or non-fatal, caused to any workman or outsider in course of transport or execution or repairs of work.
- c. All the expenditure including treatment or compensation will be entirely borne by the eligible SIs. The eligible SI shall also be responsible for any claims of the workers including, labor payments PF, Accidental Insurance, Gratuity, ESI & other legal obligations.
- d. TEED (BSP) shall have all rights to deduct such claims of payments from SI in case of complaints of such violations.
- e. If contractor will engage contractual worker Industrial Relation (IR) clearance required as per BSP rules/statuary requirement for payment.

23. NON-ASSIGNMENTS-

The eligible bidder shall not assign or transfer the work orders issued as per this contract or any part thereof.

24. CERTIFICATES NOT TO AFFECT RIGHTS OF CREDA-

The issuance of any certificate by CREDA and/or TEED (BSP) or any extension of time granted by CREDA and/or TEED (BSP) shall not prejudice the rights of CREDA and/or TEED (BSP) in terms of the contract nor shall they relieve the eligible SI of his obligations for due performance of the contract.

25. SETTLEMENT OF DISPUTES THROUGH ARBITRATION-

- a. Except as otherwise specifically provided in the contract, all disputes concerning questions of fact arising under the contract shall be decided by the CREDA and/or TEED provided a written appeal by the eligible SI is made to CREDA and/or TEED. The decision of the CREDA and/or TEED shall be final and binding to the all concerns.
- b. Any dispute or difference including those considered as such by only of the parties arising out of or in connection with the contract shall be to the extent possible be settled amicably between the parties. If amicable settlement cannot be reached then all disputed issues shall be settled by arbitration at Chhattisgarh.

26. LAWS GOVERNING CONTRACT-

The contract shall be constituted according to and subject to the Laws of India and jurisdiction of the High Court of Bilaspur, Chhattisgarh.

27. LANGUAGE AND MEASURES-

All documents pertaining to the Contract including specifications, schedules, notice correspondences, operating and maintenance instructions, drawings or any other writings shall be written in English / Hindi language. The metric system of measurement shall be used in this contract.

28. CORRESPONDENCE-

- a. Any notice to the eligible SI under the terms of the contract shall be served by registered mail to the registered office of the eligible SI or by hand to the authorized local representative of the eligible SI and copy by post to the eligible SI's principal place of business.
- b. Any notice to CREDA shall be served to the CREDA Head Office Raipur and/or CGM TEED (BSP) Bhilai in the same manner.

29. SECRECY-

The eligible SI shall treat the details of the specifications and other documents as private and confidential and they shall not be reproduced without written authorization from CREDA and/or TEED (BSP).

30. AGREEMENT-

The successful eligible SI shall have to enter into a Tri-partite agreement with the CREDA and TEED (BSP) in the approved contract agreement form within **10 days** of the receipt of call from CREDA.

31. DECLARATION OF CONFLICT OF INTEREST-

- a. Any regular employee working or worked on basis of contract or through placement agency cannot work directly or indirectly in any scheme of CREDA and/or TEED (BSP). If such a person is found working with any SI or through sublet then, such SI shall be blacklisted for three years.
- b. The bidder shall not be permitted to Bid for the work if the section of Head Office CREDA and/or TEED (BSP) (responsible for implementation of work) in which his/her near relative is posted. The bidder shall also intimate the names of his near relatives working in CREDA and/or TEED (BSP). Bidder shall also intimate the name of persons who are working with him in any capacity and who are near relatives to any employee in CREDA and/or TEED (BSP). Any breach of this condition by SI would render himself liable to be blacklisted for three years and removed from approved list of SIs in CREDA and/or TEED (BSP).
Note- By the term near relatives are meant Wife, Husband, Parents and Son, Brother, Sister, Brother-in-law, Father-in-law, and Mother-in-law etc.
- c. Bidder must produce an affidavit (**Annexure-II**) stating the names of retired/removed employee of CREDA/TEED (if any) in his/her employment who retired /removed within last two years, if in case there is no such person in his employment, his affidavit should clearly state this fact. **This affidavit is mandatory, if it is not produced along with the bid, the bid shall be rejected.**

32. BID EVALUATION CRITERIA-

- a. Offers of only those bidders, who are found qualified based on Eligibility Criteria and Technical Bid, will be taken into further consideration and financial bid of only those bidders who are qualifying the criteria of Technical Bid will be opened.
- b. Other things being equal, the lowest rates shall normally be preferred, but CREDA and/or TEED (BSP) shall have rights and liberty to amend/lower the rates.
- c. Conditional Bids shall not be accepted.
- d. CREDA shall have rights and liberty to call any/other parties who are technically qualified but not accepted to work on approved rates, as and when required in accordance with quantum of work and scheduled time limits for completion of projects.

33. EVALUATION OF PRICE BID-

Price bid shall be evaluated on the basis of site wise quoted rates. L1 rate i.e. lowest rate of total of Supply and Installation & Commissioning cost of Grid Connected Rooftop Solar Power Plant System along with cost of CMC shall be considered, however CREDA and/or TEED (BSP) shall have discretionary power to amend/lower the rates.

34. ALLOCATION OF WORK-

- a. Preference shall be given to L1 Bidder in any or all buildings for allocation of works.
- b. CREDA and/or TEED (BSP) reserves all rights for allocation of works and the decision of CREDA and/or TEED (BSP) shall be final and binding.
- c. Review of the progress of installation of SPVPP System allocated to SIs shall be done time to time by CREDA and/or TEED (BSP) and if the progress of installation is found unsatisfactory, the allocation of entire remaining uninstalled System or their part of can be re-allocated to other SI as per discretion of CREDA and/or TEED (BSP).

35. BID REJECTION-

If financial bid of a bidder has been opened on the **basis of technical bid of a bidder which has been determined to be substantially responsive to the bidding document and in latter stage it is found that bidder does not meet the eligibility criteria or the technical bid is found substantially non-responsive**, CREDA and/or TEED (BSP) reserves rights to reject such bid of a bidder anytime.

We (on behalf of Eligible SI/Bidder) have read all the above stated details & accept to comply with it in total.

(Name, Signature & Seal of the SI)

SECTION – 3 SCOPE OF WORK

The scope of work in brief will be as follows-

1. Survey of site, designing, supply, installation & commissioning of On-grid Rooftop SPV Power Plant systems as per site specific design and specifications approved by CREDA, on turnkey basis. Bidder shall have to take approval of the engineering documents, Bill of Materials and samples from CREDA prior to commencement of the work. Five years unconditional onsite warrantee against manufacturing defects shall be required for each of the system after successful commissioning and synchronization with grid and proper handing over.
2. The scope of work shall also include the followings:
 - a) Submission of site clearance certificate after survey (in the prescribed format) where the On-grid Rooftop SPV Power Plants are proposed to be installed. A layout plan of the site should also be submitted clearly indicating the identified location for installation of SPV Modules, Structures and other components are proposed to be installed.
 - b) Detailed planning of time bound smooth execution of project.
 - c) Design, supply, installation & commissioning of On-grid Rooftop SPV Power Plant of required capacities as per design and specifications approved by CREDA, on turnkey basis.
 - d) Get technical and safety clearances of proposed On-grid Rooftop SPVPP from CEI, DISCOM and TEED(BSP).
 - e) The bidder shall run the system on trial basis and shall closely monitor the performance of the system before handing over the system, so that the assured annual power generation can be estimated for monitoring of the performance of the system. CREDA shall examine the data of generation and ascertain if the generation is adequate with reference to the capacity of the SPV Systems.
 - f) Performance Guarantee Test: Successful performance guarantee test to demonstrate the rated capacity of On-grid Rooftop SPV Power Plant as per MNRE/CEI/CSERC's norms shall have to be conducted by bidder in presence of representatives of CREDA and/or TEED (BSP).
 - g) The eligible bidder shall provide Water pipeline arrangement for Module cleaning to ensure appropriate power generation and fixed line internet connectivity for online monitoring of the functional status of Solar Power Plant.
 - h) Bidder shall have to submit JCCs within 15 days of Installation and Commissioning of On-grid Rooftop SPV Power Plant in office of TEED.
 - i) Coordinate with beneficiary to get connectivity approval as per CSERC guidelines, from TEED (BSP) and to synchronize the system with Grid in presence of TEED(BSP)/CREDA and Concerned Officials.
 - j) Providing User Manuals, necessary tool kit, safety tools and Warrantee Cards to beneficiary & TEED(BSP). Bidder shall furnish all necessary information to beneficiary for On-grid Rooftop SPV Power Plant Warrantee, Do & Don'ts etc. so as to avoid further misunderstandings and disputes.
 - k) Unconditional onsite warrantee for manufacturing defects for Five years faultless operation, assure required inventory for maintenance.
 - l) Providing Prompt Service Facilities to customers/ beneficiaries.
 - m) Risk liability of all personnel associated with implementation and realization of the project.
 - n) Training of at least two persons nominated by user, on the various aspects of design and maintenance of the offered system after commissioning of the system.
 - o) The eligible bidder shall maintain sufficient inventory of the spares, at site, to ensure that the system can be made functional within 7 days from the communication of breakdown of the system during currency of the warrantee period.

