



Request for Empanelment (RFE) for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of Rooftop Solar PV (On-grid with/ without battery system and off-grid) and DRE assets of various capacities, across Odisha on a rate contract basis.

E-procurement Website: www.tenderwizard.com/OREDA

RFE No.: 3416 dated [07th] [November] 2023

Contact details:

Odisha Renewable Energy Development Agency (OREDA)

Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.

Phone: (0674) 2588260,2586398,2580554, Fax:2586368

Email: ceoreda@oredaorissa.com. Website: www.oredaorissa.com

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Notice Inviting Tender (NIT)

NIT no.: 3416 dated [07th] [November] 2023

Type of bidding: Domestic Competitive Bidding (DCB)

Mode of bidding: Open bidding, Single stage two envelope, E-bidding

Odisha Renewable Energy Development Agency (OREDA) invites Request for Empanelment (RFE) for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of Rooftop Solar PV (Off grid and On grid with/ without battery) projects and DRE assets of various capacities, across Odisha on a rate contract basis.

The Schedule of Events is given below:

Sl. No.	Events	Schedule
1.	Date of publication of Request for Proposal (RFE) on E-procurement Website and OREDA Website	07.11.2023
2.	Due date and time for receipt of pre-bid queries on the RFE	13.11.2023, Time: 5:30 PM
3.	Date and time for the pre-bid meeting through online mode only. Meeting invite link on google hangout platform. Meeting invite link: https://meet.google.com/kcd-tvkr-wbe	14.11.2023, Time: 12:30 PM
4.	Due date and time for submission of online copies of Technical Bid and Price Bid	06.12.2023, Time: 5:30 PM
5.	Due date and time for submission of hard copies of Technical Bid for select Bid Forms only	08.12.2023, Time: 5:30 PM
6.	Due date and time for the opening of Technical Bid for both online copies and hard copies, except Price Bid	11.12.2023, Time: 4:00 PM
7.	Due date and time for the opening of online Price Bid, applicable only for the Bidders whose Technical Bids shall be responsive	To be intimated later

The RFE providing requisite details about the bidding process shall be made available on the E-procurement Website (www.tenderwizard.com/OREDA) on or before the due date mentioned above. In addition, the RFE shall be provided on the OREDA Website (<http://oredaodisha.com/>) for viewing purposes only. The Bidders may write to us at the email id ceoreda@oredaorissa.com, or contact 9111868247, Assistant Director (Technical), OREDA any time during the office hours for any additional information.

The Bidders are also requested to contact the E-procurement Service Provider (M/s. Tender Wizard) for online registration on the E-procurement Website. The Bidders may contact the E-procurement Service Provider at 080-40482000/ 121/ 133/ 140 and +91 70085 21627 at any time during the office hours for any additional information.

Note: OREDA reserves all the right to annul the bidding process and invite fresh Bids without liability or obligation for such invitation and without assigning any reasons.

-sd-

Chief Executive, OREDA

Disclaimer

To whomsoever it may concern, kindly note the following:

1. This RFE is meant for the exclusive purpose of bidding against this RFE No. XXX dated [DD] [MMM] 2023 and shall not be transferred, reproduced, or otherwise used for purposes other than that for which it is specifically issued.
2. Though adequate care has been taken for the preparation of this RFE, the Bidder shall satisfy itself that the RFE is complete in all respect. Intimation of any discrepancy shall be given to OREDA immediately. If no intimation is received from any Bidder in their pre-bid queries, it shall be considered that the RFE is complete in all respects and has been accepted by the Bidder.
3. OREDA reserves all the right to modify, amend, or supplement this RFE by issuing Addendum from time to time in the interest of the Project.
4. OREDA reserves all the right to extend the timelines mentioned in the Schedule of Events of NIT by issuing Corrigendum from time to time in the interest of the Project.
5. While the RFE has been prepared in good faith, neither OREDA nor OREDA's employees or advisors make any representation, warranty, express or implied or accept any responsibility or liability, whatsoever, in respect of any statements or omissions or absence herein, or the accuracy, completeness or reliability of the information, and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability, and completeness of this RFE, even if any loss or damage is caused by any act or omission on OREDA's part.
6. In case of any discrepancy in the documents uploaded on the websites of OREDA, e-Procurement website (www.tenderwizard.com/OREDA), the documents uploaded on tenderwizard website will prevail.

Exhibit

Definitions

The following definition and abbreviation shall have the meanings hereby assigned to them, as mentioned under the description herewith:

Definitions and abbreviation	:	Description
AC	:	shall mean Alternating Current
Acceptance	:	shall mean acceptance of the Project and when the Acceptance Certificate is issued to the Successful Bidder and as per the meaning ascribed to it in SOW Clause 3.2.1.5
Acceptance Certificate	:	shall mean formal acceptance of the Project by OREDA by issuing an Acceptance Certificate, as per the meaning ascribed to it in SOW Clause 3.3.1.6
Addendum	:	shall have the meaning ascribed to it in ITB Clause 1.2.3.3
Affiliate	:	shall mean in relation to another company means, a company in which that other company has a “significant influence”. “significant influence” means control of at least twenty per cent. of total share capital, or of business decisions under an agreement;
Amendment	:	shall have the meaning ascribed to it in GCC Clause 5.1.2
AOA	:	shall mean Article of Association
Applicable Law	:	shall mean all laws, bye-laws, statutes, treaties, ordinances, rules, policies, regulations applicable in India and the state of Odisha along with amendments, re-enactments, revisions, applications and adaptations thereto made from time to time and in force and effect, judgments, decrees, injunctions, writs and orders of any court, arbitrator or governmental agency or authority, rules, notifications, guidelines, circulars, orders and interpretations of any Government orders, court or statutory or other body having jurisdiction over the performance of the Scope of Work including applicable permits, as may be in effect at the time of performance of the Scope of Work, provided, however, that if at any time the Applicable Laws are less stringent than the standards set forth in the Work Order hereto, the standard set forth in this Work Order hereto, shall be deemed to be the standards under Applicable Laws
Authorized Signatory	:	shall mean the authorized signatory of the Bidder as per the power of attorney and Board Resolution issued by the Bidder
AY	:	shall mean Assessment Year
BDS	:	shall mean Bid Data Sheet
Beneficiary	:	shall mean Individual or Community selected by the OREDA for implementation of project
Bid	:	shall have the meaning ascribed to it in ITB Clause 1.3.3.1
BIS	:	shall mean Bureau of Indian Standards
CC	:	shall mean Commissioning Certificate
Clarification	:	shall have the meaning ascribed to it in ITB Clause 1.2.3
CMC	:	shall mean Comprehensive Maintenance Contract
CMC Coverage	:	shall mean comprehensive maintenance for a period of 5 years from the date of commissioning
CMC Manager	:	shall have the meaning ascribed to it in GCC Clause 5.4.1.2
CMC Period	:	shall mean period of 5 years from the date of signing of acceptance certificate, during this period, Successful Bidder shall be responsible for undertake Scheduled Maintenance, Corrective Maintenance, and Breakdown Maintenance of the Project.

Definitions and abbreviation	:	Description
Coercive Practice	:	shall have the meaning ascribed to it in ITB Clause 1.1.2
Collusive Practice	:	shall have the meaning ascribed to it in ITB Clause 1.1.2
Commissioning Report	:	shall have the meaning ascribed to it in Appendix Clause 7.5.3
Commissioning	:	shall have the meaning ascribed to it in SOW Clause 3.2.1.4
Construction Manager	:	shall have the meaning ascribed to it in GCC Clause 5.4.1.2
Corrigendum	:	shall have the meaning ascribed to it in ITB Clause 1.2.3.2
Corrupt Practice	:	shall have the meaning ascribed to it in ITB Clause 1.1.2
CPSU	:	shall mean Central Public Sector Undertaking
CRC	:	shall mean Customer Relationship Centre
Day	:	shall mean the calendar day
DC	:	shall mean Direct Current
DCB	:	shall mean Domestic Competitive Bidding
Defect Liability	:	shall have the meaning ascribed to it in GCC Clause 5.5.3
Defect Liability Period	:	shall have the meaning ascribed to it in GCC Clause 5.5.3
Delay Liquidated Damage	:	shall have the meaning ascribed to it in GCC Clause 5.5.1
Department	:	shall mean the user department for which the Project will be developed
Detailed Workplan	:	shall have the meaning ascribed to it in GCC Clause 5.4.2.2
DSC	:	shall mean Digital Signature Certificate
Effective Date	:	shall mean the date of issuance of the Work Order
Empanelment Order	:	shall have the meaning ascribed to it in ITB Clause 1.6.2
EPC	:	shall mean Engineering, procurement, and construction
E-procurement Service Provider		shall mean M/s. Tender Wizard
E-procurement Website	:	shall mean www.tenderwizard.com/OREDA
Equipment	:	shall have the meaning ascribed to it in SOW Clause 3.2.1.2
Estimated Cost	:	shall mean the estimated cost by OREDA and shall have the meaning ascribed to it in ITB Clause 2.1.3
FDR	:	shall mean Fixed Deposit Receipt
FOR	:	shall mean Freight on Road
Fraudulent Practice	:	shall have the meaning ascribed to it in ITB Clause 1.1.2
HRS	:	shall mean Hours
FY	:	shall mean Financial Year
GCC	:	shall mean General Conditions of Contract
GOI	:	shall mean Government of India
Government	:	shall mean Government of India or any State Government, as applicable, which includes government agencies and public sector undertakings
GPRS	:	shall mean General Packet Radio Service
GPS	:	shall mean Global Positioning System
GSM	:	shall mean Global System for Mobile Communications
GST	:	shall mean Goods and Services Tax
IEC	:	shall mean International Electrotechnical Commission
IFSC	:	shall mean Indian Financial System Code
IGBT	:	shall mean Insulated Gate Bipolar Transistor
Incoterms	:	Incoterms means international rules for interpreting trade terms published by the International Chamber of Commerce (latest edition), 38 Cours Albert 1er, 75008 Paris, France.
INR	:	shall mean Indian Rupees
Integrity Violation	:	shall have the meaning ascribed to it in ITB Clause 1.1.2
ISO	:	shall mean International Organization for Standardization
ITB	:	shall mean Instructions to Bidders
JCC	:	shall mean Joint Commissioning Certificate
KSEDC	:	shall mean Karnataka State Electronics Development Corporation
kWp	:	shall mean kilo-Watt peak
LOI	:	shall mean Letter of Intent
MCCB	:	shall mean Molded Case Circuit Breakers
MNRE	:	shall mean Ministry of New and Renewable Energy

Definitions and abbreviation	:	Description
MOA	:	shall mean Memorandum of Association
Month	:	shall mean a calendar month
MOSFET	:	shall mean Metal Oxide Semiconductor Field Effect Transistor
MPPT	:	shall mean Maximum power point tracking
MSME	:	shall mean Micro, Small & Medium Enterprises
NABL	:	shall mean National Accreditation Board for Testing and Calibration Laboratories
NIT	:	shall mean Notice Inviting Tender
ReSolve Mobile App	:	shall mean mobile app platform developed by OREDA for RE asset identification and maintenance
Obstructive Practice	:	shall have the meaning ascribed to it in ITB Clause 1.1.2
OEM	:	shall mean Original Equipment Manufacturer
OREDA	:	shall mean Odisha Renewable Energy Development Agency
OREDA Website	:	shall mean http://oredaodisha.com/
OREDA's Office Address	:	shall mean S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.
OREDA's Official Email Id	:	shall mean ceoreda@oredaorissa.com
PAN	:	shall mean Permanent Account Number
PKI	:	shall mean Public Key Infrastructure
Project	:	shall mean implementation of 0.5 Hp off-grid solar pv based micro pumping system. as specified in the work order issued by OREDA
Project Manager	:	shall have the meaning ascribed to it in GCC Clause 5.4.1.2
PSU	:	shall mean Public Sector Undertaking
Prudent Utility Practices	:	shall mean those practices, methods, acts, equipment specifications, techniques and standards of safety and performance, as may be followed or employed in the performance of the Scope of Work and discharge of the obligations of the Successful Bidder and which (a) are generally accepted internationally for use in the solar power generation industry, taking into account conditions in India and specific to India/ Odisha (as applicable), and includes the exercise of that degree of professional skill, diligence and judgment that would ordinarily be expected from a skilled and experienced Successful Bidder in connection with power stations of the same or similar size and type as the project, (b) are commonly used in prudent electric utility engineering, project management and operations, and (c) would be expected to result in performance of the Scope of Work in a manner consistent with Applicable Laws, reliability, health and safety of workers and community, environmental protection, economy and expediency;
PV	:	shall mean Photo Voltaic
PVC	:	shall mean Polyvinyl chloride
QR	:	shall mean Qualification Requirement
Qualified Bidder (s)	:	shall mean the Qualified Bidder who is meeting Qualification Requirement
Quoted Price	:	shall mean the price quoted by a Bidder in its Price Bid
RCC	:	shall mean Reinforced cement concrete
RFID	:	shall mean Radio Frequency Identification
RFE	:	shall mean Request for Empanelment
RMS	:	shall mean Root Mean Square
SCC	:	shall mean Special Conditions of Contract
Schedule of Events	:	shall have the meaning ascribed to it in the NIT
SMS	:	shall mean short message service
SOW	:	shall mean the Scope of Work
SPV	:	shall mean Solar Photovoltaics
Successful Bidder	:	shall mean the Successful Bidder who is notified in the Empanelment Order and to whom Letter of Intent and Work Order will be issued by the OREDA
Tax	:	shall mean all taxes and duties pursuant to any Applicable Laws (whether currently in force or coming into force on or after the last date

Definitions and abbreviation	:	Description
		for submission of online Bid), including, all goods and services tax, tax on the sale of goods (which includes but is not limited to customs duty, anti-dumping duty, basic customs duty, safeguard duty and import duties), duties, but not including income tax, corporation profits tax, capital gains tax and other amounts corresponding thereto and interest, penalty or any other levy applicable on the income, profits, fringe benefits, personal taxes on salaries earned by employees and further includes any interest, surcharge, penalty or fine in connection therewith which may be payable by either Party on such transaction, property, matter mentioned above;
TDS	:	shall mean Tax Deduction at Source
Technical Specification	:	shall have the meaning ascribed to it in Appendix Form 1 under Annexure Clause 7.5.1
Total Price	:	shall mean the final price considered in the Work Order
UTR	:	shall mean Unique Transaction Reference number
Work Order	:	shall have the meaning ascribed to it in ITB Clause 1.8.1
Year	:	shall mean the calendar year

Interpretation

In the Bidding Document and Work Order, except where the context requires otherwise:

- I. words indicating one gender include all genders;
- II. words indicating the singular also include the plural and words indicating the plural also include the singular;
- III. provisions including the word “agree”, “agreed” or “agreement” require the agreement to be recorded in writing;
- IV. “written” or “in writing” means hand-written, type-written, printed, or electronically made, and resulting in a permanent record; and
- V. The marginal words and other headings shall not be taken into consideration in the interpretation of these conditions.
- VI. An applicable law shall be construed as reference to such applicable law including its amendments or re-enactments from time to time.
- VII. A time of day shall save as otherwise provided in any agreement or document be construed as a reference to Indian Standard Time.
- VIII. Different parts of this contract are to be taken as mutually explanatory and supplementary to each other and if there is any differentiation between or among the parts of this contract, they shall be interpreted in a harmonious manner so as to give effect to each part.
- IX. The table of contents and any headings or sub-headings in the contract has been inserted for case of reference only & shall not affect the interpretation of this agreement

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1. Instruction to Bidders (ITB)

Section 1 (ITB) provides general overview and contents of RFE along with the preparation, submission, opening, evaluation, comparison of Bids, issuance of Letter of Intent and Work Order, etc. Section 1 (ITB) shall be read in conjunction with Section 2 (BDS) and other provisions listed therein, shall be a complete document expressing all terms and conditions. In case of any interpretation issues, Section 2 (BDS) including any associated Addendum, Corrigendum and Clarification will supersede Section 1 (ITB).

1.1. General

1.1.1. Scope of RFE

- 1.1.1.1. In connection with the NIT, OREDA issues this RFE containing all the terms and conditions mentioned herein.
- 1.1.1.2. The RFE along with the NIT and any Addendum, Corrigendum, and Clarification, to be issued from time to time, shall be collectively termed as the Bidding Document. Such a Bidding Document shall be published on the E-procurement Website. In addition, such a Bidding Document shall also be uploaded on OREDA Website, but for viewing purposes only.
- 1.1.1.3. The name of the SOW including the associated NIT no., RFE no. and other details are specified in Section 2 (BDS).

1.1.2. Integrity Violation

- 1.1.2.1. The Bidder observes the highest standard of ethics all the time.
- 1.1.2.2. OREDA defines, for the purposes of this provision, the terms set forth below as follows:

“Corrupt Practice” means the offering, giving, receiving or soliciting, directly or indirectly, anything of value to influence improperly the actions of another Party;

“Fraudulent Practice” means any act or omission including a misrepresentation that knowingly or recklessly misleads or attempts to mislead a Party to obtain a financial or other benefit or to avoid an obligation;

“Coercive Practice” means impairing or harming or threatening to impair or harm, directly or indirectly, any Party or the property of a Party to influence improperly the actions of the other Party;

“Collusive Practice” means an arrangement between two or more Parties designed to achieve an improper purpose, including influencing improperly the actions of other Party;

“Obstructive Practice” means

- i. deliberately destroying, falsifying, altering, or concealing of evidence material to OREDA’s investigation;
- ii. making false statements to investigators in order to materially impede OREDA’s investigation;
- iii. failing to comply with requests to provide information, documents or records in connection with OREDA’s investigation;
- iv. threatening, harassing, or intimidating any Party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or
- v. materially impeding OREDA’s contractual rights of audit or access to information;

“Integrity Violation” is an act which violates OREDA’s policies, including (a) to (e) given above in the ITB Clause 1.1.2.2 and the following abuse, conflict of interest, retaliation against whistleblowers or witnesses, and other violations of OREDA’s policies, including failure to adhere to the highest ethical standard.

- 1.1.2.3. OREDA will reject a Bid if it determines that the Bidder has, directly or indirectly through an agent, engaged in Integrity Violation including but limited to any Corrupt Practice, Fraudulent Practice, Coercive Practice, Collusive Practice and Obstructive Practice;

- 1.1.2.4. OREDA will impose remedial actions on any Bidder or an individual, at any time, in accordance with its policies and guidelines (both as amended from time to time), including declaring ineligible, either indefinitely or for a stated period of time, to participate in OREDA-managed, -administered, or -supported activities or to benefit from an OREDA-managed, -administered, or -supported, financially or otherwise, if it at any time determines that the Bidder or individual has, directly or through an agent, engaged in Corrupt Practice, Fraudulent Practice, Coercive Practice, Collusive Practice, Obstructive Practice or Integrity Violation; and
- 1.1.2.5. OREDA will have the right to inspect the accounts, records, other documents, etc. of the Bidders and relating to the Bid submission and to have them audited at any point in time.

1.2. Contents of the RFE

1.2.1. Sections of the RFE

- 1.2.1.1. The RFE consists of the following Sections as indicated below and should be read in conjunction with the NIT and any Addendum, Corrigendum and Clarification.

- i Exhibits
 - i. Definitions
 - ii. Interpretations

Section 1 – Instructions to Bidders (ITB)

Section 2 – Bid Data Sheet (BDS)

Section 3 –Scope of Work (SOW)

Section 4 –Qualification Requirement (QR)

Section 5 – General Conditions of Contract (GCC)

Section 6 – Special Conditions of Contract (SCC)

Section 7 – Annexure

- 1.2.1.2. OREDA is not responsible for the completeness of the Bidding Document if they were not obtained directly from E-procurement Website.

- 1.2.1.3. The Bidder is expected to examine the complete Bidding Document. Failure to furnish all information or documentation required by the Bidding Document may result in the rejection of the Bid.

1.2.2. Clarification on RFE, Site Visit and Pre-Bid Meeting

- 1.2.2.1. A prospective Bidder requiring any clarification on the RFE shall contact at OREDA's Office Address or write to OREDA's Official Email Id, prior to the pre-bid meeting, in accordance with ITB Clause 1.2.2.2. The queries shall be raised as per the format provided in Annexure Clause 1.1.

- 1.2.2.2. The pre-bid meeting shall be conducted in the manner specified in Section 2 (BDS). The Bidder's designated representative may attend the pre-bid meeting. The purpose of the pre-bid meeting will be to clarify issues and to prepare Clarification against the queries received from the Bidders on any matter that may be raised at that stage. OREDA may respond to any query for providing Clarification in writing, provided that such queries are received as per the timelines given in the NIT and any Corrigendum.

- 1.2.2.3. The Clarification against the queries raised, without identifying the source of the prospective Bidder, may be uploaded on the E-procurement Website and OREDA Website. Any modification to the RFE shall be made by OREDA exclusively through the issue of an Addendum.

- 1.2.2.4. Non-attendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.

1.2.2.5. The Bidder and any of its personnel and/ or agents will be granted permission by OREDA to enter the Project site for the purpose of such visit, but only upon the express condition that the Bidder, its personnel and/ or agents will release and indemnify OREDA and its personnel, agents, etc. from and against any liability in respect thereof, and the Bidder shall be responsible for any death or personal injury, loss of or damage to property, and any other loss, damage, costs, expenses, etc. incurred as a result of the inspection during the Project site visit.

1.2.3. Addendum, Corrigendum, and Clarification to the RFE

1.2.3.1. At any time, prior to the deadline for submission of Bids, OREDA may issue an Addendum, Corrigendum and Clarification.

1.2.3.2. OREDA may, at its discretion, extend the deadline for the submission of Bids by issuing a Corrigendum in order to give prospective Bidders reasonable time in preparing their Bids. At any point in time, the latest Corrigendum will supersede the Schedule of Events mentioned in the NIT or any previously issued Corrigendum.

1.2.3.3. OREDA may, at its discretion, modify or change any specific provisions of terms and conditions of the RFE or any Addendum issued previously by issuing an Addendum for such specific provisions. At any point in time, the provisions provided against a specific Clause in the latest Addendum shall supersede such provisions already provided in the RFE or any previously issued Addendum.

1.3. Preparation of Bids

1.3.1. Cost for preparation of Bid

1.3.1.1. The Bidder shall bear all the costs associated with the preparation and submission of the Bid, and OREDA shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

1.3.2. Language of Bid

1.3.2.1. The Bid, as well as all correspondence and documents for any communications exchanged by the Bidder and OREDA, shall be written in the English language only.

1.3.2.2. Any supporting documents and printed literature that are part of the Bid may be submitted in another language provided they are accompanied by an accurate translation of the relevant passages in the English language only, in which case, for purposes of interpretation of the Bid, such English translation shall govern. In case of any misrepresentations in the English language vis-à-vis another language, OREDA, at its discretion, can reject the Bid submitted by the Bidder on the ground of misrepresentation of the information.

1.3.3. Documents comprising the Bid

1.3.3.1. The Bid shall comprise of the Technical Bid and Price Bid. The Technical Bid and Price Bid shall be submitted online pursuant to ITB Clause 1.3.3.2 and ITB Clause 0 respectively, as per all the terms and conditions of the Bidding Document. In addition, the select original hard copies of the Bid shall be submitted pursuant to ITB Clause 1.3.3.4 at OREDA’s Office Address.

1.3.3.2. The online submission of the Technical Bid shall comprise the following:

Bid Form	Particulars
Bid Form 1 (Covering Letter of Technical Bid)	Copy of the “ Covering Letter of Technical Bid ” duly signed by the Authorized Signatory and stamped by the Bidder to unconditionally accept all terms of the Bidding Document. This is a mandatory submission for all the Bidders and shall be submitted as per the requirements given in Bid Form 1 of Section 7 (Annexure).
Bid Form 2 (Summary of the Technical Bid)	Copy of the “ Summary of the Technical Bid ” duly signed by the Authorized Signatory and stamped by the Bidder along with the required attachments as given therein. This is a mandatory submission for all the Bidders and shall be

Bid Form	Particulars
	submitted as per the requirements given in Bid Form 2 of Section 7 (Annexure).
Bid Form 3 (Power of Attorney)	<p>Copy of the “Power of Attorney” issued in the name of the Authorized Signatory of the Bidder supported by the required Board Resolution for submitting the Bid on behalf of the Bidder.</p> <p>This is a mandatory submission for all the Bidders and shall be submitted as per the requirements given in Bid Form 3 of Section 7 (Annexure).</p>
Bid Form 4 (Technical Qualification)	<p>Copy of the “Technical Qualification” certificate duly signed by the Authorized Signatory and stamped by the Bidder citing the Bidder’s technical qualification as given in QR Clause 4.3.</p> <p>This is a mandatory submission for the Bidder participating as a Developer only and shall be submitted as per the requirements given in Bid Form 4 of Section 7 (Annexure).</p>
Bid Form 5 (Financial Qualification)	<p>Copy of the “Financial Qualification” certificate duly signed and stamped by a chartered accountant citing the Bidder’s financial qualification as given in QR Clause 0.</p> <p>This is a mandatory submission for the Bidder participating as a Developer only and shall be submitted as per the requirements given in Bid Form 5 of Section 7 (Annexure).</p>
Bid Form 6 (Test Certificates)	<p>Copy of the declaration for the “Test Certificate” for the Equipment as mentioned in QR Clause 4.2.1.</p> <p>This is a mandatory submission for all the Bidders and shall be submitted as per the requirements given in Bid Form 6 of Section 7 (Annexure).</p>
Bid Form 7 (Self-certificate)	<p>Copy of the declaration of the “Self-certificate” duly signed by the Authorized Signatory and stamped by the Bidder and notarized by the appropriate authority to declare that it has not been debarred/ blacklisted/ defaulted by any Government, agency, Public Sector Undertaking (PSU), institution/ autonomous organizations in the past. In case of any such events, the Bidder shall provide the case details and its current status in the format therein as given in QR Clause 4.1.3.</p> <p>This is a mandatory submission for all the Bidders and shall be submitted as per the requirements given in Bid Form 7 of Section 7 (Annexure).</p>
Bid Form 8 (Undertaking for Indigenoussness)	<p>Copy of the “Undertaking for Indigenoussness” certificate duly signed by the Authorized Signatory and stamped by the Bidder to showcase the use all the Equipment in this Project are indigenous and Made in India, as per the relevant guidelines of the Ministry of New and Renewable Energy (MNRE), Government of India.</p> <p>This is a mandatory submission for all the Bidders and shall be submitted as per the requirements given in Bid Form 8 of Section 7 (Annexure).</p>
Bid Form 9 (No Deviation Certificate)	<p>Copy of the “No Deviation Certificate” duly signed by the Authorized Signatory and stamped by the Bidder stating that the Bidder has not taken any deviation in the Bidding Document.</p> <p>This is a mandatory submission for all the Bidders and shall be submitted as per the requirements given in Bid Form 9 of Section 7 (Annexure).</p>

1.3.3.3. The online submission of the Price Bid shall comprise the following:

Bid Form	Particulars
Bid Form 10 (Covering Letter of Price Bid)	Copy of the “ Covering Letter of Price Bid ” duly signed by the Authorized Signatory and stamped by the Bidder to unconditionally accept all terms of the Bidding Document. This is a mandatory submission and shall be submitted as per the requirements given in Bid Form 10 of Section 7 (Annexure).
Bid Form 11 (Price Bid– Category A Bidder)	Copy of the “ Price Bid ” duly signed by the Authorized Signatory and stamped by the Bidder mentioning the Quoted Price for the Bid. This is a mandatory submission and shall be submitted in Microsoft xls. or .xlsx format only as per the sample requirements given in Bid Form 11 of Section 7 (Annexure).
Bid Form 12 (Price Bid – Category B Bidder)	Copy of the “ Price Bid ” duly signed by the Authorized Signatory and stamped by the Bidder declaring the acceptance to the lowest evaluated price at the L1 price as discovered during the bidding process. This is a mandatory submission and shall be submitted in Microsoft xls. or .xlsx format only as per the requirements given in Bid Form 12 of Section 7 (Annexure).

1.3.3.4. The original hardcopy of the Bid shall be submitted in sealed cover envelope comprise the following:

Bid Form	Particulars
Bid Form 2 (Summary of the Technical Bid)	<p>Cost of Bid:</p> <p>Original of the “Demand Draft” for an amount and other details as mentioned in Section 2 (BDS) issued by a nationalized/ commercial bank in India towards “Cost of Bid” issued in favour of Chief Executive, OREDA payable at Bhubaneswar, Odisha.</p> <p>This shall be a non-refundable fee.</p> <p>This shall be payable by all the Bidders, subject to any exemption as provided in Section 2 (BDS). In case of an exempt as admissible, the copy of the proof of exemption issued by an appropriate Government authority (as applicable) shall be submitted.</p> <p>This is a mandatory submission and shall be submitted as per the requirements given in Bid Form 2 of Section 7 (Annexure).</p> <p>Bid Security:</p> <p>Bid Security Declaration Form shall be submitted as per Bid Form 2.</p> <p>This is a mandatory submission and shall be submitted as per the requirements given in Bid Form 2 of Section 7 (Annexure).</p>
	<p>The bidder must mention the following on top of the envelope while submitted its bid in hardcopy</p> <p>Bid proposal against “Request for Empanelment (RFE) for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of Roof top solar projects (Off grid/Ongrid without battery/On grid with battery) across Odisha on a rate contract basis”</p> <p>Last date of bid submission: [dd mmm yyyy]</p> <p>To, The Chief Engineer,</p>

Bid Form	Particulars
	Odisha Renewable Energy Development Agency (OREDA) Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha. From, [Bidder's name and address]

1.3.3.5. For online submission of the Technical Bid and Price Bid, the Bidder shall submit each Bid Form as a separate copy and name the Bid Form as given under the column “Bid Form” given in ITB Clause 1.3.3.2 and ITB Clause 1.3.3.3. **For example, the name of the online copy while uploading Form 1 shall be “Bid Form 1 (Covering Letter of Technical Bid)”** to be submitted either in .pdf or .jpg or .jpeg format.

1.3.3.6. The Bid Forms must be submitted without any alterations to the text, and no substitutes shall be accepted in whatsoever condition, else the Bids shall be liable for rejection.

1.3.3.7. In case a submission is a mandatory submission as per all terms of the Bidding Document then the Bidder shall adhere to the same, else the Bids shall be liable for rejection.

1.3.4. Bid Prices

1.3.4.1. The Bidder shall fill in the Price Bid in line with the instructions mentioned in the Price Bid format as given under Bid Form 11 and Bid Form 12.

1.3.4.2. The Bid prices in the Price Bid shall be made at FOR destination at Project site basis, which means that the Bidder shall be responsible for bringing all Equipment to be used in this Project and maintain it in their safe custody until the Acceptance of the Project is completed with the issuance of Acceptance Certificate and beyond that during the CMC Period as per the terms and conditions of the RFE.

1.3.5. Currencies of Bid and Payment

1.3.5.1. The Price Bid shall be quoted by the Bidder entirely in the currency “Indian Rupees” or “INR”.

1.3.6. Period of Validity of Bids

1.3.6.1. Bids shall remain valid for the time period as specified in Section 2 (BDS) after the last date of Bid submission as prescribed in the NIT or its subsequent Corrigendum. A Bid valid for a shorter period than the above shall be liable for rejection by OREDA.

1.3.6.2. In exceptional circumstances, prior to the expiration of the Bid validity period, OREDA may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. If a Bid Security is requested in accordance with ITB 1.3.7, it shall also be extended suitably beyond the deadline of the extended validity period on a mutual basis beyond the initial validity period. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder granting the request shall not be required or permitted to modify its Bid.

1.3.7. Bid Security

1.3.7.1. The Bidder shall furnish Bid Security as per the Bid Form 2 pursuant to ITB Clause 1.3.3.2.

1.3.7.2. Unless otherwise specified in Section 2 (BDS), any Bid not accompanied by a fully compliant Bid Security in case one is required in accordance with ITB Clause 1.3.7.1, shall be liable for rejection by OREDA as non-responsive Bid.

1.3.7.3. If a Bid Security is specified pursuant to ITB Clause 1.3.7.1, the Bid Security of unsuccessful Bidders shall be returned within a maximum time period of thirty (30) Days upon the Qualified Bidder accepting the Letter of Intent (LOI) with required formalities.

1.3.7.4. If a Bid Security is specified pursuant to ITB Clause 1.3.7.1, the Bid Security of the Qualified Bidder shall be returned within a maximum time period of thirty (30) Days after completion of empanelment period with required formalities.

1.3.7.5. The Bid Security received against the previous RFEs shall not be adjusted towards the Bid Security to be submitted against this RFE.

1.3.7.6. The Bid Security shall be forfeited,

if a Bidder withdraws its Bid during the period of Bid validity specified by the Bidder on the respective Covering Letters of Technical Bid and Price Bid; or

if the Bidder accepting L1 price (LOI for empanelment) fails to

- i. accept the arithmetical correction of its Price Bid pursuant to ITB Clause 1.5.6; or
- ii. furnish the Performance Security pursuant to ITB Clause 1.8.2 ; or
- iii. accept the Letter of Award (LOA) pursuant to ITB Clause 1.8.2

1.3.8. Format and Signing of Bid

1.3.8.1. The Bid Form as given in ITB Clause 1.3.3 or any electronic form, if any and as available on the E-procurement Website, or any external form in Microsoft .xls or .xlsx format for the Technical Bid and the Price Bid shall be duly filled and scanned copies or Microsoft .xls or .xlsx or electronic form as available on the E-procurement Website shall be duly uploaded as per the instructions mentioned in ITB Clause 1.4.1.1, unless a specific instruction provided therein in the RFE Document.

1.3.8.2. The original documents of the Bid shall be typed or written in indelible ink and shall be signed by the Authorized Signatory supported by the seal of the Bidder. In case the original documents are issued by any third party (for example - the chartered accountant, etc.) then the same shall be signed by a person duly authorized to sign on behalf of the third party supported by the seal of the third party along with other details as required.

1.3.8.3. The name and position held by each person signing or accepting the authorization must be typed or printed below the signature.

1.3.8.4. Any amendments such as interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Bid.

1.4. Submission and Opening of Bids

1.4.1. Sealing and Marking of Bids

1.4.1.1. The Technical Bid and Price Bid shall be submitted as per the procedures mentioned in Section 2 (BDS).

1.4.2. Deadline for submission of Bids

1.4.2.1. The Bids must be submitted to OREDA through E-procurement Website only and no later than the date and time indicated in the NIT or any Corrigendum.

1.4.2.2. OREDA may, at its discretion, extend the deadline for the submission of Bids through the publication of a Corrigendum in accordance with ITB Clause 1.2.3.2, in which case all rights and obligations of OREDA and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

1.4.3. Late Bids

1.4.3.1. OREDA shall not consider any Bid that arrives after the deadline for submission of Bids, in accordance with ITB Clause 1.4.2. Any Bid (either online or offline) received by OREDA after the deadline for submission of Bids shall be declared as a late Bid. Such late Bids shall be liable for rejection online, and the online copy of the Bid uploaded on the E-procurement Website shall be sent unopened to "Archive" and shall not be considered at all any further for evaluation. In such a case, the hardcopies in the original form shall be returned unopened to the Bidder.

1.4.4. Withdrawal, Substitution, and Modification of Bids

1.4.4.1. A Bidder may withdraw, substitute, or modify its Technical Bid or Price Bid after it has been submitted as per the procedure mentioned in the E-procurement Website and as per the instructions mentioned in ITB Clause 1.4.1.1.

- 1.4.4.2. No Bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of Bids and the expiration of Bid validity period specified by the Bidder on the Covering Letters of Technical Bid and Price Bid or any extension thereof as per the terms of Bidding Document.
- 1.4.4.3. Bidder may modify or withdraw their Bids through the relevant provisions on the E-procurement Website until the last date for submission of Bid as per the timelines mentioned in the NIT or any Corrigendum.
- 1.4.4.4. The Bidders may modify, resubmit, or withdraw their Bids as per the provisions given on the E-procurement Website.
- 1.4.4.5. In the case of original hard copies of the Bidder, such Bids will be considered based on the latest submission made by the Bidder. In such a case, any previous original hard copies shall be returned unopened to the Bidder.

1.4.5. Acceptance/ rejection of the Bids

- 1.4.5.1. The Bids submitted by the Bidders shall be liable for rejection in case
- a) Any incomplete or non-submission of any mandatory Bid Form or document mentioned under online submission of Technical Bid pursuant to ITB Clause 1.3.3.2.
 - b) Any incomplete or non-submission of any mandatory Bid Form or document mentioned under the online submission of Price Bid pursuant to ITB Clause 1.3.3.3.
 - c) Any incomplete or non-submission of any mandatory Bid Form or document mentioned under hardcopy submission of Bid pursuant to ITB Clause 1.3.3.4
 - d) Late Bids received as per ITB Clause 1.4.3.
 - e) Canvassing in any manner shall not be entertained and will be viewed seriously and shall be liable for rejection.
 - f) The Bids are found non-responsive pursuant to all the relevant clauses in the Bidding Document.

1.4.6. Bid Opening

1.4.6.1. Technical Bid (Online and hardcopies)

- a) Online Technical Bid:
 - i. OREDA shall open the online Technical Bids on the E-procurement Website as per the timelines mentioned in the NIT or any Corrigendum.
- b) Hardcopies of Technical Bid:
 - i. OREDA shall open the hardcopies of the Technical Bids at OREDA's Office Address as per the timelines mentioned in the NIT or any Corrigendum. Such Technical Bid shall be opened in the presence of Bidders' designated representatives who chooses to attend. In such cases, the Bidder's designated representative must carry a letter of authorization issued by the Bidder's Authorized Signatory.
 - ii. The Bidders' representatives who are present during the opening of hardcopies of the Technical Bids may be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record.
- c) OREDA shall prepare a record of the opening of Technical Bids as per the internal guidelines notified from time to time.

1.4.6.2. Price Bid (online):

- i OREDA shall conduct the opening of the Price Bids for all Bidders who are responsive in their Technical Bids after the evaluation being conducted by OREDA pursuant to ITB Clause 1.5.

The Price Bids shall be opened online after the complete evaluation of the Technical Bids by OREDA. OREDA shall open the online Price Bids on the E-procurement Website as per the timelines mentioned in the NIT or any Corrigendum.

1.5. Evaluation and Comparison of Bids

1.5.1. Confidentiality

- 1.5.1.1. Information relating to the examination, evaluation, comparison, and post qualification of Bids and recommendation for the issue of Work Order, shall not be disclosed to Bidders or any other persons not officially concerned with such process until information on the issuance of Work Order is communicated to all Bidders, unless it is specifically required by OREDA to do such disclosure as per the specific requirements.
- 1.5.1.2. Any attempt by a Bidder to influence OREDA's decision in the evaluation of the Bids or issuance of Work Order may result in the rejection of its Bid.
- 1.5.1.3. Notwithstanding ITB Clause 1.5.1.2, from the time of Bid opening to the time of issuance of Work Order, if any Bidder wishes to contact OREDA on any matter related to the bidding process, it may do so in writing only.

1.5.2. Clarification of Bids

- 1.5.2.1. To assist in the examination, evaluation, and comparison of the Technical Bid and Price Bid, OREDA may, at its discretion, ask any Bidder for a clarification of its Bid. OREDA's request for clarification and the response shall be in writing only. No change in the substance of the Technical Bid or prices in the Price Bid shall be sought, offered, or permitted. OREDA reserves all the rights to evaluate any such response received from the Bidder based on the clarification to be sought.
- 1.5.2.2. If a Bidder does not provide clarification of its Bid by the date and time set in OREDA's request for clarification, such Bid shall be liable for rejection.

1.5.3. Examination of Technical Bids

- 1.5.3.1. OREDA shall examine the Technical Bid to confirm that all documents and information requested in ITB Clause 1.3.3.2 for online submission and ITB Clause 1.3.3.4 for hardcopy submission have been provided in order to assess the completeness of the Technical Bid.
- 1.5.3.2. OREDA shall confirm that all the requirements have been provided in the Technical Bid in all respect. If any of the documents or information is missing, the Bid shall be liable for rejection.

1.5.4. Responsiveness of Technical Bid

- 1.5.4.1. OREDA's determination of a Technical Bid's responsiveness shall be strictly based on the contents of the Technical Bid, as mentioned in ITB Clause 1.3.3.2 and ITB Clause 1.3.3.4.
- 1.5.4.2. If a Bid is not responsive to the requirements of the RFE, it shall be liable for rejection by OREDA and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

1.5.5. Qualification of the Bidder

- 1.5.5.1. OREDA shall determine to its satisfaction during the evaluation of Technical Bids whether Bidders meet the qualifying requirements specified in Section 4 (QR).
- 1.5.5.2. The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB Clause 1.3.3.
- 1.5.5.3. An affirmative determination shall be a pre-requisite for the opening and evaluation of a Bidder's Price Bid. A negative determination shall result in the disqualification of the Bid.

1.5.6. Correction of Arithmetical Errors

1.5.6.1. During the evaluation of Price Bids, OREDA shall correct arithmetical errors on the following basis:

If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected.

If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail, and the total shall be corrected.

If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to a) and b) above.

1.5.6.2. If the Bidder that submitted the lowest evaluated (L1) Bid does not accept the correction of errors, its Bid shall be disqualified, and its Bid Security shall be forfeited.

1.5.7. Evaluation and comparison of Bids

1.5.7.1. OREDA shall compare all responsive Bids to determine the lowest evaluated Bid, in accordance with ITB Clause 1.5.6.2.

1.5.8. OREDA's right to accept any Bid, and to reject any or all Bids

1.5.8.1. OREDA reserves all the right to accept or reject any Bid or to annul the bidding process or reject all Bids at any time prior to the issue of Work Order, without thereby incurring any liability to Bidders. In case of annulment, the Bids shall be liable for rejection online and the online copy of the Bid uploaded on the E-procurement Website shall be sent unopened to "Archive" and shall not be considered at all any further for evaluation. In such a case, the hard copies in the original form shall be returned unopened to the Bidder.

1.6. Issue of LOI for empanelment

1.6.1. Award Criteria

1.6.1.1. The various categories of the Bidders considered in this Bidding Document are mentioned in Section 2 (BDS).

1.6.1.2. The Successful Bidders for empanelment shall be selected as per the procedures mentioned in Section 2 (BDS).

1.6.2. Issue of LOI

1.6.2.1. Prior to the expiry of the period of Bid validity, OREDA shall notify the Qualified Bidder(s), in writing, that its Technical Bid has been accepted. At the same time, OREDA may also notify all other Bidders of the results of the bidding. In addition, OREDA may publish the results on the OREDA Website and E-procurement Website.

1.6.2.2. OREDA shall issue a LOI, as per LOI Form 1 under Section 7 (Annexure), to the Qualified Bidder(s) and is responsive to the Bidding Document, provided further that the Bidders are determined to be qualified for the issuance of LOI satisfactorily.

1.6.2.3. Upon receiving the LOI, the Qualified Bidders shall fulfill all other requirements given under the LOI and submit the below mentioned critical documents within a maximum time period of fifteen (15) Days from the date of LOI and provide its acceptance, without any fail, else such Bids shall be liable for rejection.

Sl. No	Critical documents
1.	Acceptance to the LOI by signing the copy of the LOI along with an official seal, date, and submission to OREDA
2.	Valid Test Certificates along with datasheets of all Equipment used in the Project, as per Bid Form 6 of Section 7 (Annexure).
3.	ISO Certificates (ISO 9001, ISO 14001 as required in 4.2.2
4.	Contact information of various OEMs of all Equipment used in the Project

1.7. Empanelment Order

1.7.1. Issue of Empanelment Order

- 1.7.1.1. Failure of the Qualified Bidders to complete all the formalities mentioned in the LOI pursuant to ITB Clause 1.6.2 shall constitute sufficient grounds for the annulment of the LOI. In all cases, the Bid of the Qualified Bidder (s) as discovered through the process mentioned in BDS Clause 2.1.7 shall be responsive and is determined by OREDA to be qualified to complete the formalities satisfactorily. In case, any of the Bidder does not accept the LOI, then OREDA shall have the right to annul the bidding process, at its own discretion.
- 1.7.1.2. Upon completion of all the formalities mentioned in the LOI within the stipulated timeline by the Bidder(s), OREDA shall issue the Empanelment Order to the Qualified Bidder(s) within a maximum time period of fifteen (15) Days.
- 1.7.1.3. Empanelment Order issued to Qualified Bidder(s) accepting the LOI with required formalities shall be called as Successful Bidder(s).

1.7.2. Content of Empanelment Order

- 1.7.2.1. Empanelment of bidders shall be done for different types of Applications/ Project. It is mandatory for bidders to bid for all different capacities under particular type of application/project mentioned under the scope of work.
- 1.7.2.2. Empanelment Order will mention the name of empaneled Successful Bidder(s) & category of bidder. The Discovered Price shall remain valid until the expiry of the Empanelment Period.

1.8. Issue of LOA for Project

1.8.1. Issue of LOA

- 1.8.1.1. The successful bidders, shall be allocated work as per provision in BDS 2.1.8 clause

1.8.2. Letter of Award (LOA) for Project

- 1.8.2.1. Upon receiving the LOA, the Successful Bidder(s) shall submit the below mentioned critical documents within a maximum time period of fifteen (15) Days from the date of LOA, without any fail, else such Bids shall be liable for rejection.

Sl. No	Critical documents
1.	Acceptance to the LOA by signing the copy of the LOA along with an official seal, date, and submission to OREDA
2.	Submission of Performance Security as per BDS 2.1.9.
3.	Submission of a Detailed Workplan in line with the Project Timelines mentioned in the SOW Clause 3.4.1 for the implementation of Project.
4.	Submission of a site survey report with the finalization of the exact location of the Project and the plan for the finalization of loads for the purpose of implementation of the Project.
5.	Single line diagram of the Project.
6.	Design document of the module mounting structure and other mounting structure, of the Project along with a STAD pro analysis report as a part of the mandatory submission, if applicable.
7.	Bill of materials along with spares and all relevant equipment test certificates
8.	Proof of Local office (registered office address in Odisha)

2. Bid Data Sheet (BDS)

Section 2 (BDS) shall supplement the Clauses mentioned in Section 1 (ITB). Whenever there is a conflict or interpretation issue, the provisions herein shall prevail over those in Section 2 (BDS). The Clause number of Section 2 (BDS) is the corresponding Clause number of Section 1 (ITB).

2.1. Specific provisions of ITB

BDS Clause reference	ITB Clause reference	Detailed Clause
2.1.1.	ITB Clause 1.1.1.3	<p>Name of the Project:</p> <p>Package 1: Request for Empanelment (RFE) for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various on-grid (With /without battery backup) and Off grid roof top Solar PV, across Odisha on a rate contract basis.</p> <p>Package 2: Request for Empanelment (RFE) for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various Off-grid Solar PV based applications such as Solar Tree with streetlights, Solar tree with garden lights across Odisha on a rate contract basis.</p> <p>Package 3: Request for Empanelment (RFE) for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various Off-grid Solar PV based applications Solar Based Drinking Water Kiosks, across Odisha on a rate contract basis.</p> <p>Package 4: Request for Empanelment (RFE) for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various Off-grid Solar PV based applications such as Solar Street Lights, Solar Mini Mast, Solar High Mast, across Odisha on a rate contract basis.</p> <p>NIT no.: [3416] [07th] [November] 2023 RFE no.: [3416] [07th] [November] 2023</p>
2.1.2.	ITB Clause 1.2.2.2	The pre-bid meeting shall be conducted through an online pre-bid meeting.
2.1.3.	ITB Clause 1.3.3.2 and ITB Clause 1.3.3.4	<p>Package 1:</p> <p>The bidder has to quote the amount of work he will be able to and willing to undertake within a year. The minimum bidding capacity is 100 kW. The bidder has to submit the bid security as multiplier of 100 kW capacity. The maximum bidding capacity for a bidder will be limited as per the financial qualification criteria provided in section 4.4.</p> <p>The maximum bidding capacity can be calculated as per below formula</p> $\text{Maximum Bidding capacity} = \text{Networth of Company (in lakhs INR) in last FY} * \frac{100}{16}$

BDS Clause reference	ITB Clause reference	Detailed Clause		
		Bid Security per 100 kW (INR)	Cost of bid (INR)	Bid processing fee (INR)
		1,50,000/- + GST	10,500/-+ GST	2,000/- + GST
		Category A (Type of off grid Application)	Bid Security (INR)	Cost of Bid (INR)
		Package-2		Bid Processing Fee (INR)
		Solar Tree (1 kW) with 4 street light	400000/- + GST	10,500 + GST
		Solar Tree (2.5 kW) with 20 garden lights		
		Package-3		
		Solar based Drinking water kiosk	1000000/- + GST	10,500 + GST
		Package-4		
		Solar Mini Mast	700000/- + GST	10,500 + GST
		Solar High Mast		
		Solar Street Light		
		Category B	Nil	Nil
		<p>Category 'A' bidders can participate in single package or in multiple packages as per their choice.</p> <p>Category 'B' bidders can participate in all the packages.</p> <p>The Bid Processing Fee shall be made in favour of "KSEDC Limited" payable at "Bengaluru".</p> <p>In case of the Bid Security submitted is in the form of a Bank Guarantee, the expiry date, and claim date are as follows:</p> <ul style="list-style-type: none"> Expiry date: Three hundred and Sixty (360) Days from the original last date of submission of online Technical Bid Claim date: Twelve (12) Months from the date of expiry <p>E.g. For Package 1: The bidder has a net worth of 1 Cr. in last FY, and minimum requirement of net worth is 16 Lakhs/ 100kW. In this case the is eligible for 625 kW project capacity.</p> <p>Case 1: The bidder submits the bid for 700 kW project in the FY. In this case</p>		

BDS Clause reference	ITB Clause reference	Detailed Clause
		<p>the bidder will be allocated only 625 kW project capacity subject to fulfilling all other criteria's but the bidder will be required to submit the bid security of 7*2.23 lakh.</p> <p>Case 2: The bidder has applied for 400 kW project in the FY. In this case the bidder will be allocated 400 kW project capacity subject to fulfilling all other criteria's. The bidder has to submit the bid security 4* 2.23 lakhs. Bidder will not be allocated maximum 400 kW project within the next 1 year.</p> <p>Note:</p> <ol style="list-style-type: none"> 1. Bid Security Declaration shall be submitted by bidders as per Bid Form 2 and disciplinary action mentioned in Bid Security Declaration will be applicable in place of forfeiture of the Bid Security wherever applicable in this RFE. <p>The Bid Processing Fee shall be made in favour of "KSEDC Limited payable at "Bengaluru". This can be submitted as per Bid Form 2.</p>
2.1.4.	ITB Clause 1.3.6.1	Bid validity period: Three hundred and sixty-five (365) Days (can be extended up to 2 years) from the last date of Bid submission.
2.1.5.	ITB Clause 1.4.1.1	<p>Procedure for submission of Bid:</p> <ul style="list-style-type: none"> • For participating in the Bid, it is mandatory to procure the Digital Signature Certificate (DSC) of class-III only. • The Bidders are advised to register their user id, password, and company id on the E-procurement Website by clicking on the hyperlink "Register Me" to fill in the online registration form. • The unregistered Bidders are required to pay a registration fee in favour of M/s. KSEDC Limited (Karnataka State Electronics Development Corporation Limited) payable at Bangalore on the E-procurement Website through e-payment mode only as per the instruction given therein. • As soon as the verification is done by the E-procurement Website, the user id will be enabled/ provided. • After viewing the RFE on the E-procurement Website, if the Bidder intends to submit its Bid, the Bidder shall use the user id and password that has been received after registration and use the DSC. The step-by-step instructions are given below: <ul style="list-style-type: none"> - Insert the Public Key Infrastructure (PKI), which consists of the DSC in the system. Ensure that the necessary software of PKI has been installed. - Click/ Double Click to open the Microsoft Internet Explorer - Go to Start > Programs > Internet Explorer. Type the E-procurement Website address "www.tenderwizard.com/OREDA" in the address bar of Internet Explorer to access the Login Screen. - Enter user id and password, click on "Go". - Click on "Click here to login" to select the DSC and enter the DSC Password. Re-enter the user id and password. - Click "Un Applied" to view/ apply for a new RFE. - Click on the "Request" icon for online requests. After making the request, the Bidder shall pay the requisite Bid Processing Fee (as indicated in the NIT) through e-payment mode only available on the E-

BDS Clause reference	ITB Clause reference	Detailed Clause
		<p>procurement Website. The Bidders can download the Bidding Document by following the below steps.</p> <ul style="list-style-type: none"> ◦ Click on the “Show Form” icon. ◦ Bidding Document will appear on the screen. ◦ Click “Click here to download” to download the Bidding Document. <ul style="list-style-type: none"> • The Bidder shall submit the Bid either under Category A or Category B as per the terms of the Bidding Document. • The Bidder shall submit the Bid as per the terms of the Bidding Document. • All the softcopies of the Bid shall be properly scanned and shall be legible and such softcopies shall be either uploaded in .pdf or .jpg or .jpeg format. • Prior to submission, verify whether all the required documents as a part of Technical Bid and Price Bid have been attached and uploaded against the particular Bidding Document or not. • The Price Bid shall be uploaded on the E-procurement Website only in Microsoft .xls or .xlsx format only. By no other means, except online through E-procurement Website, the Price Bid shall be accepted for evaluation of the Bids. • The hardcopies as required to be submitted shall be submitted OREDA’s Office Address as per the timelines mentioned in NIT or any Corrigendum. • Please note down or take a print of the bid control number once it is displayed on the screen. • Bid opening events can be viewed online. • The Bids submitted by one Bidder can be viewed by other Bidders.
2.1.6.	ITB Clause 1.6.1.1	<p>The empanelment of bidder will include two (2) categories of the Bidders for each type of project:</p> <ul style="list-style-type: none"> • Category A: <ul style="list-style-type: none"> - Any Bidder registered pan India who meets the Qualification Requirement as per Section 4 (QR) can participate under Category A. • Category B: The Bidders who are local MSME and registered under the MSME Development Act, 2006 in Odisha as per Section D, Division 35, Group 351 having NIC 5-digit code of 35105 (Electric power generation using solar energy) and meets other requirements as per QR clause 4.1 and meets “Specific Qualification Requirement” as per QR Clause 4.2, but does not meet the “Technical Qualification Requirement” as per QR Clause 4.3 and “Financial Qualification Requirement” as per QR Clause 4.4. In case any such Bidder has participated under Category A, then such a Bidder cannot participate under Category B. <p>Note: A Bidder can either participate under Category A or under Category B. Further, Category A and Category B bidder shall not be related by any way which may result into conflict of interest. In case a Bidder participates for both Category A and Category B or Category A and Category B bidders are related entities as per our definition of affiliate, then such Bids shall be summarily rejected owing to conflict of interest and either or both bidder may be blacklisted in the future from further participating in any bid with OREDA.</p> <p>The empanelment order may include empaneled Bidders from Category A and Category B bidders.</p> <p>Note: OREDA reserves all the right to empanel bidders under the Category A and Category B.</p>

BDS Clause reference	ITB Clause reference	Detailed Clause
2.1.7.	ITB Clause 1.6.1.2	<p>Empanelment of Successful Bidders: Please refer to section 7.8 Work Allocation Methodology for detailed allocation methodology.</p> <p>Package 1:</p> <ul style="list-style-type: none"> Based on quotation submitted by the Qualified Bidder(s), lowest evaluated price (L1) for different configuration of Roof Top Solar project (On-grid/On grid with battery system, Off-grid) shall be discovered. For Category A: <p>The discovered L1 price for each type of configuration and packages of Roof top Solar shall be offered to match to all the respective Qualified Bidder(s), subject to the bidder's price bid is less than or equal to 1.25 x L1 price. The bidders whose financial bid is more than 1.25 x L1 price, shall not further be considered for the empanelment process.</p> <p>L2 bidder on wards who will agree to match L1 price will be selected based on their ranking (in terms of their financial bid, ranking such as L2, L3, L4 etc.).</p> For category B: <p>Successful Bidders will be selected for different configuration of Roof Top Solar project (On-grid/On grid with battery system, Off-grid) as mentioned in BDS 2.1.3, subject to matching L1 price. The projects will be allocated to category B bidders as per OREDA's discretion until all the category B bidders are allotted some work. Once the allotment to every bidder completed the projects will be allocated as per the performance of the bidder.</p> <p>Maximum total 25 bidders shall be empaneled in each type of configuration and packages of Roof Top Solar projects.</p> Empanelment Order will be issued to Qualified Bidder(s) who qualified as L1 bidder(s) or accepted L1 price bid for different configuration of Roof Top Solar project (On-grid/On grid with battery system, Off-grid) as mentioned in BDS 2.1.3 and accepting the LOI with required formalities <p>Package 2,3 & 4:</p> <ul style="list-style-type: none"> Based on quotation submitted by the Qualified Bidder(s), lowest evaluated price (L1) for each type of off grid solar application as mentioned in BDS 2.1.3, shall be discovered. For Category A: <p>The discovered L1 price for each type of off grid solar application as mentioned in BDS 2.1.3 shall be offered to match to all the respective Qualified Bidder(s), subject to the bidder's price bid is less than or equal to 1.25 x L1 price. The bidders whose financial bid is more than 1.25 x L1 price, shall not further be considered for the empanelment process.</p> <p>L2 bidder on wards who will agree to match L1 price will be selected based on their ranking (in terms of their financial bid, ranking such as L2, L3, L4 etc.).</p> <p>Maximum total 25 bidders be empaneled in each type of off grid solar application as mentioned in BDS 2.1.3.</p> For category B: <p>Maximum 10 Successful Bidders will be selected for each type of off grid solar application as mentioned in BDS 2.1.3, subject to matching L1 price.</p>

BDS Clause reference	ITB Clause reference	Detailed Clause												
		<p>Empanelment Order will be issued to Qualified Bidder(s) who qualified as L1 bidder(s) or accepted L1 price bid for each type of off grid solar application as mentioned in BDS 2.1.3 and accepting the LOI with required formalities</p> <ul style="list-style-type: none"> In all cases, the Bid of the Successful Bidder shall be responsive and is determined by OREDA to be qualified to complete the formalities satisfactorily. OREDA shall ask Other Bidder(s) to accept L1 price within a maximum time period of 7 days from the time of intimation of the results after the completion of evaluation process, by sending an email to OREDA's Official Email Id. Such Bidders shall confirm the acceptance of L1 price within a maximum time period of 7 days from the time of receipt of offer email from OREDA. In such cases, the failure on the part of the Bidder to reject the offer shall not lead to the forfeiture of the Bid Security. OREDA shall issue Empanelment Order to Successful Bidder(s) accepting L1 price each type of off grid solar application as mentioned in BDS 2.1.3, however Work Order to Successful Bidder(s) shall be issued based on availability and feasibility of Projects and subsequent performance of the Successful Bidders. 												
2.1.8.	1.8.1.1	<p>Allocation of Work to empaneled Successful Bidders:</p> <p>Package 1:</p> <ul style="list-style-type: none"> All successful bidders conveying acceptance to L1 price listed in Empanelment Order shall be arranged in the order of ranking based on their initial submitted financial bids (example: L1, L2, L3, and so on), for respective off grid solar application as mentioned in BDS 2.1.3. Depending upon the quantum of work required, the batch of order will be placed to one or more empaneled bidders based on their rank of empanelment. Please refer to section 7.8 for detailed work allocation strategy/ Initially, once the work is allotted to one/more bidders, the next quantum of work will be allotted to the bidder(s) with next ranking and so on till all the empaneled bidders receive at least one LOA, for a particular solar off grid type of application. For a particular type of off grid application, once all the empaneled bidders receive get at least one LOA, OREDA will place subsequent LOA to the empaneled bidders based on their past performance, quality of work and timely execution of the project during the empanelment period. <p>Package 2,3 & 4:</p> <ul style="list-style-type: none"> All successful bidders conveying acceptance to L1 price listed in Empanelment Order shall be arranged in the order of ranking based on their initial submitted financial bids (example: L1, L2, L3, and so on), for respective off grid solar application as mentioned in BDS 2.1.3. Depending upon the quantum of work required, the batch of order will be placed to one or more empaneled bidders based on their rank of empanelment. If the quantum of work, at one time, is equal or less than as defined in the following table, then the work will be awarded in the following way <p>Table 2:</p> <table border="1"> <thead> <tr> <th></th> <th colspan="3">Range of Quantity for allocation (Units)</th> </tr> <tr> <th>Application type</th> <th>To single bidder</th> <th>To Two bidders</th> <th>To Three bidders or more</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Range of Quantity for allocation (Units)			Application type	To single bidder	To Two bidders	To Three bidders or more				
	Range of Quantity for allocation (Units)													
Application type	To single bidder	To Two bidders	To Three bidders or more											

BDS Clause reference	ITB Clause reference	Detailed Clause			
		Solar Tree (1 kW) with 4 street lights; [1 unit = 1 solar tree of 1 kW + 4 streetlights]	<=5	>5 and <=10	>10
		Solar Tree (2.5 kW) with 20 garden lights. [1 unit = 1 solar tree of 2.5 kW + 20 garden lights]	<=5	>5 and <=10	>10
		Solar Street Light	<=50	>50 and <=100	>100
		Solar based Drinking water kiosk	<=3	>3 and <=6	>6
		Solar Mini Mast	<=5	>5 and <=10	>10
		Solar High Mast	<=5	>5 and <=10	>10
		<ul style="list-style-type: none"> Initially, once the work is allotted to one/more bidders, the next quantum of work will be allotted to the bidder(s) with next ranking and so on till all the empaneled bidders receive at least one LOA, for a particular solar off grid type of application. For a particular type of off grid application, once all the empaneled bidders receive get at least one LOA, OREDA will place subsequent LOA to the empaneled bidders based on their past performance, quality of work and timely execution of the project during the empanelment period. <p>Note:</p> <ul style="list-style-type: none"> OREDA reserves all the right to change the number of empaneled bidders under the Category A and Category B. OREDA reserves the right to change the criteria of work allocation OREDA reserves the right to negotiate with the L1 Bidder to arrive at the Total Price for the Bid. OREDA reserves the right to increase/decrease the Bidder(s) Allocated Capacity at the sole discretion, based on their performance. It is the discretion of OREDA to increase/decrease/transfer the Empaneled Vendor allocated capacity <ul style="list-style-type: none"> i) on bidder's request OR ii) failing to meet the conditions stipulated in Work Order OR iii) Not meeting the performance as per the terms in RFE/ Work Order <p>OREDA shall verify the feasibility of Projects submitted the Successful Bidders post receiving the LOA and subsequent performance of the Successful Bidders.</p>			
2.1.9.	ITB Clause 1.8.2	<p>Performance Security: For Category A : Performance Bank Guarantee = L1 unit price (discovered in the RFE) x 10% x Allocated capacity</p> <p>For Category B Performance Bank Guarantee = L1 unit price (discovered in the RFE) x 2.5% x Allocated capacity</p>			

3. Scope of Work (SOW)

Section 3 (SOW) contains about the Project, roles, and responsibilities of the individual Parties, Equipment requirements, Technical Specifications, Designs and Drawings, Supplementary Information, Spares, Project Timelines, etc. that describe the SOW under the RFE.

3.1. About the Project

3.1.1. Introduction

3.1.1.1. **Package 1:** The Scope of Work shall be for empanelment of agencies for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various on-grid (With /without battery backup) and Off grid roof top Solar PV Roof top solar projects (Off grid/Ongrid without battery/On grid with battery) across Odisha on a rate contract basis for period of one year from date of empanelment order.

3.1.1.2. **Package 2, 3 & 4:** The Scope of Work shall be for empanelment of agencies for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various Off-grid Solar PV based applications such as Solar Tree with street lights, Solar tree with garden lights, Solar Street Lights, Solar Mini Mast, Solar High Mast, Solar Based Drinking water Kiosks across Odisha on a rate contract basis for period of one year from date of empanelment order.

3.1.1.3. Following will be the Scope of Work for different types of projects during empanelment period.

Sr. No.	Package	Type of Project	Description of Scope
1	Package 1	On grid roof top solar project without battery system	Design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various on-grid (With /without battery backup) and Off grid roof top Solar PV across Odisha as per the Technical Specification and all terms given in the RFE
2		On grid roof top solar project with battery system	
3		Off-grid roof top solar project	
4	Package 2	Solar Tree (1 kW) with 4 streetlights	design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various Off-grid Solar PV based applications such as Solar Trees, Solar Street Lights, Solar Mini Mast, Solar High mast, Solar Based Drinking Water Kiosks across Odisha as per the Technical Specification and all terms given in the RFE
5		Solar Tree (2.5 kW) with 20 garden lights	
6	Package 3	Solar based Drinking water kiosk	
7	Package 4	Solar Mini Mast	
8		Solar High Mast	
9		Solar Street Light	

3.1.1.4. Bidder shall confirm to participate in empanelment and rate contract for different type of project in Bid Form 1 under Clause 7.1.1

3.1.1.5. The program of execution of the supply, installation and commissioning of Projects shall be carried out in phased manner as per the work order and instruction of OREDA. However, upon issuance of work order, project shall be executed strictly as per the timelines mentioned in the SOW Clause 3.4 of the RFE.

3.2. Roles and Responsibilities

3.2.1. Roles and Responsibilities of the Successful Bidder for the implementation of Projects

3.2.1.1. Design and Engineering

- a) The Successful Bidder shall complete the design and engineering of the Project as per the Technical Specification given in SOW Clause 3.3.1.2 using the Equipment as given in SOW Clause 3.2.1.2 and shall be developed as per the Applicable Law and the Prudent Utility Practices prevailing in Odisha.
- b) The Successful Bidder shall ensure that the remote communication facility is available at each at Project location. The Successful Bidder shall share the remote communication protocol as well as the login credentials (username, password, etc.) to OREDA for each project.
- c) The Successful Bidder shall design for an adequate protection system as per the requirement of the site by taking lightning, wind speed, rainy season, other climatic conditions, sudden surges in voltage and current, etc.
- d) The indicative drawing and design of a module mounting structure that can withstand a wind speed up to 200 km per hour has been provided at SOW Clause 3.3.1.2. However, depending on the actual site conditions, the Successful Bidder may propose for a change in the design of module mounting structures with due certification from a chartered engineer with regards to quality, durability and wind resistance capability for the abovementioned speed and install the same only after getting due approval from the Authorized Representative of OREDA.
- e) The Successful Bidder shall mandatorily visit all the sites and submit single line diagrams indicating all wiring details, connectivity details, etc. as per the Applicable Law and Prudent Utility Practices, prior to the procurement of Equipment and commencement of construction works at the site.
- f) The Successful Bidder shall submit the final civil, mechanical and electrical design & diagram, etc. to OREDA and obtain the approval from OREDA prior to the commencement of installation works.

3.2.1.2. Supply of Equipment

- a) The Successful Bidder shall supply all the Equipment as per the Technical Specification given in SOW Clause 3.3.1.1.
- b) The Successful Bidder shall be responsible for the supply of all Equipment required for setting up respective off grid application system.
- c) The Successful Bidder shall be responsible for procuring, packing, forwarding, loading, unloading, safekeeping, and handling of all Equipment including insurance coverage all the time until Acceptance of the Project pursuant to SOW Clause 3.2.1.5.
- d) The Successful Bidder shall be responsible to maintain the spares all the time until the expiry of the CMC Period. In no case, OREDA shall provide any spares until the expiry of CMC Period of the Plant and the Successful Bidder shall be responsible solely for the replacement of the spares for the reasons attributable to the Successful Bidder.

3.2.1.3. Installation

- a) The Successful Bidder shall be responsible for carrying out the installation of all Equipment as per the design, SLDs, etc. approved by OREDA pursuant to SOW Clause 3.1.1.1

- b) The Successful Bidder shall be responsible for installation of the off grid solar PV systems, BOS, solar PV array and required material as per the technical specifications and standards provided in the tender and testing the same in the presence of Authorized Officer.
- c) The Successful Bidder shall ensure to have a clean and tidy installation. The Successful Bidder shall ensure to consider the safety aspects into consideration and shall not leave any loose cables to lie on the project site.
- d) The Successful Bidder shall install display boards mentioning the name of the Department, Project capacity, date of Commissioning, date of Acceptance, contact details of OREDA, CRC, and Successful Bidder at prominent places near to the project sites
- e) The Successful Bidder shall install danger boards, safety boards, etc. at suitable locations as per the Applicable Law and Prudent Utility Practices.
- f) The Successful Bidder shall ensure that earthing flats do not touch the walls/or any surface prone to human touch at any place and sufficient insulators shall be provided for the same.
- g) The Successful Bidder shall ensure the protection of life and property likely to be endangered due to the installation of the project.
- h) The installation process shall be documented step-by-step as per the instructions given in the Mobile Application (currently “ReSolve” application) developed by OREDA through its Customer Relationship Centre (CRC). The Successful Bidder shall mandatorily install the Mobile Application from the CRC team (currently “ReSolve” application) and get itself trained if required. The instructions are given in SOW Clause 3.3.1.6.

3.2.1.4. Testing and Commissioning

- a) After completion of installation works, the Successful Bidder shall complete the testing and Commissioning in the presence of the Assistant Director of OREDA as well as the designated representative of the beneficiary. The committee comprising of the above persons shall be termed as the Commissioning Committee.
- b) The Successful Bidder shall take consultation from the Commissioning Committee on finalizing a date and time of testing and Commissioning.
- c) Upon completion of testing and Commissioning, the Commissioning Committee shall issue the Joint Commissioning Certificate to the Successful Bidder as per the format given in SOW Clause 3.3.1.4.
- d) Obtaining all clearances, permits, licenses including arrangement of land and connectivity to the Grid and access (if applicable) prior to scheduled date of commencement of supply of power shall be the responsibility of the Generator and the Procurer shall not be responsible in case of delay in obtaining such clearances, permits, licenses etc.
- e) The testing and Commissioning process shall be documented step-by-step as per the instructions given in the Mobile App developed by OREDA through CRC ((currently “ReSolve” application).
- f) The format for the Commissioning Report is given in SOW Clause 3.3.1.4.

3.2.1.5. Acceptance

- a) The performance and health of the Project will be monitored for a period of ninety (90) Days from the date of Commissioning.
- b) The Commissioning Report followed during Commissioning as given in SOW Clause 3.3.1.43.3.1.2 shall be performed again before issuance of the Acceptance Certificate as per format given in SOW Clause 3.3.1.5.
- c) Upon Acceptance of the Project, the Comprehensive Maintenance of the Project shall begin as per SOW Clause 3.3.1.5.

3.2.1.6. Comprehensive Maintenance

- a) The Successful Bidder shall be required to undertake Scheduled Maintenance, Corrective Maintenance, and Breakdown Maintenance during the CMC Period.
- b) The Successful Bidder shall adhere to all maintenance procedures as required from time to time, without any protest or hesitation.
- c) The Successful Bidder shall undertake the Scheduled Maintenance as per the standard maintenance protocol given in SOW Clause 3.3.1.8. The Scheduled Maintenance process shall be documented step-by-step as per the instructions given in the Mobile App developed by OREDA through CRC ((currently "ReSolve" application).
- d) The Successful Bidder shall also undertake Corrective Maintenance and Breakdown Maintenance as and when required upon receipt of service request from CRC or OREDA or Department raised through the Mobile App ((currently "ReSolve" application) or any other medium as suggested by OREDA or Department from time to time. Such service request shall be resolved and made functional within a maximum period of seven (7) Days from the date of such service request raised through Mobile App (currently "ReSolve" application), failing which might restrict the Successful Bidder in participating in the future opportunities of OREDA, subject to the final decision at the discretion of OREDA only.
- e) The performance bank guarantee (PBG) will be forfeited for the year if the vendor fails to meet the criteria as specified in CMC Performance Report 7.5.8.
- f) In case failure in CMC Performance for any two years within the CMC period of 5 years, OREDA may debar/ blacklist the bidder for at least one year to participate directly/ indirectly in future tenders by OREDA.
- g) The Successful Bidder is required to train and guide the beneficiary for day-to-day Comprehensive Maintenance and upkeep of the Project.
- h) The Successful Bidder shall maintain the safety stock of spares required to Repair and Maintain Project all the time until the expiry of the Work Order and during CMC period.
- i) The Successful Bidder shall establish a local office in Odisha, so as to deliver uninterrupted and sustainable Comprehensive Maintenance during the CMC Period duly headed by a Service Engineer.
- j) While submitting the CMC performance report (Appendix 8) every year for clearance of CMC bill by vendors, the vendor should submit the supporting reports generated from CRC portal duly signed by concerned Assistant Director/ authority from OREDA.
- k) The before and after photograph should be uploaded on CRC portal for every ticket closures.
- l) At the end of each completed CMC year, the CMC charges should be claimed within 60 days of the last date of 1st / 2nd / 3rd / 4th / 5th year of the CMC period, failing which, it will be lapsed and the amount shall not be carried forward to the next year.
- m) There would be performance evaluation of every vendor based on asset maintenance during CMC period and it will be an important parameter / clause in the future RFE/EOI/tender to be floated by OREDA.

3.2.2. Roles and Responsibilities of OREDA

3.2.2.1. OREDA shall be responsible for providing its approval on the final Designs and Drawings consisting of the detailed designs, single line diagram, etc. after the obtaining such document from the Successful Bidder pursuant to SOW Clause 3.2.1.1f).

3.2.2.2. All tests and inspections shall be made at the Project site. The Authorized Representative of OREDA shall be entitled at all reasonable times to inspect, supervise and test during the implementation of the Project. Such inspection will not relieve the Successful Bidder of their obligation in the Work Order. OREDA shall have the right to have the tests carried out at its own cost by an independent agency at any point in time.

3.3. Technical details of Project

3.3.1. Technical details of project

- 3.3.1.1. **Technical Specifications:** The Technical Specification of all Equipment are provided in Annexure 7.5.1.
- 3.3.1.2. **Designs and Drawings:** The Designs and Drawings of the Project are provided in Annexure **Error! Reference source not found..**
- 3.3.1.3. **Spares:** The required % of spares is mentioned in Annexure **Error! Reference source not found.**
- 3.3.1.4. **Commissioning Report:** The detailed Commissioning procedure is provided in Annexure 7.5.3.
- 3.3.1.5. **Joint Commissioning Certificate:** The format of the Joint Commissioning Certificate is provided in Annexure 7.5.4.
- 3.3.1.6. **Acceptance Certificate:** The format of the Acceptance Certificate is provided in Annexure 7.5.5.
- 3.3.1.7. **CRC guidelines:** The CRC guidelines are provided in Annexure 7.7.
- 3.3.1.8. **Scheduled Maintenance:** The detailed procedure and checklist for performing Scheduled Maintenance are provided in Annexure 7.5.6.
- 3.3.1.9. **Test Certificates:** The required test certificates are provided in Annexure 7.5.7.

3.4. Project Timelines

3.4.1. The following are the Project Timelines for developing the Project:

Activities	Project Timelines
Timeline for empanelment of the bidders	
Issue of Letter of Intent for empanelment by OREDA	T0 (start date)
Acceptance of Letter of Intent for empanelment by Qualified Bidder(s) along with supporting documents as asked in the LOI	T1= T0 + seven (7) days
Issue empanelment order	T2 = T1 + fifteen (15) days
Start of empanelment and rate contract period	T3 = T2 + one (1) day
End of empanelment and rate contract period	T4 = T3 + three hundred and sixty five (365) days (can be extended up to 2 years)
Timeline for LOA and Acceptance during project allocation	
Issue of LOA by OREDA	T0 (start date)
Acceptance of LOA and Submission of critical documents as per ITB clause 1.8.2.1 by the Empaneled Bidder(s)	T1 = T0 + fifteen (15) days
Commissioning	T2 = T1 + sixty (60) days/ ninety (90) days/ one hundred twenty (120) days as per work order
System Acceptance	T3 = T2 + ninety (90) days
CMC start date	T4 = T2 + one (1) day
CMC end date	T5 = T4 + five (5) years

T0: start date

4. Qualification Requirement (QR)

Section 4 (QR) contains all the Qualification Requirements that OREDA shall use to evaluate the Technical Bids and qualify Bidders for during the evaluation of Technical Bids.

The Bidder shall fulfill the below Qualification Requirement in order to submit the Bid. Any discrepancy or deviation from the stated Qualification Requirement shall make the Bidder ineligible to submit the Bid and such Bid shall be liable for rejection.

4.1. General Qualification Requirement

Clause no.	Qualification Requirement	Support document
4.1.1.	<p>Applicability: For Category A and Category B Bidders</p> <p>The Bidder must be a</p> <p>4.1.1.1. company registered under The Indian Companies Act, 1956/ 2013; or</p> <p>4.1.1.2. partnership firm registered under The Indian Partnership Act, 1932; or</p> <p>4.1.1.3. sole proprietorship firm under the relevant laws in India.</p> <p>Note: Joint venture, consortium and subcontracting are not allowed.</p>	<p>The Bidder must submit a copy of the relevant documents issued by an appropriate Government authority in India.</p>
4.1.2.	<p>Applicability: For Category B Bidders only</p> <p>In case the Bidder is a local MSME registered in Odisha, the Bidder must be registered under the MSME Development Act, 2006 in Odisha under Section D, Division 35, Group 351 having NIC 5-digit code of 35105 (Electric power generation using solar energy).</p> <p>Such Bidder under Category B shall be exempted from meeting “Technical Qualification Requirement” as per QR Clause 4.3 and “Financial Qualification Requirement” as per QR Clause 4.4, but shall comply “Specific Qualification Requirement” as per QR Clause 4.2 and 4.1.3.</p>	<p>The Bidder being a local MSME must submit a copy of the certificate of registration issued by an appropriate authority. This is applicable only for the MSEs. The Bidders, other than an MSE, cannot apply for such Projects.</p> <p>The Bidder must submit Bid Form 2.</p>
4.1.3.	<p>Applicability: For Category A and Category B Bidders</p> <p>The Bidder must not be debarred/ blacklisted/ defaulted by any Government, agency, Public Sector Undertaking (PSU), institution/ autonomous organizations in the past.</p>	<p>The Bidder shall submit a self-certification by an authorized person duly notarized to this effect.</p> <p>The Bidder must submit Bid Form 7.</p>

4.2. Specific Qualification Requirement

Clause no.	Qualification Requirement	Support document
4.2.1.	<p>Applicability: For Category A and Category B Bidders</p> <p>Package 1: The Bidder must be in possession of the valid test certificates of solar photovoltaic modules, inverters, batteries and street lighting systems from MNRE/ BIS/ NABL authorized test laboratories only. Such test certificates must have the IEC and IP standards from any valid MNRE accredited test labs as given in Appendix Form 8 of . Appendix Clause 7.5.7.</p> <p>Package 2, 3 & 4: The Bidder must be in possession of the valid “Test Certificates” as issued in the name of the OEM of solar based standalone Solar tree/Mini Mast Lights/High mast lights/ Street Lights/Drinking water kiosks/ from MNRE/ BIS authorized or NABL accredited test laboratories only. Such test certificates must have the IEC and IP standards from any valid MNRE authorized or BIS/ NABL accredited test labs. Appendix Clause 7.5.7.</p>	<p>The Bidder must declare that it will possess the test reports and data sheets in the name of OEM only along with the authorization letter from Original Equipment Manufacturer (OEM). The test reports and datasheets for particular Equipment must be submitted in the name of a single OEM only. However, the change of OEM is permissible during the course of work on assigning sufficient reason for the same and submission of the latest datasheets and test reports from MNRE approved labs.</p> <p>For Solar Street Lights, the Bidder shall submit test certificates/reports and data sheets in the name of bidding firm as the manufacturer of the complete system.</p> <p>The Bidder must submit Bid Form 6 of Section 7 (Annexure), as a part of declaration only.</p> <p>Note: The proof of all documents showcasing the possession of such copies of the Test Certificates by the Bidder shall be submitted as per the instructions given under the Letter of Intent and not at the time of Bid submission.</p>
4.2.2.	<p>Applicability: For Category A and Category B Bidders</p> <p>The Bidder must possess established high standards for ‘quality’ and ‘environment health and safety’ in line with ISO 9001 and ISO 14001 certifications respectively for but not limited to Solar PV modules, Batteries, used in Projects</p>	<p>The Bidder shall declare that it has a copy of ISO certificate for ISO 9001 and ISO 14001 certificates in the name of the Original Equipment Manufacturer (OEM), supported by a letter of authorization from the OEM for its implementation.</p> <p>The Bidder must submit Bid Form 16 of Section 7 (Annexure).</p> <p>Note: The documentary evidences shall be submitted as a part of response to the Letter of Intent and prior to issuance of the Work Order, and not at the time of bidding.</p>

4.3. Technical Qualification Requirement

Clause no.	Qualification Requirement	Support document																		
4.3.1.	<p>Applicability: For Category A Bidders only</p> <p>The Bidder must have the experience of commissioning for a cumulative capacity as mentioned under the “Min. experience requirement in nos.”, in the last three (3) years from the last date of online submission of the Technical Bid in India.</p> <p>The minimum experience requirement shall be as follows:</p> <p>Package 1:</p> <table border="1"> <thead> <tr> <th>Application type</th> <th>Min. experience requirement</th> </tr> </thead> <tbody> <tr> <td>Roof top solar /ground mounted solar project/off-grid project</td> <td>100 kW</td> </tr> </tbody> </table> <p>Package -2</p> <table border="1"> <thead> <tr> <th>Application type</th> <th>Min. experience requirement</th> </tr> </thead> <tbody> <tr> <td>Solar Tree (1 kW) with 4 street lights; [1 unit = 1 solar tree of 1 kW + 4 streetlights]</td> <td>10 (any configuration of solar tree with LED lights shall be considered)</td> </tr> <tr> <td>Solar Tree (2.5 kW) with 20 garden lights; [1 unit = 1 solar tree of 2.5 kW + 20 garden lights]</td> <td>10 (any configuration of solar tree with LED lights shall be considered)</td> </tr> </tbody> </table> <p>Package -3</p> <table border="1"> <tbody> <tr> <td>Solar based Drinking water kiosk</td> <td>3 nos</td> </tr> </tbody> </table> <p>Package -4</p> <table border="1"> <tbody> <tr> <td>Solar Mini Mast</td> <td>10 nos</td> </tr> <tr> <td>Solar High Mast</td> <td>10 nos</td> </tr> <tr> <td>Solar Street Light</td> <td>50 nos</td> </tr> </tbody> </table>	Application type	Min. experience requirement	Roof top solar /ground mounted solar project/off-grid project	100 kW	Application type	Min. experience requirement	Solar Tree (1 kW) with 4 street lights; [1 unit = 1 solar tree of 1 kW + 4 streetlights]	10 (any configuration of solar tree with LED lights shall be considered)	Solar Tree (2.5 kW) with 20 garden lights; [1 unit = 1 solar tree of 2.5 kW + 20 garden lights]	10 (any configuration of solar tree with LED lights shall be considered)	Solar based Drinking water kiosk	3 nos	Solar Mini Mast	10 nos	Solar High Mast	10 nos	Solar Street Light	50 nos	<p>The Bidder shall submit the letter of awards/ work orders/ contract agreement along with the experience certificates issued by a state nodal agency/ commissioning certificate issued by any Government department/CPSU/State PSU/Govt. Agency.</p> <p>However, experience in private or any other sector can be considered if the same is done under any Central/ State Government programs/ schemes and is certified by the concerned Government department responsible for implementing such renewable projects.</p> <p>Note: The Bidder must have the experience of commissioning the respective system for a cumulative capacity as mentioned under the “Min. experience requirement in nos.”, in the last three (3) years from the last date of online submission of the Technical Bid in India</p> <ol style="list-style-type: none"> 1. The letter of awards/ work orders/ contract agreement along with any amendments issued shall be submitted in full without deleting/ hiding any information. 2. The experience certificate/joint commissioning certificate shall clearly mention the capacity and the date of commissioning. The Joint Commissioning Certificate issued by only the concerned government authority as per the Prudent Utility Practices followed in India. <p>The Bidder must submit Bid Form 4 of Section 7 (Annexure).</p>
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4.4. Financial Qualification Requirement

Clause no.	Qualification Requirement	Support document																					
4.4.1.	<p>Applicability: For Category A Bidders only</p> <p>The Bidder must have following an aggregate average annual turnover of not less than the amount mentioned under the “Min. average annual turnover in Lakh INR” for which it is submitting its Bid last three (3) financial years from FY20-21, FY21-22 and FY 22-23 from the solar business only.</p> <p>Package 1:</p> <table border="1"> <thead> <tr> <th>Application type</th> <th>Min. average annual turnover in Lakh INR</th> </tr> </thead> <tbody> <tr> <td>RTS</td> <td>100</td> </tr> </tbody> </table> <p>Package 2:</p> <table border="1"> <thead> <tr> <th>Application type</th> <th>Min. average annual turnover in Lakh INR</th> </tr> </thead> <tbody> <tr> <td colspan="2">Package-2</td> </tr> <tr> <td>Solar Tree (1 kW) with 4 street lights</td> <td rowspan="2">100</td> </tr> <tr> <td>Solar Tree (2.5 kW) with 20 garden lights</td> </tr> <tr> <td colspan="2">Package-3</td> </tr> <tr> <td>Solar based Drinking water kiosk</td> <td>100</td> </tr> <tr> <td colspan="2">Package-3</td> </tr> <tr> <td>Solar Mini Mast</td> <td rowspan="3">100</td> </tr> <tr> <td>Solar High Mast</td> </tr> <tr> <td>Solar Street Light</td> </tr> </tbody> </table>	Application type	Min. average annual turnover in Lakh INR	RTS	100	Application type	Min. average annual turnover in Lakh INR	Package-2		Solar Tree (1 kW) with 4 street lights	100	Solar Tree (2.5 kW) with 20 garden lights	Package-3		Solar based Drinking water kiosk	100	Package-3		Solar Mini Mast	100	Solar High Mast	Solar Street Light	<p>The Bidder shall submit a turnover certificate issued by a chartered accountant, as per Bid Form 5 of Section 7 (Annexure).</p> <p>It is important to note that the annual turnover for each financial year shall be the income/ earning/ revenue from the solar business only; and other income (if any) shall not be considered for evaluation.</p>
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Solar High Mast																							
Solar Street Light																							
4.4.2.	<p>Applicability: For Category A and category B Bidders only</p> <p>Every bidder has to provide the net worth of their company in last FY as per the Bid form 5</p> <p>Category A bidder:</p> <p>The Bidder must have the net worth of 16 lakhs/100 kW in the last financial year FY22-23.</p> <p>Category B bidder: The bidder must have a positive net worth in the last financial year FY 22-23.</p> <p>For company, as per the section 2 (57) of The Indian</p>	<p>The Bidder shall submit a net worth certificate issued by a chartered accountant, as per Bid Form 5 of Section 7 (Annexure).</p>																					

	<p>Companies Act, 2013, net worth means the aggregate value of the paid-up share capital and all reserves created out of the profits (securities premium account and debit or credit balance of profit and loss account), after deducting the aggregate value of the accumulated losses, deferred expenditure and miscellaneous expenditure not written off, as per the audited balance sheet, but does not include reserves created out of revaluation of assets, write-back of depreciation and amalgamation.</p> <p>For partnership firm and sole proprietorship firm, as per the methodology certified by the chartered accountant based on the Applicable Law in India.</p>	
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5. General Conditions of Contract (GCC)

Section 5 (GCC) contains all general terms and conditions to be applied to the Work Order along with other associated documents mentioned therein. Section 5 (GCC) shall be read in conjunction with Section 6 (SCC) and other documents listed therein, should be a complete document expressing all terms and conditions of the Work Order.