SECTION – 4 TECHNICAL SPECIFICATIONS

The proposed projects shall be commissioned as per following technical specification.

1. DEFINITION:-

A Grid connected Solar Rooftop Photovoltaic (SPV) power plant consists of SPV array, Module Mounting Structure, String Inverter, and Controls & Protections, interconnect cables, Junction boxes, Distribution boxes, switches, Cables, Cable trays, Lightning Arrestors, earthing and BOS. PV Array is mounted on a suitable structure. Grid tied SPV system should be designed with necessary features to supplement the grid power during day time. Components and parts used in the On-grid SPV Power Plants including the PV modules, metallic structures, cables, junction box, switches, String Inverters etc., should conform to the BIS or IEC or international specifications, wherever such specifications are available and applicable. Solar PV system shall consist of following equipment/components.

- Solar PV modules consisting of required number of Mono PERC PV cells.
- Grid interactive String Inverter with Remote Monitoring System
- Mounting structures
- Junction Boxes.
- Earthing and lightening protections.
- IR/UV protected PVC Cables, cable trays, pipes and accessories.
- Balance of System

2. SOLAR PHOTOVOLTAIC MODULES: -

- a. The PV modules used should be made in India.
- b. The PV modules used must qualify to the latest edition of IEC PV module qualification test or equivalent BIS standards Crystalline Silicon Mono PERC Solar Cell Modules IEC 61215/IS14286. In addition, the modules must conform to IEC 61730 Part-1 - requirements for construction & Part 2 – requirements for testing, for safety qualification or equivalent IS.
- c. For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701.
- d. The total solar PV array capacity (as per I-V Curves) should not be less than allocated capacity (kWp) and should comprise of solar mono PERC modules of minimum 500 Wp and above wattage. Module capacity less than minimum 500 watts shall not be accepted. Preference should be given to higher capacity modules as they shall cover less space.
- e. Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall have to be provided.
- f. PV modules must be tested and approved by one of the IEC authorized test centres.
- g. The module frame shall be made of corrosion resistant materials, preferably having anodized aluminum.
- h. The Bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his Bidder. CREDA shall allow only minor changes at the time of execution.
- i. Other general requirement for the PV modules and subsystems shall be the following:
 - The rated output power of any supplied module shall have tolerance within +/-3% but in no case less than 500Wp.
 - Cell efficiency should not be less than 19.5%.
 - The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary by more than 2 (two) per cent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
 - The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall have hinged, weather proof lid with captive screws and cable gland entry points or may be of sealed type and IP-65 rated.
 - I-V curves at STC should be provided by Bidder. I-V Curve with details should be pasted behind every SPV Module during delivery at site.
- j. All the modules should contain the following clear and indelible marking laminated inside the glass as per IS/ IEC 61730-1, clause-11.
 - a) Name, monogram or symbol of manufacturer;
 - b) Model number

- c) Unique serial number
- d) Nominal wattage $\pm 2\%$
- e) Year and country of origin
- f) Brand name if applicable

Other details as per IS/ IEC 61730-1, clause-11 should be provided at appropriate place. The actual Power Output P_{max} shall be mentioned on the label pasted on the back side of PV Module. In case of thin film modules information need not be provided laminated inside the glass, however, it should be provided as per IS/ IEC 61730-1, clause-11 at an appropriate place with clear and indelible marking.

In addition to the above, the following information should also be provided

- Polarity of terminals or leads (colour coding is permissible) on junction Box housing near cable entry or cable and connector.
- The Maximum system voltage for which the module is suitable to be provided on the back sheet of the module.

3. WARRANTIES:-

a. Material Warranty:

- Material Warranty is defined as: The project developer should warrant the On-Grid Solar Plant(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 sale to the original customer ("Customer")
- Defects and/or failures due to manufacturing
- Defects and/or failures due to quality of materials
- Non conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the project developer will repair or replace the solar module(s), at the Owners sole option.

b. Performance Warranty:

The predicted electrical degradation of power generated not more than 10% after ten years period and not exceeding 20% of the minimum rated power over the 25 year period of the full rated original output.

4. ARRAY STRUCTURE:-

- a. Hot dip galvanized MS mounting structures may be used for mounting the modules / panels / arrays. Minimum thickness of galvanization should be at least 120 microns. Each structure should have angle of inclination as per the site conditions to take maximum insolation. However to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.
- b. 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 (wind speed of 150 km/ hour). It may be ensured that the design has been certified by a recognized Lab/ Institution in this regard and submit wind loading calculation sheet to CREDA. Suitable fastening arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed.
- c. The mounting structure steel shall be as per latest IS 2062: 2011 and galvanization of the mounting structure shall be in compliance of latest IS 4759: 1996.
- d. Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. Aluminum structures also can be used which can withstand the wind speed of respective wind zone. Necessary protection towards rusting need to be provided either by coating or anodization.
- e. The fasteners used should be made up of stainless steel. The structures shall be designed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels.
- f. Regarding civil structures the Bidder need to take care of the load bearing capacity of the roof and need arrange suitable structures based on the quality of roof with due approval of beneficiary department. Also, water proofing of the roof has to be done post installation of Module Mounting Structure (MMS) on roof, as per the norms of beneficiary department.
- g. The total load of the structure (when installed with PV modules) on the terrace should be less than **60 kg/m²**.
- h. The minimum clearance of the structure from the roof level should be 300 mm.

5. JUNCTION BOXES (JBs) :-

- a. 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 Aluminium /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.
- b. Copper bus bars / terminal blocks housed in the junction box with suitable termination threads conforming to IP65 standard and IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry. Single / double compression cable glands. Provision of earthings. It should be placed at 5 feet height or above for ease of accessibility.
- c. Each Junction Box shall have High quality Suitable capacity Metal Oxide Varistors (MOVs) / SPDs, suitable Reverse Blocking Diodes. The Junction Boxes shall have suitable arrangement monitoring and disconnection for each of the groups.
- d. 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.
- e. All fuses shall have DIN rail mountable fuse holders and shall be housed in thermoplastic IP 65 enclosures with transparent covers.
- f. The location of junction boxes should be either below the modules on MMS or in a nearby shaded area, in such a manner that it is protected from sun rays and rains.

6. DC DISTRIBUTION BOARD: -

- a. DC Distribution Board (DCDB) to receive the DC output from the array field.
- b. DC DPBs shall have sheet from enclosure of dust & vermin proof conform to IP 65 protection. The bus bars are made of copper of desired size. Suitable capacity MCBs/MCCB shall be provided for controlling the DC power output from Solar Array to the String Inverter along with necessary surge arrestors.
- c. DCDB should have a dedicated manual control switch to switch “on or “off” string inverter in case of emergency.
- d. The location of DCDB should be either below the modules on MMS or in a nearby shaded area, in such a manner that it is protected from sun rays and rains.

7. AC DISTRIBUTION PANEL BOARD:-

- a. AC Distribution Panel Board (ACDB) shall control the AC power from string inverter, and should have necessary surge arrestors. Interconnection from ACDB to mains at LT Bus bar while in grid tied mode.
- b. The location of ACDB should be in a shaded area or room (as provided by beneficiary department), in such a manner that it is accessible to the operator for switching “on” or “off” during any unforeseen circumstances.
- c. All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS 60947 part I, II and III.
- d. The changeover switches, cabling work shall be undertaken by the Bidder as part of the project.
- e. All the Panel's shall be metal clad, totally enclosed, rigid, floor mounted, air - insulated, cubical type suitable for operation on three phase / single phase, 415 or 230 volts, 50 Hz
- f. The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.
- g. All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.
- h. Should conform to Indian Electricity Act and rules (till last amendment).
- i. An Energy Meter should be provided in ACDB to measure the power generated from Solar Power Plant. Energy Meter should be tested and certified from DISCOM or NABL Or authorized test lab.
- j. All the 415 AC or 230 volts devices / equipment like bus support insulators, circuit breakers, SPDs, VTs etc., mounted inside the switchgear shall be suitable for continuous operation and satisfactory performance under the following supply conditions

Variation in supply voltage	+/- 10 V or As per CSERC/DISCOM regulation
Variation in supply frequency	+/- 3 Hz or As per CSERC/DISCOM regulation

8. ARRAY SIZE RATIO:-

- a. The combined wattage of all String inverters should not be less than rated capacity of power plant under STC in kW (AC) terms.
- b. Maximum power point tracker shall be integrated in the String inverter to maximize energy drawn from the array.

9. STRING INVERTER:-

- a. As SPV array produce direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels to match the grid voltage. Conversion shall be achieved using an electronic Inverter and the associated control and protection devices. All these components of the system are termed the “STRING INVERTER”. In addition, it shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the Inverter and the String Inverter should also be compatible for DG set interactive. If necessary String Inverter output should be compatible with the grid frequency. Typical technical features of the inverter shall be as follows:

b.