5.1. General

5.1.1. Work Order

- 5.1.1.1. All documents forming part of the Work Order including any Amendment to the Work Order as per GCC Clause 5.1.2, and all parts thereof, are intended to be correlative, complementary, and mutually explanatory.
- 5.1.1.2. The Work Order constitutes all the terms and conditions for the Successful Bidder with respect to the Commissioning, and Acceptance of the Project along with its CMC Period. The CMC shall be executed between OREDA and the Successful Bidder as per the sample format provided in Annexure Clause 1.1.1.
- 5.1.1.3. The Work Order including any Amendment supersedes all communications, negotiations, and agreements (whether written or oral) made prior to the date of issuance of Work Order in case of any confusion with the Bidding Document at any point in time.
- 5.1.1.4. The Work Order shall be read as a whole.

5.1.2. Amendment

- 5.1.2.1. No Amendment to the Work Order shall be made effective unless it is in writing, is dated, expressly refers to the Work Order, and is signed duly and issued by OREDA based on any amended terms mutually agreed between OREDA and the Successful Bidder or as it is required in the interest of the Project.

5.1.3. Independent Successful Bidder

- 5.1.3.1. The Successful Bidder shall be completely independent in performing all its obligations under the Work Order. The Work Order does not create any agency, partnership, joint venture, or other joint relationship with OREDA. Subject to the provisions of the Work Order, the Successful Bidder shall be solely responsible for the manner in which all the obligations will be performed. All employees and representatives engaged by the Successful Bidder in connection with the performance of the Work Order shall be under the complete control of the Successful Bidder only and shall not be deemed to be employees of OREDA at any point in time, and nothing contained in the Work Order or in any subcontract awarded by the Successful Bidder to anyone shall be construed to create any contractual relationship between OREDA and any such employees, representatives, engaged by the Successful Bidder.

5.1.4. Non-waiver

- 5.1.4.1. Any waiver of Successful Bidder's rights, powers, or remedies under the Work Order must be in writing, must be dated and signed duly and issued by OREDA in granting such waiver, and must specify the right and the extent to which it is being waived.

5.1.5. Severability

- 5.1.5.1. If any provision or condition of the Work Order is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Work Order.

5.1.6. Communications

- 5.1.6.1. Wherever these conditions provide for issuing approvals, certificates, consents, determinations, notices, requests, and discharges, these communications shall be:

in writing along with a copy being sent to the other Party and delivered against its receipt;
and

delivered, sent, or transmitted to the address of either Party, as stated in Work Order.

5.1.7. Law

5.1.7.1. The Work Order shall be governed by and interpreted in accordance with the laws of India.

5.1.8. Language

5.1.8.1. The ruling language of the Work Order shall be in English only.

5.1.9. Integrity Violation

5.1.9.1. The Successful Bidder shall observe the highest standard of ethics during the performance of the Work Order.

5.1.9.2. Applicable as per ITB Clause 1.1.2.2

5.2. Payment

5.2.1. Total Price

5.2.1.1. The Total Price shall be as specified in the Work Order.

5.2.1.2. Unless an escalation clause is provided in GCC Clause 5.2.2, the Total Price shall be a firm lump sum amount, non-escalating, and not subject to any alteration, except in the event of a Change Order for the Project issued by OREDA.

5.2.1.3. Subject to SOW Clause 3.2.1, the Successful Bidder shall be deemed to have satisfied itself as to the correctness and sufficiency of the Total Price, which shall, except as otherwise provided for in the Work Order, cover all its obligations under the Work Order.

5.2.2. Terms of Payment

5.2.2.1. The terms of payment outlining the procedures to be followed are mentioned in Section 6 (SCC).

5.2.2.2. No payment made by OREDA herein shall be deemed to constitute acceptance by OREDA of the Project or any part(s) thereof, until the issuance of Acceptance Certificate by OREDA in writing.

5.2.2.3. The payment against the undisputed invoice shall be made by OREDA based on the internal processes.

5.2.2.4. The currency in which payments are made to the Successful Bidder under this Work Order shall be in Indian Rupees only.

5.2.3. Taxes

5.2.3.1. The Tax on the Total Price shall be paid as per the prevailing rules in India at the time of invoicing.

5.2.3.2. The Tax Deduction at Source (TDS) shall be deducted as per the prevailing rules in India at the time of the payment.

5.2.4. Performance Security

5.2.4.1. The Successful Bidder shall submit the Performance Security as per ITB Clause 1.8.2.

5.2.5. Incoterms

5.2.5.1. Unless inconsistent with any provision of the Work Order, the meaning of any trade term and the rights and obligations of Parties thereunder shall be as prescribed by Incoterms.

5.3. Intellectual Property

5.3.1. License/Use of Technical Information

5.3.1.1. For the Commissioning until Acceptance of the Project and during the CMC Period, the Successful Bidder hereby grants a non-exclusive and non-transferable license (without the right to sub-license) to OREDA under the patents, utility models or other industrial property rights owned by the Successful Bidder or by a third party from whom the Successful Bidder has received the right to grant licenses thereunder, and shall also grant to OREDA a non-exclusive and non-transferable right (without the right to sub-license) to use the know-how and other technical information disclosed to OREDA under the Work Order. Nothing contained herein shall be construed as transferring ownership of any patent, utility model, trademark, design, copyright, know-how, or other intellectual property rights from the Successful Bidder or any third party to OREDA.

5.3.1.2. The copyright in all drawings, documents and other materials containing data and information furnished to OREDA by the Successful Bidder herein shall remain vested in the Successful Bidder or, if they are furnished to OREDA directly or through the Successful Bidder by any third party, including suppliers of materials, the copyright in such materials shall remain vested in such third party.

5.3.2. Confidential Information

5.3.2.1. The Parties shall keep confidential and shall not, without the written consent of the other Party, divulge to any third party any documents, data or other information furnished directly or indirectly by the other Party hereto, whether such information has been furnished prior to, during or following termination of the Work Order. Notwithstanding the above, a Party may furnish to its third parties such documents, data and other information it receives from the other Party to the extent required for the third parties to perform all the obligations under the Work Order, in which event the Party shall obtain from such third parties an undertaking of confidentiality similar to that imposed on the Party under this GCC Clause 5.3.2 and submit a copy of the same to the other Party with an immediate effect.

5.3.2.2. A Party shall not use such documents, data, and other information received from the other Party for any purpose other than for this Project and services as are required for the performance of the Work Order.

5.3.2.3. The obligation of a Party under GCC Clauses 5.3.2.1 and 5.3.2.2 above, however, shall not apply to that information which

inow or hereafter enters the public domain through no fault of that Party;

can be proven to have been possessed by that Party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other Party hereto; and

otherwise lawfully becomes available to that Party from a third party that has no obligation of confidentiality.

5.3.2.4. The above provisions of this GCC Clause 5.3.2 shall not in any way modify any undertaking of confidentiality given by either of the Parties hereto prior to the date of the Work Order in respect of the Project or any part thereof.

5.3.2.5. The provisions of this GCC Clause 5.3.2 shall survive termination, for whatever reason, of the Work Order.

5.4. Execution of the Project

5.4.1. Representatives

5.4.1.1. Authorized Representative of OREDA

iThe name of the Authorized Representative of OREDA shall be generally mentioned in the Work Order. If the Authorized Representative of OREDA is not named in the Work Order, then within seven (7) Days of the Effective Date, OREDA shall appoint and notify the Successful Bidder in selecting an Authorized Representative of OREDA. OREDA may from time to time appoint some other person as the Authorized Representative of OREDA as deemed necessary in place of the person previously so appointed and shall give notice of the name of such other person as Authorized Representative of OREDA to the Successful Bidder as required. Such an appointment shall only take effect upon the date of issuance of such notice by OREDA. The Authorized Representative of OREDA shall represent and act for OREDA at all times during the performance of the Work Order. All notices, instructions, orders, certificates, approvals and all other communications under the Work Order shall be given by the Authorized Representative of OREDA, except as herein otherwise provided.

All notices, instructions, information, and other communications given by the Successful Bidder to OREDA under the Work Order shall be given to the Authorized Representative of OREDA, except as herein otherwise provided.

5.4.1.2. Project Manager, Construction Manager, and CMC Manager

iThe name of the Project Manager representing the Successful Bidder shall be generally mentioned in the Work Order. If the Successful Bidder's representative as Project Manager is not named in the Work Order, then within seven (7) Days of the Effective Date, the Successful Bidder shall appoint the Project Manager and shall request OREDA in writing to approve the Project Manager so appointed. If OREDA makes no objection to the appointment within seven (7) Days, the Project Manager shall be deemed to have been approved. If OREDA objects to the appointment within seven (7) Days, then the Successful Bidder shall appoint a replacement within seven (7) Days of such objection, and the foregoing provisions of this GCC Clause 5.4.1.2i shall apply thereto.

The Project Manager shall represent and act for the Successful Bidder at all times during the performance of the Work Order and shall give to the Authorized Representative of OREDA all the Successful Bidder's notices, instructions, information, and all other communications under the Work Order.

All notices, instructions, information, and all other communications given by OREDA or the Authorized Representative of OREDA to the Successful Bidder under the Work Order shall be given to the Project Manager or, in its absence, its deputy, except as herein otherwise provided.

The Successful Bidder shall not revoke the appointment of the Project Manager without OREDA's prior written consent. If OREDA consents thereto, the Successful Bidder shall appoint some other person as the Project Manager, pursuant to the procedure set out in GCC Clause 5.4.1.2i.

The Project Manager may, subject to the written approval of OREDA, at any time delegate to any person any of the powers, functions and authorities vested in him or her. Any such delegation may be revoked at any time; however, any such delegation or revocation shall be subject to a prior notice signed by the Project Manager and shall specify the powers, functions and authorities thereby delegated or revoked. No such delegation or revocation shall take effect unless and until a copy thereof has been delivered to the Authorized Representative of OREDA.

Any act or exercise by any person of powers, functions and authorities so delegated to him or her in accordance with this GCC Clause 5.4.1.20 shall be deemed to be an act or exercise by the Project Manager.

From the commencement of works of the Project at the site until installation, Commissioning and Acceptance, the Project Manager shall additionally appoint a suitable person as the Construction Manager. The Construction Manager shall supervise all work done at the site by the Successful Bidder and shall be present at the site as required during the performance of the Work Order in accordance with the terms of the Work Order. Whenever the Construction Manager is absent from the site, the Project Manager shall appoint a suitable person to act as the Construction Manager's deputy with prior notice of seven (7) Days before such a replacement and shall inform OREDA in writing prior to such changes.

From the commencement of the CMC Period until its expiry, the Project Manager shall appoint a suitable person as the CMC Manager. The CMC Manager shall supervise all work done at the site by the Successful Bidder and shall be present at the site as required during the performance of the Work Order in accordance with the terms of the Work Order. Whenever the CMC Manager is absent from the site, the Project Manager shall appoint a suitable person to act as the CMC Manager's deputy with prior notice of seven (7) Days before such a replacement and shall inform OREDA in writing prior to such changes.

OREDA may by notice to the Successful Bidder object to any representative or person employed by the Successful Bidder in the execution of the Work Order who, in the reasonable opinion of OREDA, may behave inappropriately, may be incompetent or negligent, or may commit a serious breach of the site regulations. OREDA shall provide writing of the same, whereupon the Successful Bidder shall remove such person from the Project with an immediate effect.

If any representative or person employed by the Successful Bidder is removed in accordance with GCC Clause 5.4.1.20, the Successful Bidder shall, where required, promptly appoint a replacement; failure to which will lead to a material breach in the Work Order.

5.4.2. Work program

5.4.2.1. Successful Bidder's Organization

Within thirty (30) Days from the Effective Date, the Successful Bidder shall submit to OREDA an organization chart showing the proposed team to be established by the Successful Bidder for carrying out work on the Project within the Project Timelines for achieving Commissioning and Acceptance as mentioned in SOW Clause 3.4. The organization chart shall include the identities of the key personnel and the short curricula vitae of such key personnel to be employed. The Successful Bidder shall promptly inform the Authorized Representative of OREDA in writing of any revision or alteration of such an organization chart, as applicable.

5.4.2.2. Detailed Workplan

Within thirty (30) Days from the Effective Date, the Successful Bidder shall submit to the Authorized Representative of OREDA a Detailed Workplan, made in a form acceptable to the Authorized Representative of OREDA and showing the sequence in which it proposes to achieve the Commissioning and Acceptance in line with the Project Timelines.

The Successful Bidder shall update the actual achievement against the Detailed Workplan as and when appropriate or when required by the Authorized Representative of OREDA, but without modification in the Project Timelines and any extension granted in accordance with GCC Clause 5.7.2 and shall submit all such revisions to the Authorized Representative of OREDA.

5.4.2.3. Progress of Detailed Workplan

If at any time the Successful Bidder's actual progress falls behind the Detailed Workplan, or it becomes apparent that it will so fall behind, the Successful Bidder shall promptly prepare and submit to the Authorized Representative of OREDA a revised Detailed Workplan without changing any timelines with reference to the Project Timelines, taking into account the prevailing circumstances, and shall notify the Authorized Representative of OREDA of the steps being taken to expedite progress so as to achieve the Commissioning and Acceptance of the Project within the Project Timelines, any extension thereof entitled under GCC Clause 5.7.2, or any extended period as may otherwise be notified by OREDA.

5.5. Guarantees and Liabilities

5.5.1. Delay Liquidated Damages

5.5.1.1. The Successful Bidder guarantees that it shall achieve the Commissioning of the Project as per the Project Timelines or any extension thereof entitled under GCC Clause 5.7.2.

5.5.1.2. In case of failure on the part of the Successful Bidder to achieve the Commissioning timelines pursuant to GCC Clause 5.5.1.1, the Successful Bidder shall pay to OREDA a Delay Liquidated Damage for a sum equivalent to half percent (0.5%) of the Total Price for each week of the delay from the target date of Commissioning, to be calculated on pro-rata basis for each Day of delay, subject to a maximum of three percent (3%) of the Total Price.

- 5.5.1.3. Once the maximum limit of three (3%) is reached, OREDA may consider terminating the Work Order without prejudice to the other remedies of the Work Order. However, the OREDA may at own discretion allow reasonable time extension upon the written application of the Successful Bidder. If the delay is considered intentional or due to the negligence of the Successful Bidder, no extension can be allowed with the imposition of Delay Liquidated Damages. If the delay is considered to be genuine, then a suitable time extension can be allowed with/ without the imposition of the delay Liquidated Damages, to be evaluated on a case-to-case basis.
- 5.5.1.4. The payment of liquidated damages shall not in any way relieve the Successful Bidder from any of its obligations to complete the Project or from any other obligations and liabilities of the Successful Bidder under the Work Order.
- 5.5.1.5. The Delay Liquidated Damages shall be inclusive of all applicable taxes as applicable under the laws of India and such applicable taxes shall be borne by the Successful Bidder only.
- 5.5.1.6. The Successful Bidder acknowledges that the Delay Liquidated Damages payable by the Successful Bidder under this Work Order are a genuine pre-estimate of the losses suffered by OREDA and the compensation as contemplated is reasonable and not by way of any penalty.

5.5.2. Warranty

- 5.5.2.1. The details of the provisions related to the Warranty of the Equipment under the Project are mentioned in Section 6 (SCC).

5.5.3. Defect Liability

- 5.5.3.1. The Successful Bidder warrants that the Projector any part thereof shall be free from defects in the design, engineering, materials and workmanship of the Project supplied and of the work executed.
- 5.5.3.2. The Defect Liability Period shall be five (5) Years from the date of Commissioning of the Project.
- 5.5.3.3. If during the Defect Liability Period any defect should be found in the design, engineering, materials and workmanship of the Project supplied or of the work executed by the Successful Bidder, the Successful Bidder shall promptly, in consultation and agreement with OREDA regarding appropriate remedying of the defects, and at its cost, repair, replace or otherwise make good such defect as well as any damage to the Project caused by such defect.
- 5.5.3.4. OREDA shall give the Successful Bidder a notice stating the nature of any such defect together with all available evidence thereof, promptly following the discovery thereof. OREDA shall afford all reasonable opportunities for the Successful Bidder to inspect any such defect.
- 5.5.3.5. The Successful Bidder may, with the consent of OREDA, remove from the site any Projector any part of the Project that are defective if the nature of the defect, and/or any damage to the Project caused by the defect, is such that repairs cannot be expeditiously carried out at the site.
- 5.5.3.6. If the repair, replacement or making good is of such a character that it may affect the efficiency of the Projector any part thereof, OREDA may give to the Successful Bidder a notice requiring that tests of the defective part of the Project shall be made by the Successful Bidder immediately upon completion of such remedial work, whereupon the Successful Bidder shall carry out such tests. If such part fails the tests, the Successful Bidder shall carry out further repair, replacement or making good, as the case may be, until that part of the Project passes such tests. The tests shall be agreed upon by OREDA and the Successful Bidder.
- 5.5.3.7. If the Successful Bidder fails to commence the work necessary to remedy such defect or any damage to the Project caused by such defect within a reasonable time (which shall in no event be considered to be less than seven (7) Days), OREDA may, following notice to the Successful Bidder, proceed to do such work through a third party, and the reasonable costs incurred by OREDA in connection therewith shall be paid to OREDA by the Successful Bidder or may be deducted by OREDA from any monies due to the Successful Bidder or claimed under the Performance Security.
- 5.5.3.8. If the Projector any part thereof cannot be used by reason of such defect and/or making good of such defect, the Defect Liability Period of the Projector such part, as the case may be, shall be extended by a period equal to the period during which the Projector such part cannot be used by OREDA because of any of the aforesaid reasons.

5.5.3.9. Except as provided in GCC Clauses 5.5.2 and GCC Clause 5.6.3, the Successful Bidder shall be under no liability whatsoever and howsoever arising, and whether under the Work Order or at law, in respect of defects in the Projector any part thereof, the design or engineering or work executed that appear after Acceptance of the Projector any part thereof, except where such defects are the result of the gross negligence, fraud, criminal or willful action of the Successful Bidder.

5.5.4. Patent Indemnity

5.5.4.1. The Successful Bidder shall, subject to OREDA's compliance with GCC Clause 5.5.4.2, indemnify and hold harmless OREDA and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, which OREDA may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the date of the Work Order by reason of Commissioning and Acceptance of the Project.

Such indemnity shall not cover any use of the Projector any part thereof other than for the purpose indicated by or to be reasonably inferred from the Work Order, any infringement resulting from the use of the Projector any part thereof, or any products produced thereby in association or combination with any other equipment, plant or materials not supplied by the Successful Bidder, pursuant to the Work Order.

5.5.4.2. If any proceedings are brought or any claim is made against OREDA arising out of the matters referred to in GCC Clause 5.5.4.1, OREDA shall promptly give the Successful Bidder a notice thereof, and the Successful Bidder may at its own expense and in OREDA's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.

If the Successful Bidder fails to notify OREDA within seven (7) Days after receipt of such notice that it intends to conduct any such proceedings or claim, then OREDA shall be free to conduct the same on its own behalf. Unless the Successful Bidder has so failed to notify OREDA within the seven (7) Day period, OREDA shall make no admission that may be prejudicial to the defense of any such proceedings or claim.

OREDA shall, at the Successful Bidder's request, afford all available assistance to the Successful Bidder in conducting such proceedings or claim, and shall be reimbursed by the Successful Bidder for all reasonable expenses incurred in so doing or may be deducted by OREDA from any monies due to the Successful Bidder or claimed under the Performance Security.

5.5.5. Limitation of Liability

5.5.5.1. Except in cases of criminal negligence or willful misconduct,

the Successful Bidder shall not be liable to OREDA, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Successful Bidder to pay the Delay Liquidated Damages to OREDA; and

the maximum liability of the Successful Bidder to OREDA, whether under the Work Order, in tort or otherwise, shall not exceed ten percent (10%) of the Total Price.

5.6. Risk Distribution

5.6.1. Transfer of Ownership

5.6.1.1. The ownership of the Project shall pass on to OREDA on fulfillment of the following:

issuance of a certificate by the Successful Bidder stating that the Successful Bidder is free and clear from any and all claims, liens, security interest, encumbrances, unpaid vendors'/ suppliers' lien or otherwise, arising out of or in connection to the performance of the Work Order as per Annexure Clause 7.6; and

Issuance of Acceptance Certificate by OREDA.

5.6.2. Risk

5.6.2.1. Notwithstanding anything to the contrary in this Contract, the care, custody and the risk in relation to the entire Project shall pass on to OREDA on fulfillment of the following:

issuance of Acceptance Certificate by OREDA; and

Issuance of release and waiver of lien-free certificate by the Successful Bidder.

5.6.3. Loss of or Damage to Property; Accident or Injury to Workers; Indemnification

5.6.3.1. The Successful Bidder shall indemnify and hold harmless OREDA and its employees, officers and advisors from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, in respect of the death or injury of any person or loss of or damage to any property other than the Project, arising in connection with the implementation of the Project and by reason of the negligence of the Successful Bidder.

5.6.3.2. If any proceedings are brought or any claim is made against OREDA that might subject the Successful Bidder to liability under GCC Clause 5.6.3.1, OREDA shall promptly give the Successful Bidder a notice thereof and the Successful Bidder may at its own expense and in OREDA's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.

5.6.3.3. If the Successful Bidder fails to notify OREDA within seven (7) Days after receipt of such notice that it intends to conduct any such proceedings or claim, then OREDA shall be free to conduct the same on its own behalf. Unless the Successful Bidder has so failed to notify OREDA within the seven (7) Day period, OREDA shall make no admission that may be prejudicial to the defense of any such proceedings or claim.

5.6.3.4. OREDA shall, at the Successful Bidder's request, afford all available assistance to the Successful Bidder in conducting such proceedings or claim, and shall be reimbursed by the Successful Bidder for all reasonable expenses incurred in so doing or may be deducted by OREDA from any monies due to the Successful Bidder or claimed under the Performance Security.

5.6.4. Insurance

5.6.4.1. The Empaneled Vendor shall at its expense take out and maintain in effect, or cause to be taken out and maintained in effect until the issuance of the Acceptance Certificate, all necessary insurances. The Bid price is to be inclusive of all insurances taken.

5.6.5. Change in Laws and Regulations

5.6.5.1. If, after the last date of online Bid submission, any law, regulation, ordinance, order or by-law having the force of law is enacted, promulgated, abrogated or changed which shall be deemed to include any change in interpretation or application by the competent authorities, that subsequently affects the costs and expenses of the Successful Bidder and/or the time for achieving the Commissioning and Acceptance along with the Work Order price shall be correspondingly increased or decreased, and/or the Time for achieving Commissioning and Acceptance shall be reasonably adjusted to the extent that the Successful Bidder has thereby been affected in the performance of any of its obligations under the Work Order. Notwithstanding the foregoing, such additional or reduced costs shall not be separately paid or credited if the same has already been accounted for in the price adjustment provisions where applicable.

5.6.6. Force Majeure

5.6.6.1. "Force Majeure" shall mean any event beyond the reasonable control of OREDA or of the Successful Bidder, as the case may be, and which is unavoidable notwithstanding the reasonable care of the Party affected, and shall include, without limitation, the following:

war, hostilities or warlike operations whether a state of war be declared or not, invasion, an act of foreign enemy and civil war;

rebellion, revolution, insurrection, mutiny, usurpation of a civil or military government, conspiracy, riot, civil commotion and terrorist acts;

confiscation, nationalization, mobilization, commandeering or requisition by or under the order of any government or de jure or de facto authority or ruler or any other act or failure to act of any local state or national government authority;

strike, sabotage, lockout, embargo, import restriction, port congestion, lack of usual means of public transportation and communication, industrial dispute, shipwreck, shortage or restriction of power supply, epidemics, pandemics, lockdowns, quarantine and plague;

earthquake, landslide, volcanic activity, fire, flood or inundation, tidal wave, typhoon or cyclone, hurricane, storm, lightning, or other inclement weather condition, nuclear and pressure waves or other natural or physical disasters; and

shortage of labor, materials or utilities where caused by circumstances that are themselves Force Majeure.

5.6.6.2. If either party is prevented, hindered or delayed from or in performing any of its obligations under the Work Order by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances thereof within seven (7) Days after the occurrence of such event.

5.6.6.3. The Party who has given such notice shall be excused from the performance or punctual performance of its obligations under the Work Order for so long as the relevant event of Force Majeure continues and to the extent that such party's performance is prevented, hindered or delayed. The Time for Completion shall be extended in accordance with GCC Clause 5.7.2.

5.6.6.4. The Party or Parties affected by the event of Force Majeure shall use reasonable efforts to mitigate the effect thereof upon its or their performance of the Work Order and to fulfill its or their obligations under the Work Order, but without prejudice to either party's right to terminate the Work Order under GCC Clause 5.6.6.6.

5.6.6.5. No delay or nonperformance by either party hereto caused by the occurrence of any event of Force Majeure shall

constitute a default or breach of the Work Order, or

if and to the extent that such delay or nonperformance is caused by the occurrence of an event of Force Majeure.

5.6.6.6. If the performance of the Work Order is substantially prevented, hindered or delayed for a single period of more than sixty (60) Days or an aggregate period of more than one hundred and twenty (120) Days on account of one or more events of Force Majeure during the currency of the Work Order, the Parties will attempt to develop a mutually satisfactory solution, failing which either party may terminate the Work Order by giving notice to the other, but without prejudice to either party's right to terminate the Work Order.

5.6.6.7. In the event of termination pursuant to GCC Clause 5.6.6.6, the rights and obligations of OREDA and the Successful Bidder shall be as specified in GCC Clause 5.7.4.

5.7. Change in Work Order Elements

5.7.1. Change Order

5.7.1.1. A Change Order shall be issued only by OREDA. Any change made necessary because of a default by the Successful Bidder in the performance of its obligations shall not be considered a Change Order.

5.7.1.2. Change Orders may be initiated by OREDA at any time by the issuance of a Change Order notice to the Successful Bidder. The Successful Bidder shall not make any alteration and/ or modification of the Project unless the OREDA instructs or approves a Change Order in writing.

5.7.1.3. If the Owner issues a Change Order notice, the increase could in the range of (one hundred percent) 100% of the total bidding quantum and there shall be no change in the prices as quoted by the Bidder in its Price Bid. There shall be no change in Project Timelines.

5.7.2. Extension of achieving Commissioning and Acceptance

5.7.2.1. The Project Timelines as specified in the SOW Clause 3.4 shall be extended if the Successful Bidder is delayed or impeded in the performance of any of its obligations under the Work Order by reason of any of the following:

any occurrence of Force Majeure as provided in GCC Clause 5.6.6,

by such period as shall be fair and reasonable in all the circumstances and as shall fairly reflect the delay or impediment sustained by the Successful Bidder, subject to the final decision of OREDA.

5.7.3. Suspension

5.7.3.1. OREDA may request, by notice to the Successful Bidder, to order the Successful Bidder to suspend performance of any or all of its obligations under the Work Order. Such notice shall specify the obligation of which performance is to be suspended, the effective date of the suspension and the reasons therefor. The Successful Bidder shall thereupon suspend performance of such obligation, except those obligations necessary for the care or preservation of the Project, until ordered in writing to resume such performance by OREDA.

5.7.3.2. If the Successful Bidder's performance of its obligations is suspended or the rate of progress is reduced pursuant to GCC Clause 5.7.3, then the Project Timeline shall be extended in accordance with GCC Clause 5.7.2.1.

5.7.3.3. During the period of suspension, the Successful Bidder shall not remove from the site any Project, any part of the Project or any Successful Bidder's tools and tackles, without the prior written consent of OREDA.

5.7.4. Termination

5.7.4.1. Termination for OREDA's Convenience

- i OREDA may at any time terminate the Work Order for any reason by giving the Successful Bidder a notice of termination that refers to this GCC Clause 5.7.4.1.
- ii Upon receipt of the notice of termination as per the GCC Clause 5.7.4.1i, the Successful Bidder shall either immediately or upon the date specified in the notice of termination
 - i. cease all further work, except for such work as OREDA may specify in the notice of termination for the sole purpose of protecting that part of the Project already executed, or any work required to leave the site in a clean and safe condition,
 - ii. terminate all subcontracts, except those to be assigned to OREDA pursuant to GCC Clause 5.7.4.1i.A,
 - iii. remove all Successful Bidder's tools and tackles from the site, repatriate the Successful Bidder's and its personnel from the site, remove from the site any wreckage, rubbish and debris of any kind, and leave the whole of the site in a clean and safe condition, and
 - iv. subject to the payment specified in GCC Clause 5.7.4.1iii,
 - A. deliver to OREDA the parts of the Project executed by the Successful Bidder up to the date of termination, and
 - B. deliver to OREDA all non-proprietary drawings, specifications and other documents prepared by the Successful Bidder as on the date of termination in connection with the Project.
- iii In the event of termination of the Work Order under GCC Clause 5.7.4.1i, OREDA shall pay to the Successful Bidder the following amounts:
 - i. the Work Order Price, properly attributable to the parts of the Project executed by the Successful Bidder as of the date of termination

5.7.4.2. Termination for Successful Bidder's Default

- i OREDA, without prejudice to any other rights or remedies it may possess, may terminate the Work Order forthwith in the following circumstances by giving a notice of termination and its reasons therefor to the Successful Bidder, referring to this GCC Clause 5.7.4.2:
 - i. if the Successful Bidder becomes bankrupt or insolvent, has a receiving order issued against it, compounds with its creditors, or, if the Successful Bidder is a corporation, a resolution is passed or order is made for its winding up, other than a voluntary liquidation for the purposes of amalgamation or reconstruction, a receiver is appointed over any part of its undertaking or assets, or if the Successful Bidder takes or suffers any other analogous action in consequence of debt
 - ii. if the Successful Bidder assigns or transfers the Work Order or any right or interest therein in violation of the provision of GCC Clause 5.7.5.
 - iii. if the Successful Bidder, in the judgment of OREDA has engaged in Integrity Violation practices, as defined in GCC Clause 5.1.9.
- ii If the Successful Bidder
 - i. has abandoned or repudiated the Work Order
 - ii. has without valid reason failed to commence work on the Project promptly or has suspended the progress of Work Order performance for a prolonged period (30 days) even after receiving a written instruction from OREDA to proceed
 - iii. persistently fails to execute the Work Order in accordance with the Work Order or persistently neglects to carry out its obligations under the Work Order without just cause
 - iv. refuses or is unable to provide sufficient materials, services or labour to execute and complete the Project in the manner specified in the Project Timelines as per SOW Clause 3.4 at rates of progress that give reasonable assurance to OREDA that the Successful Bidder can attain Commissioning and Acceptance of the Project, then OREDA may, without prejudice to any other rights it may possess under the Work Order, give notice to the Successful Bidder stating the nature of the default and requiring the Successful Bidder to remedy the same. If the Successful Bidder fails to remedy or to take steps to remedy the same within fourteen (14) Days of its receipt of such notice, then OREDA may terminate the Work Order forthwith by giving a notice of termination to the Successful Bidder that refers to this GCC Clause 5.7.4.2.
- iii Upon receipt of the notice of termination under GCC Clause 5.7.4.2, the Successful Bidder shall, either immediately or upon such date as is specified in the notice of termination,
 - i. cease all further work, except for such work as OREDA may specify in the notice of termination for the sole purpose of protecting that part of the Project already executed, or any work required to leave the site in a clean and safe condition,
 - ii. terminate all subcontracts, except those to be assigned to OREDA pursuant to GCC Clause 5.7.4.1A,
 - iii. deliver to OREDA the parts of the Project executed by the Successful Bidder up to the date of termination complete in all respect, and
 - iv. deliver to OREDA all drawings, specifications and other documents prepared by the Successful Bidder as on the date of termination in connection with the Project.
- iv OREDA may enter upon the site, expel the Successful Bidder, and complete the Project itself or by employing any third party. OREDA may, to the exclusion of any right of the Successful Bidder over the same, take over and use with the payment of a fair rental rate to the Successful Bidder, with all the maintenance costs to the account of OREDA and with an indemnification by OREDA for all liability including damage or injury to persons arising out of OREDA's use of such Equipment, any Successful Bidder's equipment owned by the Successful Bidder and on the site in connection with the Project for such reasonable period as OREDA considers expedient to achieve the Commissioning and Acceptance.

- v Upon completion of the Project or at such earlier date as OREDA thinks appropriate, OREDA shall give notice to the Successful Bidder that such Successful Bidder's equipment will be returned to the Successful Bidder at or near the site and shall return such Successful Bidder's equipment to the Successful Bidder in accordance with such notice. The Successful Bidder shall thereafter without delay and at its cost remove all Successful Bidder's tools and tackles from the site, repatriate the Successful Bidder's personnel from the site, remove from the site any wreckage, rubbish and debris of any kind, and leave the whole of the site in a clean and safe condition.
- vi Subject to GCC Clause 5.7.4.2vi, the Successful Bidder shall be entitled to be paid the Work Order price attributable to the Project executed as of the date of termination, the value of any unused or partially used Project on the site, and the costs, if any, incurred in protecting the Project and in leaving the site in a clean and safe condition pursuant to GCC Clause 5.7.4.2iii. Any sums due to OREDA from the Successful Bidder accruing prior to the date of termination shall be deducted from the amount to be paid to the Successful Bidder under this Work Order.
- vii If OREDA completes the Project, the cost of completing the Project by OREDA shall be determined.
 - i. If the sum that the Successful Bidder is entitled to be paid, pursuant to GCC Clause 5.7.4.2v, plus the reasonable costs incurred by OREDA in completing the Project, exceeds the Total Price mentioned in the Work Order, the Successful Bidder shall be liable for such excess.
 - ii. If such excess is greater than the sums due to the Successful Bidder under GCC Clause 5.7.4.2v, the Successful Bidder shall pay the balance to OREDA.
- viii OREDA and the Successful Bidder shall agree, in writing, on the computation described above and the manner in which any sums shall be paid.

5.7.4.3. In this GCC Clause 5.7.4, the expression "Project executed" shall include all work executed, Installation Services provided, and all Project acquired, or subject to a legally binding obligation to purchase, by the Successful Bidder and used or intended to be used for the purpose of the Project, up to and including the date of termination.

5.7.4.4. In this GCC Clause 5.7.4, in calculating any monies due from OREDA to the Successful Bidder, the account shall be taken of any sum previously paid by OREDA to the Successful Bidder under the Work Order.

5.7.5. Assignment

5.7.5.1. No Party shall, without the prior consent of the other Party, assign to any Person any benefit of or obligation under this Work Order in whole or in part. Such an assignment, if approved by the other Party, shall not relieve the assigning Party from any obligations, duty, or responsibility under this Work Order.

5.7.5.2. The Successful Bidder consents to the creation by OREDA of security over or assignment of its rights and obligations under this Work Order including the Performance Security provided hereunder by the Successful Bidder in favour of OREDA.

5.8. Disputes and Arbitration

5.8.1. Mutual Settlement

5.8.1.1. If any dispute or difference shall arise between OREDA and the Successful Bidder out of, relating to or in connection with the Work Order (including its existence, breach, termination or validity) or the performance of the Comprehensive Maintenance under the Work Order, it shall, in the first instance be referred to the Chief Executive, OREDA and the Successful Bidder's senior management. The Chief Executive, OREDA shall make every effort to amicably resolve the dispute or differences arising between the Parties and provide its written decision within a maximum time period of fifteen (15) Days of the dispute being referred to it by either Party.

- 5.8.1.2. If the Chief Executive, OREDA has given its written decision to the Parties and no claim to arbitration has been communicated to it by either Party within two (2) Days from receipt of such notice, the said decision shall become final and binding on the Parties.
- 5.8.1.3. In the event that the Chief Executive, OREDA fails to provide its decision within the above said period after being requested as aforesaid, or in the event that either OREDA or the Successful Bidder is dissatisfied with any such decision, either Party may, within fifteen (15) Days after the date on which such decision is required to be provided in accordance with GCC Clause 5.8.1.1, whether the decision is provided by the Chief Executive, OREDA during such period or not, refer the matter to the Energy Secretary to the Government of Odisha for a resolution.
- 5.8.1.4. The Energy Secretary to the Government of Odisha shall make every effort to amicably resolve the dispute or differences arising between the Parties and provide its written decision within a maximum time period of seven (7) Days of the dispute being referred to it by either Party.
- 5.8.1.5. In the event that the Energy Secretary to the Government of Odisha fails to provide its decision within the above said period after being requested as aforesaid, or in the event that either OREDA or the Successful Bidder is dissatisfied with any such decision, either Party may, within fifteen (15) Days after the date on which such decision is required to be provided in accordance with GCC Clause 5.8.1.4, whether the decision is provided by the concerned Secretary of the admin department to the Government of Odisha during such period or not, refer the matter in dispute to arbitration as hereinafter provided in GCC Clause 5.8.2.
- 5.8.1.6. The Successful Bidder shall continue to perform its obligations under this Contract during this mutual settlement.

5.8.2. Arbitration

- 5.8.2.1. If disputes or differences between the Parties are not resolved under Clause 5.8.1, the same shall be referred for arbitration under the Indian Arbitration and Conciliation Act, 1996.
- 5.8.2.2. The arbitral tribunal shall consist of a sole arbitrator, who shall be appointed by the Parties mutually, in accordance with the Arbitration and Conciliation Act, 1996.
- 5.8.2.3. The Successful Bidder shall continue to perform its obligations under this Contract during the arbitration proceedings.
- 5.8.2.4. The arbitration proceedings shall be in English and shall take place in Bhubaneswar, Odisha. The courts in Bhubaneswar, Odisha shall have jurisdiction on any matter connected with or arising under this Contract. The law governing the arbitration and the process shall be Indian law only.
- 5.8.2.5. The arbitration shall be the sole and exclusive remedy between the Parties regarding the dispute referred to arbitration and any claims, counterclaims, issues or accountings presented to the tribunal in connection with such dispute.
- 5.8.2.6. The award rendered in any arbitration commenced hereunder shall be final, conclusive, and binding on the Parties.
- 5.8.2.7. The Parties hereby undertake to implement the award with an immediate effect.

6. Special Conditions of Contract (SCC)

Section 6 (SCC) shall supplement the Clauses mentioned in Section 5 (GCC). Whenever there are a conflict or interpretation issues, the provisions herein shall prevail over those in Section 6 (SCC). The Clause number of Section 6 (SCC) is the corresponding Clause number of Section 5 (GCC).

6.1. Specific provisions of GCC

SCC Clause reference	GCC Clause reference	Detailed Clause															
6.1.1.	GCC Clause 5.2.2.1	<p>Payment:</p> <p>The payment for work order shall be made in the following manner:</p> <table border="1"> <thead> <tr> <th>Milestone</th> <th>Payment term</th> <th>Support documents</th> </tr> </thead> <tbody> <tr> <td>On achievement of Commissioning of the Project</td> <td>Ninety percent (90%) of the Total Price + applicable Tax at the time of invoicing, as specified in the Works Order.</td> <td> <ul style="list-style-type: none"> The payment shall be made upon due verification by OREDA on the following documents: Joint Commissioning Certificate (JCC) Warranty certificates GPS based photograph Submission of executed version of CMC as per the sample format provided in Annexure Clause 1.1.1 CMC Manual Dos & Don'ts in the form of a booklet Photographs of all installations in a specified manner Compliance to CRC process using the ReResolve Mobile App Commissioning Report </td> </tr> <tr> <td>On achievement of Acceptance of the Project</td> <td>Balance ten percent (10%) of the Total Price + applicable tax at the time of invoicing, as specified in the Works Order.</td> <td> <ul style="list-style-type: none"> Acceptance Certificate Acceptance Report </td> </tr> <tr> <td>On completion of CMC for 1st year from commissioning of the Project (one BG)</td> <td>Bank Guarantee 1: Two percent (2%) of the Total Price + applicable tax at the time BG submission, as specified in the Works Order, to be returned</td> <td> <ul style="list-style-type: none"> CMC Performance report of Project from OREDA as per Annexure Clause 7.5.8 </td> </tr> <tr> <td>On completion of CMC for 2nd year from commissioning</td> <td>Bank Guarantee 2: Two percent (2%) of the Total Price + applicable tax at</td> <td> <ul style="list-style-type: none"> CMC Performance report of Project from OREDA as per Annexure Clause 7.5.8 </td> </tr> </tbody> </table>	Milestone	Payment term	Support documents	On achievement of Commissioning of the Project	Ninety percent (90%) of the Total Price + applicable Tax at the time of invoicing, as specified in the Works Order.	<ul style="list-style-type: none"> The payment shall be made upon due verification by OREDA on the following documents: Joint Commissioning Certificate (JCC) Warranty certificates GPS based photograph Submission of executed version of CMC as per the sample format provided in Annexure Clause 1.1.1 CMC Manual Dos & Don'ts in the form of a booklet Photographs of all installations in a specified manner Compliance to CRC process using the ReResolve Mobile App Commissioning Report 	On achievement of Acceptance of the Project	Balance ten percent (10%) of the Total Price + applicable tax at the time of invoicing, as specified in the Works Order.	<ul style="list-style-type: none"> Acceptance Certificate Acceptance Report 	On completion of CMC for 1 st year from commissioning of the Project (one BG)	Bank Guarantee 1: Two percent (2%) of the Total Price + applicable tax at the time BG submission, as specified in the Works Order, to be returned	<ul style="list-style-type: none"> CMC Performance report of Project from OREDA as per Annexure Clause 7.5.8 	On completion of CMC for 2 nd year from commissioning	Bank Guarantee 2: Two percent (2%) of the Total Price + applicable tax at	<ul style="list-style-type: none"> CMC Performance report of Project from OREDA as per Annexure Clause 7.5.8
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On achievement of Commissioning of the Project	Ninety percent (90%) of the Total Price + applicable Tax at the time of invoicing, as specified in the Works Order.	<ul style="list-style-type: none"> The payment shall be made upon due verification by OREDA on the following documents: Joint Commissioning Certificate (JCC) Warranty certificates GPS based photograph Submission of executed version of CMC as per the sample format provided in Annexure Clause 1.1.1 CMC Manual Dos & Don'ts in the form of a booklet Photographs of all installations in a specified manner Compliance to CRC process using the ReResolve Mobile App Commissioning Report 															
On achievement of Acceptance of the Project	Balance ten percent (10%) of the Total Price + applicable tax at the time of invoicing, as specified in the Works Order.	<ul style="list-style-type: none"> Acceptance Certificate Acceptance Report 															
On completion of CMC for 1 st year from commissioning of the Project (one BG)	Bank Guarantee 1: Two percent (2%) of the Total Price + applicable tax at the time BG submission, as specified in the Works Order, to be returned	<ul style="list-style-type: none"> CMC Performance report of Project from OREDA as per Annexure Clause 7.5.8 															
On completion of CMC for 2 nd year from commissioning	Bank Guarantee 2: Two percent (2%) of the Total Price + applicable tax at	<ul style="list-style-type: none"> CMC Performance report of Project from OREDA as per Annexure Clause 7.5.8 															

SCC Clause reference	GCC Clause reference	Detailed Clause		
		of the Project(one BG)	the time of BG submission, as specified in the Works Order. BG 2 (to be returned)	
		On completion of CMC for 3 rd year from commissioning of the Project (one BG)	Bank Guarantee 3: Two percent (2%) of the Total Price + applicable tax at the time BG submission, as specified in the Works Order, to be returned	<ul style="list-style-type: none"> • CMC Performance report of Project from OREDA as per Annexure Clause 7.5.8
		On completion of CMC for 4 th year from commissioning of the Project (one BG)	Bank Guarantee 4: Two percent (2%) of the Total Price + applicable tax at the time BG submission, as specified in the Works Order, to be returned	<ul style="list-style-type: none"> • CMC Performance report of Project from OREDA as per Annexure Clause 7.5.8
		On completion of CMC for 5 th year from commissioning of the Project (one BG)	Bank Guarantee 5: Two percent (2%) of the Total Price + applicable tax at the time BG submission, as specified in the Works Order, to be returned	<ul style="list-style-type: none"> • CMC Performance report of Project from OREDA as per Annexure Clause 7.5.8
6.1.2.	GCC Clause 5.5.2.1	<p>Warranty:</p> <p>The Warranty in respect of the Equipment, as applicable shall be as follows:</p> <ul style="list-style-type: none"> • Solar photovoltaic modules: Performance Warranty with guaranteed ninety percent (90%) production at the end of 10th year of operation and 80% (eighty percent) at the end of the 25th year of operation from the date of Commissioning of the Project. Product Warranty for a period of ten (10) years from the date of Commissioning of the Project. • Pole and module mounting structures: Product Warranty period of five (5) years from the date of Commissioning of the Project. • Power Conditioning Unit/ Inverter: Product Warranty period of five (5) years from the date of Commissioning of the Project • Module mounting structures: Product Warranty period of five (5) years from the date of Commissioning of the Project. • Balance of system: Product Warranty period of five (5) years from the date of Commissioning of the Project. <p>As a testimony, the Successful Bidder must submit the Warranty certificate and service agreement with the OEM/ suppliers prior to achieving Commissioning of the Project. Any defect noticed during the Warranty period should be rectified/ replaced by the Successful Bidder either through OEM/ suppliers or by itself, free of cost, upon due intimation by OREDA.</p>		

SCC Clause reference	GCC Clause reference	Detailed Clause
		In case any OEM/ supplier provides a Warranty period more than five (5) years from the date of Commissioning of the Project, then the Successful Bidder shall provide the same to OREDA even if the Warranty period exceeds the CMC Period.

7. Annexure

7.1. Bid Forms – Technical Bid

7.1.1. Bid Form 1 (Covering Letter of Technical Bid)

Covering Letter of Technical Bid

(To be submitted on the letterhead of the Bidder)

Date: [DD MMM YYYY]

RFE No.: [insert RFE No.] dated [DD MMM YYYY]

To

The Chief Executive

Odisha Renewable Energy Development Agency (OREDA)

Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.

Email: ceoreda@oredaorissa.com

Sub: Submission of Technical Bid against the RFE for the empanelment for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various Rooftop Solar PV (with/ without battery) projects, across Odisha

Dear [Sir/ Madam],

Having examined the Bidding Document carefully, we, the undersigned, offer to submit herewith the Technical Bid as per the subject line and RFE No. mentioned above.

We confirm that we have submitted bid for following type of Projects as per SOW Clause 3.1.1.4:

Sr. No.	Type of Project	Submitted bid for empanelment on rate contract basis
1.	On grid Roof top Solar Project without battery systems	[Yes or No]
2.	On grid Roof top solar project with battery system	[Yes or No]
3.	Off grid Roof top solar projects with 6 hours battery backup system	[Yes or No]

We hereby undertake the following:

3. We have read all the provision of the Bidding Document and confirm that notwithstanding anything stated elsewhere in our Technical Bid to the contrary, the provisions of the Bidding Document are acceptable to us and we further confirm that we have not taken any deviation to the provision of the RFE anywhere in our Bid. Acceptance of the above attribute shall be considered as our confirmation that any deviation, variation or additional condition, etc. or any mention, contrary to the provisions of Bidding Document found anywhere in our Technical Bid implicit or explicit shall stand unconditionally withdrawn, without any cost implication whatsoever to OREDA.
4. We further declare that any additional conditions, variations, deviations, if any, in our Bid shall not be given effect to. We further understand that any deficiency or illegibility in our Technical Bid shall result in rejection of our Technical Bid.
5. We hereby declare that all the information and statements made in this proposal are complete, true and correct and also accept that any misinterpretation contained in it may lead to our disqualification and

rejection of our Technical Bid. In case of any false documents submitted and found any time in the future, we shall be liable to be proceeded as per Applicable Law.

6. We confirm that we have submitted the Technical Bid as per the instructions given in the Bidding Document.
7. We hereby declare and confirm that only we are submitting our Bid and that our parent, affiliate, the ultimate parent or any group companies with which we have direct or indirect relationships are not separately submitting their Bid.
8. We hereby declare that our application has been submitted in good faith and the information contained is true and correct to the best of our knowledge and belief.
9. We confirm that the Technical Bid submitted are subject to the verification solely by appropriate authorities of OREDA as per all the terms of the Bidding Document and agree that the decision taken by OREDA shall be final and binding on us.
10. We declare that our Technical Bid is fully compliant to the qualification requirement mentioned under Section 4 (QR) and we have not misrepresented any information provided in our Bid.
11. We confirm that any genuine changes made by OREDA in the interest of the Project with respect to the Technical Specifications, Designs and Drawings during the course of performance of the Work Order shall be fully acceptable to us without any cost implication whatsoever.
12. We confirm that we will comply with all the Applicable Laws and Prudent Utility Practices all the time during the performance of the Work Order.
13. We confirm that we have submitted the Technical Bid as per the forms given in Bid Form (Technical Bid) and/ or the instructions given in the RFE or E-procurement Website; failure to which our Technical Bid shall be considered as non-responsive and shall be liable for rejection.
14. We agree that We have not submitted any conditional or alternative Technical Bid and in case of any deviation, then our Technical Bid shall be considered as non-responsive and shall be liable for rejection.
15. We confirm that we do not have any conflict of interest in accordance with the provisions of the RFE.
16. We confirm that in case we are directly or indirectly through an agent engaged in Corrupt Practice, Fraudulent Practice, Coercive Practice, Collusive Practice, Obstructive Practice or Integrity Violation, then our Technical Bid shall be considered as non-responsive and shall be liable for rejection.
17. We confirm that OREDA reserves all the right to accept or reject any Technical Bid without assigning any reasons thereof and shall not be held liable for any such action and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.
18. We confirm that in case our Bid is accepted, we undertake to provide Performance Security as specified in the RFE, else our Bid Security shall be forfeited.
19. We agree that this Technical Bid shall remain valid for a period of Three hundred and sixty-five (365) Days (Can be extended up to 2 years) from the original last date of online Bid submission and such further period as may be mutually agreed upon.
20. The Bidding Document has been discussed in the Board meeting and a Board Resolution (BR) no. [insert BR no.] dated [DD MMM YYYY] has been concurred for submission of our Bid and is enclosed as a part of Bid Form 3 (Power of Attorney).
21. We undertake that OREDA shall, without prejudice to any other right or remedy, be at liberty to forfeit the Bid Security deposited by us in case of any default as per the Bidding Document.
22. In case we fail to achieve the milestones of Commissioning and Acceptance of the Project as per the Timelines, OREDA shall, without prejudice to any other right or remedy, be at liberty to forfeit the Performance Security.
23. We confirm that we shall establish a local office in Odisha so as to deliver uninterrupted and sustainable services during the O&M Period.

24. We understand that you are not bound to accept any Technical Bid you may receive.

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

Covering Letter of Technical Bid

(To be submitted on the letterhead of the Bidder)

Date: [DD MMM YYYY]

RFE No.: [insert RFE No.] dated [DD MMM YYYY]

To

The Chief Executive

Odisha Renewable Energy Development Agency (OREDA)

Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.

Email: ceoreda@oredaorissa.com

Sub: Submission of Technical Bid against the RFE for the empanelment for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various Off-grid Solar PV based applications such as Solar Tree with streetlights, Solar tree with garden lights, Solar Street Lights, Solar Mini Mast, Solar High Mast, Solar Based Drinking water Kiosks, across Odisha

Dear [Sir/ Madam],

Having examined the Bidding Document carefully, we, the undersigned, offer to submit herewith the Technical Bid as per the subject line and RFE No. mentioned above.

We confirm that we have submitted bid for following type of Projects as per SOW Clause 3.1.1.4:

Sr. No.	Type of Project	Submitted bid for empanelment on rate contract basis
1	Solar Tree (1 kW) with 4 street light	[Yes or No]
2	Solar Tree (2.5 kW) with 20 garden lights	[Yes or No]
3	Solar Street Light	[Yes or No]
4	Solar based Drinking water kiosk	[Yes or No]
5	Solar Mini Mast	[Yes or No]
6	Solar High Mast	[Yes or No]

We hereby undertake the following:

1. We have read all the provision of the Bidding Document and confirm that notwithstanding anything stated elsewhere in our Technical Bid to the contrary, the provisions of the Bidding Document are acceptable to us and we further confirm that we have not taken any deviation to the provision of the RFE anywhere in our Bid. Acceptance of the above attribute shall be considered as our confirmation that any deviation, variation or additional condition, etc. or any mention, contrary to the provisions of Bidding Document found anywhere in our Technical Bid implicit or explicit shall stand unconditionally withdrawn, without any cost implication whatsoever to OREDA.
2. We further declare that any additional conditions, variations, deviations, if any, in our Bid shall not be given effect to. We further understand that any deficiency or illegibility in our Technical Bid shall result in rejection of our Technical Bid.
3. We hereby declare that all the information and statements made in this proposal are complete, true and correct and also accept that any misinterpretation contained in it may lead to our disqualification and rejection of our Technical Bid. In case of any false documents submitted and found any time in the future, we shall be liable to be proceeded as per Applicable Law.
4. We confirm that we have submitted the Technical Bid as per the instructions given in the Bidding Document.

5. We hereby declare and confirm that only we are submitting our Bid and that our parent, affiliate, the ultimate parent or any group companies with which we have direct or indirect relationships are not separately submitting their Bid.
6. We hereby declare that our application has been submitted in good faith and the information contained is true and correct to the best of our knowledge and belief.
7. We confirm that the Technical Bid submitted are subject to the verification solely by appropriate authorities of OREDA as per all the terms of the Bidding Document and agree that the decision taken by OREDA shall be final and binding on us.
8. We declare that our Technical Bid is fully compliant to the qualification requirement mentioned under Section 4 (QR) and we have not misrepresented any information provided in our Bid.
9. We confirm that any genuine changes made by OREDA in the interest of the Project with respect to the Technical Specifications, Designs and Drawings during the course of performance of the Work Order shall be fully acceptable to us without any cost implication whatsoever.
10. We confirm that we will comply with all the Applicable Laws and Prudent Utility Practices all the time during the performance of the Work Order.
11. We confirm that we have submitted the Technical Bid as per the forms given in Bid Form (Technical Bid) and/ or the instructions given in the RFE or E-procurement Website; failure to which our Technical Bid shall be considered as non-responsive and shall be liable for rejection.
12. We agree that We have not submitted any conditional or alternative Technical Bid and in case of any deviation, then our Technical Bid shall be considered as non-responsive and shall be liable for rejection.
13. We confirm that we do not have any conflict of interest in accordance with the provisions of the RFE.
14. We confirm that in case we are directly or indirectly through an agent engaged in Corrupt Practice, Fraudulent Practice, Coercive Practice, Collusive Practice, Obstructive Practice or Integrity Violation, then our Technical Bid shall be considered as non-responsive and shall be liable for rejection.
15. We confirm that OREDA reserves all the right to accept or reject any Technical Bid without assigning any reasons thereof and shall not be held liable for any such action and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.
16. We confirm that in case our Bid is accepted, we undertake to provide Performance Security as specified in the RFE, else our Bid Security shall be forfeited.
17. We agree that this Technical Bid shall remain valid for a period of Three hundred and sixty-five (365) Days (Can be extended up to 2 years) from the original last date of online Bid submission and such further period as may be mutually agreed upon.
18. The Bidding Document has been discussed in the Board meeting and a Board Resolution (BR) no. [insert BR no.] dated [DD MMM YYYY] has been concurred for submission of our Bid and is enclosed as a part of Bid Form 3 (Power of Attorney).
19. We undertake that OREDA shall, without prejudice to any other right or remedy, be at liberty to forfeit the Bid Security deposited by us in case of any default as per the Bidding Document.
20. In case we fail to achieve the milestones of Commissioning and Acceptance of the Project as per the Timelines, OREDA shall, without prejudice to any other right or remedy, be at liberty to forfeit the Performance Security.
21. We confirm that we shall establish a local office in Odisha so as to deliver uninterrupted and sustainable services during the O&M Period.
22. We understand that you are not bound to accept any Technical Bid you may receive.

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

7.1.2. Bid Form 2 (Summary of the Technical Bid)

Summary of the Technical Bid

(To be submitted on the letterhead of the Bidder)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

To

The Chief Executive

Odisha Renewable Energy Development Agency (OREDA)

Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.

Email: ceoreda@oredaorissa.com

We, the undersigned, attaching the information as required under this format:

Particulars	Requirements	Information furnished by the Bidder
Bid Processing Fee	<p>Copy of the “e-payment” for an amount and other details as mentioned in Section 2 (BDS) already made by the Bidder as per the various e-payment options (credit card, debit card, net banking, etc.) available on the E-procurement Website towards “Bid Processing Fee”.</p> <p>This shall be a non-refundable fee and is a mandatory submission.</p>	<p>Unique Transaction Reference (UTR) no. is [insert the UTR no.], dated [DD MMM YYYY]</p> <p>We are attaching the copy of the Bid Processing Fee paid to the E-procurement Website www.tenderwizard.com/OREDA under Attachment 1.</p>
Cost of Bid	<p>Copy of the “Demand Draft” for an amount and other details as mentioned in Section 2 (BDS) issued by a nationalized/ commercial bank in India towards “Cost of Bid” issued in favour of Chief Executive, OREDA payable at Bhubaneswar, Odisha.</p> <p>This shall be a non-refundable fee.</p> <p>This shall be payable by all the Bidders, subject to any exemption as provided in Section 2 (BDS). In case of an exempt as admissible, the copy of the proof of exemption issued by an appropriate Government authority (as applicable) shall be submitted.</p>	<p>Demand Draft no. is [insert], dated [DD MMM YYYY]</p> <p>We are attaching the copy of the Cost of Bid submitted in the form of Demand Draft under Attachment 2.</p>
Bid Security	<p>Bid Security Declaration Form shall be submitted as per Bid Form 2.</p>	<p>We are attaching the copy of the Bid Security Declaration Form under Attachment 3.</p>
Registration details	<p>Certificate of Incorporation, Memorandum of Association (MOA) and Article of Association (AOA), applicable in case of companies. The AOA (if applicable) shall mention the company's operations and defines the company's purpose from the SOW point of view.</p> <p>or</p> <p>Partnership Deed, applicable in case of partnership firm.</p> <p>or</p> <p>Proof of having the bank account or any other document as issued by the Government, applicable in case of sole proprietorship firm.</p>	<p>We are attaching the copy of the Registration Certificate under Attachment 4.</p>

Particulars	Requirements	Information furnished by the Bidder
PAN	PAN is [insert PAN]	We are attaching the copy of the PAN under Attachment 5.
GST	GST no. is [insert GST no.] and the place of GST registration is for the state of [insert state name].	We are attaching the copy of the PAN under Attachment 6.
Income tax returns	Copy of the Income Tax Return for the last three (3) Assessment Years i.e. Assessment Year (AY) AY 2020-21, AY 2021-22, AY 2022-23	We are attaching the copies of the Income tax returns under Attachment 7.

Attachment 1

Attachment 2

Attachment 3

Attachment 4

Attachment 5

Attachment 6

Attachment 7

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

Bid Security Declaration Form

(To be submitted on the letterhead of the Bidder)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

To

The Chief Executive

Odisha Renewable Energy Development Agency (OREDA)

Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.

Email: ceoreda@oredaorissa.com

We, the undersigned, declare that:

We understand that, according to OREDA's conditions, bids must be supported by a Bid Securing Declaration.

We accept that We may be disqualified from participating in bids of OREDA for a period of three years from the date of notification if we are in a breach of any obligation under the bid conditions, including if we:

- a) have withdrawn/modified/amended, impairs or derogates from this RFE, our Bid during the period of bid validity specified in the Bid Form 1; or
- b) having been notified of the acceptance of our Bid by OREDA during the period of bid validity
 - i. fail or refuse to execute the contract, if required, or
 - ii. fail or refuse to furnish the Performance Security, in accordance with the Instructions to Bidders.
- c) having been notified of the acceptance of our Bid and Work Order by OREDA during the Empanelment period
 - i. fail or refuse to execute the contract, if required, or
 - ii. fail or refuse to furnish the Performance Security, in accordance with the Instructions to Bidders.

We understand this Bid Security Declaration shall cease to be valid if we are not the Successful Bidder, upon the earlier of the receipt of your notification of the name of the successful Bidder; or thirty days after the expiration of the validity of our Bid.

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

7.1.3. Bid Form 3 (Power of Attorney)

Power of Attorney

(To be submitted on a non-judicial stamp paper of appropriate value as per The Indian Stamp Act, 1899 relevant to the place of execution. The stamp paper shall be purchased in the name of the Bidder only.)

Signature and stamp of the notary of the place of execution [insert place] dated [DD MMM YYYY]

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

To

The Chief Executive

Odisha Renewable Energy Development Agency (OREDA)

Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.

Email: ceoreda@oredaorissa.com

Know all men by these presents, We, [name of the executant(s)], do hereby constitute, appoint and authorize [name of the Authorized Signatory] as the Authorized Signatory presently residing at [residential address of Authorized Signatory] and having PAN [insert PAN no. of Authorized Signatory] who is presently employed with us and holding the designation of [designation of the Authorized Signatory] as our true and lawful representative, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to submission of our Bid for the empanelment for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of Roof top solar projects (Off grid/Ongrid without battery/On grid with battery), across Odisha, with reference to the RFE no. [insert RFE no.] dated [DD MMM YYYY] issued by Odisha Renewable Energy Development Agency ('OREDA').

The Authorized Signatory shall represent us and shall be responsible for the signing of the Bid, submission of the Bid and executing all other documents related to this Bid, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document which OREDA may require us to submit. The Authorized Signatory is further authorized to make representations to OREDA and provide information/ responses to OREDA, representing us in all matters before OREDA, and generally dealing with OREDA in all matters in connection with our Bid and during the performance of the Work Order.

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

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

Signature of the executant

Name:

Designation:

Address:

Company:

Accepted by

Signature of the Authorized Signatory

Name:

Designation:

Address:

Company:

Common seal of [name of the Bidder] is affixed in [my/our] presence pursuant to the provisions mentioned in the clause under "Seal" of the Article of Association.

Board resolution dated [DD MMM YYYY] is attached below.

WITNESS

Signature:

Name:

Address:

Signature:

Name:

Address:

Notes:

1. The mode of execution of the power of attorney shall be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and the same shall be under the common seal of the executants affixed in accordance with the applicable procedure. Further, the person whose signatures are to be provided on the power of attorney shall be duly authorized by a Board Resolution.
2. The person authorized under this Power of Attorney shall be a person holding the responsible post and designation in the company.
3. The Board Resolution forms a part of the Power of Attorney.

Board Resolution

(To be submitted on the letterhead of the Bidder)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.]

CERTIFIED TRUE COPY OF THE RESOLUTION PASSED IN THE MEETING OF THE BOARD OF DIRECTORS OF M/S. [insert name of the Bidder] HAVING ITS REGISTERED OFFICE AT [insert office address of the Bidder] HELD ON [DD MMM YYYY] AT [HHMM]HRS.

Resolved that we, [insert name of the Bidder], do agree to participate in the RFE invited by OREDA vide RFE no. [insert RFE no.] dated [DD MMM YYYY] for the empanelment for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of Roof top solar projects (Off grid/Ongrid without battery/On grid with battery), across Odisha

RESOLVED FURTHER THAT, [insert name of the Bidder] agrees to unconditionally accept all terms and conditions mentioned in the aforementioned Bidding Document.

RESOLVED FURTHER THAT, Ms./ Mr. [Name of the Authorized Signatory] [is/ are] presently residing at [residential address of Authorized Signatory] and having PAN [insert PAN no. of Authorized Signatory] who is presently employed with us and holding the designation of [designation of the Authorized Signatory] is the Authorized Signatory of [insert name of the Bidder] be and hereby authorized to sign, execute and submit such applications, undertakings, agreements and other requisite documents writings and deeds as may be deemed necessary or expedient to implement the above Project.

AND RESOLVED FURTHER THAT, the common seal of the company is affixed, wherever necessary, in accordance with the applicable procedure laid down by the applicable law and the charter documents.

For [insert name of the Bidder]

Chairman/ Director/ Company Secretary
(Signatory of the Board Resolution)

Name of the Authorized Signatory
Specimen signature of Authorized Signatory

Note: The above signature(s) to be attested by the person signing the resolution

7.1.4. Bid Form 4 (Technical Qualification)

Technical Qualification (Applicable for Category A Bidders)

(To be submitted on the letterhead of the Bidder)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

To

The Chief Executive

Odisha Renewable Energy Development Agency (OREDA)

Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar – 751010, Odisha.

Email: ceoreda@oredaorissa.com

We confirm that we meet the Qualification Requirement mentioned in QR Clause 4.3 of Section 4 (QR) and we have the experience of commissioning of projects for a cumulative quantity as mentioned under the “Our experience” in the last three (3) years from the last date of online submission of the Technical Bid in Odisha as an EPC contractor.

As per QR Clause 4.3.1, our experiences are as follows:

Technical Qualification	Units installed and commissioned	Reference Order commissioning certificate	Work no/	Solar system capacity commissioned	Reference Order commissioning certificate	Work no/
Roof top solar projects across India						

*Please mention NA as applicable in the respective field

The details pertaining to the reference projects are given below:

Sr. No.	Item Description	Reference project [insert]*
1	Project Capacity (Sales Order /Work Order capacity) in numbers	[Units installed and commissioned]
2	Title of the project with a brief of scope	
3	Actual project cost	[insert] Lakh INR
4	Name of the client with the full address including the contact no. and email id of the client	Name of the client: Address: Contact no.: Email id:
5	Location of the project	[Village, Block, District, State] and [Latitude, Longitude]
6	I have attached the relevant letter of awards/ work orders/ contract agreement along with any amendments issued in full without deleting/ hiding any information	[Yes/ No]
7	Details of the letter of awards/ work orders/ contract	Work order no.: Date of work order: [DD MMM YYYY] Whether any liquidated damages been charged by the client? [Yes/ No]. In case of yes, please provide the details.
8	I have attached the joint commissioning certificate issued by the concerned government authority as per the prudent utility practices followed in Odisha	[Yes/ No]
9	Details of the joint commissioning certificate	Name of the government authority in Odisha issuing the joint commissioning certificate: [insert] Target date of commissioning: [DD MMM YYYY] Actual date of commissioning: [DD MMM YYYY]

* in case of multiple reference projects, please keep on adding separate columns.

The scan copies of the letter of awards/ work orders/ contract along with the associated joint commissioning certificates/ experience certificates are enclosed below:

[Please attached the proof of documents]

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

Technical Qualification (Applicable for Category A Bidders)

(To be submitted on the letterhead of the Bidder)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

To

The Chief Executive

Odisha Renewable Energy Development Agency (OREDA)

Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar – 751010, Odisha.

Email: ceoreda@oredaorissa.com

We confirm that we meet the Qualification Requirement mentioned in QR Clause 4.3 of Section 4 (QR) and we have the experience of commissioning of projects for a cumulative quantity as mentioned under the “Our experience” in the last three (3) years from the last date of online submission of the Technical Bid in Odisha as an EPC contractor.

As per QR Clause 4.3.1, our experiences are as follows:

Technical Qualification	Units installed and commissioned	Reference Order commissioning certificate	Work no/	Solar system capacity commissioned	Reference Order commissioning certificate	Work no/
Solar Tree (1 kW) with 4 streetlights						
Solar Tree (2.5 kW) with 20 garden lights						
Solar Street Light						
Solar based Drinking water kiosk						
Solar Mini Mast						
Solar High Mast						

*Please mention NA as applicable in the respective field

The details pertaining to the reference projects are given below:

Sr. No.	Item Description	Reference project [insert]*
1	Project Capacity (Sales Order /Work Order capacity) in numbers	[Units installed and commissioned]
2	Title of the project with a brief of scope	
3	Actual project cost	[insert] Lakh INR
4	Name of the client with the full address including the contact no. and email id of the client	Name of the client: Address: Contact no.: Email id:
5	Location of the project	[Village, Block, District, State] and [Latitude, Longitude]
6	I have attached the relevant letter of awards/ work orders/ contract agreement along with any amendments issued in full without deleting/ hiding any information	[Yes/ No]
7	Details of the letter of awards/ work orders/ contract	Work order no.: Date of work order: [DD MMM YYYY] Whether any liquidated damages been charged by the client? [Yes/ No]. In case of yes, please provide the details.
8	I have attached the joint commissioning certificate issued by the concerned	[Yes/ No]

Sr. No.	Item Description	Reference project [insert]*
	government authority as per the prudent utility practices followed in Odisha	
9	Details of the joint commissioning certificate	Name of the government authority in Odisha issuing the joint commissioning certificate: [insert] Target date of commissioning: [DD MMM YYYY] Actual date of commissioning: [DD MMM YYYY]

* in case of multiple reference projects, please keep on adding separate columns.

The scan copies of the letter of awards/ work orders/ contract along with the associated joint commissioning certificates/ experience certificates are enclosed below:

[Please attached the proof of documents]

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

Technical Qualification (Applicable for Category B Bidders)

(To be submitted on the letter head of the Bidder)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

To

The Chief Executive

Odisha Renewable Energy Development Agency (OREDA)

Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.

Email: ceoreda@oredaorissa.com

This Form is not applicable to us, since we are submitting the Bid under Category B.

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

7.1.5. Bid Form 5 (Financial Qualification)

Financial Qualification (Applicable for Category A Bidders)

(To be submitted on the letterhead of the certified chartered accountant)

To

The Chief Executive
Odisha Renewable Energy Development Agency (OREDA)
Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.
Email: ceoreda@oredaorissa.com

I, [insert name of the chartered accountant], confirm that the Bidder, [insert name of the Bidder], has financial details as mentioned below, as per our detailed evaluation of the Bidder's latest certified true copy of the audited annual accounts and their work orders related to the solar business and/or other than solar business.

Average annual turnover:

Particulars	Unit	FY20-21	FY21-22	FY22-23
Annual turnover from solar business only#	Lakh INR	[insert]	[insert]	[insert]
Average annual turnover from solar business only#	Lakh INR	[insert]		
Annual turnover from other than solar business only#*	Lakh INR	[insert]	[insert]	[insert]
Average annual turnover from other than solar business only#*	Lakh INR	[insert]		
Annual turnover from business only##	Lakh INR	[insert]	[insert]	[insert]
Average annual turnover from business only##	Lakh INR	[insert]		

other income is not considered

*Strick-off if not applicable

Net Worth (applicable in case of companies),

Particulars	Unit	FY22-23
Aggregate value of the paid-up share capital	Lakh INR	[insert]
Add: all reserves created out of the profits and securities premium account.	Lakh INR	[insert]
Subtract: Accumulated losses	Lakh INR	[insert]
Subtract: Deferred expenditure	Lakh INR	[insert]
Subtract: Miscellaneous expenditure not written off	Lakh INR	[insert]
Net Worth*	Lakh INR	[insert]

Note: It does not include reserves created out of revaluation of assets, write-back of depreciation and amalgamation.

[For partnership firm and sole proprietorship firm, as per the methodology certified by the chartered accountant based on the Applicable Law in India.]

I hereby declare that all the information and statements made in this certificate are complete, true and correct and also accept that any misinterpretation contained in it may lead to cancellation of my CA membership, and I shall be liable to be proceeded as per the Applicable Law.

Date: [DD MMM YYYY]

Place: [insert place]

[sign here]

Signature

Name of Chartered Accountant (CA): [insert name]

Designation: [insert designation]

Name of the firm of the CA: [insert Bidder's legal entity name]

CA membership no.: [insert CA membership no.]

Registration no. of the CA's firm:

Seal: [insert seal of the Bidder]

Financial Qualification (Applicable for Category B Bidders)

(To be submitted on the letterhead of the Bidder)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

To

The Chief Executive

Odisha Renewable Energy Development Agency (OREDA)

Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.

Email: ceoreda@oredaorissa.com

This Form is not applicable to us, since we are submitting the Bid under Category B.

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

7.1.6. Bid Form 6 (Test Certificates)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

To

The Chief Executive

Odisha Renewable Energy Development Agency (OREDA)

Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.

Email: ceoreda@oredaorissa.com

We, the undersigned, declare that the “**Test Certificates**” for the Equipment are issued from the valid MNRE/ BIS authorized NABL/ ILAC accredited Test Labs, pursuant to the requirements as mentioned in QR Clause 4.2.1.

Sl. No.	Major Component	Test Certificates Required	Test description
1	Crystalline Silicon Terrestrial PV Modules	IEC 61215/ or equivalent BIS standard (IS 14286)	Design qualification
		IEC 61730 -1,2	Safety Qualification Part 1: Requirements for Construction Part 2:- Requirements for Testing
		IEC 61701	Salt Mist Corrosion Test
		IEC 62716	Ammonia (NH3) Corrosion Testing, (As per site condition like dairies, toilets)
		IEC 61853-Part 1/IS 16170: Part 1	Performance testing and energy rating:- Irradiance and temperature performance measurements and power rating.
2	Power Conditioning Units (PCU)/ Inverter*	IEC 61683	Efficiency Test
		IEC 60068-2/ IEC 62093	Environmental Test
		IEC 62116/ IEEE 1547/ UL 1741 or equivalent BIS standard	Anti-Islanding Protection
		IEC 62109-1,2/ IS 16221 (Part 1,2)	Safety of Power Converters
		IEC 61000-6-2, IEC 61000-6-4 & other relevant parts of IEC 61000	Electromagnetic Compatibility (EMC)
		IP 65/54	Ingress Protection for Outdoor (IP 65) /Indoor Enclosure (IP 54)
3	Battery (LiFePO4)	IS 16046 – 2015/IEC 62133- 2012	Standard for LiFePO4 battery
		IS 16270	Secondary Cells and Batteries for Solar PV Application General - Requirements and Methods of Test

Note:

1. Strick of above testing requirement if Bidder is not applying for particular Projects
2. The proof of all documents showcasing the possession of such copies of the Test Certificates by the Bidder shall be submitted as per the instructions given under the Letter of Intent and not at the time of bidding.

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

7.1.7. Bid Form 7 (Self-certificate)

Self-certificate

(To be submitted on a non-judicial stamp paper of appropriate value as per The Indian Stamp Act, 1899 relevant to the place of execution and notarized by the appropriate authority. The stamp paper shall be purchased in the name of the Bidder only.)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

To

The Chief Executive

Odisha Renewable Energy Development Agency (OREDA)

Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.

Email: ceoreda@oredaorissa.com

We, the undersigned, confirm and certify that we have not been debarred/ blacklisted/ defaulted by any Government, agency, Public Sector Undertaking (PSU), institution/ autonomous organizations in the past. We have not acted in concert or in collusion with any other Bidder or other person(s) and also not done any act, deed or thing which is or could be regarded as anti-competitive.

I/we hereby declare the following in the context of the aforementioned tender that:

In case of any false documents submitted and found in the future, we shall be liable to be proceeded against as per the Applicable Law.

In case of any such events, we have provided the case details and their current status below. [strike-off this line, in case it is not applicable].

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

7.1.8. Bid Form 8 (Undertaking for Indigenoussness)

Undertaking for Indigenoussness

(To be submitted on the letterhead of the Bidder)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

To

The Chief Executive

Odisha Renewable Energy Development Agency (OREDA)

Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.

Email: ceoreda@oredaorissa.com

We, [insert the Bidder name], hereby certify and confirm that the solar photovoltaic modules to be supplied under this Project shall be indigenous and not fully imported, as per the relevant guidelines of the Ministry of New and Renewable Energy (MNRE), Government of India.

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

7.1.9. Bid Form 9 (No Deviation Certificate)

No Deviation Certificate

(To be submitted on the letterhead of the Bidder)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

To

The Chief Executive
Odisha Renewable Energy Development Agency (OREDA)
Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.
Email: ceoreda@oredaorissa.com

We, [insert the Bidder name], hereby certify and confirm that we have read the clauses and provisions of the RFE, Addendums, Corrigendum, etc. issued thereafter and the stipulation of all clauses and provisions are acceptable to us, and we have not taken any deviation whatsoever to any of the clauses and provisions.

*In case the Bidder has taken any deviation, then the same shall be mentioned here.

Clause No.	Deviations considered, if any

[*strike-off, if not applicable]

We further confirm that we are aware that our Bid would be liable for rejection in case any material misrepresentation is made or discovered with regard to the requirements of this RFE at any stage of the bidding process or thereafter during the performance of the Work Order.

Place: [insert place]

[sign here]
Signature
Name of Authorized Signatory: [insert name]
Designation: [insert designation]
Name of the Bidder: [insert Bidder's legal entity name]
Seal: [insert seal of the Bidder]

7.2. Bid Forms – Price Bid

7.2.1. Bid Form 10 (Covering Letter of Price Bid)

Covering Letter of Price Bid

(To be submitted on the letterhead of the Bidder)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

To

The Chief Executive

Odisha Renewable Energy Development Agency (OREDA)

Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.

Email: ceoreda@oredaorissa.com

Sub: Submission of Price Bid for the empanelment for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of Roof top solar projects (Off grid/Ongrid without battery/On grid with battery), across Odisha

Dear [Sir/ Madam],

Having examined the Bidding Document carefully, We, the undersigned, offer to submit herewith the Price Bid as per the subject line and RFE no. mentioned above.

We agree that this Price Bid shall remain valid for a period of Three hundred and sixty-five (365) Days (can be extended up to 2 years) from the original last date of online Bid submission and further for Empanelment Period of One Year from the date of issue of Empanelment Order. **The validity of bid price may be extended for further period as may be mutually agreed upon.**

We have read all the provision of the Bidding Document and confirm that notwithstanding anything stated elsewhere in our Price Bid to the contrary, the provisions of the Bidding Document are acceptable to us and we further confirm that we have not taken any deviation to the provision of the RFE anywhere in our Bid. Acceptance of the above attribute shall be considered as our confirmation that any deviation, variation or additional condition, etc. or any mention, contrary to the provisions of Bidding Document found anywhere in our Price Bid implicit or explicit shall stand unconditionally withdrawn, without any cost implication whatsoever to OREDA.

We further declare that any additional conditions, variations, deviations, if any, in our Bid shall not be given effect to. We further understand that any deficiency or illegibility in our Price Bid shall result in rejection of our Price Bid.

We hereby declare that all the information and statements made in this proposal are complete, true and correct and also accept that any misinterpretation contained in it may lead to our disqualification and rejection of our Price Bid.

We hereby declare that our application has been submitted in good faith and the information contained is true and correct to the best of our knowledge and belief.

We agree with the following:

1. We confirm that the Price Bid submitted are subject to the verification solely by appropriate authorities of OREDA as per all the terms of the Bidding Document and agree that the decision taken by OREDA shall be final and binding on us.
2. We declare that our Price Bid is fully compliant as per the terms of the Bidding Document.
3. We confirm that we have submitted the Price Bid in Indian Rupees only and the Price Bid will be considered up to two places of decimal only.
4. We confirm that any genuine changes made by OREDA in the interest of the Project with respect to the Technical Specifications, Designs and Drawings during the course of performance of the Work Order shall be fully acceptable to us without any cost implication whatsoever to OREDA.

5. We confirm that we will comply with all the Applicable Laws and Prudent Utility Practices all the time during the performance of the Work Order.
6. We confirm that we have submitted the Price Bid as per the forms given in Bid Form (Price Bid) and/ or the instructions given in the RFE or E-procurement Website; failure to which our Price Bid shall be considered as non-responsive and shall be liable for rejection.
7. We agree that We have not submitted any conditional or alternative Price Bid and in case of any deviation, then our Price Bid shall be considered as non-responsive and shall be liable for rejection.
8. We confirm that we have not mentioned the Price Bid anywhere other than the Price Bid on the E-procurement Website for further evaluation. If we submit the Price Bid on the E-procurement Website that is not in line with the instructions mentioned therein, then the Price Bid shall be considered as non-responsive and shall be liable for rejection.
9. We confirm that we do not have any conflict of interest in accordance with the provisions of the RFE.
10. We confirm that in case we are directly or indirectly through an agent engaged in Corrupt Practice, Fraudulent Practice, Coercive Practice, Collusive Practice, Obstructive Practice or Integrity Violation, then our Price Bid shall be considered as non-responsive and shall be liable for rejection.
11. We understand that you are not bound to accept any Price Bid you may receive.
12. We confirm that OREDA reserves all the right to accept or reject any Price Bid without assigning any reasons thereof and shall not be held liable for any such action and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.
13. We confirm that in case our Bid is accepted, we undertake to provide Contract Performance Securities as specified in the RFE, else our Bid Security shall be forfeited.
14. The rates quoted by us are firm, final and are meant for execution of the allotted supply/ installation within the time frame stipulated in the tender/supply/ installation order.
15. 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 OREDA to recover the taxes due from us and deposit the same with the appropriate authorities on their demand.