Switching devices	IGBT
Control	Microprocessor /DSP
Nominal AC output voltage and frequency	415V, 3 Phase, 50 Hz or As per CSERC/DISCOM regulation
Output frequency	50 Hz
Grid Frequency Synchronization range	+ 3 Hz or more or As per CSERC/DISCOM regulation
Ambient temperature considered	-20° C to 60° C
Humidity	95 % Non-condensing
Protection of Enclosure	IP-54(Minimum) for indoor. IP-65(Minimum) for outdoor.
Grid Frequency Tolerance range	+ 3 or more or As per CSERC/DISCOM regulation
Grid Voltage tolerance	-0.20.15 or As per CSERC/DISCOM regulation
No-load losses	Less than 1% of rated power
Inverter efficiency(minimum)	>97%
MPPT	Preferably two numbers
THD	< 3%
PF	> 0.9
Built in Display Screen to indicate the operational parameters	

- c. Three phase String Inverter shall be used with each power plant system.
- d. String Inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown.
- e. The output of power factor of String Inverter should be suitable for all voltage ranges or sink of reactive power, inverter should have internal protection arrangement against any sustainable fault in feeder line and against the lightning on feeder.
- f. Built-in meter and data logger to monitor plant performance through external computer shall be provided.
- g. There should be display screen on the front panel of String Inverter to monitor the status of String Inverter input and output.
- h. **Anti-islanding** (Protection against Islanding of grid): The String Inverter shall have anti islanding protection in conformity to IEEE 1547/UL 1741/ IEC 62116 or equivalent BIS standard.
- i. Successful bidders shall be responsible for galvanic isolation of solar rooftop power plant with electrical grid or LT panel.
- j. In String Inverter, there shall be a direct current isolation provided at the output by means of a suitable isolating transformer. If Isolation Transformer is not incorporated with String Inverter, there shall be a separate Isolation Transformer of suitable rating provided at the output side of String Inverter units, if required.
- k. The String Inverter generated harmonics, flicker, DC injection limits, Voltage Range, Frequency Range and Anti-Islanding measures at the point of connection to the utility services should

follow the latest CEA (Technical Standards for Connectivity Distribution Generation Resources) Guidelines.

- l. The string inverters should comply with applicable IEC/ equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683 and IEC 60068-2 (1,2,14,30)/ Equivalent BIS Std.
- m. The MPPT units environmental testing should qualify IEC 60068-2 (1, 2, 14, 30)/ Equivalent BIS std. The junction boxes/ enclosures should be IP 65 (for outdoor)/ IP 54 (indoor) and as per IEC 529 specifications.
- n. The string inverters should be tested from the MNRE approved test centers / NABL / BIS / IEC accredited testing- calibration laboratories. In case of imported power conditioning units, these should be approved by international test houses. Testing Islanding property of String Inverter is must.

10. INTEGRATION OF PV POWER WITH GRID:-

The output power from SPV would be fed to the inverters which converts DC produced by SPV array to AC and feeds it into the main electricity grid after synchronization. In case of grid failure, or low or high voltage, solar PV system shall be out of synchronization and shall be disconnected from the grid. Once the DG set comes into service, PV system shall again be synchronized with DG supply and load requirement would be met to the extent of availability of power. 4 pole isolation of inverter output with respect to the grid/ DG power connection need to be provided.

11. DATA ACQUISITION SYSTEM / PLANT MONITORING:-

- a. Data Acquisition System shall be provided for each of the solar PV plant.
- b. Data Logging Provision for plant control and monitoring, time and date stamped system data logs for analysis with the high quality, suitable PC. Metering and Instrumentation for display of systems parameters and status indication to be provided.
- c. Temperature: Temperature probes for recording the Solar panel temperature and/or ambient temperature to be provided complete with readouts integrated with the data logging system.
- d. The following parameters are accessible via the operating interface display in real time separately for solar power plant:
 - A. AC Voltage.
 - i. AC Output current.
 - ii. Output Power
 - iii. Power factor.
 - iv. DC Input Voltage.
 - v. DC Input Current.
 - vi. Time Active.
 - vii. Time disabled.
 - viii. Time Idle.
 - ix. Power produced
 - x. Protective function limits (Viz-AC Over voltage, AC Under voltage, over frequency, under frequency ground fault, PV starting voltage, PV stopping voltage.
- e. All major parameters available on the digital bus and logging facility for energy auditing through the internal microprocessor and read on the digital front panel at any time) and logging facility (the current values, previous values for up to a month and the average values) should be made available for energy auditing through the internal microprocessor and should be read on the digital front panel.
- f. PV array energy production: Digital Energy Meters to log the actual value of AC/ DC voltage, Current & Energy generated by the PV system provided. Energy meter along with CT/PT should be of 0.5 accuracy class.
- g. Computerized DC String/Array monitoring and AC output monitoring shall be provided as part of the inverter and/or string/array combiner box or separately.
- h. String and array DC Voltage, Current and Power, Inverter AC output voltage and current (All 3 phases and lines), AC power (Active, Reactive and Apparent), Power Factor and AC energy (All 3 phases and cumulative) and frequency shall be monitored.
- i. Computerized AC energy monitoring shall be in addition to the digital AC energy meter.
- j. The data shall be recorded in a common work sheet chronologically date wise. The data file shall be MS Excel compatible. The data shall be represented in both tabular and graphical form.

- k. All instantaneous data shall be shown on the computer screen.
- l. Software shall be provided for USB download and analysis of DC and AC parametric data for individual plant.
- m. Provision for instantaneous Internet monitoring and download of historical data shall be also incorporated.
- n. Remote Server and Software for centralized Internet monitoring system shall be also provided for download and analysis of cumulative data of all the plants and the data of the solar radiation and temperature monitoring system.
- o. Ambient/Solar PV module back surface temperature shall be also monitored on continuous basis.
- p. Simultaneous monitoring of DC and AC electrical voltage, current, power, energy and other data of the plant for correlation with solar and environment data shall be provided.
- q. Remote Monitoring and data acquisition through Remote Monitoring System software with latest software/hardware configuration and service connectivity for online / real time data monitoring / control complete to be supplied and operation and maintenance / control to be ensured by the Bidder. Access to all such data must be provided to the beneficiary department, TEED at no cost. Access of data should be till the lifetime of the project.
- r. The Bidder shall be obligated to push real-time plant monitoring data on a specified intervals (say 15 minute) through open protocol at receiver location (cloud server) in XML/JSON format, preferably. Suitable provision in this regard will be intimated to the Bidder.

12. TRANSFORMER “IF REQUIRED” & METERING:-

- a) The Bi-directional electronic energy meter (0.5 S class) shall be installed for the measurement of import/Export of energy shall be provided by contractor and to be tested by TEED lab.
- b) The Bidder must take approval/NOC from the Concerned DISCOM for the connectivity, technical feasibility, and synchronization of SPV plant with distribution network before commissioning of SPV plant.
- c) Reverse power relay shall be provided by Bidder (if necessary), as per the local DISCOM requirement.

13. POWER CONSUMPTION:

Regarding the generated power consumption, priority need to give for internal consumption first and thereafter any excess power can be exported to grid. Decisions of appropriate authority like DISCOM, state regulator may be followed. Connectivity of output of Solar Power Plant should be so done that maximum power generated through solar is utilized by the beneficiary and only unutilized power is exported to the grid. **Connectivity of the ACDB to the main grid is in the scope of bidder.**

14. PROTECTIONS:-

The system should be provided with all necessary protections like earthing, Lightning, and grid islanding as follows:

A. LIGHTNING PROTECTION :-

The On-grid SPV Power Plants shall be provided with lightning & overvoltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc. The entire space occupying the SPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors. Lightning protection should be provided as per IEC 62305 standards. The protection against induced high-voltages shall be provided by the use of metal oxide varistors (MOVs) and suitable earthing such that induced transients find an alternate route to earth, in accordance with CEA Safety Regulations.

B. SURGE PROTECTION :-

Internal surge protection shall consist of three MOV type surge-arrestors connected from +ve and -ve terminals to earth (via Y arrangement), in accordance with CEA Safety Regulations.

C. EARTHING PROTECTION :-

- a. Each array structure of the PV yard should be grounded/ earthed properly as per IS:3043-2018, in accordance with CEA Safety Regulations. In addition the lightning arrester/masts should also be earthed inside the array field. Earth Resistance shall be tested in presence of the representative of Department/CREDA as and when required after earthing by calibrated earth tester. **SPV Modules, MMS, String Inverter, ACDB and DCDB should also be earthed properly.**

- b. Earth resistance shall not be more than 5 ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential.

D. GRID ISLANDING :-

- i) 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.
- ii) **A manual disconnect 4-pole isolation switch beside 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.**

15. CABLES:-

Cables of appropriate size to be used in the system shall have the following characteristics:

- a) Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards
- b) Temp. Range: -10°C to $+80^{\circ}\text{C}$.
- c) Voltage rating 660/1000V
- d) Excellent resistance to heat, cold, water, oil, abrasion, UV radiation
- e) Flexible
- f) Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum (2%)
- g) For the DC cabling, XLPE or, XLPO insulated and sheathed, UV- stabilized single core multi-stranded flexible copper cables shall be used; Multi-core cables shall not be used.
- h) The DC cabling for rated voltage of 1500 V shall conform to BIS 17293:2020.
- i) For the AC cabling, PVC or, XLPE insulated and PVC sheathed single or, multi-core multi-stranded flexible copper cables shall be used; Outdoor AC cables shall have a UV-stabilized outer sheath.
- j) The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use. Outer sheath of cables shall be electron beam cross-linked XLPO type and black in colour.
- k) The DC cables from the SPV module array shall run through a UV- stabilized PVC conduit pipe of adequate diameter with a minimum wall thickness of 1.5mm.
- l) Cables and wires used for the interconnection of solar PV modules shall be provided with solar PV connectors (MC4) and couplers.
- m) All cables and conduit pipes shall be routed in a GI cable tray including covers on the rooftop, and clamped to the walls and ceilings with thermo-plastic clamps at intervals not exceeding 50 cm; the minimum DC cable size shall be 4.0 mm^2 copper; the minimum AC cable size shall be 4.0 mm^2 copper. In three phase systems, the size of the neutral wire size shall be equal to the size of the phase wires.
- n) Cable Routing / Marking: All cable/wires are to be routed in a GI cable tray including covers and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified. In addition, cable drum no. / Batch no. to be embossed/ printed at every one meter.
- o) Cable Jacket should also be electron beam cross-linked XLPO, flame retardant, UV resistant and black in colour.
- p) All cables and connectors for use for installation of solar field must be of solar grade which can withstand harsh environment conditions including High temperatures, UV radiation, rain, humidity, dirt, salt, burial and attack by moss and microbes for 25 years and voltages as per latest IEC standards. DC cables used from solar modules to array junction box shall be solar grade copper (Cu) with XLPO insulation and rated for 1.1kV as per relevant standards only.
- q) The ratings given are approximate. Bidder to indicate size and length as per system design requirement. All the cables required for the plant shall be provided by the Bidder. Any change in cabling sizes if desired by the Bidder shall be approved after citing appropriate reasons. All cable schedules/ layout drawings shall be approved prior to installation.

- r) Multi Strand, Annealed high conductivity copper conductor PVC type ‘A’ pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armored cable for underground laying. All cable trays including covers to be provided. All cables conform to latest edition of IEC/ equivalent BIS Standards as specified below: BoS item / component Standard Description Standard Number Cables General Test and Measuring Methods, PVC/XLPE insulated cables for working Voltage up to and including 1100 V, UV resistant for outdoor installation IS /IEC 69947.
- s) The total voltage drop on the cable segments from the solar PV modules to the solar grid inverter shall not exceed 2.0%.
- t) The total voltage drop on the cable segments from the solar grid inverter to the building distribution board shall not exceed 2.0%.

16. CONNECTIVITY:-

The maximum capacity for interconnection with the grid at a specific voltage level shall be as specified in the Distribution Code/Supply Code of the CSERC Regulation and amended from time to time. Following criteria have been suggested for selection of voltage level in the distribution system for ready reference of the solar suppliers.

Plant Capacity	Connecting voltage
Up to 100 kWp	415V – three phase
Above 100kWp	At HT/EHT level (11kV/33kV/66kV) as per DISCOM rules

17. TOOLS & TACKLES AND SPARES:-

- a) After completion of installation & commissioning of the power plant, necessary tools & tackles are to be provided free of cost by the Bidder for maintenance purpose. List of tools and tackles to be supplied by the Bidder for approval of specifications and make from CREDA.
- b) A list of requisite spares in case of String Inverter comprising of a set of control logic cards, IGBT driver cards etc. Junction Boxes. Fuses, MOVs / arrestors, MCCBs etc along with spare set of PV modules be indicated, which shall be supplied along with the equipment. A minimum set of spares shall be maintained in the plant itself for the entire period of warranty and Operation & Maintenance which upon its use shall be replenished.

18. DANGER BOARDS AND SIGNAGES:-

Danger boards should be provided as and where necessary as per IE Act. /IE rules as amended up to date. Appropriate signage shall be provided at solar array area and main entry from administrative block. Text of the signage may be finalized in consultation with CREDA and/or TEED (BSP).

19. FIRE EXTINGUISHERS:-

The firefighting system for the proposed power plant for fire protection shall be consisting of:

- a) Portable fire extinguishers in the control room for fire caused by electrical short circuits.
- b) Sand buckets in the control room.
- c) The installation of Fire Extinguishers should confirm to TAC regulations and BIS standards.
The fire extinguishers shall be provided in the control room housing PCUs as well as on the Roof or site where the PV arrays have been installed

20. DRAWINGS & MANUALS:-

- a) Three sets of Engineering, electrical drawings and Installation and O&M manuals are to be supplied. Bidder shall provide complete technical data sheets for each equipment giving details of the specifications along with make/makes in their Bidder along with basic design of the power plant and power evacuation, synchronization along with protection equipment.
- b) Approved ISI and reputed makes for equipment be used.
- c) For complete electro-mechanical works, Bidder shall supply complete design, details and drawings for approval to CREDA and/or TEED (BSP) before progressing with the installation work.

21. PLANNING AND DESIGNING:

The Bidder should carry out Shadow Analysis at the site and accordingly design strings & arrays layout considering optimal usage of space, material and labour. The Bidder should submit the array layout drawings along with Shadow Analysis Report to CREDA and/or TEED (BSP) for approval.

22. DRAWINGS TO BE FURNISHED BY SUCCESSFUL BIDDER AFTER AWARD OF CONTRACT FROM TEED (BSP):-

The successful bidder shall furnish the following drawings Award/Intent and obtain approval.

- a. General arrangement and dimensioned layout.
- b. Schematic drawing showing the requirement of SPV panel, string inverter/s, Junction Boxes, AC and DC Distribution Boards, meters etc.
- c. Structural drawing along with foundation details for the structure.
- d. Itemized bill of material for complete SPV plant covering all the components and associated accessories.
- e. Layout of solar Power Array.
- f. Shadow analysis of the roof.

23. SOLAR PV SYSTEM ON THE ROOFTOP FOR MEETING THE ANNUAL ENERGY REQUIREMENT:-

The Solar PV system on the rooftop of the selected buildings will be installed for meeting upto 100% day time consumption of the annual energy requirements depending upon the area of rooftop available and the remaining energy requirement of the buildings will be met by drawing power from grid at commercial tariff of DISCOMs.

24. SAFETY MEASURES:-

The Bidder shall take entire responsibility for electrical safety of the installation(s) including connectivity with the grid and follow all the safety rules & regulations applicable as per Electricity Act, 2003 and CEA guidelines etc.

25. DISPLAY BOARD:-

The Bidder has to display a board at the project site mentioning the Following:-

- a) Plant Name, Capacity, Location, Type of Renewable Energy plant (Like solar wind etc. Date of commissioning, details of tie-up with transmission and distribution companies.
- b) The size and type of board and display shall be appropriate, with due consent of CREDA and/or TEED (BSP).

26. QUALITY CERTIFICATION, STANDARDS AND TESTING FOR GRID-CONNECTED ROOFTOP SOLAR PV SYSTEMS/POWER PLANTS

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

Solar PV Modules/Panels	
IEC 61215/ IS14286	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- Part 1:2011/ IS 16170: Part 1:2014	Photovoltaic (PV) module performance testing and energy rating –: Irradiance and temperature performance measurements, and power rating
IEC 62716	Photovoltaic (PV) Modules – Ammonia (NH ₃) Corrosion Testing (As per the site condition like dairies, toilets)
IEC 61730-1,2	Photovoltaic (PV) Module Safety Qualification – Part 1:Requirements for Construction, Part 2: Requirements for Testing
IEC 62804	Photovoltaic (PV) modules - Test methods for the detection of Potential-induced degradation. IEC TS 62804-1: Part 1: Crystalline silicon (mandatory for applications where the system voltage is > 600 VDC and advisory for installations where the system voltage is < 600 VDC)
IEC 62759-1	Photovoltaic (PV) modules – Transportation testing, Part 1:Transportation and shipping of module package units

Solar PV String Inverters	
IEC 62109-1, IEC 62109-2	Safety of power converters for use in photovoltaic power systems – Part 1: General requirements, and Safety of power converters for use in photovoltaic power systems Part 2: Particular requirements for inverters. Safety compliance (Protection degree IP 65 for outdoor mounting, IP 54 for indoor mounting)
IEC/IS 61683 latest (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)	Utility-interconnected Photovoltaic Inverters - Test Procedure of Islanding Prevention Measures
IEC 60255-27	Measuring relays and protection equipment – Part 27: Product safety requirements
IEC 60068-2 (1, 2, 14, 27, 30 & 64)	Environmental Testing of PV System – String 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 PV 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, Part 2: Circuit Breakers c) Low-voltage switchgear and Control-gear, Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units d) EN 50521: Connectors for photovoltaic systems – Safety requirements and tests
IEC 60269-6:2010	Low-voltage fuses - Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems