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

7.2.2. Bid Form 11 (Price Bid for Category A Bidder)

Price Bid for Category A Bidder-Package 1
(Sample Format)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

Particulars	Description
RFE no.:	[insert RFE no.] dated [DD MMM YYYY]
Name of the Project	Request for Empanelment (RFE) for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various configuration and various packages of roof top solar projects Roof top solar projects (Off grid/Ongrid without battery/On grid with battery) across Odisha
Name of the Bidder	[insert the Bidder name]
Category of the Bidder	Category A

Sl. No.	Project Type	Description	Price in INR per Unit			Price in INR per Unit (in words)		
			1-10 kW	10-100 kW	100-500 kW	1-10 kW	10-100 kW	100-500 kW
1.	Per kW on grid Roof top solar without battery	Cost of design, engineering, supply, installation, testing, commissioning and acceptance of Projects with CMC for 5 Years as per the Technical Specification and all terms given in the RFE	INR [insert]	INR [insert]	INR [insert]	Indian Rupees [insert] only	Indian Rupees [insert] only	Indian Rupees [insert] only
2.	Per kW on grid roof top solar system with battery system (6 hours power back up)		INR [insert]	INR [insert]	INR [insert]	Indian Rupees [insert] only	Indian Rupees [insert] only	Indian Rupees [insert] only
3.	Per kW off-grid roof top solar system with 6 hours battery backup system)		INR [insert]	INR [insert]	INR [insert]	Indian Rupees [insert] only	Indian Rupees [insert] only	Indian Rupees [insert] only

Note:

- Above rate shall include cost of CMC for five (5) years @10% with 2% each Year (in the form of BG) of CMC Period
- Above rate contract shall be valid for period of one year from date of the Empanelment Order
- Tax (GST) rates shall be as per the actuals at the time of invoicing as per the prevailing tax rules in India.
- This format to be filled in the E-procurement Website as per the instruction given in the RFE.
- Please fill the rate only for the applications for which the bid is submitted. Any bid with discrepancy in technical and financial bids shall be rejected by OREDA

Price Bid for Category A Bidder Package 2
(Sample Format)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

Particulars	Description
RFE no.:	[insert RFE no.] dated [DD MMM YYYY]
Name of the Project	Request for Empanelment (RFE) for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various Off-grid Solar PV based applications such as Solar Tree with street lights, Solar tree with garden lights across Odisha
Name of the Bidder	[insert the Bidder name]
Category of the Bidder	Category A

Sl. No.	Project Type	Description	Unit	Price in INR per Unit	Price in INR per Unit (in words)
Unit Price Bid					
1.	Solar Tree (1 kW) with 4 streetlights;	Cost of design, engineering, supply, installation, testing, commissioning and acceptance of Projects with CMC for 5 Years as per the Technical Specification and all terms given in the RFE	Unit	INR [insert]	Indian Rupees [insert] only
2.	Solar Tree (2.5 kW) with 20 garden lights;		Unit	INR [insert]	Indian Rupees [insert] only

Note:

- Above rate shall include cost of CMC for five (5) years @10% with 2% each Year (in the form of BG) of CMC Period
- Above rate contract shall be valid for period of one year from date of the Empanelment Order
- Tax (GST) rates shall be as per the actuals at the time of invoicing as per the prevailing tax rules in India.
- This format to be filled in the E-procurement Website as per the instruction given in the RFE.
- Please fill the rate only for the applications for which the bid is submitted. Any bid with discrepancy in technical and financial bids related to the off grid application type, shall be rejected by OREDA

Price Bid for Category A Bidder Package 3
(Sample Format)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

Particulars	Description
RFE no.:	[insert RFE no.] dated [DD MMM YYYY]
Name of the Project	Request for Empanelment (RFE) for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years for Solar Based Drinking water Kiosks, across Odisha
Name of the Bidder	[insert the Bidder name]
Category of the Bidder	Category A

Sl. No.	Project Type	Description	Unit	Price in INR per Unit	Price in INR per Unit (in words)
	Unit Price Bid				
1.	Solar based Drinking water kiosk	Cost of design, engineering, supply, installation, testing, commissioning and acceptance of Projects with CMC for 5 Years as per the Technical Specification and all terms given in the RFE	Unit	INR [insert]	Indian Rupees [insert] only

Note:

- Above rate shall include cost of CMC for five (5) years @10% with 2% each Year (in the form of BG) of CMC Period
- Above rate contract shall be valid for period of one year from date of the Empanelment Order
- Tax (GST) rates shall be as per the actuals at the time of invoicing as per the prevailing tax rules in India.
- This format to be filled in the E-procurement Website as per the instruction given in the RFE.
- Please fill the rate only for the applications for which the bid is submitted. Any bid with discrepancy in technical and financial bids related to the off grid application type, shall be rejected by OREDA

Price Bid for Category A Bidder Package 4
(Sample Format)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

Particulars	Description
RFE no.:	[insert RFE no.] dated [DD MMM YYYY]
Name of the Project	Request for Empanelment (RFE) for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various Off-grid Solar PV based applications such as Solar Street Lights, Solar Mini Mast, Solar High Mast across Odisha
Name of the Bidder	[insert the Bidder name]
Category of the Bidder	Category A

Sl. No.	Project Type	Description	Unit	Price in INR per Unit	Price in INR per Unit (in words)
Unit Price Bid					
1.	Solar Mini Mast	Cost of design, engineering, supply, installation, testing, commissioning and acceptance of Projects with CMC for 5 Years as per the Technical Specification and all terms given in the RFE	Unit	INR [insert]	Indian Rupees [insert] only
2.	Solar High Mast		Unit	INR [insert]	Indian Rupees [insert] only
3.	Solar Street Light		Unit	INR [insert]	Indian Rupees [insert] only

Note:

- Above rate shall include cost of CMC for five (5) years @10% with 2% each Year (in the form of BG) of CMC Period
- Above rate contract shall be valid for period of one year from date of the Empanelment Order
- Tax (GST) rates shall be as per the actuals at the time of invoicing as per the prevailing tax rules in India.
- This format to be filled in the E-procurement Website as per the instruction given in the RFE.
- Please fill the rate only for the applications for which the bid is submitted. Any bid with discrepancy in technical and financial bids related to the off grid application type, shall be rejected by OREDA

7.2.3. Bid Form 12 (Price Bid for Category B Bidder)

Price Bid for Category B Bidder

(Sample Format)

Date: [DD MMM YYYY]

Particulars	Description
RFE No.:	[insert RFE no.] dated [DD MMM YYYY]
Name of the Project	Request for Empanelment (RFE) for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various configuration and various packages of roof top solar projects across Odisha
Name of the MSME Bidder	[insert the Bidder name]
Category of the Bidder	Category B
Whether the Bidder is willing to accept the lowest evaluated price (L1) for Projects determined by OREDA	[Please select either Yes or No]

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

Price Bid for Category B Bidder
(Sample Format)

Date: [DD MMM YYYY]

Particulars	Description
RFE No.:	[insert RFE no.] dated [DD MMM YYYY]
Name of the Project	Request for Empanelment (RFE) for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various Off-grid Solar PV based applications such as Solar Tree with street lights, Solar tree with garden lights, Solar Street Lights, Solar Mini Mast, Solar High Mast, Solar Based Drinking water Kiosks, across Odisha
Name of the MSME Bidder	[insert the Bidder name]
Category of the Bidder	Category B
Whether the Bidder is willing to accept the lowest evaluated price (L1) for Projects determined by OREDA	[Please select either Yes or No]

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

7.3. Letter of Empanelment/ Award Forms

7.3.1. Letter of Intent for Empanelment

Letter of Intent

(To be submitted on the letterhead of OREDA)

Letter of no.: [insert Letter of Intent no.] dated [DD MMM YYYY]

From

The Chief Executive
Odisha Renewable Energy Development Agency (OREDA)
Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.
Email: ceoreda@oredaorissa.com

To

[Bidder name]

[Address]

Sub: Letter of Intent to the successful bidders for empanelment for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of Roof top solar projects [] across Odisha.

Or

Letter of Intent to the successful bidders for empanelment for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various Off-grid Solar PV based applications such as [Solar Tree with street lights, Solar tree with garden lights, Solar Street Lights, Solar Mini Mast, Solar High Mast, Solar Based Drinking water Kiosks] across Odisha.

Reference:

1. NIT no. [insert NIT no.] dated [DD MMM YYYY]
- 6 RFE no. [insert NIT no.] dated [DD MMM YYYY]

With reference to the above, you have been selected as the Successful Bidder and you are requested to submit the following critical documents within a maximum period of fifteen (15) Days from the date of issue of this Letter of Intent, without any fail, else your Bid shall be liable for rejection and the Bid Security submitted to us shall be forfeited.

Sl. No	Critical documents
2.	Acceptance to the LOI by signing the copy of the LOI along with an official seal, date, and submission to OREDA
3.	Valid Test Certificates along with datasheets of all Equipment used in the Project, as per Bid Form 6 of Section 7 (Annexure).
4.	ISO Certificates (ISO 9001, ISO 14001 as required in 4.2.2
5.	Contact information of various OEMs of all Equipment used in the Project

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory of OREDA: [insert name]

Designation: [insert designation]

Odisha Renewable Energy Development Agency
Seal: [insert seal of the Bidder]

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

7.3.2. Empanelment Order

Empanelment Order

(To be submitted on the letterhead of OREDA)

Empanelment Order no.: [insert Empanelment Order no.] dated [DD MMM YYYY]

From

The Chief Executive

Odisha Renewable Energy Development Agency (OREDA)

Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.

Email: ceoreda@oredaorissa.com

Sub: Empanelment Order for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of Roof top solar projects (Off grid/Ongrid without battery/On grid with battery), across Odisha.

Or

Empanelment Order for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various Off-grid Solar PV based applications such as Solar Tree with street lights, Solar tree with garden lights, Solar Street Lights, Solar Mini Mast, Solar High Mast, Solar Based Drinking water Kiosks, across Odisha.

Reference:

1. NIT no. [insert NIT no.] dated [DD MMM YYYY]
1. RFE no. [insert NIT no.] dated [DD MMM YYYY]

With reference to the above, following venders have been empaneled for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of Roof top solar projects (Off grid/Ongrid without battery/On grid with battery) across Odisha.

Sr.	Name of Bidder	Category of Bidder	Type of RTS system	Unit	Rate Contract
1	[Bidder name], [Address] and [Contact Details]	[A or B]			
2	[Bidder name], [Address] and [Contact Details]	[A or B]			
3	[Bidder name], [Address] and [Contact Details]	[A or B]			
4	[Bidder name], [Address] and [Contact Details]	[A or B]			
5	[Bidder name], [Address] and [Contact Details]	[A or B]			
6	[Bidder name], [Address] and [Contact Details]	[A or B]			
7	[Bidder name], [Address] and [Contact Details]	[A or B]			
8	[Bidder name], [Address] and [Contact Details]	[A or B]			
9	[Bidder name], [Address] and [Contact Details]	[A or B]			
10	[Bidder name], [Address] and [Contact Details]	[A or B]			

Above empanelment for rate contract shall be for period of one year from date of the Empanelment Order

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory of OREDA: [insert name]

Designation: [insert designation]

Odisha Renewable Energy Development Agency

Seal: [insert seal of the Bidder]

7.3.3. Letter of Award for Project

Letter of Award for Project

(To be submitted on the letterhead of OREDA)

Letter of Award no.: [insert Letter of Award no.] dated [DD MMM YYYY]

From

The Chief Executive
Odisha Renewable Energy Development Agency (OREDA)
Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.
Email: ceoreda@oredaorissa.com

To

[Bidder name]

[Address]

Sub: Letter of Award for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of Roof top solar projects], [project location, Odisha]

Or

Letter of Award for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various Off-grid Solar PV based applications such as [Solar Tree with street lights, Solar tree with garden lights, Solar Street Lights, Solar Mini Mast, Solar High Mast, Solar Based Drinking water Kiosks], [project location, Odisha]

Reference:

1. NIT no. [insert NIT no.] dated [DD MMM YYYY]
2. RFE no. [insert RFE no.] dated [DD MMM YYYY]
3. LOI no. [insert LOI no.] dated [DD MMM YYYY]
4. Empanelment Order no. [insert Empanelment Order no.] dated [DD MMM YYYY]

With reference to the above, you have been selected as the Successful Bidder for design, engineering, supply, installation, testing, commissioning and acceptance of following projects along with Comprehensive Maintenance for five (5) Years.

Sl. No.	Description of project	Project (kW/Nos.)	size/capacity	Total Cost (INR)
1				
2				
3				
4				
5				

Note:

1. Above rate shall include Cost of CMC for 5 Years @ 10% of cost of design, engineering, supply, installation, testing, commissioning and acceptance of solar project with 2% each Year of CMC Period
2. Tax (GST) rates shall be as per the actuals at the time of invoicing as per the prevailing tax rules in India.

You are requested to submit the following critical documents within a maximum period of fifteen (15) Days from the date of issue of this Letter of Intent, without any fail, else your Bid shall be liable for rejection and the Bid Security submitted to us shall be forfeited.

Sl. No	Critical documents
1.	Acceptance to the LOA by signing the copy of the LOI along with an official seal, date, and submission to OREDA
2.	Submission of Performance Security as per ITB Clause 1.8.2
3.	Submission of a Detailed Workplan in line with the Project Timelines mentioned in the SOW Clause 3.4.1 for the implementation of Project.
4.	Submission of a site survey report with the finalization of the exact location of the Project and the plan for the finalization of loads for the purpose of implementation of the Project.
5.	Single line diagram of the Project.
6.	Design document of the module mounting structure and other mounting structure, of the Project along with a STAD pro analysis report as a part of the mandatory submission, if applicable.
7.	Bill of materials along with spares and all relevant equipment test certificates
8.	Proof of Local office (registered office address in Odisha)

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory of OREDA: [insert name]

Designation: [insert designation]

Odisha Renewable Energy Development Agency

Seal: [insert seal of the Bidder]

Date: [DD MMM YYYY]

[sign here]

Place: [insert place]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

7.3.4. Performance Security

Performance Security (in the form of a Bank Guarantee)

(To be submitted on a non-judicial stamp paper of appropriate value as per The Indian Stamp Act, 1899 relevant to the place of execution. The stamp paper shall be purchased in the name of the issuing bank only.)

Bank Guarantee (BG) no.: [insert BG no.]

Date: [DD MMM YYYY]

To

The Chief Executive
Odisha Renewable Energy Development Agency (OREDA)
Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.
Email: ceoreda@oredaorissa.com

WHEREAS M/s. [insert name of the Successful Bidder] having its registered office at [insert address] (hereinafter called "the Successful Bidder") has been selected as the Successful Bidder for the selection as an empaneled vendor for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of Roof top solar projects (configuration) (mention as applicable)], across Odisha with reference to

or

various Off-grid Solar PV based applications such as [Solar Tree with street lights, Solar tree with garden lights, Solar Street Lights, Solar Mini Mast, Solar High Mast, Solar Based Drinking water Kiosks (mention as applicable) (mention as applicable)], across Odisha with reference to

- 1) Request For Empanelment (RFE) no. [insert RFE no.] dated [DD MMM YYYY],
- 2) Letter of Intent (LOI) no. [insert LOI no.] dated [DD MMM YYYY],
- 3) Empanelment Order no. [insert Empanelment Order no.] dated [DD MMM YYYY]
- 4) Letter of Award (LOA) no. [insert LOA no.] dated [DD MMM YYYY].

AND WHEREAS it has been stipulated by OREDA in the said Bidding Document that the Successful Bidder shall furnish OREDA with a Bank Guarantee from a nationalized or scheduled commercial bank for the sum specified therein, as Performance Security for compliance with its obligations in accordance with the Bidding Document, the Letter of Intent and the Work Order to be issued by OREDA.

AND WHEREAS we have agreed to give the Successful Bidder such a Performance Security in the form of this Bank Guarantee. NOW THEREFORE we hereby affirm that we are the guarantors and responsible to OREDA on behalf of the Successful Bidder for an amount up to a total of INR [Amount of the Bank Guarantee in words]([Indian Rupees in figures]) only and we undertake to pay OREDA upon OREDA's first written demand declaring the Successful Bidder to be in default under the various provisions of the Bidding Document and/ or the Work Order to be issued by OREDA and without cavil or argument, any sum or sums within the limits of the amount of Bank Guarantee, as aforesaid, without OREDA's need to prove or to show grounds or reasons for the demand or the sum specified therein. We hereby waive the necessity of your demanding of the said demand from the Successful Bidder before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Bidding Document and/ or the Work Order to be issued by OREDA to be performed thereunder or any of the contract documents which may be made between you and the Successful Bidder shall in any way release us from any liability under this Bank Guarantee and we hereby waive notice of any such change, addition or modification.

This Bank Guarantee shall not be affected in any manner by reason of merger, amalgamation, restructuring or any other change in the constitution of the issuing bank.

This Bank Guarantee shall be a primary obligation of the issuing bank and accordingly OREDA shall not be obliged before enforcing this Bank Guarantee to take any action in any court or arbitral proceedings against the

Successful Bidder, to make any claim against or any demand on the Successful Bidder or to give any notice to the Successful Bidder or to enforce any security held by OREDA or to exercise, levy or enforce any distress, diligence or other processes against the Successful Bidder.

This Bank Guarantee shall be interpreted in accordance with the laws of India and the courts at Bhubaneswar, Odisha shall have exclusive jurisdiction.

This Bank Guarantee shall be effective only when the Bank Guarantee is issued to the account holder "Orissa Renewable Energy Development Agency" in the bank and branch "Axis Bank Ltd., Mancheswar Branch, Bhubaneswar" having the account no. 918010103435005IFSC code UTIB0001973.

Notwithstanding anything contained herein above our liability under this guarantee is restricted to INR [insert] (Indian Rupees [in words]) only and it shall remain with an expiry date up to [DD MMM YYYY, [insert] months from the original last date of submission of Bid] with a claim date up to [DD MMM YYYY, 12 months from the date of expiry] and shall be extended from time to time for such period, as may be desired by M/s. [insert the Successful Bidder name] whose behalf this guarantee has been given.

Our branch at [Name and address of the branch] is liable to pay the guaranteed amount depending on the filing of the claim and any part thereof under this Bank Guarantee only and only if you serve upon us at our [Name and address of the branch] branch a written claim or demand and received by us at our [Name and address of the branch] branch, otherwise the bank shall be discharged of all liabilities under this guarantee thereafter.

In witness whereof the Bank, through its authorized officer, has set its hand and stamp on [DD MMM YYYY] at [insert location of signing].

(Signature of the authorized officer of the Bank)

Name and designation of the officer

Seal, name and address of the Bank and address of the Branch

Power of attorney no.:

WITNESSES

Signature:

Name:

Address:

Signature:

Name:

Address:

Note:

1. This Bank Guarantee format is prepared in line with the Annexure-II of Finance Department Office Memorandum 4939 dated 13 Feb 2012, Govt of Odisha [Ref Para 22(i1)].
2. Please ensure that each page of the Bank Guarantee is duly signed by the authorized signatory of the issuing bank and stamp of the issuing bank is affixed thereon.
3. Please ensure whether the last page is signed with full particulars including two witnesses under the seal of Bank as required in the prescribed format.
4. Please ensure that the date, purpose of purchase of stamp paper and name of the purchaser are indicated on the back of the stamp paper under the signature of the stamp vendor. The date of purchase of stamp paper shall be not later than the date of execution of the Bank Guarantee.
5. In case of any overwriting, cutting, etc. on the Bank Guarantee have been properly authenticated under signature and seal of the authorized office of the issuing bank.

7.3.5. Sample format for CMC

Sample format for Comprehensive Maintenance Contract (CMC)

CMC ref no: [insert]

Date: [DD MMM YYYY]

Sub: CMC for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various Off-grid Solar PV based applications such as [Roof top solar projects (Off grid/Ongrid without battery/On grid with battery) (as applicable)], across Odisha.

Or

CMC for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various Off-grid Solar PV based applications such as [Solar Tree with street lights, Solar tree with garden lights, Solar Street Lights, Solar Mini Mast, Solar High Mast, Solar Based Drinking water Kiosks (as applicable)], across Odisha.

Ref:

1. NIT no. [insert] dated [DD MMM YYYY]
 - 7 RFE no. [insert] dated [DD MMM YYYY]
 - 8 Letter of Intent (LOI) no. [insert LOI no.] dated [DD MMM YYYY],
 - 9 Empanelment Order no. [insert Empanelment Order no.] dated [DD MMM YYYY]
 - 10 Letter of Award (LOA) no. [insert LOA no.] dated [DD MMM YYYY].

The Comprehensive Maintenance Contract (CMC) is signed jointly between the two (2) Parties on this [insert] day of [insert] month in the year [insert] at Bhubaneswar, Odisha and shall come into force from the date of its signing.

CMC for maintenance of Project as per the details provided in the RFE and installed by M/s [insert the name of the Successful Bidder] for a CMC Period of five (5) years from the date of Commissioning of the Project.

This CMC is executed between Odisha Renewable Energy Development Agency (OREDA) having registered office at S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha, herein after called as the First Party and M/s [insert the name of the Successful Bidder] having registered office at [insert address of the Successful Bidder] herein after called as Second Party, for the maintenance for a period of five (5) years from the date of Commissioning of the Project, as per the details of the Project provided in Annexure Clause 7.7.

The Second Party will maintain the Project as per the terms and conditions mentioned here under:

1. It has been envisaged in the Work Order under Article [insert] that the Project shall be warranted against any manufacturing defect and bad workmanship during the CMC Period of five (5) years from the date of operation (date of operation shall be considered from the completion of net metering as per OERC guidelines in case of net-metering) of the Project. As these Projects have been commissioned after issuance of a Commissioning Certificate. Hence, the Second Party is fully responsible for their trouble-free maintenance and the Second Party is liable to rectify/ remove any defect noticed within the aforesaid CMC Period, free of cost.
2. The Second Party will impart training to the beneficiary and be able to provide first aid repair service for the solar project system.
3. The CMC includes repair/ replacement/maintenance of all spares, consumable and all the Equipment including but not limited to solar photovoltaic module, inverter, battery and balance of systems during the CMC Period.
4. The Second Party shall establish a local office in Odisha so as to deliver uninterrupted and sustainable Comprehensive Maintenance during the CMC Period duly headed by a Service Engineer.
5. The Second Party shall undertake corrective maintenance upon registration of complaint by the beneficiaries/OREDA/Public at CRC-OREDA. After attending to the defect, the Second Party shall upload the required documents on OREDA's specified mobile application (currently ReSolve application) for successful closure of the complaints. The Second Party shall ensure rectification of defects and restore functionality within fifteen (15) Days of lodging the complaints. If the complaints are not rectified within the

stipulated period, the delayed days will be added to the total CMC period (365x5 days) and the CMC period shall be extended accordingly. If repeated delayed happens in resolving the complaints, further course of action will be taken.

6. The Second Party shall undertake scheduled maintenance work as per the prescribed format attached in Annexure Clause 7.5.6 or the format provided by OREDA from time to time and upload the required details and documents in the OREDA's specified mobile application (currently ReSolve application) strictly according to the given schedule.
7. The Second Party shall apprise the First Party about the requirements and supply of spares during warranty as well as CMC Period duly certified by concerned district RE Cell/OREDA HQ.
8. CMC Performance report for each project along with supporting documents from shall be duly certified by the concerned district RE Cell along with certification of CRC-OREDA shall be considered as token of verification of maintenance done and release of annual payment of CMC in arrears upon completion of each year of CMC Period.
9. Failure to meet any Maintenance Performance Indicator (MPI) shall lead to withhold the payment/ encashment of BG as per the provisions of RFE/LoA.
10. It will be the liberty of the First Party to crosscheck the systems maintained by the Second Party. Random verification of the maintenance may be carried out by the First Party wherever necessary. OREDA may ask to submit any documents related to the performance of the Solar Systems/Projects.
11. The Second Party may continue to maintain the gadgets after expiry of the CMC Period of five (5) years from the date of Commissioning of the Project, provided the Department/ First Party desires.
12. For adjudication of any dispute between the two (2) Parties arising on execution of this CMC, the matter shall first be brought to the notice of Chief Executive, OREDA.
13. In case there will be no amicable settlement of the issues, the matter can be referred to the court of law having jurisdiction at Bhubaneswar, Bhubaneswar only.

For and on behalf of Odisha Renewable Energy Development Agency (First Party),

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory of OREDA: [insert name]

Designation: [insert designation]

Odisha Renewable Energy Development Agency

Seal: [insert seal of the Bidder]

For and on behalf of M/s (Second Party)

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

7.4. Pre-bid Form

Pre-bid queries

(To be submitted on the letterhead of the Bidder)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

To

The Chief Executive
Odisha Renewable Energy Development Agency (OREDA)
Address: S-3/59, Mancheswar Industrial Estate, Bhubaneswar - 751010, Odisha.
Email: ceoreda@oredaorissa.com

Sub: Submission of pre-bid queries against the RFE for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of Roof top solar projects (Off grid/Ongrid without battery/On grid with battery), across Odisha.

Or

Submission of pre-bid queries against the RFE for design, engineering, supply, installation, testing, commissioning and acceptance, including Comprehensive Maintenance for five (5) years of various Off-grid Solar PV based applications such as Solar Tree with street lights, Solar tree with garden lights, Solar Street Lights, Solar Mini Mast, Solar High Mast, Solar Based Drinking water Kiosks, across Odisha.

We are pleased to submit the following pre-bid queries:

Sl. No.	Clause no.	Page no.	Clause	Clarification sought	Rationale
1					
2					
3					
4					
5					

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

7.5. Appendix to SOW - Off-grid Solar PV based applications

7.5.1. Appendix Form 1 (Technical Specifications)

7.5.1.1. Roof Top Solar Projects

Solar photovoltaic (PV) modules:

- a) The solar PV modules to be used shall be made in India only. The PV modules shall qualify for the latest edition of the IEC PV module qualification test or equivalent BIS standards of crystalline silicon solar cell modules IEC 61215/IS14286. In addition, the solar PV modules shall conform to the IEC 61730 Part-2 requirements for construction and Part-2 requirements for testing, safety qualification or equivalent IS. The solar PV module shall also conform to the IEC 61701 (salt mist corrosion testing) standards.
- b) The total solar PV array capacity shall not be less than the required capacity and should comprise of solar crystalline PV modules of minimum 300Wp and above wattage each with 144 cells.
- c) Protective devices against surges at the solar PV module shall be provided. Low voltage drop bypass diodes shall also be provided.
- d) Solar PV modules shall be tested and approved by one of the MNRE/ IEC authorized test centers.
- e) The module frame shall be made of corrosion-resistant materials, having anodized aluminum and should have a minimum thickness of 1.5 mm and width 40 mm for sustainability.
- f) Other general specification for the PV modules and subsystems shall be the Following as
 - i. The rated output power of any supplied module shall have a tolerance of +/-3%.
 - ii. 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) percent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
 - iii. The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for the provision of the by-pass diode. The box shall have hinged, weatherproof lid with captive screws and cable gland entry points or may be of a sealed type and IP21/20 rated.
 - iv. I-V & P-V curves at STC will be provided after installation.
 - v. PV modules used in solar power plants must be warranted for output wattage, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.
- g) Modules should have an RF identification tag. The following information will be mentioned in the RFID used on each module (This can be inside or outside the laminate but must be able to withstand harsh environmental conditions).
 - i. Name of the manufacturer of the PV module
 - ii. Name of the manufacturer of Solar Cells. iii. Month & year of the manufacture (separate for solar cells and modules)
 - iv. Country of origin (separately for solar cells and module)
 - v. I-V curve for the module Wattage, I_m , V_m and FF for the module
 - vi. Unique Serial No and Model No of the module
 - vii. Date and year of obtaining the IEC PV module qualification certificate. viii. Name of the test lab issuing IEC certificate.
 - ix. Other relevant information on traceability of solar cells and module as per ISO 9001 and ISO 14001.

7.5.1.2. ARRAY/MODULE MOUNTING STRUCTURE:

- a) Hot-dip galvanized MS/Aluminum mounting structures shall be used for mounting the modules/ panels/arrays. Each structure will have an angle of inclination as per the site conditions to take maximum insolation.

-
- b) The Mounting structure must be Non-invasive Ballast Type and any sort of penetration of the roof to be avoided. The design details are as follows:
 - i. The inclination of the module or tilt angle should be within 10-15 degrees.
 - ii. The upper edge of the module must be covered with a windshield so as to avoid bulk air ingress below the module. Slight clearance must be provided on both edges (upper & lower) to allow air for cooling.
 - iii. An indicative drawing is shown at Appendix Form 2.
 - c) The mounting structure should be as per the latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance with the latest IS 4759.
 - d) The fasteners 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.
 - e) The total load of the structure (when installed with PV modules) on the terrace should be less than 60 kg/m². The load shall be well distributed so that point loads are well within the limits.
 - f) The minimum clearance of the structure from the roof level should be in between 70150 mm.
 - g) The structures should be laid on the rooftop on weather-resistant FRP mountings which should be non-penetrating type and proper drainage of rainwater over the terrace through the installation area should be maintained.
 - h) The structures should be suitably loaded with reinforced concrete blocks of appropriate weight made out of the M25 concrete mixture.
 - i) Special care should be taken while designing all structures for modules to cater to heavy rainfall.
 - j) The array shall be located sufficiently inside the boundary wall of the terrace (parapet wall) and should not be projecting out. PV array shall be installed in the terrace space free from any obstruction and/or shadow. PV array shall be installed utilizing optimum terrace space to minimize the effects of shadows due to adjacent PV panel rows.
 - k) Adequate spacing shall be provided between two-panel frames and rows of panels to facilitate personnel protection, ease of installation, replacement, cleaning of panels and electrical maintenance.
 - l) Additional waterproofing shall be provided in the areas where RCC blocks are placed on the terrace.
 - m) The minimum clearance between the lower edge of PV panel and terrace ground level shall be 150 mm to allow ventilation for cooling, also ease of cleaning and maintenance of panels as well as cleaning of the terrace.
 - n) The PV array structure design shall be appropriate with a factor of safety of min. 1.5.
 - o) Each array may be provided with two bird repellents spikes at a level higher than the upper edge of the array. The location of the spike should be selected for the minimum shadow effect.
 - p) The support structure shall be free from corrosion when installed.
 - q) PV modules shall be secured to support structure using screw fasteners and/or metal clamps. Screw fasteners shall use existing mounting holes provided by module manufacturers. No additional holes shall be drilled on module frames. Module fasteners/clamps shall be adequately treated to resist corrosion.
 - r) Adequate spacing shall be provided between any two modules secured on PV array for improved wind resistance.
 - s) The structure shall be designed to withstand operating environmental conditions for a period of a minimum of 25 years.

- t) The structure should be appropriately designed to withstand high wind velocities more than 200 km per hour. (The bidder is required to submit a certificate from an authorized chartered engineer with regards to the strength and durability of the structure)

7.5.1.3. ARRAY/ MAIN JUNCTION BOXES (JBs):

- a) The Junction Boxes (JBs) made of GRP/FRP/Powder Coated Aluminium /cast aluminium alloy with full dust, water & vermin proof arrangement shall be provided. All wires/cables shall be terminated through Copper 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/ Screw based cover with EPDM rubber gasket to prevent water entry. Single/ double compression cable glands.
- c) Fuse protection should be provided for each string for +ve cables.
- d) Each Junction Box shall have High-quality Suitable capacity SPDs (Type-II). The Junction Boxes shall have suitable arrangement monitoring and disconnection for each of the groups.
- e) Suitable markings should be provided on the bus bar for easy identification and suitable cable glands with ferrules must be fitted at the cable termination points for identification.
- f) Array Junction Box should be IP 65(for outdoor)/ IP 54(for indoor) as per IEC 60529 and should be provided with fuses and Isolators of suitable ratings.
- g) ACDB should have a surge protection device of class 2 as per IEC 60947/60364-5-53, to protect inverters from surges in the AC line.
- h) AJBs/ MJBs may be kept below the modules. In case of need, this can be installed on the wall or rooftop. ACDB should be put at safe distance from DCDB/ AJBs/ MJBs to avoid Eddy current interference. However, in the case of an integrated product where ACDB and DCDB are already placed together shall be acceptable.

7.5.1.4. BATTERY BANK:

There will be one battery bank comprising of appropriate capacity for respective SPV Power Plant. The batteries should be VRLE Gel battery Type and shall have a long service life. The cells should confirm IS 15549/ IEC 61427 and as per specification given below shall be provided.

Battery Capacity	Bank	Details as below)		
		Capacity of Solar plant (kWp)	Minimum battery bank capacity (VAh) for 3 hour battery	Minimum battery bank capacity (VAh) for 6 hours battery
		X	X*3.6	X*7.2
Terminals	Made of lead alloy suitable for bolted connection. The terminals should be greased with petroleum gel.			
Electrolyte	Battery grade Sulphuric acid			
Self-Discharge	Less than 3% per month at 30 degrees C			
Life expectancy	1500 cycle duty at 27degree C at 80% depth of discharge 3000 cycle duty at 50% discharge.			
Approval	Batteries shall have to be approved by MNRE/NABL/BIS authorized test centers			

Service Life

Should perform satisfactorily for a minimum period of 5 years under operating conditions as mentioned.

7.5.1.5 POWER CONDITIONING UNIT (PCU)

As SPV array produces direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels before powering equipment designed for nominal mains AC supply. Conversion shall be achieved using an electronic Inverter and the associated control and protection devices. All these components of the system are termed the "Power Conditioning Unit" OR simply PCU. In addition, the PCU shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the Inverter, to maximize Solar PV array energy input into the System. PCU should conform IEC 61683, IEC 60068, IEC 62116 as per specifications.

PCU refers to a combination of the charge controller, inverter and AC charger and shall be supplied as an integrated unit or separate units.

a) Inverter:

The inverter will be highly efficient. The inverter should conform IEC 61683 /IS 61683, IS 16169/IEC 62116, IEC 60068 and should be based on MPPT design. Inverters would display its own parameters and the parameters of the battery bank connected to the inverter. Beyond the maximum load, the inverters will trip. The inverters should be designed to be completely compatible with the charge controllers and distribution panels and are of integrated design.

Salient features of the Inverters shall be as follows:

The PCU should be designed to be completely compatible with the SPV array voltage.

- i. A central inverter with MPPT shall be used with the power plant for maximum efficiency and shall be efficient based on PWM with IGBT/ reliable power-based design.
- ii. The sine wave output of the inverter shall be 230V, Single phase, 50 HZ AC 415 V, 3 phase, 50 Hz AC.
- iii. There should be provision to charge the battery using Grid power as long as grid voltage is between 170V-265V. In case of Grid voltage falls below 170V up to 130V, Grid charging shall stop but load shall continue to run using Grid supply, not by Solar.
- iv. The peak inverter efficiency inclusive of built-in isolation transformer shall exceed 85% at full load
- v. There should be provision to export excess PV power to the grid in case the load consumption is less than the actual generation. This is a futuristic feature and provision should be there to enable or disable this export feature.
- vi. Inverter shall provide display of PV array DC voltage & current, Battery Voltage & Current, Inverter Voltage & Current, Grid voltage & Current, Battery charging status and required parameters when a fault occurs. Remote monitoring of inverter parameters should be possible.
- vii. Operating temperature range shall be 0 to 55 deg C
- viii. Maximum Power Point Tracker (MPPT) shall be integrated into the power conditioner unit to maximize energy drawn from the Solar PV array.
- ix. The charge controller/ MPPT units should qualify for IEC standards.
- x. Online microprocessor-based Data Acquisition Systems and Remote Monitoring facility for 365 Days with data Recovery from a remote location should equip.

Inverter Capacity	1-Phase, 230 V or 3 Phase, 415 V
Phase	3 Phase

Output frequency	50 Hz +/- 0.5 Hz
Overload Capacity	150% for 10 Second
Efficiency	80% at 50% of load and More than
	90% at full load 0.8 PF
Short Circuit Protection	Circuit Breaker and Electronics protection against sustained fault.
Low Battery Voltage	Automatic Shut Down
Total Harmonic Distortion	Less than 3%
Over Voltage	Automatic Shut Down
AC over Current/Load	Automatic Shut Down
Protection	<ul style="list-style-type: none"> • Over Voltage both at Input & Output • Over Current both at Input & Output • Over Frequency Surge voltage inducted at the output due to external source.
Protection Degree	IP20/IP21
Instrumentation & Indication	Input & Output voltage, Input & Output Current, Frequency, Power output, different status of inverter, kind of fault by the audio signal.

b) Charge Controller Unit:

The Charge Controller shall be dual input type, where under normal condition the input is fed from an SPV panel and in the absence of SPV power or low SPV power conditions an external single-phase AC source can be used for battery charging. A selector switch shall be provided for choosing between those modes. When the batteries are charged from external AC sources, the charging current should be set manually depending on the capacity of the source and the charging requirement of the batteries. The charge controller shall be of MPPT type / PWM type employing IGBT switching elements. The charge controller should confirm IEC 62093 / IEC 60068 as per specification.

The charging sequence from SPV array or external AC source shall be as follows:

i From SPV Array:

The battery shall be charged at the maximum rate depending on the solar radiation until the battery terminal voltage reaches 2.25 volts per cell. The battery charging should be automatically terminated when the rate of increase in battery voltage is steady (dv/dt sensing). The charger shall switch on the trickle charge after this. ii. From AC Source:

The battery shall be charged at the rate manually set depending on the battery condition or capacity of the AC source. The maximum rate shall be internally pre-set.

The battery charging should be automatically terminated when the rate of increase in battery voltage is steady (dv / dt sensing) or when the battery terminal voltage reaches 2.75 volts per cell.

Salient features of the Charge Controller shall be as follows:

Switching elements	IGBT/MOSFET
Type of Charger	PWM
Input	From Solar PV array
Output Voltage	Suitable for charging nominal battery bank from the respective capacity of SPV array.
Protections	Short Circuit, Deep Discharge, Input Surge Voltage, Over Current (load), Battery Reverse Polarity, Solar array reverse polarity.
Indication	String „ON“, Main „ON“, Charging „ON“, , Charger Overload, Battery On Trickle

Battery disconnected / Fault Battery Reverse Polarity, Low Solar Power, System Fault and Charger over Temperature and Input Over / Under Voltage (for AC).

MIMIC Diagram: To indicate power flow and operation of the charge controller/ battery charger; shall have provision for visual indications of existing power input/output through the MIMIC diagram.

You may design the Power Conditioning Unit (PCU), which consists of a solar charge controller & inverter as per the design mentioned above. In addition, it should have a Grid Charger.

It provides the facility to charge the battery bank either through Solar or Grid set. The PCU continuously monitors the state of Battery Voltage, Solar Power output and the loads. Due to sustained usage of power, when the Battery Voltage falls below a pre-set level, the PCU will automatically transfer the load to the grid power and also charge the Batteries through the in-built Grid Charger. Once the batteries are charged to the present level, the PCU cuts off the Grid power from the system and will restore to feeding the loads from the battery bank & continue to charge the battery bank from the available solar power.

The PCU always gives preference to solar power and will use Grid power only when the solar power/ battery charge is insufficient to meet the load requirement.

Salient Features:

- Priority of charging is from Solar panels.
- Overheating Protection.
- Dual Display Showing PV & Inverter output, or common display in case MPPT is inbuilt in PCU, as applicable
- Short circuit & Overload Protection.
- Inbuilt Heavy Duty Solar Charge Controller.
- No Load Shut Down for load = 5% not applicable for > 1 kVA systems) Fully equipped with powerful Grid Charger.
- User-friendly client and Web-based Software.

c) DC DISTRIBUTION BOARD:

- i. Dust & vermin proof Enclosures of Polycarbonate/GRP/FRP/Powder coated Aluminium/ Cast Aluminium Alloy & should have IP 65(outdoor)/54(indoor) compliant to IEC 60529.
- ii. The bus bars are made of copper of the desired size. Suitable capacity MCBs/MCCB shall be provided for controlling the DC power output to the PCU along with necessary surge arrestors.
- iii. Suitable cable entry points with cable glands and ferrules should be provided. iv. DC SPD of type 2 compliant to IEC 60497 with fuse should be provided.
- iv. Design ambient temperature should be 0-60 deg C.

d) AC DISTRIBUTION PANELBOARD:

- i. AC Distribution Panel Board (DPB) shall control the AC power from PCU/ inverter and should have necessary over current & surge protection.
- ii. All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS60947 part I, II and III.
- iii. All the Panels should be metal clad, totally enclosed, rigid, wall/floor mounted, air-insulated, cubical type suitable for operation on three-phase / single phase, 415 or 230 volts, 50 Hz.
- iv. Suitable cable entry points with cable glands and ferrules should be provided.
- v. DC SPD of type 2 compliant to IEC 60497 with fuse should be provided.

- vi. Design ambient temperature should be 0-60 deg C.
- vii. The panels should be designed for the minimum expected ambient temperature of 45 degrees Celsius, 80 percent humidity and dusty weather.
- viii. All indoor panels should have the protection of IP20 or better. All outdoor panels will have the protection of IP21 or better.
- ix. Should confirm to Indian Electricity Act & rules (till the last amendment)
- x. All the 415 V or 230 V 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%
Variation in Supply frequency	+/- 3 Hz

7.5.1.6. PROTECTION:

The SPV power plant should be provided with Lightning and over-voltage protection, connected with proper earth pits. The main aim of overvoltage protection is to reduce the overvoltage to a tolerable level before it reaches the PV or other sub-system components. The source of overvoltage can be lightning or other atmospheric disturbance. a) Lightning

- I. The lightning Conductors shall be made of a minimum 25 mm diameter and minimum 3000 mm long GI spike as per provisions of IS 2309-1969. A necessary concrete foundation for holding the lightning conductor in position should be made after giving due consideration to maximum wind speed and maintenance requirements at the site in the future. The lightning conductor should be earthed through 20 mm X 3 mm thick GI flat earth pits/earth bus with proper Insulation. Height of Lightning Conductors from Array Structure should be minimum 4 metres.
- II. Most areas of the State being prone to lightning, Type-II SPDs shall be included as a mandatory requirement.
- III. Similarly Type I+II SPD should also be provided on the grid side in ACDB or PCU to protect the PCU from damage

b) Earthing

- i. Earthing should confirm to IS 3043.
- ii. Earth Continuity wire/conductor should be 3-8 SWG. The thickness of the Conductor should be more than half of the thickest wire used in electric wiring. The total resistance of the continuity conductor should be less than 1 ohms.
- iii. Earthing lead can be of GI/Copper Strip. For each Earth Electrode 2 Leads must be provided.
- iv. Earth Electrode can be of GI Pipe/Plate. Pipe Electrode should be of 40 mm diameter, 4.75 m length (for rocky soil)/2.75 m (for ordinary soil). Plate Electrode should be of 60 cm*60 cm at a depth of 3 m. The thickness of the plate should be 3.18 mm (copper)/6.35 mm (GI). Moistened land should be preferred for Earthing.
- v. Chemical Earthing (Bentonite based/ Graphite based with Aluminium Silicates & Metal Powder) should be provided.
- vi. No. of Earthing points to be used: 3
- vii. One Earthing for all the Structural Conducting Parts
 - One Earthing for Inverter with ACDB, Array JB & Main JB.
 - One Earthing for Lightning Arrester.

- viii. Each array structure of the SPV yard will be grounded properly. The array structures and the lightning conductors are to be connected to earth through a 25 mm X 5mm GI strip.
- ix. The inverters and all equipment inside the control room shall be connected to earth through 25 mm X 5mm tinned copper/GI strip including supplying of material and soldering. Earth bus should be provided inside the control room with 25 mm X 5mm tinned copper/GI strip.
- x. In compliance with Rule 61 of Indian Electricity Rules, 2004 (as amended up to date), all non-current carrying metal parts should be earthed with two separate and distinct earth continuity wires.

c) Surge Protection Devices (SPD):

- i. Surge protection devices should be provided on both the DC side and the AC side of the solar PV system. It should have a protection voltage of 2.5 kV & Nominal Discharge current of 5 kA (8/20) μ sec.
- ii. The DC surge protection devices (SPDs) should be installed in the DC distribution box adjacent to the solar inverter.
- iii. The AC SPDs shall be installed in the AC distribution box adjacent to the solar inverter.
- iv. The SPD's earthing terminal should be connected to earth through the abovementioned dedicated earthing system.