Surge Arrestors	
BFC 17-102:2011/NFC 102:2010/IEC 62305	Lightening Protection Standard
IEC 60364-5-53/ IS15086-5 (SPD)	Electrical installations of buildings - Part 5-53: Selection and erection of electrical equipment - Isolation, switching and control
IEC 61643- 11:2011	Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and test methods
Cables	

IEC 60227/IS 694, IEC 60502/IS 1554 (Part 1 & 2)/ IEC69947	General test and measuring method for PVC (Polyvinyl chloride) insulated cables (for working voltages up to and including 1100 V, and UV resistant for outdoor installation)
BS EN 50618	Electric cables for photovoltaic systems (BT(DE/NOT)258), mainly for DC Cables
Earthing /Lightning	
IEC 62561/IEC 60634 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	
IS 16444 or as specified by the DISCOMs	A.C. Static direct connected watt-hour Smart Meter Class 1 and 2 — Specification (with Import & Export/Net energy measurements) to be tested and verified by TEED (BSP)
Solar PV Roof Mounting Structure	
IS2062/IS 4759:1996	Material for the structure mounting

Note- Equivalent standards may be used for different system components of the plants with prior approval of TEED.

27. COMPREHENSIVE MAINTENANCE GUIDELINES OF GRID CONNECTED ROOFTOP PV PLANTS [TO BE MANDATORILY FOLLOWED BY BIDDER]

For the optimal operation of a PV plant, maintenance must be carried out on a regular basis. All the components should be kept clean. It should be ensured that all the components are fastened well at their due place. Maintenance guidelines for various components viz. solar panels, inverter, wiring etc. are discussed below. The Comprehensive Maintenance of Solar Photovoltaic Power Plant would include wear, tear, overhauling, machine breakdown, insurance, and replacement of defective modules, string invertors spares, consumables & other Part for a period of 5 years systems and an extended AMC provision may be provided by the bidder for complete life of Solar PV systems after five years warrantee period, on annual basis for further twenty years.

The bidder shall be responsible for all the required activities for successful Comprehensive maintenance of the Rooftop Solar PV system for a period of 5 years.

- a. Comprehensive Maintenance of Solar Power Plant shall be compliant with grid requirements to achieve committed energy generation.
- b. Arrangement of qualified and experienced engineer/ technicians till the Comprehensive Maintenance period for projects.
- c. Periodic cleaning of solar modules.
- d. Periodic checks of the Modules, String Inverter and BoS shall be carried out as a Part of routine preventive and breakdown maintenance.
- e. Immediate replacement of defective Modules, String Invertors/PCUs and other equipment as and when required.
- f. Supply of all spares, consumables and fixtures as required. Such stock shall be maintained for all associated equipment and materials as per manufacturer/ supplier's recommendations.
- g. The entire equipment testing instrument required for Testing, Commissioning and Comprehensive Maintenance for the healthy operation of the Plant shall be maintained by the Bidder. The testing equipment must be calibrated once every 2 years from NABL accredited labs and the certificate of calibration must be kept for reference as required.
- 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 Beneficiaries and TEED (BSP) as per the requirement for Joint Metering Report (JMR). The person in charge present at site from bidder's side shall take a joint meter reading in the presence of Beneficiaries and TEED (BSP) on a **monthly basis**. Furnishing generation data (JMR) each month to TEED (BSP) positively by 1st week of every month for the previous month. Failure to adhere may result in non-disbursal of payment.
- j. 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 on monthly basis, 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.
- k. For any issues related to Comprehensive maintenance, a contact number shall be made available to the beneficiary department where solar rooftop power plant is installed inform bidder's authorized technical person to **attend** within 72 hours. If not attended within such stipulated time, a complaint may be raised to TEED (BSP), pursuant to which, a penalty of Rs. 10,000 for full month or more shall be imposed. This will be applicable till 5 years of Comprehensive Maintenance as per the Scope of the bid.
- l. If any jobs covered in Comprehensive Maintenance Scope as per bid are not carried out by the Bidder during the Comprehensive Maintenance period, the Engineer-In-Charge of TEED (BSP) shall take appropriate action as deemed fit. TEED (BSP) reserves the right to make surprise checks/ inspection visits at its own or through authorized representative to verify the Comprehensive Maintenance activities being carried out by the Bidder. Failure to adhere to above guidelines will result in penal action including debarring from Participation in next bid.
- m. If a system is non-operational for more than seven days than warrantee period shall extend for the period in which system is non-operational.

METERING AND GRID CONNECTIVITY

Metering and grid connectivity of the roof top solar PV system under this bid would be the responsibility of the Bidder in accordance with the prevailing guidelines of the concerned DISCOM and CEA (if available by the time of implementation). TEED (BSP) could facilitate connectivity; however, the entire responsibility lies with bidder only. All Energy Meter should be with Import & Export/Net energy measurements and to be tested and verified by TEED (BSP).

PLANT PERFORMANCE EVALUATION

Average CUF of 15% annually should be maintained for a period of 5 years. The bidder should send the monthly plant output details to TEED (BSP) for ensuring the CUF in prescribed format along with the reading of import and export measured through the TEED (BSP) Consumer Energy Meter.

PROGRESS REPORT

The bidder shall submit the monthly generation report monthly to **TEED (BSP)** in Prescribed Performa. **If the monthly generation report is not received regularly for more than three months in continuation than the Bidder shall be proposed for black listing for at least two years or for the period as decided by TEED (BSP).** TEED (BSP) will have the right to depute it's representatives to ascertain the progress of contract at the premises of works of the bidder.

Submission of Comprehensive Maintenance Report (CMR)

The bidder shall submit the Monthly Comprehensive Maintenance Report mandatorily to TEED (BSP) as per the Format enclosed at **Annexure A, 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 any payment. However, the decision of TEED (BSP) shall be final in this regard.

1.SOLAR PANELS

- a. The panels are to be cleaned at least once every fifteen days.
- b. Any bird droppings or spots should be cleaned immediately.
- c. Use water and a soft sponge or cloth for cleaning.
- d. Do not use detergent or any abrasive material for panel cleaning.
- e. Iso-propyl alcohol may be used to remove oil or grease stains.
- f. Do not spray water on the panel if the panel glass is cracked or the back side is perforated.
- g. Wipe water from module as soon as possible.
- h. Use proper safety belts while cleaning modules at inclined roofs etc.
- i. The modules should not be cleaned when they are excessively hot. Early morning is particularly good time for module cleaning.
- j. 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.
- k. Ensure that the module terminal connections are not exposed while cleaning; this poses a risk of electric shock.
- l. Never use panels for any unintended use, e. g. drying clothes, chips etc.
- m. Ensure that monkeys or other animals do not damage the panels.

2. CABLES AND CONNECTION BOXES

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

3. INVERTER

- a. The inverter should be installed in a clean, dry, and ventilated area.
- b. Remove any excess dust in heat sinks and ventilations. This should only be done with a dry cloth or brush.
- c. Check that vermin have not infested the inverter. Typical signs of this include spider webs on ventilation grills or wasps’ nests in heat sinks.
- d. Check functionality, e.g. automatic disconnection upon loss of grid power supply, at least once a month.
- e. Verify the state of DC/AC surge arrestors, cable connections, and circuit breakers.

4.SHUTTING DOWN THE SYSTEM

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

28. INSPECTION AND MAINTENANCE SCHEDULE

Component	Activity	Description	Interval	By
PV Module	Cleaning	Clean of bird droppings/dark spots on modules.	Immediately	User/TEED/ Technician
	Cleaning	Clean PV modules with plain water or mild dish washing detergent. Do not use brushes, any type of solvents, abrasive, or harsh detergents.	Fortnightly or as per the site conditions.	User/TEED/ Technician
	Inspections of solar plant	Use infrared camera to inspect for hot spots; bypass diode failure	Annual	Technician

Component	Activity	Description	Interval	By
PV Array	Inspection	Check PV Module and rack for any damage note down location and serial no. of damaged modules	Annual	User/TEED/ Technician
	Inspection	Determine if any new object such as a vegetation growth are causing shading of the array and move them if possible.	Annual	User/TEED/ Technician
	Vermin removal	Remove bird nests or vermin from array and rack area	Annual	User/TEED / Technician
Junction Boxes	Inspection	Inspect electrical boxes for corrosion or intrusion of water or insects. Seal boxes is 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, arching, short or open circuits, and ground faults.	Annual	Electrician
Inverter	Inspection	Observe	Monthly	Electrician

FORMAT – A
Monthly Comprehensive Maintenance Report (CMR)

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 dishwashing detergent.			
	Inspection	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, loose connections, corrosion,			

Component	Activity	Description	Date	Name/ Signature	*Remarks
		Over heating, 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 (pyrano meter etc.) with standard instruments to verify their operation within tolerance limits.			
Transformer	Inspection	Inspect transformer oil level, temperature gauges, breather, silica gel, meter, connections etc.			
Plant	Monitoring	Daily Operation and Performance Monitoring.			
Spare 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.