7.5.1.7. PROTECTION:

- i. The SPV power plant should be provided with Lightning and over-voltage protection, connected with proper earth pits. The main aim of overvoltage protection is to reduce the overvoltage to a tolerable level before it reaches the PV or other sub-system components. The source of overvoltage can be lightning or other atmospheric disturbance. a) Lightning
- ii. The lightning Conductors shall be made of a minimum 25 mm diameter and minimum 3000 mm long GI spike as per provisions of IS 2309-1969. A necessary concrete foundation for holding the lightning conductor in position should be made after giving due consideration to maximum wind speed and maintenance requirements at the site in the future. The lightning conductor should be earthed through 20 mm X 3 mm thick GI flat earth pits/earth bus with proper Insulation. Height of Lightning Conductors from Array Structure should be minimum 4 metres.
- iii. Most areas of the State being prone to lightning, Type-II SPDs shall be included as a mandatory requirement.
- iv. Similarly Type I+II SPD should also be provided on the grid side in ACDB or PCU to protect the PCU from damage

b) Earthing

- viii. Earthing should conform to IS 3043.
- ix. Earth Continuity wire/conductor should be 3-8 SWG. The thickness of the Conductor should be more than half of the thickest wire used in electric wiring. The total resistance of the continuity conductor should be less than 1 ohms.
- x. Earthing lead can be of GI/Copper Strip. For each Earth Electrode 2 Leads must be provided.
- xi. Earth Electrode can be of GI Pipe/Plate. Pipe Electrode should be of 40 mm diameter, 4.75 m length (for rocky soil)/2.75 m (for ordinary soil). Plate Electrode should be of 60 cm*60 cm at a depth of 3 m. The thickness of the plate should be 3.18 mm (copper)/6.35 mm (GI). Moistened land should be preferred for Earthing.
- xii. Chemical Earthing (Bentonite based/ Graphite based with Aluminium Silicates & Metal Powder) should be provided.

xiii. No. of Earthing points to be used: 3

vii. One Earthing for all the Structural Conducting Parts

- One Earthing for Inverter with ACDB, Array JB & Main JB.
- One Earthing for Lightning Arrester.

xiv. Each array structure of the SPV yard will be grounded properly. The array structures and the lightning conductors are to be connected to earth through a 25 mm X 5mm GI strip.

xv. The inverters and all equipment inside the control room shall be connected to earth through 25 mm X 5mm tinned copper/GI strip including supplying of material and soldering. Earth bus should be provided inside the control room with 25 mm X 5mm tinned copper/GI strip.

xvi. In compliance with Rule 61 of Indian Electricity Rules, 2004 (as amended up to date), all non-current carrying metal parts should be earthed with two separate and distinct earth continuity wires.

c) Surge Protection Devices (SPD):

- Surge protection devices should be provided on both the DC side and the AC side of the solar PV system. It should have a protection voltage of 2.5 kV & Nominal Discharge current of 5 kA (8/20) μ sec.
- The DC surge protection devices (SPDs) should be installed in the DC distribution box adjacent to the solar inverter.
- The AC SPDs shall be installed in the AC distribution box adjacent to the solar inverter.
- The SPD's earthing terminal should be connected to earth through the abovementioned dedicated earthing system.

7.5.1.11. DRAWINGS & MANUALS:

Two copies of Engineering, electrical drawings, Installation and CMC manuals are to be supplied. Bidders shall provide complete technical datasheets for each equipment giving details of the specifications along with make/makes in their bid along with the basic design of the power plant and power evacuation, synchronization and distribution for street lighting system along with protection equipment.

7.5.1.12. NET METER :

The On-grid Solar power plant will be connected to the grid through a bi-directional net meter as per the single line diagram indicated in this document. The indicative specification of the Net-meter is as follows:

Three Phase Meter:

- Three Phase Four wire, 3x240VAC, 20-100Amps ISI marked Direct current operated bidirectional Energy Meter, DLMS CatB having calibration LED, Battery back up, AMR compliance & front sealing facility to be used as a NET meter for less than 20KW LT consumer with Accuracy: 1.0.
- Transparent Box of Engineering Plastic to house above meter with all accessories

7.5.1.13. GENERATION METER:

Three Phase Meter:

- Three Phase Four wire, 3 x 240VAC, 20-100Amps ISI marked Direct current operated Energy Meter, DLMS CatC having calibration LED, Battery back up, AMR compliance & front sealing facility to be used as generation meter up to 20KW with Accuracy: 1.0.
- GPRS/GSM Modem with connecting cable & antenna for running smoothly up to 5 years for AMR facility

7.5.1.2. Solar based High/ Mini Mast Light

7.5.1.2.1. High/ Mini Mast Light

- a) White Light Emitting Diode (W-LED) light source based solar street lighting system

Lighting Emitting Diode (LED) is a p-n junction device which emits light when forward electric current possesses through it. A LED based solar street lighting system aims of providing solar electricity for operating LED lights for specified hours of operation per day. The broad performance specification of a White Light Emitting Diode (W-LED) light source based solar street lighting system is given below.

Broad Performance Parameters

- i. Solar based Mini Mast Lighting System of minimum 300 watts Module capacity and LED lights of 24 Watt respectively with 4 numbers light.
- ii. LiFePO4 battery, C/10, DoD 90%, Electronics Min 85% total efficiency, Average duty cycle Dusk to dawn Autonomy of 2 days
- iii. **Duty Cycle:** The LED Mini Mast Light should be designed to operate for 12 hours. (100% illumination for 6 hours and at 40% illumination for 6 hours). The system should have dusk to –dawn operation.

- b) Light Surface

The light source will be of white LED type, single lamp or multiple lamps can be used. The colour temperature of white LEDs used in the system should be in the range of 5500K - 6500 K. Use of LEDs which emits ultra-violet light will not be permitted. The lamps should be housed in an assembly suitable for outdoor use and shall comply with IP 65. The LED housing preferably should be made of pressure die cast aluminium having sufficient area for heat dissipation and heat resistant toughened clear glass/ high quality poly carbonate fitted with pressurised die cast aluminum frame with SS screw. The temperature of heat sink should not increase more than 30 ° C above ambient temperature even after 48 hours continuous operation. This condition should be complied even after two hours or operation at its maximum operation voltage i.e. just before over voltage cut off.

- i. The white LED should be of mini quality and should stands for maximum 50000 hours
- ii. The make, model number, country of origin and technical characteristics of white LEDs used in the lighting system must be furnished.
- iii. The LED unit shall comply to LM 79 and LM80.
- iv. The LED efficacy should be more than 110 lumen/ watt @ 350mA.

7.5.1.2.2. Solar photovoltaic (PV) modules:

- i. The PV modules must have quality to the latest edition of any of the following IEC PV module qualification test or equivalent BIS standards for module design qualification and type approval. Crystalline Silicon Solar Cell Modules IEC 61215 Edition (II).
- ii. PV modules must have quality to IEC 61730 Part I & II, for safety qualification testing and to be used in a mainly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701.
- iii. PV modules used in solar mini mast lights must be warranted for output wattage, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years. Full rated output of the SPV Array to be ensured after one year of operation.

- iv. Number of modules and array capacity will depend on the rated output of individual modules. The peak power rating of the Solar PV array should not be less than as per rated capacity of PV Module.
- v. The total solar PV array capacity shall not be less than the 300 Wp capacity and should comprise of solar crystalline PV modules of minimum 75 Wp

7.5.1.2.3. Battery

- i Lithium Ferro phosphate (LFP) type battery.
- ii The battery will have a minimum rating of 12.8V/ 168 Ah or 2.15kWh at the C/10 discharge rate.
- iii 90% of the rated capacity of the battery should be between fully charged and load cut off conditions.
- iv Battery pack should have a proper 'Battery Management System' (BMS) for cell balancing, overcharge and over-temperature protection.
- v Battery should conform to the BIS/ International standards (IS 16046:2015/IEC 62133:2012)

Description	Specification
Specific Energy	Minimum 120Wh/kg
C Rate (Charging)	Minimum C/4
C Rate (Discharging)	Up to 1C
Charge Discharge Cycle	Minimum 2000 Cycles at C/10 rate at 25 deg C
Thermal Run away	Min 120 deg C
Depth of Discharge	Minimum 85% at 25 deg C
Battery Nominal Ah Rating	168 Ah or 4×42Ah or 2×84 Ah
Nominal Voltage	12.8 V
Cell Capacity	3.2Volt 5Ah/6Ah/10Ah and above
Battery type	Lithium Ferro phosphate
Battery Voltage Range	10V to 14.6±0.2Volt
Working Temperature Range	0°C ~ 60°C; humidity < 95%
Storage temperature range	0°C ~ 45°C
Self-Discharge (per Month)	<2%
Protections	
High Voltage Cut off	14.6V + 0.2V
Deep Discharge Cut-off	10V +0.2V
Short Circuit Protection	Should be provided.
Ingress Protection (IP)	IP-65 for the battery box
Certifications	As per BIS standard

7.5.1.2.4. Electronics

- a) The total electronic efficiency of DC-DC Converter should be at least 85%.
- b) Electronics should operate at 12V and should have temperature compensation for proper charging of the battery throughout the year.
- c) The light output should remain constant with variations in the battery voltages.

7.5.1.2.5. Electronic Protections

- a) The system should have protection against battery overcharge and deep discharge conditions.
- b) Fuses should be provided to protect against short circuit conditions.
- c) A blocking diode should be provided as part of the electronics, to prevent reverse flow of current through the PV module (s), in case such a diode is not provided with the PV module.
- d) Full protection against open circuit, accidental short circuit and reverse polarity should be provided.

- e) Adequate protection is to be incorporated under no load conditions, e.g. when the lamps are removed, and the system is switched ON.
- f) Electronics should operate on 12V and should have temperature compensation for proper charging of the battery throughout the year.
- g) The W-LED driver circuit should be based on constant voltage, constant current, mini frequency technology. The component used in LED driver circuit should be mainly reliable of reputed make and efficient.
- h) Efficiency- the total electronic efficiency should be at least 80%. W-LED Life – Lumen output of W-LED should remain same throughout the warranty period.

7.5.1.2.6. Charge Controller

The unit should have the following feature-

- i This unit should be designed for charge regulation of storage battery and safe guard the battery against over charge & deep discharging.
- ii The voltage cut-off should be set in such a way to utilize the 75% of the fully charged battery capacity.
- iii The lower limit of cut off voltage should not be less than 10.8 Volts.
- iv The charge controller should reconnect the load when battery gets fully charged. The difference in these two voltage set point should be neither too small nor too large to avoid the relay chattering.
- v A reverse blocking diode should be provided to prevent discharge of battery in rainy season and in night.
- vi The various functions should be displayed through LED indicator indicating the operations being carried out by the controller such as low battery warning sign (yellow), load current off (red) battery charging (green).
- vii A switch & fuse should be provided with the controller.
- viii The unit should have protection against short circuit, lightning, reverse polarity surge etc.
- ix The PCB's of controller should be glass epoxy.
- x All the connector indication should be covered with transparent hard plastic sheet screened properly.
- xi The self-consumption of the charge controller shall not be more than 20mA at rated voltage and rated current.
- xii The electronics should operate at 12 Volt and the efficiency of DC-DC converter should be at least 90%.

Description	Specification
Nominal Battery Voltage	12.80V -Optimized for Lithium battery chemistry
Charge Controller Type	Maximum Power Point Tracking (MPPT)
Solar Charging Rating	12V 30A
Load Controller	Automatic Dusk to dawn with Dimmer.
Self-Consumption	<20mA
Efficiency	>85%
Indications	<ul style="list-style-type: none"> • Green --> Charging under process • Red --> Battery Low / Fault
Operating Temperature	0 to 60 Deg C (No de-rating of the unit) and 95% RH
Protections	<ul style="list-style-type: none"> • Over Charging / Deep Discharge • Overload - Auto shutdown and restart • Solar and Battery Reverse • Reverse Current Protection from Battery at Night

7.5.1.2.7. Mechanical Components

- i The frame structure of module should have provision to adjust its angle of inclination to the horizontal between 0 and 45, so that it can be installed at the specified tilt angle.
- ii It should be possible to mount the light source on as metallic arm attached to the pole. For mini mast street lighting system each of the metallic arm / ring for holding the light assembly should be extended of at least 0.5 meter from the pole and set at a suitable angle to maximize uniform illumination of desired level over the specified area. Proper arrangement should be provided in the mini mast lights for repairing and maintenance.
- iii The pole should be hot dipped galvanized (120 microns) octagonal GI pipe, min top 90 mm diameter and bottom 190 mm with Baseplate of 300mmX300mmX16mm of 07 meters length with suitable thickness (minimum 4mm) to withstand at least 200 km. / hour of wind speed.
- iv Solar panel shall be at 7 meters from ground and batteries and luminaries shall be 1 meter below solar panels.
- v Batteries shall be placed above luminaries with proper fixing arrangement and protection
- vi Civil Pedestal Foundation for pole should be of RCC type with 1:1.5:3 ratio, depth of column should be 900 mm and raft height 300 mm. PCC should be 100 mm height with 1:3:6 ratio. The pedestal must be 300 mm above ground to avoid water logging on the base plate, the details of foundation design and drawing with specification is enclosed as Clause **Error! Reference source not found.**

7.5.1.2.8. Electric Cable

- i The electric cables shall be twin core PVC insulated water and UV resistance copper cables of minimum size 1.5 sqmm. Cables shall meet IS 1554 /694 Part I:1988 and shall be of 650V/1.1kV.

7.5.1.2.9. WARRANTY

- i The Warranty Card to be supplied with the system must contain the details of the system.

7.5.1.3. Solar based Street Light

7.5.1.3.1. Street Light

The Technical Specification of a 12 W white-led (w-led) based solar street lighting system with lithium ferro phosphate battery is given below:

- i A standalone solar photovoltaic street lighting system (SLS) is an outdoor lighting unit used for illuminating a street or an open area. The SLS consists of a solar photovoltaic (SPV) module, a luminaire, storage battery, control electronics, inter-connecting wires/cables, module mounting pole including hardware and battery box. The luminaire is based on White Light Emitting Diode (W-LED), a solid-state device that emits light when an electric current passes through it. The luminaire is mounted on the pole at a suitable angle to maximize illumination on the ground. The PV module is placed at the top of the pole at an angle facing south so that it receives solar radiation throughout the day, without any shadow falling on it. A battery is placed in a box attached to the pole.

Electricity generated by the PV module charges the battery during the daytime which powers the luminaire from dusk to dawn. The system lights at dusk and switches off at dawn automatically.

BROAD PERFORMANCE SPECIFICATIONS

Sr. No	Components	Specification for Solar Street light fitting
1.	PV module	75 Wp under STC
2.	Battery	Minimum 12.8V, 30 AH capacity Lithium Ferro Phosphate battery.

3.	Light Source	<p>White Light Emitting Diode (W-LED)</p> <p>12-Watt, W-LED luminaire, dispersed beam, soothing to eyes with the use of proper optics and diffuser.</p> <p>LED Chip should be compliance to IES: LM-80 (Approved Method for Measuring Lumen Maintenance of LED Light Sources and LED lumen depreciation time to L70). Test report for same should be submitted.</p>
4.	Light Out put	<p>The luminaire must use high efficacy W-LED with minimum 135 lumens per watt (and UV free). [A certificate to be submitted by the System supplier to the Test Lab during certification]</p> <p>For single light level:</p> <p>Minimum 24 Lux when measured at a point 4 meters below the light. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher light output will be preferred.</p> <p>For Multiple Light levels:</p> <p>The luminaire should have two levels of light to take care of different lighting needs during the night. Minimum 24 Lux when measured at a point 4 meters below the light (at " High" illumination level). The illumination Should be uniform without dark bands or abrupt variations. Minimum 12 Lux at lower illumination level. (Higher light output will be preferred)</p> <p>The luminaire shall be tested for Electrical, Photometry and Color parameters as per IES LM-79:2008 or IS: 16106:2012 for following performance parameters like:</p> <ol style="list-style-type: none"> 1) Total luminous flux: ≥ 1500 lm. 2) Luminous efficacy (i.e. system efficacy): ≥ 125 lm/W. 3) Color Temperature: Between 5500 K to 6500 K.
5.		<ol style="list-style-type: none"> 4) CRI ≥ 70 5) Luminous intensity distribution should follow the batwing patterns in polar curves. 6) Require validation report using .ies file, which is generated during luminous intensity distribution test and using maintenance factor 0.9 and pole height of 4m., Road width 5m and Pole span 15m. The average illuminance level and uniformity should comply with requirement as per IS 1944, wherever applicable. 7) The luminaire should be tested for all type tests as per IS 10322 Part 5 Sect 3 or IEC 60598-2-3 standards.
6.	Mounting of light	<p>Pole height 5 m above the ground level and 1 m below the ground. Luminaire shall be at least 4.5 m above the ground level.</p>
7.	Electronics Efficiency	<p>Overall total Efficiency of the Electronics should be Minimum 90%</p>

8	Duty Cycle	Dusk to dawn: First 4 Hours full light (Min. 24 Lux), rest of the time at lower light (50%, Min. 12 Lux) level. (Higher light output will be preferred)
9	Autonomy	3 days or Minimum 36 operating hours per permissible discharge with fully charged Lithium-Ferro Phosphate Battery.
10	Ingress Protection – IP	Optical and Control gear compartment - IP 65 / IP 66
11	Impact resistance of casing	≥ IK 08
12	Radiated Emission Test	As per CISPR-15
13	ESD (Electro Static Discharge) and Radiated susceptibility test	As per IEC 61547

7.5.1.3.2. PV Module

- i Indigenously manufactured PV module should be used.
- ii The PV module should have crystalline silicon solar cells and must have a certificate of testing conforming to IEC 61215 Edition II / BIS 14286 from an NABL or IECQ accredited Laboratory.
- iii The power output of the module under STC should be a minimum of 75Wp. iv. The module efficiency should not be less than 14 %.
- iv The terminal box on the module should have a provision for opening it for replacing the cable, if required.
- v There should be a Name Plate fixed inside the module which will give:
 - i) Name of the Manufacturer or Distinctive Logo.
 - ii) Model Number
 - iii) Serial Number
 - iv) Year of manufacture
- vi A distinctive serial number starting with NSM will be engraved on the frame of the module or screen printed on the tedlar sheet of the module.

7.5.1.3.3. BATTERY

- iLithium Ferro phosphate type battery.
- iiThe battery will have a minimum rating of 12.8V/ 30 Ah or 384 Wh at the C/10 discharge rate.
- iii90% of the rated capacity of the battery should be between fully charged and load cut off conditions.

iv Battery pack should have a proper 'Battery Management System' (BMS) for cell balancing, overcharge and over-temperature protection.

v Battery should conform to the BIS/ International standards (IS 16046:2015/IEC 62133:2012)

Description	Specification
Specific Energy	Minimum 120Wh/kg
C Rate (Charging)	Minimum C/4
C Rate (Discharging)	Up to 1C
Charge Discharge Cycle	Minimum 2000 Cycles at C/10 rate at 25 deg C
Thermal Run away	Min 120 deg C
Depth of Discharge	Minimum 85% at 25 deg C
Battery Nominal Ah Rating	30Ah
Nominal Voltage	12.8 V
Cell Capacity	3.2Volt 5Ah/6Ah/10Ah and above
Battery type	Lithium Ferro phosphate
Battery Voltage Range	10V to 14.6±0.2Volt
Working Temperature Range	0°C ~ 60°C; humidity < 95%
Storage temperature range	0°C ~ 45°C
Self-Discharge (per Month)	<2%
Protections	
High Voltage Cut off	14.6V + 0.2V
Deep Discharge Cut-off	10V +0.2V
Short Circuit Protection	Should be provided.
Ingress Protection (IP)	IP-65 for the battery box
Certifications	As per BIS standard

7.5.1.3.4. LIGHT SOURCE

i The light source will be a white LED type.

ii The light source will be a white LED type.

iii The colour temperature of white LED used in the system should be in the range of 5500oK–6500oK.

iv W-LEDs should not emit ultraviolet light.

v The light output from the white LED light source should be constant throughout the duty cycle.

vi The lamps should be housed in an assembly suitable for outdoor use.

vii The temperature of heat sink should not increase more than 20oC above ambient temperature during the dusk to dawn operation.

viii Total luminous flux: ≥ 1500 lm.

ix Luminous efficacy (i.e. system efficacy): ≥ 125 lm/W.

x Color Temperature: Between 5500 K to 6500 K.

Description	Specification
System Wattage	12W
Operating nominal Voltage	12.8 VDC
Input Voltage range	10.8V-14.4 VDC
LED type	High Power LED
LED MAKE	CREEE / Philips/Osram/Seoul/Nichia or equivalent
Colour Index (CRI)	CRI >60
Viewing Angle	120°
Driver type	DC-DC - Compatible for Solar Panel power
Driver efficiency	>85%

Description	Specification
Luminaries housing	Aluminium
Ingress Protection	IP 65
Motion sensor Range	3 meters
Certifications	LM-80 for LED Confirmation to BIS or equivalent standards

7.5.1.3.5. ELECTRONICS

- i The total electronic efficiency should be at least 90 %.
- ii Charge controller should be MPPT Type.
- iii Electronics should operate at an appropriate voltage suitable for proper charging of the battery.
- iv No Load current consumption should be less than 20 mA.
- v The PV module itself should be used to sense the ambient light level for switching ON and OFF the lamp.
- vi The PCB containing the electronics should be capable of solder free installation and replacement.
- vii Necessary lengths of wires/cables, switches suitable for DC use and fuses should be provided.

Description	Specification
Nominal Battery Voltage	12.80V -Optimized for Lithium battery chemistry
Charge Controller Type	Maximum Power Point Tracking (MPPT)
Solar Charging Rating	12V 5A
Load Controller	Automatic Dusk to dawn with Dimmer and Motion sensor-based lighting control
Self-Consumption	<20mA
Efficiency	>85%
Indications	<ul style="list-style-type: none"> • Green --> Charging under process • Red --> Battery Low / Fault
Operating Temperature	0 to 60 Deg C (No de-rating of the unit) and 95% RH
Protections	<ul style="list-style-type: none"> • Over Charging / Deep Discharge • Overload - Auto shutdown and restart • Solar and Battery Reverse • Reverse Current Protection from Battery at Night

7.5.1.3.6. ELECTRONIC PROTECTIONS

- i Adequate protection is to be incorporated under "No Load" conditions e.g. when the lamp is removed and the system is switched 'ON'.
- ii The system should have protection against battery overcharge and deep discharge conditions.
- iii The System should have protection against short circuit conditions.
- iv Protection for reverse flow of current through the PV module(s) should be provided.
- v Adequate protection should be provided against battery reverse polarity.
- vi Load reconnect should be provided at 80% of the battery capacity status.

7.5.1.3.7. MECHANICAL COMPONENTS

- a) A corrosion resistant metallic frame structure should be fixed on the pole to hold the SPV module.
- b) The frame structure should have provision so that the module can be oriented at the suitable tilt angle.
- c) Pole should be Hot dip galvanized pipe as per IS1161 & IS4736 i.e. Class B.
- d) Pole height 5 m above the ground level and 1 m below the ground. Luminaire shall be at least 4.5 m above the ground level.
- e) The pole should have the provision to hold the luminaire.

-
- f) The battery shall be either included in the luminaire enclosure, which should be water proof (IP 65) and corrosion resistant or outside the luminaire enclosure in a vented, acid proof and corrosion resistant, hot dip galvanized metallic box (IP 65) with anti-theft locking arrangement for outdoor use.

7.5.1.3.8. INDICATORS

- i) The system should have two indicators, green and red.
- ii) The green indicator should indicate the charging under progress and should glow only
- iii) When the charging is taking place. It should stop glowing when the battery is fully charged.
- iv) Red indicator should indicate the battery "Load Cut Off" condition.

7.5.1.3.9. WARRANTY

The Warranty Card to be supplied with the system must contain the details of the system. Name and address of the contact person for repair and maintenance, in case of non-functionality of the SLS.

7.5.1.4. Solar Tree with streetlight/ Garden light

7.5.1.3.1. Key Requirement of Solar Tree with streetlight/ garden light project

- a) Soil investigation shall be carried for finalizing the foundation requirements. Depth of Pile or Open Foundation shall be done as per Soil Investigation report
- b) Backfilling of the excavated soil should be compacted properly, and loose material shall be disposed of out of the plant premises
- c) Mix design of concrete shall be carried out with minimum cement content of 350 Kg/Cum.
- d) Reinforcement shall be provided as per coastal provision in case of high salinity of coastal areas
- e) Paint on exposed concrete surface shall be matched with existing structure within the premises to maintain the aesthetic appearance of the plant
- f) All required tests like Cube test, pile load test etc. are to be carried out.
- g) Curing of all piles or open foundations shall be done thrice a day and be maintained for a period of seven days from the date of casting
- h) All design and drawing are to be submitted for approval in Editable, AutoCAD, STAAD file & PDF format to OREDA before starting the work. The submitted drawing and design shall be certified and stamped by licensed structure designer
- i) Design of the foundation shall be done for 25 years life such that structure. The strength shall not reduce for designed life
- j) The Solar trees should be designed in a way such that the modules integrated on the tree should get exposed to sunshine during most part of the day.
- k) Other components such as charge controllers etc. should be carefully housed in the tree.
- l) The battery and electronic components housed in the tree should not be exposed to open weather and care should be taken to make them theft proof.
- m) The trees should be designed aesthetically so as to gel with the ambience of the place.
- n) The design as well as the materials to be used for manufacturing the solar tress and the street lights should adequately take care of the high salinity and heavy winds prevailing in the area.
- o) The solar PV modules etc. may be subject to salt mist corrosion and frequent dust/sand deposits on their exposed surfaces. The design of Solar trees should address these aspects vis-à-vis ease of maintenance.
- p) The streetlights/ garden lights, each having white LED(s)/illumination bulbs will be energized through these solar trees. The PV capacity of each solar trees should be adequate to provide adequate power to at least four street lights or 20 garden lights for dusk to dawn operations.

- q) The battery bank should be sized so as to provide at least two days of autonomy. The battery type should be selected so that its space requirement is optimized as it will be an integral part of the Solar tree.
- r) The luminaries and lamps should be selected in such a way that minimum 8500 lumens are available on the road from a height of seven (7) meters.

Sr. No	Components	Specification for Solar street light fitting
1.	SPV System	1000 Wp under STC, Solar PV modules (Multi Crystalline) 200 Wp and above
2.	Battery	Minimum 12.8V, 42 AH capacity Lithium Ferro Phosphate battery.
3.	Light Source	White Light Emitting Diode (W-LED) 12-Watt, W-LED luminaire, dispersed beam, soothing to eyes with the use of proper optics and diffuser. LED Chip should be compliance to IES: LM-80 (Approved Method for Measuring Lumen Maintenance of LED Light Sources and LED lumen depreciation time to L70). Test report for same should be submitted.
4.	Light Out put	The luminaire must use high efficacy W-LED with minimum 135 lumens per watt (and UV free). [A certificate to be submitted by the System supplier to the Test Lab during certification] For single light level: Minimum 24 Lux when measured at a point 4 meters below the light. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher light output will be preferred. For Multiple Light levels: The luminaire should have two levels of light to take care of different lighting needs during the night. Minimum 24 Lux when measured at a point 4 meters below the light (at " High" illumination level). The illumination Should be uniform without dark bands or abrupt variations. Minimum 12 Lux at lower illumination level. (Higher light output will be preferred) The luminaire shall be tested for Electrical, Photometry and Color parameters as per IES LM-79:2008 or IS: 16106:2012 for following performance parameters like: 4) Total luminous flux: ≥ 1500 lm. 5) Luminous efficacy (i.e. system efficacy): ≥ 125 lm/W. 6) Color Temperature: Between 5500 K to 6500 K.

5.		<p>8) CRI \geq 70</p> <p>9) Luminous intensity distribution should follow the batwing patterns in polar curves.</p> <p>10) Require validation report using .ies file, which is generated during luminous intensity distribution test and using maintenance factor 0.9 and pole height of 4m., Road width 5m and Pole span 15m. The average illuminance level and uniformity should comply with requirement as per IS 1944, wherever applicable.</p> <p>11) The luminaire should be tested for all type tests as per IS 10322 Part 5 Sect 3 or IEC 60598-2-3 standards.</p>
6.	Hybrid Inverter	1.25 kVA output
7.	Mounting of light	Pole height 5 m above the ground level and 1 m below the ground. Luminaire shall be at least 4.5 m above the ground level.
8.	Electronics Efficiency	Overall total Efficiency of the Electronics should be Minimum 90%
9.	Duty Cycle	<p>Dusk to dawn:</p> <p>First 4 Hours full light (Min. 24 Lux), rest of the time at lower light (50%, Min. 12 Lux) level.</p> <p>(Higher light output will be preferred)</p>
10.	Autonomy	3 days or Minimum 36 operating hours per permissible discharge with fully charged Lithium-Ferro Phosphate Battery.
11.	Ingress Protection – IP	Optical and Control gear compartment - IP 65 / IP 66
12.	Impact resistance of casing	\geq IK 08
13.	Radiated Emission Test	As per CISPR-15
14.	ESD (Electro Static Discharge) and Radiated susceptibility test	As per IEC 61547

7.5.1.3.2. Solar PV Module

Indigenously manufactured PV module should be used.

The PV module should have crystalline silicon solar cells and must have a certificate of testing conforming to IEC 61215 Edition II / BIS 14286 from an NABL or IECQ accredited Laboratory.

The power output of the module under STC should be a minimum of 75Wp. iv. The module efficiency should not be less than 14 %.

The terminal box on the module should have a provision for opening it for replacing the cable, if required.

There should be a Name Plate fixed inside the module which will give:

- i Name of the Manufacturer or Distinctive Logo.
- ii Model Number
- iii Serial Number Year of manufacture
- iv A distinctive serial number starting with NSM will be engraved on the frame of the module or screen printed on the tedlar sheet of the module.

7.5.1.3.4. Module mounting structure

- a) Solar Modules shall be mounted on a non-corrosive galvanized support structure on clear land space availability. Antirust epoxy primer is to be applied on the support structure for active anti-corrosive and anti-rust protection. Support structure design and foundation should be designed to withstand horizontal wind speed of 200 Km/h.
- b) The recommended height of the structure shall be $4\text{mt} \pm 5\%$
- c) Structure Material: Hot dip / spray galvanized Steel
- d) All nuts & bolts are made of very good quality stainless steel (AISI 304)
- e) The structure designed for simple mechanical and electrical installation. It supports SPV modules at a given orientation, absorb and transfer the mechanical loads to the ground properly.
- f) The array structure is so designed that it will occupy minimum space without sacrificing the output from SPV panels at the same time it will withstand high wind speed of 200 km/hr.
- g) Mounting structure must be designed in such a manner that Solar Modules can put together angularly on it which forms the shape of tree to absorb the maximum amount of sunlight.
- h) The structure designed in such a manner that modules can be installed & replaced easily and should be in line with site requirement.

7.5.1.3.5. Junction Boxes

- a) The array junction boxes to be dust, vermin & waterproof as per IP65 rating and should be made of FRP/ABS plastic.
- b) MOV's (metal oxide varistors) to be used at the terminals of array junction boxes for external over voltage protection.
- c) The junction boxes should have suitable cable entry points fitted with cable glands of appropriate sizes for both incoming and outgoing cables.
- d) Suitable markings are provided on the bus bar for easy identification and cable ferrules shall be fitted at the cable termination points for identification.

7.5.1.3.6. BATTERY

- i Lithium Ferro phosphate type battery.
- ii The battery will have a minimum rating of 12.8V/ 30 Ah or 384 Wh at the C/10 discharge rate.
- iii 90% of the rated capacity of the battery should be between fully charged and load cut off conditions.
- iv Battery pack should have a proper 'Battery Management System' (BMS) for cell balancing, overcharge and over-temperature protection.
- v Battery should conform to the BIS/ International standards (IS 16046:2015/IEC 62133:2012)

Description	Specification
Specific Energy	Minimum 120Wh/kg
C Rate (Charging)	Minimum C/4
C Rate (Discharging)	Up to 1C
Charge Discharge Cycle	Minimum 2000 Cycles at C/10 rate at 25 deg C

Description	Specification
Thermal Run away	Min 120 deg C
Depth of Discharge	Minimum 85% at 25 deg C
Battery Nominal Ah Rating	30Ah
Nominal Voltage	12.8 V
Cell Capacity	3.2Volt 5Ah/6Ah/10Ah and above
Battery type	Lithium Ferro phosphate
Battery Voltage Range	10V to 14.6±0.2Volt
Working Temperature Range	0°C ~ 60°C; humidity < 95%
Storage temperature range	0°C ~ 45°C
Self-Discharge (per Month)	<2%
Protections	
High Voltage Cut off	14.6V + 0.2V
Deep Discharge Cut-off	10V +0.2V
Short Circuit Protection	Should be provided.
Ingress Protection (IP)	IP-65 for the battery box
Certifications	As per BIS standard 15549/ IEC 61427 / IS 1651 / IS 133369

7.5.1.3.7. Solar Hybrid PCU/ Inverter

- i. The DC energy produced by solar array is to be utilized to the maximum and supplied to the DC bus for inverting to AC voltage. Suitable inverter with MPPT control to extract maximum energy from solar array and to provide 230 Vac (+ 10%), 1-ph, 50Hz.
- ii. It should have protection features such as over current, short circuit, over temperature etc and user friendly LCD display for programming & viewing on-line parameters
- iii. Inverter should shut off and disconnects automatically on under/over voltage and frequency protection.
- iv. Inverter capacity: 1.25 kVA for street light and 3 kVA for garden lighting

7.5.1.3.8. LIGHT SOURCE

- i. The light source will be a white LED type.
- ii. The colour temperature of white LED used in the system should be in the range of 5500oK–6500oK.
- iii. W-LEDs should not emit ultraviolet light.
- iv. The light output from the white LED light source should be constant throughout the duty cycle.
- v. The lamps should be housed in an assembly suitable for outdoor use.
- vi. The temperature of heat sink should not increase more than 20oC above ambient temperature during the dusk to dawn operation.
- vii. Total luminous flux: ≥ 1500 lm.
- viii. Luminous efficacy (i.e. system efficacy): ≥ 125 lm/W.
- ix. Color Temperature: Between 5500 K to 6500 K.

Description	Specification
System Wattage	12W for street light, 8 W for garden light
Operating nominal Voltage	12.8 VDC
Input Voltage range	10.8V-14.4 VDC
LED type	High Power LED
LED MAKE	CREEE / Philips/Osram/Seoul/Nichia or equivalent
Colour Index (CRI)	CRI >60
Viewing Angle	120°
Driver type	DC-DC - Compatible for Solar Panel power

Description	Specification
Driver efficiency	>85%
Luminaries housing	Aluminium
Ingress Protection	IP 65
Motion sensor Range	3 meters
Certifications	LM-80 for LED Confirmation to BIS or equivalent standards

7.5.1.3.9. ELECTRONICS

- iThe total electronic efficiency should be at least 85%.
- iiThe total electronic efficiency should be at least 90 %.
- iiiCharge controller should be MPPT Type.
- ivElectronics should operate at an appropriate voltage suitable for proper charging of the battery.
- vNo Load current consumption should be less than 20 mA.
- viThe PV module itself should be used to sense the ambient light level for switching ON and OFF the lamp.
- viiThe PCB containing the electronics should be capable of solder free installation and replacement.
- viii Necessary lengths of wires/cables, switches suitable for DC use and fuses should be provided.

Description	Specification
Nominal Battery Voltage	12.80V -Optimized for Lithium battery chemistry
Charge Controller Type	Maximum Power Point Tracking (MPPT)
Solar Charging Rating	12V 5A
Load Controller	Automatic Dusk to dawn with Dimmer and Motion sensor-based lighting control
Self-Consumption	<20mA
Efficiency	>85%
Indications	<ul style="list-style-type: none"> • Green --> Charging under process • Red --> Battery Low / Fault
Operating Temperature	0 to 60 Deg C (No de-rating of the unit) and 95% RH
Protections	<ul style="list-style-type: none"> • Over Charging / Deep Discharge • Overload - Auto shutdown and restart • Solar and Battery Reverse • Reverse Current Protection from Battery at Night

7.5.1.3.10. ELECTRONIC PROTECTIONS

- iAdequate protection is to be incorporated under “No Load” conditions e.g. when the lamp is removed and the system is switched ‘ON’.
- iiThe system should have protection against battery overcharge and deep discharge conditions.
- iii The System should have protection against short circuit conditions.
- ivProtection for reverse flow of current through the PV module(s) should be provided.
- vAdequate protection should be provided against battery reverse polarity.
- viLoad reconnect should be provided at 80% of the battery capacity status.

7.5.1.3.11. MECHANICAL COMPONENTS

A corrosion resistant metallic frame structure should be fixed on the pole to hold the SPV module.

The frame structure should have provision so that the module can be oriented at the suitable tilt angle.

Pole should be Hot dip galvanized pipe as per IS1161 & IS4736 i.e. Class B.

Pole height 5 m above the ground level and 1 m below the ground. Luminaire shall be at least 4.5 m above the ground level.

The pole should have the provision to hold the luminaire.

The battery shall be either included in the luminaire enclosure, which should be water proof (IP 65) and corrosion resistant or outside the luminaire enclosure in a vented, acid proof and corrosion resistant, hot dip galvanized metallic box (IP 65) with anti-theft locking arrangement for outdoor use.

7.5.1.3.12. INDICATORS

iThe system should have two indicators, green and red.

- ii The green indicator should indicate the charging under progress and should glow only
- iii When the charging is taking place. It should stop glowing when the battery is fully charged.
- iv Red indicator should indicate the battery "Load Cut Off" condition.

7.5.1.3.13. Cables and accessories

All the cables required to be installed are copper armored cables laid properly either through cable tray and conduit as per the site requirement. These cables should conform to relevant IS standard (IS 1554 / 694 Part 1 of 1988) and shall be of 650 V/1.1 kV grade as per requirement. All the installation accessories such as glands, cable ties, lugs, fasteners and various sundry materials etc. are included in the scope of supply of the material.

7.5.1.3.14. Earthing

Each solar tree shall be grounded properly as per relevant IS standard (IS: 3043 – 1987). Provision shall be kept for shortening & grounding of the PV array at the time of manufacture work. All metal casing / shielding of the plant shall be thoroughly grounded in accordance with Indian electricity act / IE Rules.

7.5.1.3.15. Streetlight

- a) The pole shaft shall be made from sheet steel conforming to BSEN 10025. The pole shaft shall have octagonal cross section and shall be continuously tapered with single longitudinal welding. There shall not be any circumferential welding. The welding of pole shaft shall be done by Submerged Arc Welding (SAW) process.
- b) All octagonal pole shafts shall be provided with the rigid flange plate of suitable thickness (as per IS 2062) with provision for fixing 4 foundation bolts. This base plate shall be fillet welded to the pole shaft at two locations i.e. from inside and outside.
- c) The Octagonal Poles shall be in single section. There shall not be any circumferential weld joint. Galvanization. The poles shall be hot dip galvanized as per relevant Indian standards with average coating thickness of minimum 70 micron. The galvanizing shall be done in single dipping.

7.5.1.4.1. WARRANTY

- i. The Warranty Card to be supplied with the system must contain the details of the system.

7.5.1.5. Solar based water kiosk project

7.5.1.4.1. Key Requirement of Solar based water kiosk project

- a) Water Kiosk shall be designed considering
 - i. Input water shall be tap water available from municipality. Test report of input water is provided at Appendix Clause 7.5.2.4.2.
 - ii. Quality of water dispensed to the end user shall be as per IS 10500:2012
 - iii. Both normal water as well as chilled as per requirement of end user
 - iv. Temperature of chilled water should be adjustable (in range of 10° C to 30°C) as per seasonal requirement
- b) Water kiosk shall be equipped with a suitable water filtration process to meet BIS 10500 Standard
- c) Raw water storage capacity of 5000 litres and purified water storage capacity of 1000 litres. Both tanks should be stainless steel of minimum 316 grade
- d) Internal pipeline connection raw water tank, water purification system, purified water tank and water dispensing system shall be of stainless steel of minimum 316 grade
- e) Water purification and dispensing capacity
 - i. Water purification capacity of minimum 250 litre/hour
 - ii. Equipped to dispense 1 to 25 litres water in customers' own container.
 - iii. Water dispensing speed should be minimum 10-12 litre/minute
 - iv. Water dispensing shall be 2,000 litre/day
- f) Water kiosk shall be equipped with embedded devices for following purpose:

Quantitative Monitoring

 - Number of Glasses of water dispensed in a day
 - Number of Bottles of water dispensed in a day
 - Water level in the tank
 - Water Quality Monitoring
 - TDS level of water
 - Temperature of water
 - Hardness
 - pH values of water
 - Backend Wireless Communication
 - GPRS Module for communication with backend web server
 - GPS module for Kiosk Location information
 - Data Logger
 - Flash Memory bank for logging Sensor / dispensing data
 - Relay Logged info to Server using communication channel
- v. Multi-Processor Integrated Control System with Interface cables/connectors for integration to provide for the following features:
 - GPRS based TCP/IP connectivity with web-based Server system
 - GPS location system
 - Flash based transaction data Logging
 - Relay Unit for controlling water dispensing nozzles as per the location requirements
 - Interface for connecting coin-acceptors
 - Interface for Temperature Monitoring
 - Interface for TDS Monitoring
 - Interface for pH Monitoring
 - Interface for Ultra-Sonic Water Level Monitoring
 - Controller for displaying water purity parameters on LCD/LED display monitor
 - Built in power supply to connect with 12 V/24 V/48 v battery

vi. Sensors for the purpose of:

- Temperature Monitoring
- TDS Monitoring
- pH Monitoring
- Ultra-Sonic Water Level Monitoring
- Water Dispensing from One/Three Nozzles through Coin Acceptor
- Support of 1, 2, 5, 10 rupees coins
- Sensors support for Monitoring Water Temperature, TDS, PH and Water Level in both tanks
- Display of Water purity parameters on LCD Display of 14" size
- Ability to backup data for 48 hours in-case of server/connectivity outage LED display on controller panel box to indicate System Status.
- Uploading of Transactions and Water parameters data to Server over TCP/IP using GPRS.
 - Fall back to SMS in case GPRS connectivity to server is lost temporarily for reliability purpose

vii. Other Features

- System operation can be enabled/disabled from server
 - Dispense quantities re-configurable from server
 - Operator Log-in, log-out feature
 - System to operate after successful operator login only.
 - All water dispensing transactions to be uploaded to server
 - Each dispensing unit shall be independently manageable from the server for coin operation of any value
- g) Disposal of waste water to nearest Sewer drain/ Manhole with proper arrangement with necessary approval.
- h) Water dispensing system will operate for 16 hours i.e. from 6 AM to 10 PM every day, which may be amended in consultation with OREDA.
- i) Water Kiosk shall be completely standalone system operated by Solar PV system (with battery backup) without electricity connection from external sources such as Distribution utility and grid.
- j) Battery backup shall sufficient to operate water purification system and dispensing system of water kiosk for minimum 48 hours.