*Register is to be maintained by the system integrator at each location where Grid Connected RT solar power plant of all the sites mentioned in this bid. The same may be inspected by TEED (BSP) or its authorized representative at any time during 5 years of Comprehensive Maintenance contract period. The Register will have the information about the generation, Inverter downtime if any, Grid outages etc as per Part B.

Part B

Month and year:

Name of the System Integrator:

Project:

Capacity:

Name of the site:

Day of the month	Solar Generation in kWh	Remarks
1		
2		
3		
4		
(upto 31)		

Total generation for the month in kWh:

CUF for month in %:

Cumulative generation since commissioning in kWh:

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

In case of Grid Outage/Inverter Failure mention the details in remark column.

**SECTION -5
ANNEXURES, SPECIFICATIONS, FORMS**

ANNEXURE – I

**(EXPERIENCE CERTIFICATE ON THE OFFICIAL LETTER HEAD OF CONCERNED
BENEFICIARY ORGANISATION WITH SEAL AND SIGN BY AUTHORIZED
SIGNATORY)**

Ref. No.....

Date.....

**CERTIFICATE OF COMPLETION OF GRID CONNECTED ROOFTOP SPV
POWER PLANTS**

This is to certify that (Name of Bidder, Address of Registered Office) has successfully completed the work of design supply, installation & commissioning of.....Nos. grid connected rooftop SPV Power Plants at various locations in State, as per following details–

S.N.	Capacity of Solar Power Plants in kWp	Year*	Total No. of Systems	Work Order No. and Date	Date of Synchronization	Remarks
Total						

***Solar systems commissioned during 2020-21, 2021-22 & 2022-23 should only be mentioned**

The workmanship and performance of the above installed systems are found satisfactory and are in successful operation.

**Signature of
Authorized Signatory**

Name:.....

Designation:.....

Seal of Authorized Signatory

FORMAT FOR THE AFFIDAVIT

(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 Tender/bid no.150515/CREDA-TEED(BSP)/ONGRID/SPV-PP/2023-24, Date-27.12.2023 issued by Chhattisgarh State Renewable Energy Development Agency (CREDA) (authority inviting bids) on behalf of Town Electrical and Engineering Department, of Bhilai Steel Plant (TEED) for Supply, Design, Installation, and Commissioning of grid connected rooftop Solar Photovoltaic power plant on rooftop of following capacities with five years CMC, unconditional onsite warrantee installed on the following buildings of _____ of Bhilai Steel Plant (BSP) in Bhilai District Durg (CG):

- a. _____ of _____ kWp capacity
- b. _____ of _____ kWp capacity
- c. _____ of _____ kWp capacity
- d. _____ of _____ kWp capacity
- e. _____ of _____ kWp capacity

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 and TEED, BSP, 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 in CREDA and TEED, BSP then 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 and TEED, BSP.** (if working in CREDA and TEED, BSP then mention the name/names)

.....

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) and TEED, BSP** (if working in CREDA and TEED, BSP then mention the name/names)

.....

8. 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.

9. 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 9 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

ANNEXURE – III

e-Price Bid

(e-bidding as per Specifications & Scope of Work of BID DOCUMENT No. 150515/CREDA-TEED(BSP)/ONGRID/SPV-PP/2023-24 Dated-27.12.2023)

Rates for the Design, Supply, Installation & Commissioning of Grid-connected Solar Photovoltaic Power Plants with five years Comprehensive Maintenance Contract (CMC), unconditional onsite warrantee, as per scope of work, technical requirement, specifications, terms and conditions of the tender with extended Annual Maintenance Contract (AMC) up to 20 years.

(Rates should be quoted in INR, inclusive GST)

S.N.	Site Description	Capacity (in kWp)	Cost of Supply of system (INR incl. GST)	Cost of Installation and Commissioning (INR incl. GST)	Cost of 5 years CMC (INR incl. GST)*	Total Project Cost incl. GST (INR)**	Rate of AMC*** per year, after completion of initial 5 Years CMC incl. GST (INR)
1	2	3	4	5	6	7= (4+5+6)	8
1	Ispat Bhawan, BSP, Bhilai, District -Durg	300					
2	JLNH Hospital, Sector-9, BSP, Bhilai, District -Durg	500					
3	Sr. Secondary School, Sector-X, BSP, Bhilai, District -Durg	250					
4	Town Administrative Building (TA Building), BSP, Bhilai, District -Durg	50					
5	Estate Court Building, Maroda, BSP, Bhilai, District -Durg	50					

*Cost Quoted for CMC in column No. 6, Should not be less than 8% of Total Project Cost, else the Bid will not be accepted.

** Lowest (L1) Bidder would be Compared Based on site wise Total Project Cost (Inclusive of applicable GST) mentioned in Column No. 7.

*** Rate quoted for AMC per year shall be valid for 20 years post completion of CMC, payable with escalation of 20% after the end of fifth, tenth and fifteenth year of AMC.

Certified that rate quoted above are as per the requirement, specification and terms & condition mentioned in the bid document.

Above rates are FOR in the site mentioned in this bid document inclusive of roadworthy packing, loading, unloading, all types of incidental expenses, insurance, duties and any other job required to properly execute the work with 5 years warrantee, as mentioned in the Bid document. Above rates applicable for Solar Power Plant system as per MNRE Specifications stated in Bid document.

(No other cost will be claimed other than above quotes price & the applicable GST)

Signature of the Authorized Signatory :.....

Seal of Company:

Date:

CREDA and TEED, BSP Logo to be pasted on SPV modules of Solar Power Plant System



ANNEXURE – V

DRAFT TRI-PARTITE AGREEMENT

CONTRACT AGREEMENT BETWEEN Town Electrical Engineering Department (TEED-BSP) & Chhattisgarh State Renewable Energy Development Agency **CREDA**) Raipur AND M/s..... Represented by..... THIS CONTRACT AGREEMENT against **Bid DOCUMENT No. 150515/CREDA-TEED (BSP) /ONGRID/ SPV-PP/2023-24 Dated-27.12.2023** (also referred to as “Service Contract”) is made on the day of2024.

BETWEEN

1. Bhilai Steel Plant having one of its Department named TOWN ELECTRICAL ENGINEERING DEPARTMENT (TEED) and its office at Bhilai, Chhattisgarh, hereinafter referred to as “TEED”, which expression will, unless the context otherwise specifies or requires, which means and include its successors or assignees, herein after referred to as THE FIRST PARTY.

And

2. Chhattisgarh State Renewable Energy Development Agency (**CREDA**) Raipur a society incorporated under the laws Society Registration Act 1973, (1973 , Sr. No. 44) (with amendment from time to time) and having its Registered Office at VIP Road Near Energy Education Park, Village-Fundhar, Raipur and (hereinafter called “The Employer” and also referred to as “CREDA”)

And

3.Represented bya company incorporated under the laws of Companies Act 1956/2013/ Partnership firm/ Proprietorship firm (as applicable, with amendment from time to time) and having its Principal place of business atand Registered Office at.....hereinafter called “The Contractor” and also referred to as “.....”

Whereas the contractor has offered to enter into contract with the said CREDA and TEED (BSP) for the Supply, Design, Installation, and Commissioning of On grid Rooftop Solar Power Plant of capacitywith five years CMC, unconditional onsite warrantee.

Vide **BID DOCUMENT No. 150515/CREDA-TEED(BSP)/ONGRID/SPV-PP/2023-24 Dated-27.12.2023** on the terms and conditions herein contained and the rates approved by the CREDA (Letter No. dated..... annexed here to) have been duly accepted and whereas the necessary security deposit shall be furnished in accordance with the provisions of the Bid document and whereas no interest will be claimed on the security deposits.

Now these presents witness and it is hereby agreed and declared by and between parties to these presents as follows -

- 1) The Contractor shall during the period of this contract, that is to say from.....To.....or completion thereof, until this Contract shall be determined by such notice as is herein after mentioned, safely carryout, by means of labour employed at his own expenses and by means of tools, implements and equipment etc. to be supplied by him to his labour at his own expenses, for installation of “Grid Connected RT Solar power plant” as described in Bid documents. (Annexed to the agreement).
- 2) The NIT (Notice Inviting Bid), Corrigendum to NIT, Notices, Bid documents (Qualifying, Technical and Financial), approved rates annexed hereto and such other additional particulars, undertaking, instructions, general conditions of contract, Scope of work, Technical specifications of Grid Connected RT Solar power plant and Annexure therein, engineering documents, detailed specifications of BOS & drawings, so far they relate to the Bid DOCUMENT No.150515/CREDA-TEED(BSP)/ONGRID/SPV-PP/2023-24 Dated-

27.12.2023 as may be found requisite to be given during execution of the work shall be deemed and taken to be an integral part of the contract and shall also be deemed to be included in the expression "The Agreement or "The Contract "wherever here in used.

- 3) The contractor shall also supply the requisite number of workmen with means & materials as well as tools, appliances, machines, implements, vehicles for transportation, cartage etc. required for the proper execution of work within the time prescribed in the work orders and /or as per the Bid conditions.
- 4) The Engineer-in-Charge or his authorized representative(s) shall be entitled at all reasonable times to inspect and supervise and test during supply, installation and commissioning. Such inspection shall not relieve the eligible SI from their obligations under this contract.
- 5) Material can be inspected before dispatch or in transit by the authorized representatives of CREDA and/or TEED (BSP) at the factory at the cost of the eligible SI, if desired by CREDA and/or TEED (BSP). CREDA and/or TEED (BSP) reserves right to inspect the material at Godowns / Temporary Stores before dispatch and also at works sites.
- 6) TEED (BSP) shall deduct TDS for Income Tax, applicable cess on Civil Work etc. under various acts and deposited with the appropriate authority. Costs and taxes before execution of agreement with CREDA and/or TEED (BSP) so as to ensure tax deposition as per Government Rules accordingly.

7) ELIGIBLE SYSTEM INTEGRATOR'S LIABILITY IN CASE OF DEFAULT-

CREDA and/or TEED (BSP) may by written notice of default to the eligible SI, terminate the contract in circumstances detailed here under -

- a) If in the opinion of the CREDA and/or TEED (BSP), the eligible SI fails to complete the work within the time specified in the Work Order or within the period for which extension has been granted by TEED(BSP) to the eligible SI.
- b) If in the opinion of CREDA and/or TEED (BSP), the eligible SI fails to comply with any of the provisions of this contract.
- c) In the event of TEED(BSP) terminating the contract in whole or in part as provided in paragraph (a) above, CREDA reserves the right to recommend to TEED(BSP) for engagement of another eligible SI or agency upon such terms and in such a manner as it may deem appropriate and the eligible SI shall be liable to CREDA and/or TEED (BSP) for any additional costs or any losses caused to TEED (BSP) as may be required for the completion of erection of the On-grid Rooftop SPV Power Plant and/or for penalty as defined under this Bid document until such reasonable time as may be required for the final completion of the work. CREDA may debar such a defaulter SI for up to three years from taking participation in taking part in all activities of CREDA and/or TEED (BSP).
- d) In the event CREDA and/or TEED (BSP) does not terminate the contract as provided in paragraph (a) the eligible SI shall continue performance of the contract, in which case he shall be liable to TEED (BSP) for penalty for delay as set out in clause 15 until the work is completed.

8) FORCE MAJEURE-

The eligible SI shall not be liable for any penalty for delay or for failure to perform the contract for reasons of FORCE MAJEURE such as of God, acts of public, enemy, LWE problems, acts of government, cyclone, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes provided that if SI shall submit delay notice with appropriate cause of delay to the CREDA and/or TEED (BSP) in writing within **15 days** of force majeure. TEED (BSP) shall verify the facts and may grant such extension as facts justify. Delay in supply of any accessories of solar power plants etc. by the related vendors, to whom the Bidder has placed order, shall also not be treated as force majeure.

9) REJECTION OF WORKS -

In the event of any of the material supplied/work done by the eligible SI is found defective in material or workman ship or otherwise not in conformity with the requirements of this contract specifications, CREDA and/or TEED (BSP) shall either reject the material and/or work and advise the eligible SI to rectify the same. **TEED (BSP) may impose penalty for**

such rejection up to the 200% cost of the entire system. Habitual/repeated offenders shall be black listed/debarred to participate in the any Bid/ Activity of CREDA till further orders. The eligible SI on receipt of such notices shall rectify or replace the defective material and rectify the work free of cost. If the eligible SI fails to do so TEED (BSP) may-

- a) At its option replace or rectify such defective materials and/or work and recover the extra cost so involved from the eligible SI plus 15% service charges of the cost of such rectification, from the eligible SI and/ or terminate the contract for balance work/ supplies with enforcement of penalty as stated above.
- b) Defective materials/workmanship will not be accepted under any conditions and shall be rejected outright without compensation. The eligible SI shall be liable for any loss/damage sustained by CREDA and/or TEED (BSP) due to defective work with enforcement of penalty as stated above.

10) EXTENSION OF THE TIME-

If the completion of installation is delayed due to any reason beyond the control of the eligible SI, the eligible SI shall without delay give notice to the CREDA and/or TEED (BSP) in writing of his claim for an extension of time. TEED (BSP) on receipt of such notice may or may not agree to extend the contract/delivery date of the On-grid Rooftop SPV Power Plant as may be reasonable but without prejudice to other terms and conditions of the contract. TEED (BSP) has full right for unconditional time extension.

11) PENALTY FOR DELAY IN COMPLETION OF CONTRACT-

- a. If the eligible SI fails to complete the assigned work within the schedule time specified in the Work Order or any extension granted there to, TEED (BSP) will recover from the SI as penalty of up to **Two percent (2%)** per month of the system price excluding GST for every delayed system. For this purpose, the date of commissioning shall be reckoned as the date of completion. The total penalty shall not exceed **5% (Five Percent)** of the cost. The eligible SI shall not be liable for any penalty for delay or for failure to perform the contract for reasons of FORCE MAJEURE.
- b. Joint review of the progress of installation of Solar Power Plant allocated to SIs shall be done from time to time by CREDA and/or TEED (BSP) and if the progress of installation is found unsatisfactory, CREDA shall recommend allocation of entire remaining uninstalled system or their part of can be re-allocated to other SI as per discretion of CREDA and/or TEED (BSP).

12) PENALTY DUE FROM THE ELIGIBLE SI-

All costs of damages and delays for which the eligible SI is liable to the TEED (BSP) will be deducted from any money due to the eligible SI including the security deposit of project under TEED (BSP).

13) RESPONSIBILITY OF ELIGIBLE SI'S -

Notwithstanding anything mentioned in the specifications of subsequent approval or acceptance of the On-grid SPV Power Plant by CREDA and/or TEED (BSP), if any, the ultimate responsibility for satisfactory performance of the entrusted work shall rest with the eligible SI. If in any case the eligible SI does not complete the work as per the Work Orders issued to them then TEED (BSP) may take over the task & complete the project at the risk and cost of eligible SI.

14) RESPONSIBILITY TO RECTIFY THE LOSS AND DAMAGE-

If any loss or damage occurs to the work or any part thereof or materials/plant/equipment's for incorporation therein the period for which the eligible SI is responsible for the cause thereof or from any cause whatsoever, the eligible SI shall at his own cost rectify/replace such loss or damage, so that the permanent work confirms in every respect with the provision of the contract to the satisfaction of the Engineer. The eligible SI shall also be liable for any loss or damage to the work/equipment's occasioned by him in course of any operation carried out to him during performing the contract.

15) RESPONSIBILITY TOWARDS THE WORKMAN OR OUTSIDERS-

- a. The eligible SI shall have to take insurance coverage from any authorized Insurance Company against Workmen compensation due under Workmen Compensation Act and submit copy of the insurance document before issuance of Work Order.
- b. The eligible SI shall ensure all safety measures during execution and repairs of the work. CREDA and/or TEED (BSP), will, in no case be responsible for any accident fatal or non-fatal, caused to any workman or outsider in course of transport or