7.5.1.4.2. Solar photovoltaic (PV) modules:

- a) The solar PV modules to be used shall be made in India only. The PV modules shall qualify for the latest edition of the IEC PV module qualification test or equivalent BIS standards of crystalline silicon solar cell modules IEC 61215 and IS14286. In addition, the solar PV modules shall conform to the IEC 61730 Part-2 requirements for construction and Part-2 requirements for testing, safety qualification or equivalent IS. The solar PV module shall also conform to the IEC 61701 (salt mist corrosion testing) standards.
- b) The total solar PV array capacity shall not be less than the required capacity and should comprise of solar crystalline PV modules of minimum 300Wp and above wattage each with 72 cells.
- c) Protective devices against surges at the solar PV module shall be provided. Low voltage drop bypass diodes shall also be provided.
- d) Solar PV modules shall be tested and approved by one of the MNRE/ IEC authorized test centers.
- e) The module frame shall be made of corrosion-resistant materials, preferably having anodized aluminum and should have a minimum thickness of 1.5 mm and width 40 mm for sustainability.

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- f) Other general specification for the PV modules and subsystems shall be the Following as
- i. The rated output power of any supplied module shall have a tolerance of +/-3%.
 - ii. 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) percent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
 - iii. The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for the provision of the by-pass diode. The box shall have hinged, weatherproof lid with captive screws and cable gland entry points or may be of a sealed type and IP21/20 rated.
 - iv. I-V & P-V curves at STC will be provided after installation.
 - v. PV modules used in solar power plants must be warranted for output wattage, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.
- g) Modules should have an RF identification tag. The following information will be mentioned in the RFID used on each module (This can be inside or outside the laminate but must be able to withstand harsh environmental conditions).
- i. Name of the manufacturer of the PV module
 - ii. Name of the manufacturer of Solar Cells.
 - iii. Month & year of the manufacture (separate for solar cells and modules)
 - iv. Country of origin (separately for solar cells and module)
 - v. I-V curve for the module Wattage, I_m , V_m and FF for the module
 - vi. Unique Serial No and Model No of the module
 - vii. Date and year of obtaining the IEC PV module qualification certificate. viii. Name of the test lab issuing IEC certificate.
 - ix. Other relevant information on traceability of solar cells and module as per ISO 9001 and ISO 14001.

7.5.1.4.3. Array/Module Mounting Structure:

- a) Hot dip galvanized MS mounting structures will be used for mounting the modules/ panels/arrays. Each structure will have angle of inclination as per the site conditions to take maximum insolation.
- b) The Mounting structure will be designed to withstand the speed of 200 km/ hour). Suitable fastening arrangement such as grouting and calming will be provided to secure the installation against the specific wind speed.
- c) The mounting structure will be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS 4759.
- d) The fasteners will 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.
- e) The total load of the structure (when installed with PV modules) on the terrace will be less than 60 kg/m².
- f) The minimum clearance of the structure from the roof level will be 300 mm.

- g) The legs of the structures will be provided with hot dip GI angles, fixed and grouted in the RCC foundation columns with 1:2:4 cement concrete. The work includes necessary excavation, concreting, back filling, shoring & shuttering etc.

7.5.1.4.4. Array/ Main Junction Boxes (JBs):

- a) The Junction Boxes (JBs) made of GRP/FRP/ Polycarbonate/Powder Coated Aluminium /cast aluminium alloy with full dust, water & vermin proof arrangement shall be provided. All wires/cables shall be terminated through Copper 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/ Screw based cover with EPDM rubber gasket to prevent water entry. Single/ double compression cable glands.
- c) Fuse protection should be provided for each string for +ve cables.
- d) Each Junction Box shall have High-quality Suitable capacity Metal Oxide Varistors (MOVs) / SPDs. The Junction Boxes shall have suitable arrangement monitoring and disconnection for each of the groups.
- e) Suitable markings should be provided on the bus bar for easy identification and suitable cable glands with ferrules must be fitted at the cable termination points for identification.
- f) Array Junction Box should be IP 65(for outdoor)/ IP 54(for indoor) as per IEC 60529 and should be provided with fuses and Isolators of suitable ratings.
- g) ACDB should have a surge protection device of class 2 as per IEC 60947/60364-5-53, to protect inverters from surges in the AC line.
- h) AJBs/ MJBs may be kept below the modules. In case of need, this can be installed on the wall or rooftop. ACDB should be put at safe distance from DCDB/ AJBs/ MJBs to avoid Eddy current interference. However, in the case of an integrated product where ACDB and DCDB are already placed together shall be acceptable.

7.5.1.4.5. Battery Bank:

There will be one battery bank comprising of appropriate capacity for respective SPV Power Plant. The batteries should be LiFePO4 Type and shall have a long service life. The cells should confirm IS 15549/ IEC 61427 and as per specification given below shall be provided.

Battery Bank Capacity	As per design requirement of water kiosks
Container	Polypropylene Co-polymer/hard rubbers with carrying handle.
Type	Lithium ion Battery (LiFePO4)
Self-Discharge	Less than 3% per month at 30 degrees C
Life expectancy	3000 cycle duty at 27degree C at 90% depth of discharge 5000 cycle duty at 50% discharge.
Approval	Batteries shall have to be approved by MNRE/NABL/BIS authorized test centers
Service Life	Should perform satisfactorily for a minimum period of 10 years under operating conditions as mentioned.

7.5.1.4.6. Hybrid Power Conditioning Unit (PCU)

As SPV array produces direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels before powering equipment designed for nominal mains AC supply. Conversion shall be achieved using an electronic Inverter and the associated control and protection devices. All these components of the system are termed the

“Power Conditioning Unit” OR simply PCU. In addition, the PCU shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the Inverter, to maximize Solar PV array energy input into the System. PCU should conform IEC 61683, IEC 60068, IEC 62116 as per specifications.

PCU refers to a combination of the charge controller, inverter and AC charger and shall be supplied as an integrated unit or separate units.

a) Inverter:

The inverter will be highly efficient. The inverter should conform IEC 61683 /IS 61683, IS 16169/IEC 62116, IEC 60068 and should be based on MPPT design. Inverters would display its own parameters and the parameters of the battery bank connected to the inverter. Beyond the maximum load, the inverters will trip. The inverters should be designed to be completely compatible with the charge controllers and distribution panels and are of integrated design.

Salient features of the Inverters shall be as follows:

The PCU should be designed to be completely compatible with the SPV array voltage.

- i. A central inverter with MPPT shall be used with the power plant for maximum efficiency and shall be efficient based on PWM with IGBT/ reliable power-based design.
- ii. The sine wave output of the inverter shall be 230V, Single phase, 50 HZ AC 415 V, 3 phase, 50 Hz AC.
- iii. There should be provision to charge the battery using Grid power as long as grid voltage is between 170V-265V. In case of Grid voltage falls below 170V up to 130V, Grid charging shall stop but load shall continue to run using Grid supply, not by Solar.
- iv. The peak inverter efficiency inclusive of built-in isolation transformer shall exceed 85% at full load
- v. There should be provision to export excess PV power to the grid in case the load consumption is less than the actual generation. This is a futuristic feature and provision should be there to enable or disable this export feature.
- vi. Inverter shall provide display of PV array DC voltage & current, Battery Voltage & Current, Inverter Voltage & Current, Grid voltage & Current, Battery charging status and required parameters when a fault occurs. Remote monitoring of inverter parameters should be possible.
- vii. Operating temperature range shall be 0 to 55 deg C
- viii. Maximum Power Point Tracker (MPPT) shall be integrated into the power conditioner unit to maximize energy drawn from the Solar PV array.
- ix. The charge controller/ MPPT units should qualify for IEC standards.
- x. Online microprocessor-based Data Acquisition Systems and Remote Monitoring facility for 365 Days with data Recovery from a remote location should equip.

Inverter Capacity	1-Phase, 230 V or 3 Phase, 415 V
Nominal Battery Voltage	12/24/48 Volts
Output frequency	50 Hz +/- 0.5 Hz
Overload Capacity	150% for 10 Second
Efficiency	80% at 50% of load and More than 90% at full load 0.8 PF
Short Circuit Protection	Circuit Breaker and Electronics protection against sustained fault.

Low Battery Voltage	Automatic Shut Down
Total Harmonic Distortion	Less than 3%
Over Voltage	Automatic Shut Down
AC over Current/Load	Automatic Shut Down
Protection	<ul style="list-style-type: none"> • Over Voltage both at Input & Output • Over Current both at Input & Output • Over Frequency
	Surge voltage inducted at the output due to external source.
Protection Degree	IP65/IP54
Instrumentation & Indication	Input & Output voltage, Input & Output Current, Frequency, Power output, different status of inverter, kind of fault by the audio signal.

b) Charge Controller Unit:

The Charge Controller shall be dual input type, where under normal condition the input is fed from an SPV panel and in the absence of SPV power or low SPV power conditions an external single-phase AC source can be used for battery charging. A selector switch shall be provided for choosing between those modes. When the batteries are charged from external AC sources, the charging current should be set manually depending on the capacity of the source and the charging requirement of the batteries. The charge controller shall be of MPPT type / PWM type employing IGBT switching elements. The charge controller should confirm IEC 62093 / IEC 60068 as per specification.

The charging sequence from SPV array or external AC source shall be as follows:

i. From SPV Array:

The battery shall be charged at the maximum rate depending on the solar radiation until the battery terminal voltage reaches 2.25 volts per cell. The battery charging should be automatically terminated when the rate of increase in battery voltage is steady (dv/dt sensing). The charger shall switch on the trickle charge after this. ii. From AC Source:

The battery shall be charged at the rate manually set depending on the battery condition or capacity of the AC source. The maximum rate shall be internally pre-set.

The battery charging should be automatically terminated when the rate of increase in battery voltage is steady (dv / dt sensing) or when the battery terminal voltage reaches 2.75 volts per cell.

Salient features of the Charge Controller shall be as follows:

Switching elements	IGBT/MOSFET
Type of Charger	PWM
Input	From Solar PV array
Output Voltage	Suitable for charging nominal battery bank from the respective capacity of SPV array.
Protections	Short Circuit, Deep Discharge, Input Surge Voltage, Over Current (load), Battery Reverse Polarity, Solar array reverse polarity.
Indication	String „ON“, Main „ON“, Charging „ON“, 80% Charged, 100% Charged, Charger Overload,

	Battery On Trickle
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Battery disconnected / Fault Battery Reverse Polarity, Low Solar Power, System Fault and Charger over Temperature and Input Over / Under Voltage (for AC).

MIMIC Diagram: To indicate power flow and operation of the charge controller/ battery charger; shall have provision for visual indications of existing power input/output through the MIMIC diagram.

You may design the Power Conditioning Unit (PCU), which consists of a solar charge controller & inverter as per the design mentioned above. In addition, it should have a Grid Charger.

It provides the facility to charge the battery bank either through Solar or Grid set. The PCU continuously monitors the state of Battery Voltage, Solar Power output and the loads. Due to sustained usage of power, when the Battery Voltage falls below a pre-set level, the PCU will automatically transfer the load to the grid power and also charge the Batteries through the in-built Grid Charger. Once the batteries are charged to the present level, the PCU cuts off the Grid power from the system and will restore to feeding the loads from the battery bank & continue to charge the battery bank from the available solar power.

The PCU always gives preference to solar power and will use Grid power only when the solar power/ battery charge is insufficient to meet the load requirement.

Salient Features:

- Priority of charging is from Solar panels.
- Overheating Protection.
- Dual Display Showing PV & Inverter output. Common Display in case MPPT is inbuilt in PCU, as applicable
- Common Display in case MPPT is inbuilt in PCU
- Short circuit & Overload Protection.
- Inbuilt Heavy Duty Solar Charge Controller.
- No Load Shut Down for load = 5% not applicable for > 1 kVA systems) Fully equipped with powerful Grid Charger.
- User-friendly client and Web-based Software.

c) DC Distribution Board:

- i. Dust & vermin proof Enclosures of Polycarbonate/GRP/FRP/Powder coated Aluminium/ Cast Aluminium Alloy & should have IP 65(for outdoor)/54(for indoor) compliant to IEC 60529.
- ii. The bus bars are made of copper of the desired size. Suitable capacity MCBs/MCCB shall be provided for controlling the DC power output to the PCU along with necessary surge arrestors.
- iii. Suitable cable entry points with cable glands and ferrules should be provided.
- iv. DC SPD of type 2 compliant to IEC 60497 with fuse should be provided.
- v. Design ambient temperature should be 0-60 deg C.

d) AC Distribution Panel board:

- i. AC Distribution Panel Board (DPB) shall control the AC power from PCU/ inverter and should have necessary over current & surge protection.
- ii. All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS60947 part I, II and III.
- iii. All the Panels should be metal clad, totally enclosed, rigid, floor/wall mounted, air-insulated, cubical type suitable for operation on three-phase / single phase, 415 or 230 volts, 50 Hz.
- iv. Suitable cable entry points with cable glands and ferrules should be provided.
- v. DC SPD of type 2 compliant to IEC 60497 with fuse should be provided.
- vi. Design ambient temperature should be 0-60 deg C.
- vii. The panels should be designed for the minimum expected ambient temperature of 45 degrees Celsius, 80 percent humidity and dusty weather.
- viii. All indoor panels should have the protection of IP20 or better. All outdoor panels will have the protection of IP21 or better.
- ix. Should confirm to Indian Electricity Act & rules (till the last amendment)
- x. All the 415 V or 230 V 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%
Variation in Supply frequency	+/- 3 Hz

7.5.1.4.7. Protection:

The SPV power plant should be provided with Lightning and over-voltage protection, connected with proper earth pits. The main aim of overvoltage protection is to reduce the overvoltage to a tolerable level before it reaches the PV or other sub-system components. The source of overvoltage can be lightning or other atmospheric disturbance. e) Lightning

- i. The lightning Conductors shall be made of a minimum 25 mm diameter and minimum 3,000 mm long GI spike as per provisions of IS 2309-1969. A necessary concrete foundation for holding the lightning conductor in position should be made after giving due consideration to maximum wind speed and maintenance requirements at the site in the future. The lightning conductor should be earthed through 20 mm X 3 mm thick GI flat earth pits/earth bus with proper Insulation. Height of Lightning Conductors from Array Structure should be minimum 4 metres.
- ii. Most areas of the State being prone to lightning, Type-II SPDs shall be included as a mandatory requirement.
- iii. Similarly Type I+II SPD should also be provided on the grid side in ACDB or PCU to protect the PCU from damage

f) Earthing

- i. Earthing should confirm to IS 3043.
- ii. Earth Continuity wire/conductor should be 3-8 SWG. The thickness of the Conductor should be more than half of the thickest wire used in electric wiring. The total resistance of the continuity conductor should be less than 1 ohms.
- iii. Earthing lead can be of GI/Copper Strip. For each Earth Electrode 2 Leads must be provided.

-
- iv. Earth Electrode can be of GI Pipe/Plate. Pipe Electrode should be of 40 mm diameter, 4.75 m length (for rocky soil)/2.75 m (for ordinary soil). Plate Electrode should be of 60 cm*60 cm at a depth of 3 m. The thickness of the plate should be 3.18 mm (copper)/6.35 mm (GI). Moistened land should be preferred for Earthing.
 - v. Charcoal along with Salt and Lime mixture/ Bentonite in a granular form mixed with water/ Marconite/ Chemical Earthing (Bentonite based/ Graphite based with Aluminium Silicates & Metal Powder) should be provided. The mixture should be inserted into the pipe or put around the plate. The Electrode system should be covered with a cast iron cover plate with a locking arrangement. (Marconite is recommended due to its Very Low resistivity) vi. No. of Earthing points to be used:
 - vii. One Earthing for all the Structural Conducting Parts
 - One Earthing for Inverter with ACDB, Array JB & Main JB.
 - One Earthing for Lightning Arrester.
 - viii. Each array structure of the SPV yard will be grounded properly. The array structures and the lightning conductors are to be connected to earth through a 25 mm X 5mm GI strip.
 - ix. The inverters and all equipment inside the control room shall be connected to earth through 25 mm X 5mm tinned copper/GI strip including supplying of material and soldering. Earth bus should be provided inside the control room with 25 mm X 5mm tinned copper/GI strip.
 - x. In compliance with Rule 61 of Indian Electricity Rules, 2004 (as amended up to date), all non-current carrying metal parts should be earthed with two separate and distinct earth continuity wires.
 - g) Surge Protection Devices (SPD):
 - i. Surge protection devices should be provided on both the DC side and the AC side of the solar PV system. It should have a protection voltage of 2.5 kV & Nominal Discharge current of 5 kA (8/20) μ sec.
 - ii. The DC surge protection devices (SPDs) should be installed in the DC distribution box adjacent to the solar inverter.
 - iii. The AC SPDs shall be installed in the AC distribution box adjacent to the solar inverter.
 - iv. The SPD's earthing terminal should be connected to earth through the abovementioned dedicated earthing system.

7.5.1.4.8. Cables & Wirings

- a) The Cable & Wires should comply with IEC60227 or IS694 & IEC60502 or IS1554 BSEL50618 (for DC cables for PV systems).
- b) All copper flexible cables should comply with IS651 and make should be Polycab, Havells or equivalent.
- c) Color code should be followed for overall wiring i.e., red for positive, black for negative, green for the earth.
- d) All cables should run in suitable PVC Conduits. No cable should be directly exposed to sunlight.
- e) Cable Sizes should be as per the Current and Voltage ratings.

7.5.1.4.9. Display Board:

A display board of size 3 ft x 3 ft that gives a detailed circuit diagram of the system with its description should be provided.

7.5.1.4.10. Danger Plates

The Bidder has to provide at least 8 Danger Notice Plates of 200 mm X 150 mm made of mild steel sheet, minimum 2 mm thick and vitreous enameled white on both sides and with inscription in signal red color on the front side as required. The inscription shall be in English and the local language. Out of eight, four danger notice shall have to be provided at PV Power plant & Four-danger notice at Control Room & Battery room.

7.5.1.4.11. Remote Monitoring System:

The Solar PV Power plant must be provided with a remote monitoring system embedded in the Generation Meter. The RMS must be capable of providing ONLINE Generation data (daily, monthly, yearly & total). The features of the RMS along with operational details must be submitted along with the Bid.

These systems should work using GSM/GPRS data communication service (GSM/GPRS service shall be provided by the Vendor for 5 years including data charges) or SMS (Short Message Service). They must provide data on power generation every 15 minutes indicating all spikes, dips, etc.

Important features:

- a) Cloud-based Communication
- b) Dashboard display either on PC, Laptop, Tab, smartphone
- c) Internal communication protocols.

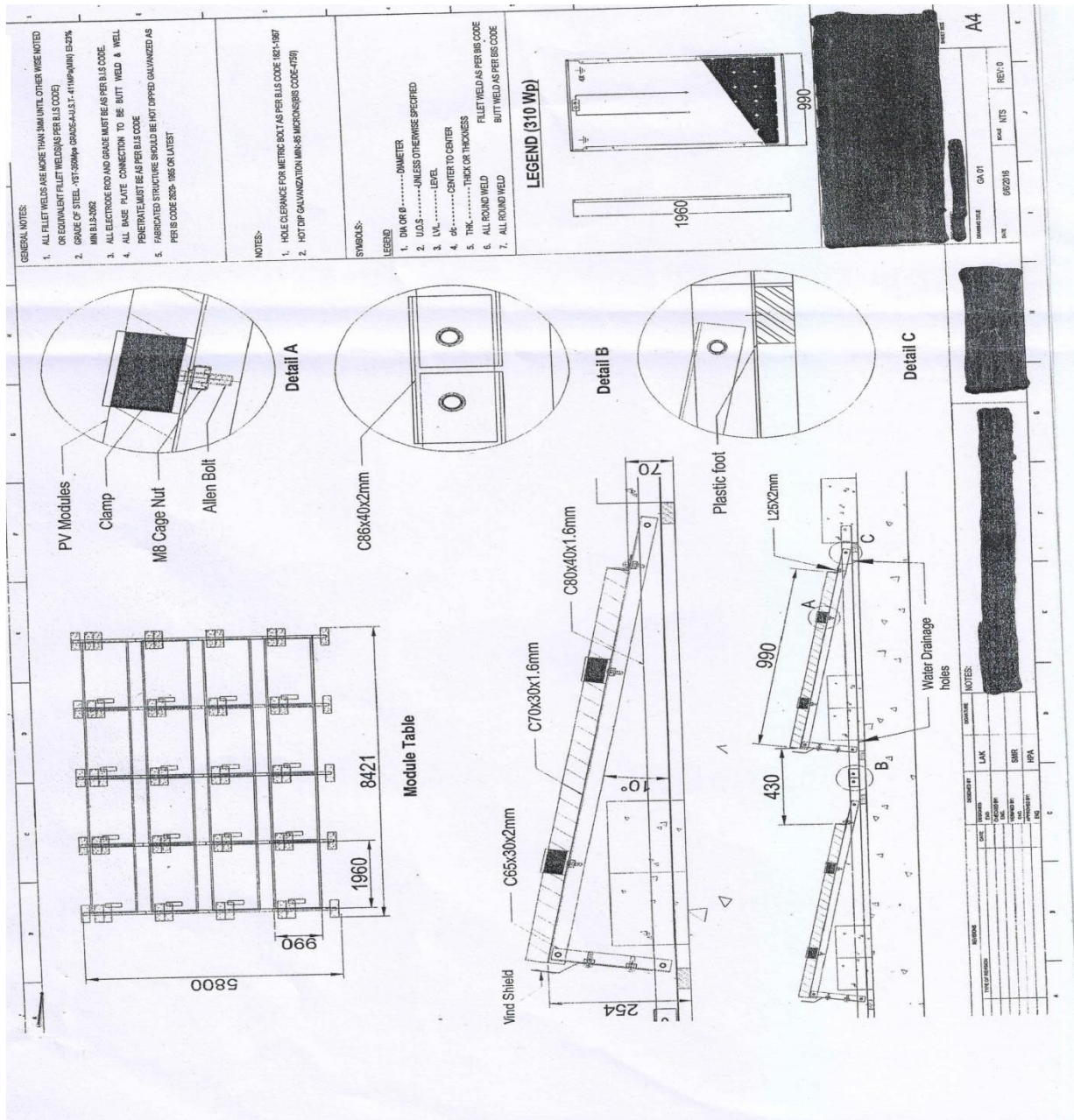
*Monthly Report has to be submitted to OREDA.

7.5.1.4.12. Drawings & Manuals:

Two copies of Engineering, electrical drawings, Installation and CMC manuals are to be supplied. Bidders shall provide complete technical datasheets for each equipment giving details of the specifications along with make/makes in their bid along with the basic design of water purification system, solar power plant and battery system along with protection equipment.

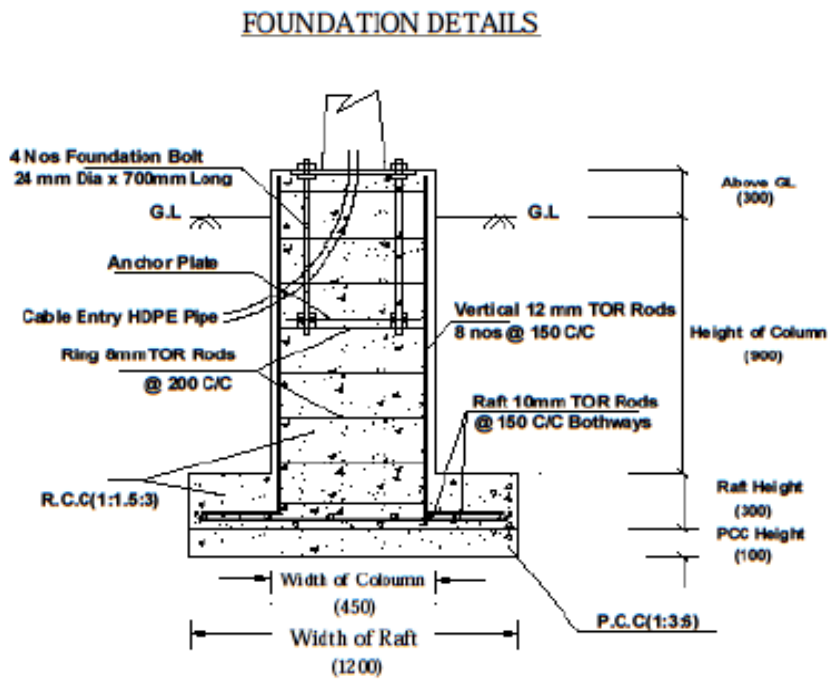
7.5.1.6. Appendix Form 2 (Indicative design and drawing for projects)

7.5.1.6.1. RTS: The indicative diagram of module mounting structure is given below:



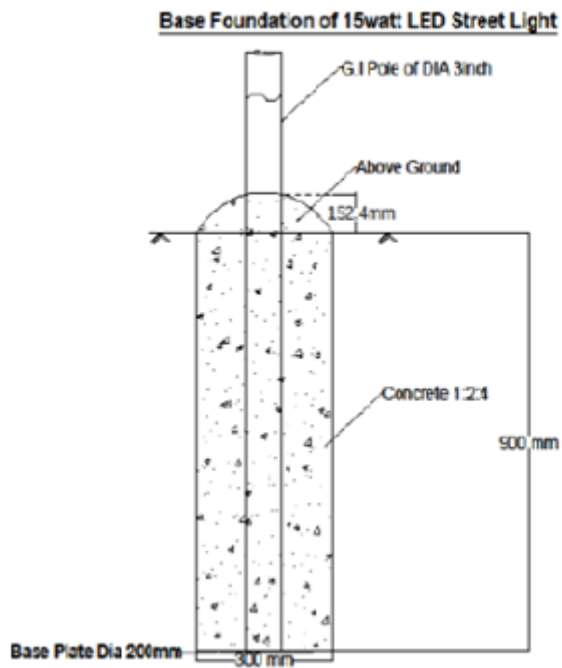
7.5.1.6.2. Design and drawing for mini mast light

The indicative drawing of base foundation of mini mast light is given below



7.5.1.6.3. Design and drawing for street light

The indicative diagram of module mounting structure is given below:

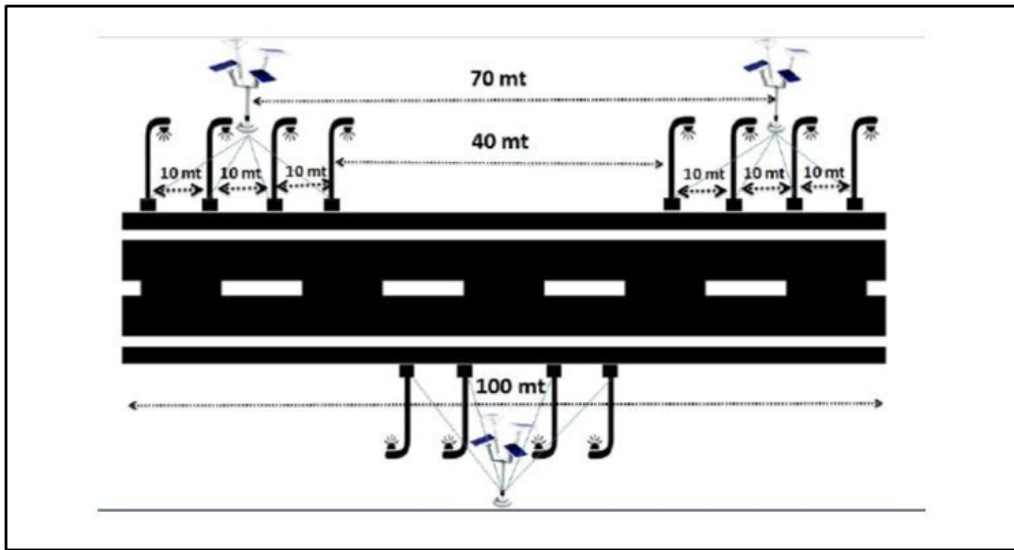


7.5.1.6.4. Design and drawing for Solar tree with street light

The indicative diagram of a solar tree is given below:



7.5.1.6.5. The indicative diagram of a solar street light connected to a solar tree is given below:



7.5.1.6.6. Design and drawing for Solar drinking water kiosk

The indicative diagram is given below:



7.5.2. **Appendix Form 2 (Spares)**

The Successful Bidder shall maintain, all the time, the following spares for RSPS as mentioned below:

Name of the Spares	Technical Specification	Unit	Total quantum requirement in no.
Solar photovoltaic modules @ 2% of the total capacity	As per the Technical Specification of the NIT	kW	
1 inverter (higher capacity as per the various RSPS capacities to be allocated)	As per the Technical Specification of the NIT	No.	
Battery	As per the Technical Specification of the NIT	No	

The Successful Bidder shall maintain, all the time, the following spares for Projects mentioned below:

Sr. No.	Name of Project	Name of the Spares	Technical Specification	Unit	Total quantum requirement in no.
1	Solar Tree based streetlight / garden light project	Solar photovoltaic modules	As per the Technical Specification of the RFP	kW	2% of the total capacity
		LED Bulbs	As per the Technical Specification of the RFP	No.	2% of total quantity
		Battery	As per the Technical Specification of the RFP	No.	2% of total quantity
2	Solar based water kiosk project	Water Filters and Mineral cartridges	As per the Technical Specification of the RFP	Nos.	5% of the total quantity
		Solar photovoltaic modules	As per the Technical Specification of the RFP	kW	2% of the total quantity
		Battery	As per the Technical Specification of the RFP	Ah	2% of the total quantity
3	Mini and High Mast	Solar photovoltaic modules	As per the Technical Specification of the RFP	kW	2% of the total capacity
		LED Bulbs	As per the Technical Specification of the RFP	No.	2% of total quantity

		Battery	As per the Technical Specification of the RFP	No.	2% of total quantity
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In case of any non-compliance, OREDA will take necessary action against the Bidder. Please note that the Spares shall be maintained at the central/ local offices set by the Bidders.

In case of any non-compliance, OREDA will take necessary action against the Bidder. Please note that the Spares shall be maintained at the central/ local offices set by the Bidders.

7.5.3. Appendix Form 3 (Commissioning Report)

The Commissioning Report shall essentially capture the health of the Project at the time of Commissioning along with the various observations which will be captured in accordance with the Applicable Law and Prudent Utility Practices prevailing in Odisha and any general practices followed in the solar industry. The Commissioning Committee will prepare the Commissioning Report. In addition, the OREDA will provide the compliance report as per CRC procedures and this shall be referred along with the Commissioning Report for the issuance of Commissioning Certificate.

The sample Commissioning Report is represented below:

Commissioning Report – Project

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

Reference:

1. NIT no. [insert] dated [DD MMM YYYY]
 - 11 RFE no. [insert] dated [DD MMM YYYY]
 - 12 Letter of Intent no. [insert] dated [DD MMM YYYY]
 - 13 Work Order no. [insert] dated [DD MMM YYYY]
 - 14 Any other correspondence, if any:

This Commissioning Report is prepared for the Bidder [insert name of Bidder] for the [RTS capacity (configuration)] at [project site details].

The Project details are given below:

Sl. No.	Items	Details
1.	Name of the Beneficiary/Consumer	
2.	Address	
3.	Capacity of the RTS (configuration)	
4.	CMC manual	(Yes/No)
5.	Dos & Don'ts in the form of a booklet	(Yes/No)
6.	Proof of conducting the training programs	(Yes/No)

Tests performed during Commissioning:

Sl. No.	Test	Result
1.	Load Test	
2.	IV Curve	
3.	Earthing Test	
4.	Water Flow Rate Test	
5.	Array Junction Boxes (Current & Voltage)	
6.	Continuity Test	
7.	Stress Test	
8.	Visual Inspection	

The above project was commissioned as per applicable guidelines and the tests performed suggest that the performance of the above [on-grid/off-grid Solar Photovoltaic Power Project] is satisfactory.

Place: [insert place]

[sign here]

Signature

Name of Authorized Representative of OREDA: [insert name]

Designation: [insert designation]

Odisha Renewable Energy Development Agency (OREDA)
Seal:

Place: [insert place]

[sign here]

Signature

Name of Authorized Representative of Distribution Utility

Department/Organization: [insert name]

Designation: [insert designation]

Distribution Utility: [insert name]

Seal:

* In case of off-grid system, Commissioning Report will be signed by OREDA only

7.5.3.1. Appendix Form 3 (Commissioning Report)

The Commissioning Report shall essentially capture the health of the Project at the time of Commissioning along with the various observations which will be captured in accordance with the Applicable Law and Prudent Utility Practices prevailing in Odisha and any general practices followed in the solar industry. The Commissioning Committee will prepare the Commissioning Report. In addition, the OREDA will provide the compliance report as per CRC procedures and this shall be referred along with the Commissioning Report for the issuance of Commissioning Certificate.

The sample Commissioning Report is represented below:

Commissioning Report – Project

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

Reference:

- 15 NIT no. [insert] dated [DD MMM YYYY]
- 16 RFE no. [insert] dated [DD MMM YYYY]
- 17 Letter of Intent no. [insert] dated [DD MMM YYYY]
- 18 Work Order no. [insert] dated [DD MMM YYYY]
- 19 Any other correspondence, if any:

This Commissioning Report is prepared for the Bidder [insert name of Bidder] for the [off-grid Solar Photovoltaic Power Project/Solar Tree Project/Water Kiosk Project/Solar Street Light Project/ Solar Mini Mast project/ Solar High mast project] at [project site details].

The Project details are given below:

Sl. No.	Items	Details
2	Name of the Beneficiary/Consumer	
9.	Address	
10.	Capacity of the off-grid Solar Photovoltaic Power Project [Solar Tree Project/Water Kiosk Project/Solar Street Light Project/ Solar Mini Mast project/ Solar High mast project]	
11.	CMC manual	(Yes/No)
12.	Dos & Don'ts in the form of a booklet	(Yes/No)
13.	Proof of conducting the training programs	(Yes/No)

Tests performed during Commissioning:

Sl. No.	Test	Result
13.	Load Test	
14.	IV Curve	
15.	Earthing Test	
16.	Water Flow Rate Test	
17.	Array Junction Boxes (Current & Voltage)	
18.	Continuity Test	
19.	Stress Test	
20.	Visual Inspection	

The above project was commissioned as per applicable guidelines and the tests performed suggest that the performance of the above [on-grid/off-grid Solar Photovoltaic Power Project/Solar Tree Project/Water Kiosk Project] is satisfactory.

Place: [insert place]

[sign here]

Signature

Name of Authorized Representative of OREDA: [insert name]

Designation: [insert designation]

Odisha Renewable Energy Development Agency (OREDA)

Seal:

Place: [insert place]

[sign here]

Signature

Name of Authorized Representative of Distribution Utility

Department/Organization: [insert name]

Designation: [insert designation]

Distribution Utility: [insert name]

Seal:

* In case of off-grid system, Commissioning Report will be signed by OREDA only

7.5.4. Appendix Form 4 (Joint Commissioning Certificate)

Joint Commissioning Certificate of Projects

(To be issued by OREDA on the letterhead)

TO WHOMSOEVER IT MAY CONCERN

Ref. no.: [insert]

Date: [DD MMM YYYY]

To

[Successful Bidder's name]

[Address]

[Email id]

[Mobile no.]

Reference:

1. NIT no. [insert] dated [DD MMM YYYY]
1. RFE no. [insert] dated [DD MMM YYYY]
2. Empanelment Order no. [insert] dated [DD MMM YYYY]
3. Work Order no. [insert] dated [DD MMM YYYY]
4. Any other correspondence, if any:

This is to certify that [Name of the Successful Bidder] having its registered office at [address] has successfully commissioned the Project at [insert village name] village, [insert district name] District in Odisha.

[insert the Project details]

The Joint Commissioning Certificate is issued on the basis of the following documents enclosed:

1. Commissioning Report as submitted by Commissioning Committee
2. Installation report as uploaded on CRC created using the ReSolve Mobile App only

Place: [insert place]

[sign here]

Signature

Name of Authorized Representative of OREDA: [insert name]

Designation: [insert designation]

Odisha Renewable Energy Development Agency

Seal:

Place: [insert place]

[sign here]

Signature

Name of Authorized Representative of Distribution Utility

Department/Organization: [insert name]

Designation: [insert designation]

Distribution Utility: [insert name]

Seal:

* In case of off-grid project, Joint Commissioning Certificate will be signed by OREDA only

7.5.5. Appendix Form 5 (Acceptance Certificate)

Acceptance Certificate of Project

(To be issued by OREDA on the letterhead)

TO WHOMSOEVER IT MAY CONCERN

Date: [DD MMM YYYY]

To

[Successful Bidder's name]

[Address]

[Email id]

[Mobile no.]

Reference:

1. NIT no. [insert] dated [DD MMM YYYY]
2. RFE no. [insert] dated [DD MMM YYYY]
3. Empanelment Order no. [insert] dated [DD MMM YYYY]
4. Work Order no. [insert] dated [DD MMM YYYY]
5. Joint Commissioning Certificate no. [insert] dated [DD MMM YYYY]
6. Any other correspondence, if any:

This is to certify that [Name of the Successful Bidder] having its registered office at [address] has successfully commissioned the Project at [insert village name] village, [insert district name] District in Odisha with respect to the ref. no. 5 and it is operating successfully for a period of thirty (30) Days from the date of the Joint Commissioning Certificate.

The Acceptance Certificate has been issued on the basis of the following documents enclosed:

1. Acceptance Report as submitted by the Commissioning Committee prepared in line with Commissioning Report
2. Installation report as uploaded on CRC created using the ReSolve Mobile App only
3. No claim/ lien certificate

Place: [insert place]

[sign here]

Signature

Name of Authorized Representative of OREDA: [insert name]

Designation: [insert designation]

Odisha Renewable Energy Development Agency

Seal:

7.5.6. Appendix Form 6 (Scheduled Maintenance):

7.5.6.1. Scheduled Maintenance for Solar PV system:

The periodic Scheduled Maintenance protocol as applicable

Sr. No.	Task	Quarterly	Semi-annual	Annual	Bi-annual
1	PV Array				
A	Inspect each PV modules for damage				
B	Observe PV array shading and take corrective measures				
C	Clean array with water and removes debris around the array				
D	Inspect array mounting structure, check for loose fasteners, corrosion, broken/damaged concrete footings, etc. and take corrective measures, if necessary.				
E	Check the array junction box, all wires and cables to take corrective measures if necessary.				
F	Adjust tilt angle, if necessary				
G	Check array current & voltage. If required each module current, voltage & bypass diode condition.				
H	Check for any loose contacts in the string connection (+ve/-ve MC4 connectors)				
2	PCU(As Applicable)				
A	Check inverter and/or charge controller for correct settings				
B	Check Inverter capacity and max allowable load using dummy load.				
C	Ventilation fan condition/filter cleaning				
D	Check all the parameters (I/P & O/P) as per Manufacturer datasheet for any Malfunctioning				
3	Protection devices				
A	Check for continuity of lightning arrestor				
B	Check system earthing				
C	Check all SPDs				
D	Check all bypass/ blocking diodes and take corrective measures if necessary.				
4	Solar pump + Water Supply System				
5	Battery				
A	Check Battery capacity and backup time				
6	LED Light				
A	Clean Streetlights, remove, dust and debris				
B	Check for loose fasteners, wires and cables, corrosion, broken/ damaged concrete footings, etc. and take corrective measures, if necessary.				
C	Check for any loose contacts in the connections				

7.5.7. Appendix Form 7 (Test Certificates – IEC and IP certifications)

The Test Certificate requirements for the Project are given below:

Sl. No.	Major Component	Test Certificates Required	Test description
1	Crystalline Silicon Terrestrial PV Modules	IEC 61215/ or equivalent BIS standard (IS 14286)	Design qualification
		IEC 61730 -1,2	Safety Qualification Part 1: Requirements for Construction Part 2:- Requirements for Testing
		IEC 61701	Salt Mist Corrosion Test
		IEC 62716	Ammonia (NH3) Corrosion Testing, (As per site condition like dairies, toilets)
		IEC 61853-Part 1/IS 16170: Part 1	Performance testing and energy rating:- Irradiance and temperature performance measurements and power rating.
2	Power Conditioning Units (PCU)/ Inverter*	IEC 61683	Efficiency Test
		IEC 60068-2/ IEC 62093	Environmental Test
		IEC 62116/ IEEE 1547/ UL 1741 or equivalent BIS standard	Anti-Islanding Protection
		IEC 62109-1,2/ IS 16221 (Part 1,2)	Safety of Power Converters
		IEC 61000-6-2, IEC 61000-6-4 & other relevant parts of IEC 61000	Electromagnetic Compatibility (EMC)
		IP 65/54	Ingress Protection for Outdoor (IP 65) /Indoor Enclosure (IP 54)
3	Battery (LiFePO4)	IS 16046 – 2015/IEC 62133- 2012	Standard for LiFePO4 battery
		IS 16270	Secondary Cells and Batteries for Solar PV Application General - Requirements and Methods of Test
4	LED Lights & Luminaires	LM 79 or or IS: 16106:2012 & LM 80	Measures the electrical and photometric properties of LED products and maintenance of the luminous flux for a group of electroluminescent diodes (LED) at various operating temperature
5	Complete solar streetlight	As per testing specifications of MNRE	
6	High Mast, Mini Mast	As per testing specifications of MNRE/ BIS	
7	Drinking water Kiosk	As per testing specifications of MNRE/ BIS	

Note: The proof of all documents showcasing the possession of such copies of the Test Certificates by the Bidder shall be submitted along with Lol document.

7.5.8. Appendix Form 8 (CMC Performance Report)

CMC Performance Report - Project

(To be issued by OREDA on the letterhead)

TO WHOMSOEVER IT MAY CONCERN

Date: [DD MMM YYYY]

To

[Successful Bidder's name]
 [Address]
 [Email id]
 [Mobile no.]

Reference:

1. NIT no. [insert] dated [DD MMM YYYY]
 - 22 RFE no. [insert] dated [DD MMM YYYY]
 - 23 Letter of Intent no. [insert] dated [DD MMM YYYY]
 - 24 Work Order no. [insert] dated [DD MMM YYYY]
 - 25 Commissioning Certificate no. [insert] dated [DD MMM YYYY]
 - 26 Acceptance Certificate no. [insert] dated [DD MMM YYYY]
 - 27 Any other correspondence, if any:

This is to certify that [Name of the Successful Bidder] having its registered office at [address] has commissioned [insert capacity and type of project] Project at [project site details] with respect to the ref. no. 5 and 6 on [date of commissioning of project] and it is operating successfully and [Name of the Successful Bidder] has provided CMC during [insert financial year] which is [insert year of CMC] from the date of the Commissioning Certificate.