- execution or repairs of work.
- c. All the expenditure including treatment or compensation will be entirely borne by the eligible SIs. The eligible SI shall also be responsible for any claims of the workers including, labor payments PF, Accidental Insurance, Gratuity, ESI & other legal obligations.
 - d. TEED (BSP) shall have all rights to deduct such claims of payments from SI in case of complaints of such violations.
- 16) Contractor shall provide 05 years warranty in installed solar rooftop PVPP from the date of commissioning and/or synchronization as per the terms & conditions prescribed in the ***BID DOCUMENT No. 150515/CREDA-TEED (BSP)/ONGRID/SPV-PP/2023-24 Dated-27.12.2023.***
- 17) **DECLARATION OF CONFLICT OF INTEREST -**
- a. Any regular employee working or worked on basis of contract or through placement agency cannot work directly or indirectly in any scheme of CREDA and/or TEED (BSP). If such a person is found working with any SI or through sublet then, such SI shall be blacklisted for three years.
 - b. The bidder shall not be permitted to Bid for the work if the section of Head Office CREDA and/or TEED (BSP) (responsible for implementation of work) in which his/her near relative is posted. The bidder shall also intimate the names of his near relatives working in CREDA and/or TEED (BSP). Bidder shall also intimate the name of persons who are working with him in any capacity and who are near relatives to any employee in CREDA and/or TEED (BSP). Any breach of this condition by SI would render himself liable to be blacklisted for three years and removed from approved list of SIs in CREDA and/or TEED (BSP).
Note- By the term near relatives are meant Wife, Husband, Parents and Son, Brother, Sister, Brother-in-law, Father-in-law, and Mother-in-law etc.
 - c. Bidder must produce an affidavit (**Annexure-II**) stating the names of retired/removed employee of CREDA/TEED (if any) in his/her employment who retired /removed within last two years, if in case there is no such person in his employment, his affidavit should clearly state this fact. **This affidavit is mandatory, if it is not produced along with the bid, the bid shall be rejected.**
- 18) The contractor shall arrange insurance coverage for the materials and On-grid Rooftop SPV Power Plants at his/beneficiary's custody for the work under execution and successful commissioning and subsequent handover to the beneficiary. The contractor shall take up insurance or such other measures for the manpower so as to cover the claim for damage arising under workmen's compensation Act and other applicable State/ Central laws. CREDA and/or TEED (BSP) shall not bear any responsibility on this account.
- 19) Contractor shall arrange for insurance coverage for On-grid Rooftop SPV Power Plants and module during CMC period i.e. for 05 years from the date of installation. Insurance should cover for damage and theft. In case of such incidence, The contractor must replace the lost/damaged part within 7days.
- 20) The contractor shall abide by the terms and conditions, rules, guidelines, construction practices, safety precautions etc. stipulated in the Bid document including any correspondence between the contractor and the CREDA and/or TEED (BSP) having bearing on execution of work and payments of work to be done under the contract.
- 21) The contractor shall be responsible to follow all the laws including Workmen Compensation Act and all other laws in force & shall be responsible for all the obligations towards labour including EPF, ESI, etc.
- 22) All the taxes deductible at source as per Acts in vogue shall be recovered by **TEED (BSP)** and deposited with the appropriate authorities.
- 23) Contractor agrees to abide by any decision/instruction passed by the appropriate authority under Anti-profiteering rules notified by the state/central government under GST act.
- 24) Any dispute arising out of the contract shall be subject to the jurisdiction of Hon'ble High Court of Chhattisgarh.

"Herewith everything and anything contained in Bid document no. 150515/CREDA-TEED(BSP)/ONGRID/SPV-PP/2023-24 dated: 27.12.2023 is part of this agreement which has been dully signed by bidder, and authorized signatory of TEED (BSP) and CREDA".

In witness whereof the parties present today has hereby entered into agreement.

Signed & sealed on behalf of the above

Name of Bidder

Name:
Designation:

Witness:

1. Name:-.....

Address:-.....

2.Name:.....

Address:.....

3.Name:.....

Address:.....

Signed on behalf of TEED (BSP)

Name:
Designation:

Signed on behalf of CREDA

Name:
Designation:

ANNEXURE – VI

FORMAT OF UNDERTAKING, TO BE FURNISHED ON COMPANY LETTER HEAD WITH REGARD TO NON -BLACKLISTING/ NON- DEBARMENT

Date-

To,
The Tender Cell,
CREDA, HO,
Raipur

Sub: Self Declaration for Non-Blacklisting/ Non- Debarment.

Reference:

1. Tender/bid no.150515/CREDA-TEED(BSP)/ONGRID/SPV-PP/2023-24, Date-27.12.2023
2. Name of Tender / Work: - Supply, Design, Installation, and Commissioning of grid connected rooftop Solar Photovoltaic power plant on rooftop of following capacities with five years CMC, unconditional onsite warrantee installed on the following buildings of Bhilai Steel Plant (BSP) in Bhilai District Durg (CG):

- a. _____ of _____ kWp capacity
- b. _____ of _____ kWp capacity
- c. _____ of _____ kWp capacity
- d. _____ of _____ kWp capacity
- e. _____ of _____ kWp capacity

Dear Sir,

We hereby declare that we, M/s
.....are not blacklisted/debarred by any Central/ State Government/ agency of Central/ State Government of India or any other country in the world/ Public Sector Undertaking/ any Regulatory Authorities in India or any other country in the world for any kind of fraudulent activities during the last 5 years.

Yours Faithfully,

(Signature of the Bidder, with Official Seal)

SCHEDULE - I

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 Chhattisgarh State : Yes/No
- a) If yes, write registration No. :
- b) Whether documentary evidence :
Regarding registration enclosed
- c) Items for registration :
- d) Period of registration :
- e) Whether latest copy Competency/ Certificate furnished: Yes/No
- 06.** Whether the firm is 100% owned by
- 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
- a) Whether the bidder is old participant with CREDA: Yes/No
- b) If yes, whether documentary Evidence is enclosed. : Yes/No
- 07.** Any other information that bidder may like to give in order to : Yes/No
- Highlight his bid (If yes, give details)

PLACE:

SIGNATURE OF BIDDER

DATE:

NAME IN FULL:

DESIGNATION/STATUS:

FIRM/COMPANY SEAL:

SCHEDULE - II

PART 'B': COMMERCIAL INFORMATION

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

- 01. i) Earnest Money Details : Bank draft/Bankers cheque payable to "CREDA", Raipur
 ii) Amount of E.M.D. & full details :
- 02. Whether the offer is valid for 6months : Yes/No
 from the date of opening of commercial/technical bid.
- 03. Rate of Sales Tax on the date of bid : (exclusive in the rate quoted)
- 04. **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
- 05. **PAYMENTTERMS:**
 Whether TEED (BSP) terms of payment is acceptable to Bidder : Yes/No
- 06. **COMPLETION PERIOD OFWORK:**
 Whether Bidder is agreeing for completion period of work as : Yes/No
 Specified in the Bid
- 07. **PENALTY CLAUSE:**
 Whether agreeable to Bid's Penalty Clause : Yes/No
- 08. Whether agreeable to Bid's clause of warrantee period : Yes/No
- 09. **SECURITY DEPOSIT:**
 Whether Security Deposit clause is understood : Yes/No
- 10. 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)
 Please mention whether rates offered are applicable for part quantities. : Yes/No

PLACE:

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

SCHEDULE -III

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 On-Grid
Solar SPVPP systems (if yes, give details) enclosed.
03. Whether pamphlets/technical details literatures along with drawing etc. : Yes/No
furnished with the offer (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 equipment : Yes/No
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. 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

SIGNATURE OF BIDDER

DATE

NAME IN FULL

DESIGNATION/STATUS FIRM/COMPANY SEAL

SCHEDULE -IV

TECHNICAL DEVIATIONS

From,

Bidder Name & Address -

To,

The Tender Cell,

CREDA, HO,

Raipur

Sub – Technical Deviations.

Dear Sir,

- 01.** The technical deviations & variations to the specifications stipulated in the Bid, for the item quoted are as under -

S.N.	Condition	Clause No. of Tender Document	Page No. of Tender Document	Statement of deviations and variations

- 02.** Except aforesaid deviations, the entire order, if placed, on us shall be executed in accordance with your specifications and other conditions. Variation/deviations etc. if found, elsewhere in our offer should not be given any considerations while finalizing the Bid.

PLACE:

DATE :

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

NOTE - Continuation sheet of like size & format may be used as per bidder's requirements and shall be annexed to this schedule.

SITE CLEARANCE CERTIFICATE

Survey Report for following location done on _____ (Date) at _____(time)

- 1. Name of Site :-.....
- 2. Name of Beneficiary :-.....
- 3. Capacity in kilowatt :-.....
- 4. Type of Solar Power Plant :- Grid Connected Rooftop Solar Power System
- 5. Layout of site indicating location of SPV :- Attached as Form-B Modules
- 6. Available shadow free space selected for Installation of SPV modules :-.....m²
- 7. Load details and comment on connectivity :- Details attached with grid and load
- 8. Name contact person & his mobile no. who shall be responsible for installation & Commissioning of Solar Power Plant : -.....
- 9. Electricity bill of site of current month is enclosed :- Attached
- 10. Availability of electrical Control panel for connectivity of On-grid Solar Power Plant:-

FORM - A

It is hereby certified that site is technically clear for installation as on date_____.

Enclosure: As above.

(Signature & Seal)
Authorized Officer of
Beneficiary Department
Name:
Designation:

(Signature & Seal)
Authorized Representative of bidder
Name:
Designation:

(Signature & Seal)
Superintending Engineer
Zonal Office, CREDA, Durg
Name:

(Signature & Seal)
Authorized Officer
TEED, BSP
Name:
Designation

Plan of Site

FORM - B

Name of Building:-.....

Address:-.....

Date:-.....

PLAN FOR IDENTIFIED SITE

Note:-All distance mentioned should be in meters directions of mention.

(Signature & Seal)
 Authorized Officer of
 Beneficiary Department
 Name:
 Designation:

(Signature & Seal)
 Authorized Representative of bidder
 Name:
 Designation:

(Signature & Seal)
 Superintending Engineer
 Zonal Office, CREDA, Durg
 Name:

(Signature & Seal)
 Authorized Officer
 TEED, BSP
 Name:
 Designation:

END