CMC Period	Year 1/2/3/4/5		CMC Start month
Off grid application type			CMC End month

Vendor name	Vendor 1		
	SM closed as per schedule	CM closed within TAT	% Assets functional
Unit	%	%	%
Min Requirement (Yearly Average)	90%	80%	90%
Average			
Jul			
Aug			
Sep			
Oct			
Nov			
Dec			
Jan			
Feb			
Mar			
Apr			
May			
Jun			

*In the above case, Jul is the CMC start month and Jun is CMC end month for illustration

CMC Performance of [Name of the Successful Bidder] is acceptable as per the above Table on the basis of the Annual Performance Report generated and submitted by CRC.

Attached: Annual Performance report generated report and submitted by CRC

If Final Outcome at point 10, is accepted, then BG shall be returned to the vendor. Failing to meet the acceptance at point 10 will lead to encashment of BG for the respective year.

Place: [insert place]

[sign here]

Signature

Name of Authorized Representative of OREDA: [insert name]

Designation: [insert designation]

Odisha Renewable Energy Development Agency

Seal:

7.6. No claim/ lien certificate

No claim/ lien certificate

(To be submitted on the letterhead of the Bidder)

Date: [DD MMM YYYY]

RFE no.: [insert RFE no.] dated [DD MMM YYYY]

We, the undersigned, certify that we are free and clear from any and all claims, liens, security interest, encumbrances, unpaid vendors'/ suppliers' lien or otherwise, arising out of or in connection to the performance of the Work Order no. [insert] dated [DD MMM YYYY]

Place: [insert place]

[sign here]

Signature

Name of Authorized Signatory: [insert name]

Designation: [insert designation]

Name of the Bidder: [insert Bidder's legal entity name]

Seal: [insert seal of the Bidder]

7.7. Appendix to SOW – CRC guidelines

7.7.1. Disclaimer

- 7.7.1.1. These guidelines meant for use of OREDA only.
- 7.7.1.2. These guidelines are prescribed for installation, Commissioning, Acceptance and Comprehensive Maintenance of renewable energy systems installed by/under OREDA only.
- 7.7.1.3. OREDA does neither recommend nor insist other organizations to follow these guidelines for the renewable energy systems developed by either by themselves or through any other organization other than OREDA.
- 7.7.1.4. OREDA reserves all the right to modify, amend or supplement these guidelines whenever such necessity arises.
- 7.7.1.5. Though adequate care has been taken for preparation of these guidelines the installation and maintenance details prescribed in this document are not the only and absolute prescriptions. Depending upon the on-site conditions, the installation/maintenance technician shall take his/her own well-judged decision while installing or maintaining a given RE system.
- 7.7.1.6. Though safety features have not been covered under these guidelines, Indian standard safety guidelines for construction work and electrical works must be followed by all involved in with installation and maintenance of RE systems under these guidelines.

7.7.2. Declaration

- 7.7.2.1. These guidelines will hereinafter be known as “General Guidelines for Installation and Maintenance of RE Systems under OREDA”
- 7.7.2.2. These guidelines shall be applicable to all distributed RE systems installed under the aegis of OREDA.
- 7.7.2.3. These guidelines shall be strictly followed by all vendors of OREDA.
- 7.7.2.4. These guidelines will also be strictly adhered to by all technicians and supervisory level officers of OREDA.
- 7.7.2.5. These guidelines will also constitute an integral part of all tenders of OREDA
- 7.7.2.6. The scoring system prescribed in these guidelines shall be applicable to all vendors of OREDA executing projects on behalf of OREDA

7.7.3. Intent behind framing these guidelines

- 7.7.3.1. These guidelines have been framed solely with the intention of improving the installation standards of RE systems and to extend the quality and timely maintenance services so as to minimize system downtime and guarantee customers’ satisfaction.

7.7.4. Context

- 7.7.4.1. The last few years have witnessed a tremendous rise in the number of RE installation particularly in remote, un-served and underserved parts of the state. In view of the absolute need of these installations to meet the basic requirements such as lighting, the supply of drinking water, irrigating farmlands, etc. it is imperative on the part of OREDA to ensure proper performance of the systems which largely depends on the quality of materials, standards of installation and the certainty and frequency of maintenance.
- 7.7.4.2. Ministry of New and Renewable Energy, GOI normally determines the quality and standards of the materials which are elaborately reiterated in the respective tender documents.

- 7.7.4.3. Project-specific installation procedures are often elaborated in the respective tender documents which the vendors are expected to follow meticulously. However, it has been observed that the vendors often do not adhere to these procedures which results in poor performance of the systems. To enable the vendors to follow the procedures meticulously a specific installation App has been developed by OREDA which will be shared with the vendors on their registered mobiles meant to be used by their designated Technicians. The App has been made in such a way that as a technician proceeds for installation of a certain system/device it opens up the step by step installation procedure for the given system/device which the technicians simply has to follow and upload pictures wherever camera buttons have been provided. As a technician completes installation the entire installation report along with pictures will be ready on his mobile for submission to OREDA.
- 7.7.4.4. Renewable Energy systems are known for their low maintenance needs. Often this is misconceived as “no-maintenance” which results in non-performance of such high value and efficient systems. Thus, all RE systems must be maintained well.
- 7.7.4.5. Though the primary responsibility of maintenance of the systems has been vested in the concerned vendor the rising number of unresolved service requests at the CRC calls for some serious organizational oversight. Moreover, it is presumed that many customers are also not able to register their requests due to poor or no mobile connectivity, ignorance about CRC and its toll-free number, etc.
- 7.7.4.6. Keeping the above in view, OREDA during September 2018 introduced a Scheduled Maintenance Regime through its Customer Relationship Centre so as to introduce periodicity and certainty in the maintenance services being extended by the vendors. Like installation, the scheduled maintenance has also been made a mobile application based where the technician responsible for maintenance of the system can step by step follow the prescribed procedure for scheduled maintenance and upload pictures wherever camera buttons have been provided. At the end of the maintenance procedure, a maintenance report can also be generated by the technicians.
- 7.7.4.7. This initiative is not only expected to increase the performance level of the installations but also greatly reduce service requests by customers.

7.7.5. Objectives:

The primary objectives of this new initiative are

1. Increase the economic life span of installations.
2. Ensuring better performance of RE systems.
3. Higher returns on investments.
4. Higher customer satisfaction
5. Better acceptance of decentralized RE based power systems
6. Increased response to climate change mitigation.

7.7.6. Stakeholders:

Ensuring proper performance of RE installations calls for the combined effort of all stakeholders such as Customers, Sponsors, PRIs, Vendors, Independent Service Organizations, OEMs, and OREDA.

7.7.6.1. Customers:

Customers are the ultimate users and custodians of RE systems/devices. They are required to own the systems irrespective of the systems being privately owned by them or a public property installed inside their premises. They should be responsible for the safety and security of the systems as well as day-to-day maintenance of the systems as prescribed in the users' manual.

7.7.6.2. Sponsors

Sponsors are the Government Departments/Organizations sponsoring the schemes/program under which the RE systems/devices are installed. Sponsors are responsible for availing and extending maintenance contracts and organizing funds for the same. Sponsors are to be kept informed about the maintenance activities as well as emergent situations that call for material and financial resources.

7.7.6.3. Panchayati Raj Institutions (PRIs)

PRIs are supposed to be the ultimate owners of community assets such as drinking water supply systems, streetlights, etc. They are expected to properly register the community assets in their asset registers as well as apportion funds from their grants/income for repair and maintenance of the assets beyond the scheduled maintenance period.

7.7.6.4. Vendors

Vendors are primarily responsible for supply, installation and commissioning of the RE systems/devices. They are also responsible for the effective maintenance of the systems for the first five years or as may be mentioned in the concerned tender. Vendors are required to extend scheduled maintenance services as well as on-call maintenance services to all systems installed by them. For extending such services smoothly they may establish their own service network or avail services of Independent Service Organizations. Vendors are also required to have back-to-back agreements with their OEMs for extending guarantee, warranty, the supply of spares, etc. Vendors shall work in close coordination with the customers, custodians, field units, respective technical divisions, and CRC of OREDA in order to deliver effective maintenance services.

7.7.6.5. Original Equipment Manufacturers (OEMs)

The Manufacturers of the original equipment used in RE systems/devices are important stakeholders as far as delivery of effective maintenance services is concerned. Without a proper inventory of spares at their end for the entire period of maintenance and quick response to the need for spares at the project site, it is almost impossible to deliver effective maintenance services on the part of the vendors. Hence OEMs must enter into tripartite agreements with vendors as well as OREDA with regards to the adequacy and timely supply of spares. OREDA may also consider empaneling OEMs of important items such as pumps, invertors, CPUs, etc.

7.7.6.6. OREDA

OREDA represented by its Technical Divisions, Field Units, CRC is the most important stakeholders in respects of

iManaging processes and providing oversight

Establishing principles and parameters for extending maintenance services

Setting up performance parameters

Monitoring, measuring and analyzing stakeholders' performance.

Working for performance improvement

Identifying time-bound and appropriate actions as well as working on the same

Developing internal preparedness to repair, re-installing systems beyond the scope of the vendors.

Developing contingency resources and plans to force majeure situations.

Recognizing and encouraging good performance

7.7.7. Process

The overall process is hinged on three distinct sub-processes. They are

1. Onboarding the project
2. Installation & Commissioning of the systems
3. Creation of system IDs and linking to CRM
4. Managing the R&M.

The efficiency of maintenance is largely dependent on the quality and regularity of step 1,2&3. The processes are as follows:

7.7.7.1. ONBOARDING:

Onboarding refers to the creation of the project-specific database comprising of the following details. Onboarding of each project is to be done by the concerned Division Head of OREDA.

iName of the scheme (Generic-Specific)

Name of the sponsors.

Details of sanction order indicating the quantity, cost, locations, etc.

Date of floating of tender

Date of finalization of tenders.

Vendor details (name, the quantity of work awarded, the total cost of the work, locations assigned)

Date of Issue of LOI

Details of survey report submitted by the vendor in response to LOI

Details of project execution schedule submitted by the vendor in response to LOI

Date of issue of firm work order vendor wise

Final date of completion of the project.

This would get populated onto the database in phases as the scheme progresses from conception to inception. Once a scheme is on-boarded the details are to be intimated to CRC for the creation of a new account.

7.7.7.2. PROJECT EXECUTION: The vendor to whom a particular work has been assigned is responsible for the execution of the project. As soon as a project is on-boarded with the above details the same will appear on the dashboard of the concerned vendor(s). The vendor then has to assign the project to a specific technician(s) having registered mobile phones on which the installation apps have been loaded.

The technician will then be able to see his/her assigned projects on the app provided having details such as the name of the project, name of the customer, location details including GPS coordinates, the capacity of the project, etc. As the technician starts executing the project, he/she has to upload the following details as and when it happens

iDate of commencement

Details of all hardwares

Exact location of installation

Complete step by step installation details including the picture as per the installation app.

Date of commissioning the project

This would get populated onto the database in phases as the scheme progresses from conception to inception.

7.7.7.3. SUPERVISION:

iDistrict Level: As soon as the on-boarding is complete the Officer-in-charge of the District RE Cell can see the details on his dashboard. Similarly, he can see the subsequent processes carried out at the vendor and technician levels. At any point in time as may be required the Officer-in-charge of the District RE Cell can undertake field visits and supervise the progress of the work, quality of work execution, etc.

Once a project is commissioned the Officer-in-charge of District RE Cell can make necessary checks and upload the Joint Commissioning Certificate on the App provided to him within a stipulated timeline.

HQR. Level: After getting the commissioning reports and necessary checks thereon the concerned division of OREDA will create the project/system ID after which the project/system will automatically get linked to the CRC which will mark the beginning of the processes at CRC such as Scheduled Maintenance and Corrective Maintenance.



7.7.8. R&M Management:

The R&M regime involves two types of efforts. The first is the Scheduled Maintenance Activities, which is done as a preventive action. It is expected that these periodic maintenances will drastically reduce the incidents of breakdowns. This should be done at some periodicity and in each case, a list of activities must be done. The second is the Unscheduled Maintenance Activities which are of corrective nature. This means when any breakdown/ malfunction is detected, the appropriate corrective action needed can be initiated.

7.7.8.1. Scheduled (Preventive) Maintenance:

iA master maintenance schedule is to be drawn up for the organization covering each installation.

This will be done by stratifying the districts into District Clusters based on logistical convenience.

Each Cluster will be broken down into three geographical patches (comprising of Blocks/ GPs) called as Maintenance Cluster to evenly distribute the ticket load across each month within that Maintenance Cluster.

The CRMS, well before the schedule, will fire a flurry of emails and SMS to the Vendors notifying about the list of installations they must cover in each of the Clusters within that Month. A ticket for each installation in the list will be automatically generated. It may be noted that though the list is sent in one list, separate emails will be sent for each ticket on which communication/ transactions have to be made by the Vendor

It's the responsibility of the Vendors to track each case through their authorized technicians and report compliance throughout the month as soon as they cover the installations.

The technicians/ SPOC of the vendor must share the documents/evidence required for the acceptance of resolution over e-mail in the same thread the ticket was raised. No resolution mail other than that thread will be accepted. The protocol of communication may get subsequently changed to improve operational efficiency.

The CRC as soon as it receives the resolution mail, will cross verify the claim of resolution by the technicians and may close the ticket or return for rework.

The CRMS at the end of the month will compute the performance of the ticket/ Vendor/ Scheme and release a scorecard.



7.7.8.2. Unscheduled (Corrective) Maintenance:

- i Breakdown occurs at one of the installations.

The customer calls the CRC to submit a service request.

The agent at the CRC using the CRMS identifies the customer and registers a request called a ticket.

Automatically a set of e-mails is fired to the Vendor, its Technician, Administering Dept. of the Scheme and OREDA.

The CRMS tracks each ticket and follows up each case over e-mail and voice calls.

After the lapse of certain days, the CRMS auto escalates it to the Nodal Officer/ Scheme Officer for action.

The vendor/ Technician resolves the ticket at the field and intimates the CRC about it through the designated communication channel as per the protocol.

CRC cross-verifies it with the community/ customer and closes the ticket.

CRMS measures performance.



7.7.9. Repair and Maintenance Regime:

7.7.9.1. Scheduled Maintenance:

The schedule maintenance regime will focus on the vendor's **certainty and regularity** of visit to the installations under him as his performance parameter. He is expected to comply with a minimum of 90% visit against the Scheduled Tickets within that Service Month.

i Activities under each category of Tickets:

The vendor is warranted to visit the installations and undertake a list of activities linked to that category of ticket. The ticket category can be of Quarterly, Half Yearly and Annual. To know the installation of a Class-specific and ticket Category-specific list of activities, kindly refer to Appendix Clause 7.5.6.

Time Limit:

It's expected that the vendor must complete the activities over the list of installations designated for that maintenance month within that calendar month itself.

It may be noted that they can work on any day without any bias to the day being notified as a holiday or otherwise.

Route/ Sequence:

Each installation must be visited once in every quarter, half-yearly and yearly for different categories of activities.

To maintain a uniform gap between the visits every time, the vendor is expected to stick to an optimal sequence in a route.

The number of routes that the vendor identifies depends on how big the list and how many technicians are to be deployed.

Care must be taken so that all installations not only are resolved within a month but also are closed.

Score:

On successful completion of one ticket as per the service standard, the vendor will earn certain points, and for each default, it will earn a negative score which is designed to be a deterrent.

The scores are:

Visits	Activity Types	Earnings	Penalties
Visit - 1	Q1	3	-9
Visit - 2	Q2	3	-9
	H1	1	-3
Visit - 3	Q3	3	-9
Visit - 4	Q4	3	-9
	H2	1	-3
	A1	1	-3

7.7.9.2. Corrective Maintenance:

i Service Standards:

While the Schedule Maintenance regime focuses on the vendor's certainty and regularity of visit to the installation as his performance parameter, Corrective Maintenance Regime focuses on the Timeliness of the vendor to respond to a breakdown situation.

The vendor upon being notified of a breakdown situation shall have to complete his assessment within 2 days and complete the repair work within the next 5 days. All (100%) tickets must be resolved within the time limit given above. If the scope of repair/replacement is found to be beyond the scope of Maintenance Contract (MC), then the vendor immediately after the field reconnaissance must report the same to the CRC.

- i. It is expected that at any point in time, none of the vendors would be having cases older than 7 days pending in their list.
- ii. And, no vendor's installations under a scheme should show 'Non-Working' status of more than 2% of the installations.

ii Methodology:

Corrective maintenance requires a different approach as against the scheduled maintenance methodology. While the scheduled maintenance is predictable, corrective maintenance requires a case-specific approach. The following are recommendations for the most efficient methodology. But the vendors are free to adopt their own if they are complying with the time limit.

iii Reconnaissance:

Within 2 days of the ticket date.

- iii. When a request of service is registered, the vendor as the first response must organize the collection of field level information about the nature of the problem.
- iv. Based on that feedback from the field, the vendor must decide the following;
 - The genuineness of the request,
 - If the requirement of repair is beyond the scope of his MC,
 - If it is within his scope, then, he must arrange labor, spares, materials needed for the repair, and mobilize them to attend the breakdown at the spot.

This will help the vendor to resolve the request in one visit. This is more necessary as at times the villagers without ascertaining the owner of the installation, register a request in the CRC, and, as there is the possibility of multiple installations in one village and the data matches, the ticket is raised against a working installation.

ivRepair:

Within 7 days of the ticket date.

- i. The authorized technicians of the vendor must move to the location with the resources to undertake the repair.
- ii. Upon completion of the repair, the installations must be tested in the presence of the customer/ custodian.
- iii. Requisite evidence and documentation must be completed by the technicians and immediate intimation need to be sent to the CRC.

vHow to handle repair beyond the scope of MC

- i. At the reconnaissance stage, when the vendor realizes that the requirement is beyond the scope of MC, he must request closure giving appropriate reasons.
- ii. He must use the same communication channel as he would have used for resolution,
- iii. The CRC then would take it off the Vendor list and transfer it to the OREDA list.
- iv. OREDA will take this matter up with their principals for resolution.

viScore:

- i. Each vendor at the start will be given a Credit account of 8760 hrs. (365 Days x 24 hrs.) for each of the installation he is responsible for maintenance. That will be known as the 'Total Achievable Uptime'.
- ii. When a request for service gets registered at the CRC the clock is started from the next day. The day the Vendor responds to a ticket informing successful resolution, the Clock stops on that day.
- iii. At the end of a period, the time taken for each ticket for a resolution, which is converted into hours gets deducted from the 'Total Attainable Uptime' of that Ticket.
- iv. And if the resolution time exceeds the set time of '7 Days', the system will treat those additional days with twice the score.
- v. The system is so designed that the lesser the time is taken to resolve, the higher will be his Net Score. More he takes time to resolve; higher will be his penalty score which may erode his other good works.

7.7.10. Implementation:

7.7.10.1. Training and Orientation:

OREDA will conduct orientation and training sessions for the Vendors and their technicians

7.7.10.2. Helpdesk:

OREDA CRC will provide support to the field personnel of the vendors to acquaint themselves with various communication and process protocol.

7.7.10.3. Performance Evaluation:

The following paragraphs explain the way OREDA will evaluate both the performances and how it will turn it into a composite score of performance. The Scheduled Maintenance activities have been given primacy over the Corrective Maintenance activities. While the Scheduled Maintenance is given 80% weightage in the composite score, Corrective Maintenance is given 20%.

7.7.10.4. Computation of performance

Examples from the shared Excel sheets may be incorporated.

7.7.10.5. Streamlined and timebound service

- i) Each district should have one individual ID and pass for monitoring all the installed asset for the respective district.
- ii) The Assistant Directors should check the generated ticket and SM ticket for each and every asset of their jurisdiction every month and intimate the corresponding vendor if the ticket is not closed within 7-days.
- iii) If a ticket is generated for an asset as well SM, then they should be communicated to the vendor, customer as well as the corresponding A.D., In-charge of the District through SMS as well as App. Issued by CRC.
- iv) Every month the Assistant Directors will submit the report of the generated ticket and resolved ticket vendor wise within 10th to the Chief Executive, OREDA for necessary review of the vendor in presence of CRC.
- v) For continuous delay in resolving generated ticket for the consecutive 2- months, the same will be marked as negative remark and further course of action will be taken against the default vendor.
- vi) Similarly, Scheduled Maintenance notification as scheduled to be sent to vendor, concern Assistant Directors.
- vii) After resolution/ closure of tickets, notification message regarding closure of the ticket should be sent and communicated to vendor, beneficiary and the Assistant Director.
- viii) At least one before and after, photographs to be uploaded in the CRC portal for resolving a generated ticket.

7.7.10.6. Rewards and Recognitions

OREDA will do everything under its might to support the good performance of the vendors as achieving very high uptime of its installation and good customer relationship is its prime organizational focus. It also will weed out non-performing vendors by penalizing them for their bad performance and blacklisting them for good.

OREDA will.

- i Give preference to the high performing vendors in the upcoming tenders.

Institute Awards and Recognition during important days of OREDA

Recover Liquidated Damages in the shape of penalties

Blacklist vendors whose past performances are not at all good

7.8. Work Allocation Methodology

As OREDA intends to go with empanelment for various vendors for both Rooftop Solar PV (RSPV) and off grid solar PV applications, a methodical approach for allocation of capacities is show below.

As there is mandate by GoO to award work to MSME sector as well, two categories are defined:

1. Category B: Local MSE bidders registered in Odisha, who does not qualify the required technical and financial qualification criteria's,
2. Category A: Rest All bidders

As per the MSME procurement policy 2015¹, 20% of projects will be allocated to category B bidders in a Financial Year (FY). So, considering this total project will be allocated between category A and B bidders as per following basis.

Table 1: Minimum Capacity/ Quantity

Solar Project/ Application	Min Capacity/ Quantity
Rooftop Solar PV	10 kW
Solar Tree with Street lights/ Garden lights (1 solar tree + 4 street lights or 20 garden lights is one unit)	2 units
Solar Street Lights	20 units
Solar Drinking Water Kiosk	1 unit
Solar Mini/ High Mast	2 units

- If any work is less than or equal to the Min capacity/ quantity mentioned at Table 1, then all the capacity will be awarded to one empaneled vendor under Category B (Solar Water kiosk will not be allocated to category B bidders).
- If any work is more than the capacity/ quantity mentioned at Table 1, then the total capacity shall be divided into two categories in the following range. The division is at the discretion of OREDA. However, during one financial year, 20% of the total work awarded, to be awarded to Category – B (MSE) empaneled vendors.

I. Category A

1. Rooftop Solar PV

7.8.1. Allocation Criteria:

- 1.1.1. The allocation method for a total capacity under Category – A, for Rooftop solar PV empaneled vendors is shown below

Steps	Allocation Criteria
1.	Only the bidders whose price bid is $\leq 1.25 * L1$ price , be offered to match L1 price for the empanelment
2.	The bidders who accept to match L1 price will be ranked based on the following formula

Table 2: Vendor Score calculation based on allocation stage

Allotment Stage	Ranking of vendors
Stage 1: From the beginning of empanelment order, till all the empaneled bidders are allocated some capacity	Ranking as per their initial quoted price. So ranking will be done as per L1, L2, L3, L4, (in ascending order)
Stage 2: Once the empaneled bidders have been allocated some capacity	Ranking will be done as per their performance based on timely commissioning and comprehensive maintenance post commissioning

The successful bidders will be ranked based on their **Performance Score (PS)** High to low. The bidder with highest PS will have Rank 1 (R1), bidder with next highest PS will be given Rank 2 (R2) and so on. The max PS is 1.0. **Note:** At the beginning when no allocation is done to the bidder, the PS for each bidder will be 1.

¹<https://www.osicld.in/Content/images/PDF/4318.pdf>

Subsequently it will change based on its performance in the allotted projects.

The per kW price for different configuration of Roof top solar projects will be identified in the rate contract tender in 3 different blocks, 1-10 kW, 11-100 kW, & 101-500 kW. All the bidders will be ranked for each block as explained above. The projects will be allocated to bidders as per below provided methodology.

OREDA will categorize the projects under different blocks as explained above.

3. Scenario 1: The cumulative capacity of project is below 10 kW.

The projects will be allocated to category B bidders as per the allocation methodology explained below

Scenario 2: Single project of any capacity under 11 kW - 500 kW

The project will be allocated to R1 category A bidder at that particular time under that particular block.

4. Scenario 3: Multiple projects of different capacity under all the blocks

OREDA will categorize the projects under different blocks and the allocation of projects will be as per below provided methodology.

For all the Project capacity under 0-10 kW block

Table 3: Capacity Allocation

5.

Work	Project Capacity	Total Number of allocations	If R1 is not awarded any capacity earlier		If R1 is already awarded some capacity earlier	
			R1 (minimum capacity)	Other bidder(s) as per their ranks who are not awarded any capacity	R1 (minimum capacity)	Other bidder(s) as per their ranks who are not awarded any capacity
W1	>10 kW & ≤ 50 kW	1	100%	0%	0%	R2 gets 100%
W2	>50 kW & ≤ 100 kW	2	60%	Remaining capacities will be distributed among remaining vendors such R2 gets highest, R3 gets next highest and so on till all remaining vendors get some capacities	40%	Remaining capacities will be distributed among remaining vendors such R2 gets highest, R3 gets next highest and so on till all remaining vendors get some capacities
W3	> 100 kW & ≤ 200 kW	3	40%		30%	
W4	> 200 kW & ≤ 500 kW	4	40%		25%	

For all the Project capacity under 11-100 kW block

Table44: Capacity Allocation

6.

Work	Project Capacity	Total Number of allocations	If R1 is not awarded any capacity earlier		If R1 is already awarded some capacity earlier	
			R1 (minimum capacity)	Other bidder(s) as per their ranks who are not awarded any capacity	R1 (minimum capacity)	Other bidder(s) as per their ranks who are not awarded any capacity
W1	>10 kW & ≤ 50 kW	1	100%	0%	0%	R2 gets 100%
W2	>50 kW & ≤ 100 kW	2	60%	Remaining capacities will be	40%	Remaining capacities will be

W3	> 100 kW <= 200 kW	3	40%	distributed among remaining vendors such R2 gets highest, R3 gets next highest and so on till all remaining vendors get some capacities	30%	distributed among remaining vendors such R2 gets highest, R3 gets next highest and so on till all remaining vendors get some capacities
W4	> 200 kW <= 500 kW	4	40%		25%	

For all the Project capacity under 100-500 kW block

Table 5: Capacity Allocation

7.

Work	Project Capacity	Total Number of allocations	If R1 is not awarded any capacity earlier		If R1 is already awarded some capacity earlier	
			R1 (minimum capacity)	Other bidder(s) as per their ranks who are not awarded any capacity	R1 (minimum capacity)	Other bidder(s) as per their ranks who are not awarded any capacity
W1	>100 kW <= 200 kW	1	100%	0%	0%	R2 gets 100%
W2	>200 kW <= 300 kW	2	60%	Remaining capacities will be distributed among remaining vendors such R2 gets highest, R3 gets next highest and so on till all remaining vendors get some capacities	40%	Remaining capacities will be distributed among remaining vendors such R2 gets highest, R3 gets next highest and so on till all remaining vendors get some capacities
W3	> 300 kW <= 500 kW	3	40%		30%	

8. At any point of time, allocation shall not be made to more than 4 vendors at one time, for a project capacity of up to 500 kW.

9. At the time of allocation, any vendor having Performance Score < 0.5 shall not be considered.

7.8.1.1. Example – Shortlisted empanelled vendors:

Table 5: List of participating bidders and their short listing in ascending order

Bidder	Initial Quoted Price			Bidder	Initial Quoted Price	Initial Rank
B1	910	L6	➔	B3	800	R1
B2	850	L4		B4	820	R2
B3	800	L1		B10	840	R3
B4	820	L2		B2	850	R4
B5	1040	L8		B9	880	R5
B6	970	L7		B1	910	R6
B7	1100	L9		B6	970	R7

B8	1000	L10		B8	1000	R8
B9	880	L5		B5	1040	Not shortlisted
B10	840	L3		B7	1100	Not shortlisted

- 1.2.1. The 10 bidders are ranked in ascending order as per their initial quote price.
- 1.2.2. In the above table, L1 price is Rs. 800. Hence, total 8 bidders out of the 10 bidders whose initial quote prices is less than or equal to $1.25 * 800 = 1000$ are shortlisted. Rest 2 bidders are not shortlisted.
- 1.2.3. Out of the 8 shortlisted bidders, remaining 7 bidders other than L1 bidder (in this case B3), will be sent offer to match L1 price, i.e. 800.
- 1.2.4. Out of the remaining 7, B6 didn't agree to match L1 price and rest all 6 bidders agreed to match L1 price, i.e. 800.
- 1.2.5. Now the following seven bidders will be offered Letter of Empanelment for rate contract of 800 (validity as per tender clause) and their rank remains as below.

Table 6: Initial rank of the empanelled vendors

Bidder	Initial Rank under a specified block	Performance Score (PS)
B3	R1	1
B4	R2	1
B10	R3	1
B2	R4	1
B9	R5	1
B1	R6	1
B8	R7	1

7.8.1.2. Example - Allocation of the work:

First work capacity:

7.8.1.2.1. Scenario 1: 250 kW at multiple locations (10 kW, 40 kW, 200 kW)

- The 3 projects fall under 3 different blocks
- The 10 kW project will be allocated to one category B bidder.
- The other projects will be allocated to R1 bidder under Specified block

Rank	Block 1 (0-10 kW)	Block 2 (11-100 kW)	Block (101-500) kW	PS
R1	B3	B2	B8	1
R2	B4	B3	B5	1
R3	B10	B5	B9	1
R4	B2	B9	B4	1
R5	B9	B8	B10	1
R6	B1	B1	B1	1
R7	B8	B10	B3	1

7.8.1.2.2. Scenario 2: 160 kW at multiple sites (15kW, 30kW, 50kW, 25kW, 40kW).

- As all the project capacity is under 11-100 kW block, so methodology explained for that block will be applicable
- Since total capacity is 160 kW, it is to be distributed among 3 empaneled vendors under 11-100 kW block.

Table 7: First allocation

Bidder	Initial Rank	PS	Min capacity to be awarded to R1 (kW)	Earlier Awarded Capacity (kW)	Total Awarded Capacity (kW)	Remaining capacity (kW)
B2	R1	1	160 x 40% = 64	0	65 (40,25)	160 - 65 = 95
B3	R2	1		0	50	95 - 50 = 45
B5	R3	1		0	45 (30,15)	45 - 45 = 0
B9	R4	1		0		
B8	R5	1		0		
B1	R6	1		0		
B10	R7	1		0		

Second work capacity:

Scenario 1: 420 kW at multiple sites (4 kW, 10 kW, 6 kW, 40 kW, 50 kW, 60 kW, 120 kW, 130 kW)

- 3 projects fall under block 1(1-10 kW), 3 projects under block 2 (11-100 kW), 2 projects under block 3 (101-500 kW)
- In block 1 total capacity is 20 kW. In block 2, 150 kW and in block 3, 250 kW.
- So in block 1 project will be allocated to 1 bidder, in block 2 projects will be allocated to 3 bidders and in block 3 projects will be allocated to 2 bidders
- As some work is allocated to R1 bidder in block 2 and block 3 and SCOD is not over, the allocation will be as per below

Rank	Block 1 (0-10 kW)	Block 2 (11-100 kW)	Block (101-500) kW	PS	Min capacity to be awarded to R1 (kW) in block 2 (11-100 kW)	Min capacity to be awarded to R1 (kW) in block 2 (101-500 kW)
R1	B3	B2	B8	1	150*40%=60 kW So B2 will be allocated 60 kW,	250*60%=150 kW So B8 will be allocated 130 kW
R2	B4	B3	B5	1		B5 will be allocated 120 kW
R3	B10	B5	B9	1		
R4	B2	B9	B4	1	150 *30%= 45 kW So B9 will be allocated to 50 kW	
R5	B9	B8	B10	1	B8 will be allocated 40 kW	
R6	B1	B1	B1	1		
R7	B8	B10	B3	1		

Scenario 2: 420 kW at multiple sites (4 kW, 10 kW, 6 kW, 40 kW, 50 kW, 60 kW, 120 kW, 130 kW)

- 3 projects fall under block 1(1-10 kW), 3 projects under block 2 (11-100 kW), 2 projects under block 3 (101-500 kW)
- In block 1 total capacity is 20 kW. In block 2, 150 kW and in block 3, 250 kW.
- So in block 1 project will be allocated to 1 bidder, in block 2 projects will be allocated to 3 bidders and in block 3 projects will be allocated to 2 bidders
- Some work is allocated to R1 bidder in each block and SCOD is over, the allocation will be as per below

Rank	Block 1 (0-10 kW)	Block 2 (11-100 kW)	Block (101-500) kW	PS	Min capacity to be awarded to R1 (kW) in block 2 (1-10kW)	Min capacity to be awarded to R1 (kW) in block 2 (11-100 kW)	Min capacity to be awarded to R1 (kW) in block 2 (101-500 kW)
R1	B3	B2	B8	1			
R2	B4	B3	B5	1	B4 will be allocated 20 kW		250*60%=150 kW So B8 will be allocated 130 kW
R3	B10	B5	B9	1			B5 will be allocated 120 kW
R4	B2	B9	B4	1		150*40%=60 kW So B2 will be allocated 60 kW,	
R5	B9	B8	B10	1		150 *30%= 45 kW So B9 will be allocated to 50 kW	
R6	B1	B1	B1	1		B8 will be allocated 40 kW	
R7	B8	B10	B3	1			

Third work capacity:

- 1.3.1. 310 kW at multiple sites (55kW, 85kW, 90kW, 80kW,)
- 1.3.2. Since total capacity is 310 kW, it is to be distributed among 4 empaneled vendors.
- 1.3.3. Also, during this period, the commissioning schedule of earlier allotted projects are over, based on the timely commissioning and subsequent maintenance performance, the Performance score (PS) of B3, B4 and B10, B2 are as 0.9, 0.88, 0.95, 0.93 respectively.

Table 8: Third Allocation

Bidder	Present Rank	PS	Min capacity to be awarded to R1 (kW)	Earlier Awarded Capacity (kW)	Total Awarded Capacity (kW)	Remaining capacity (kW)
B9	R1	1	310x25%=77.5	0	90	220
B1	R2	1		0	85	135

B8	R3	1		0	80	55
B10	R4	0.95		25	55 (40,15)	0
B2	R5	0.93		40		
B3	R6	0.9		30		
B4	R7	0.88		155 (105, 50)		

2. Off-grid solar PV

The allocation method for off grid solar PV empaneled vendors is shown below

Steps Allocation Criteria

1. Only the bidders whose **price bid is $\leq 1.25 * L1$ price**, be offered to match L1 price for the empanelment
2. The bidders who accept to match L1 price will be ranked based on the following formula

Table 9: Vendor Score calculation based on allocation stage

Allotment Stage	Ranking of vendors
Stage 1: From the beginning of empanelment order, till all the empaneled bidders are allocated some capacity	Ranking as per their initial quoted price. So ranking will be done as per L1, L2, L3, L4, (in ascending order)
Stage 2: Once the empaneled bidders have been allocated some capacity	Ranking will be done as per their performance based on timely commissioning and comprehensive maintenance post commissioning

The successful bidders will be ranked based on their **Performance Score (PS)** High to low. The bidder with highest PS will have Rank 1 (R1), bidder with next highest PS will be given Rank 2 (R2) and so on. The max PS is 1.0.

Note: At the beginning when no allocation is done to the bidder, PS for the bidder will be 1. Subsequently it will change based on its performance in the allotted projects.

Table 10: Capacity Allocation Solar Street Light and Solar Tree with Lights (Units)

Work	Range	Total Number of allocations	If R1 is not awarded any capacity earlier		If R1 is already awarded some capacity earlier	
			R1	Other bidder(s) as per their ranks who are not awarded any capacity	R1	Other bidder(s) as per their ranks who are not awarded any capacity
3. Solar Tree (1 kW) with 4 street lights; [1 unit = 1 solar tree of 1 kW + 4 street lights]	>2 & ≤5	1	100%	0%	0%	100%
	>5 & ≤10	2	60%	40%	50%	50%
		3	40%	30% each	40%	30% each
OR Solar Tree (2.5 kW) with 20 garden lights; [1 unit = 1 solar tree of 2.5 kW + 20 garden lights]	>10	4	40%	20% each	25%	25% each
Solar Street Light	>20 & ≤50	1	100%	0%	0%	100%
	>50	2	60%	40%	50%	50%

	<=100					
	>100	3	40%	30% each	40%	30% each
		4	40%	20% each	25%	25% each

Table 11: Capacity Allocation (Solar Drinking Water Kiosk and Solar Mini/ High Mast (units)

Work	Range	Total Number of allocations	If L1 is not awarded any capacity before		If L1 is already awarded some capacity before	
			R1	Other bidder(s) as per their ranks who are not awarded any capacity	R1	Other bidder(s) as per their ranks who are not awarded any capacity
4. Solar Drinking kiosk based water	>1 <=3	1	100%	0%	0%	100%
	>3 <=6	2	60%	40%	50%	50%
	>6	3	40%	30% each	40%	30% each
		4	40%	20% each	25%	25% each
Solar High Mast OR Solar Mini Mast	> 2 <=10	1	100%	0%	0%	100%
	>10 <=20	2	60%	40%	50%	50%
	>20	3	40%	30% each	40%	30% each
		4	40%	20% each	25%	25% each

5. At the time of allocation, any vendor having Performance Score < 0.8 shall not be considered.

6. At any point of time, allocation shall not be made to more than 4 vendors at one time

II. Category B

All the bidder under Category-B who have agreed to match L1 price will be allocated as per the following basis.

7.8.2. Category B (Roof top Solar PV) Allocation Methodology

All the bidder under Category-B who have agreed to match L1 price will be allocated as per the following basis.

Steps

Allocation Criteria

1. Initial Allocation: The selection shall be done based on draw of lotteries. At any instance maximum 4 empaneled vendors shall be selected through draw of lotteries for allocation of work.
 - i) The bidders who will be selected through draw of lotteries for Rooftop Solar PV will be awarded as per the following table.
 - ii) The bidders who will be selected through draw of lotteries for off grid solar applications will be awarded based on the quantum, at OREDA's discretion.

Table 12: Rooftop Solar Allocation

Work	Project Capacity	Total Number of allocations	Allocation %
W1	<=10 kW	1	100%
W2	>10 kW & <= 30 kW	2	Remaining capacities will be distributed among remaining vendors equally to the best possible way based on available projects
W3	>30 kW & <= 60 kW	3	
W4	> 60 kW & <= 100 kW	4	

2. Table 13: Capacity Allocation Solar Street Light and Solar Tree with Lights (Units)

Work	Range	Total Number of allocations
Solar Tree (1 kW) with 4 streetlights; [1 unit = 1 solar tree of 1 kW + 4 streetlights]	<=2	1
	>2 & <=4	2
OR		
Solar Tree (2.5 kW) with 20 garden lights; [1 unit = 1 solar tree of 2.5 kW + 20 garden lights]	>4	3
Solar Street Light	<=10	1
	>10 & <=20	2
	>20	3

3. Table 14: Capacity Allocation (Solar Drinking Water Kiosk and Solar Mini/ High Mast (units)

Work	Range	Total Number of allocations	If L1 is not awarded any capacity before		If L1 is already awarded some capacity before	
			R1	Other bidder(s) as per their ranks who are not awarded any capacity	R1	Other bidder(s) as per their ranks who are not awarded any capacity
Solar High Mast	<=2	1	100%	0%	0%	100%
	> 2 & <=5	2	60%	40%	50%	50%
OR						
Solar Mini Mast	>5 & <=10	3	40%	30% each	40%	30% each

The draw of lotteries shall continue till all the empaneled bidders under Category – B is exhausted with some capacity allocation. The category B bidders who are once allocated some work will not be allowed to participate in the lottery process till all the empaneled bidders receive some work. Once all the empaneled bidders under category – B are awarded some work, further work shall be allotted based on their performance score (PS) in previous allotted works.



7.9. Vendor Performance Monitoring

Odisha Renewable Energy Development Agency hires/empanel vendors for various project implementation in Odisha. The cost of the project usually includes the comprehensive maintenance till 5 years. OREDA has a robust CRC (Customer Relationship Centre) for monitoring of scheduled and corrective maintenances. OREDA intends to standardize the method of vendor performance measurement. CRC generates the Scheduled Maintenance(SM) tickets as per the schedule provided in tender and the Corrective Maintenance (CM) tickets as per the consumer complaint. While the monthly energy generation data is provided by vendors to OREDA. On basis of these available parameters

Parameters for measurement of vendor performance

The performance of a vendor will be monitored through 5 parameters

- a) Percentage of scheduled maintenance (SM) tickets closed for the particular month
- b) Percentage of corrective maintenance (CM) tickets closed for the particular month
- c) Percentage of assets functional
- d) CUF of the projects
- e) Timely completion of projects

Methodology

For measurement of each parameter methodologies have been defined to streamline the process and to provide clarity to both the vendors as well as the OREDA (administrator) regarding performance measurement of vendors.

- a) Percentage of scheduled maintenance (SM) tickets closed for the particular month

Closing of SM tickets will ensure the regular cleaning and monitoring of the assets developed. It can be measured by use of below formula

$$\% \text{ of SM tickets closed} = \frac{\text{No. of SM tickets generated for a particular vendor}}{\text{number of SM tickets closed in the particular month}}$$

- b) Percentage of corrective maintenance (CM) tickets closed for the particular month

Closing of CM tickets will ensure that the systems have been repaired and the power generation has been restored. It can be measured by use of below formula

$$\% \text{ of CM tickets closed} = \frac{\text{No. of CM tickets generated for a particular vendor}}{\text{number of CM tickets closed in the particular month}}$$

- c) Percentage of assets functional

This parameter defines the number of assets functional out of cumulative assets developed by that particular bidder. This parameter provides the evidence of quality of work conducted by the bidder as well as vendors responsiveness towards asset maintenance. It can be measured by using below formula

$$\% \text{ asset functional} = \frac{\text{Total number of assets under the vendor name}}{\text{Number of CM tickets older than 30 days for the particular month}}$$

- d) CUF of the projects

As per the estimate the solar roof top project requires to maintain minimum 14% CUF in a year. Considering the energy generated in a month for particular system CUF will be auto calculated. It will ensure the performance of the system and quality of work done by the vendor. This parameter can be calculated using the below formula.

$$CUF = \frac{\text{Energy generated in the month}}{\text{Project capacity} \times \text{number of days in the month} \times 24}$$

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