



**KERALA CO-OPERATIVE MILK MARKETING FEDERATION LTD.**

“Milma Bhavan”, Pattom Palace P.O, Thiruvananthapuram - 695 004

**BID REF No. KCMMF/KHO/PROJ(498)/2022**

**(Re-tender)**

**Supply, Erection, Testing and Commissioning  
of Roof Top 10 kW Solar PV(Mono crystalline  
half cut latest technology) complete set as per  
Specifications on LTP at Cattle Feed Plant,  
Pattanakkad, Alappuzha Dist.**

**2022**

# BID FORM

1	Registered name of bidder	
2	Address	Office Address
3	Telephone	Land Phone :  Mobile :  E mail :  Fax :

## CONTENTS

Sl.No	Part	Description	Page No
1		RE-TENDER NOTICE	3
2	Part- 1	INSTRUCTIONS TO THE BIDDERS	10-24
3	Part- II	GENERAL CONDITIONS OF CONTRACT	25-39
4	Part- III	SPECIAL CONDITIONS OF CONTRACT	40-48
5	Part-IV	CONTRACT DATA	49-50
6	Part- V	TECHNICAL SPECIFICATIONS	51-75
7	Part-VI	FORMS and DECLARATIONS	76-86
8	Part - VII	Materials Supply	87



**KERALA CO-OPERATIVE MILK MARKETING FEDERATION LIMITED (KCMMF)**  
**Milma Bhavan, Pattom Palace. P.O. Thiruvananthapuram -695 004**  
**Phone No. 0471 2786439 to 2786442**

**RE E-TENDER NOTICE**

The Kerala Co-operative Milk Marketing Federation Ltd., invites e-tenders from eligible bidders for Supply, Erection, Testing and Commissioning of Roof Top mounting 10 kW Solar PV(Mono crystalline half cut latest technology) complete set as per Specifications on GTP at Cattle Feed Plant, Pattanakkad Alappuzha Dist. Interested eligible Bidders may obtain further information from the office of the Kerala Co-operative Milk Marketing Federation Ltd. The bidder shall be in the empanelled or approved agency by **MI/s ANERT/ KSEBL or other Power utilities.**

1. The bid shall be submitted in two-cover system consisting of technical bid and price bid. The price bid of those who qualify in the technical bid only will be opened.
2. Detailed terms and conditions as well as technical specifications are contained in the bidding document of the above work, which is uploaded in the Kerala Government e-portal [www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in).

- |                                 |  |
|---------------------------------|--|
| a. Bid reference No.            | : No.KCMMF /KHO/PROJ (498)/2022  |
| b. Estimated cost               | : Rs.6,00,000.00   |
| c. Tender download              | : Can be downloaded from the website<br><a href="http://www.etenders.kerala.gov.in">www.etenders.kerala.gov.in</a> |
| d. EMD                          | : Rs.6,000.00  |
| e. Bidding Document cost        | : Rs.1,416.00  |
| f. Document publishes date      | : 18.03.2022, 16.30 hrs.   |
| g. Document download start date | : 19.03.2022, 10.00 hrs.   |
| h. Bid clarification start date | : 19.03.2022 10.00 hrs.  |

- i. Bid submission start date : 21.03.2022, 10.00 hrs.
- j. Bid clarification closing date : 28.03.2022., 14.30 hrs.
- k. Bid submission closing date : 28.03.2022, 14.30 hrs.
- l. Bid opening : 29.03.2022, 15.00 hrs.
- m. Time of completion : 2 (Two) months
- n. Place of bid opening : KCMMF H.O., Trivandrum
- o. Bid validity : 120 days

**MANAGING DIRECTOR**

Thiruvananthapuram

18.03.2022

## **General Tender Terms & Conditions for e-Procurement**

This tender is an e-Tender and is being published online for the Supply, Erection, Testing and Commissioning of Roof Top 10 kW Solar PV(Mono crystalline half cut latest technology) complete set as per Specifications on LTP at Cattle Feed Plant, Pattanakkad Alappuzha Dist. The tender is invited in two-cover system from the registered and eligible firms through e-procurement portal of Government of Kerala (<https://www.etenders.kerala.gov.in>). Prospective bidders willing to participate in this tender shall necessarily register themselves with above mentioned e-procurement portal.

The tender timeline is available in the critical date section of this tender published in [www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in).

### **A). Online Bidder registration process:**

Bidders should have a Class II or above Digital Signature Certificate (DSC) to be procured from any Registration Authorities (RA) under the Certifying Agency of India. Details of RAs will be available on [www.cca.gov.in](http://www.cca.gov.in). Once, the DSC is obtained, bidders have to register on [www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in) website for participating in this tender. Website registration is a one-time process without any registration fees. However, bidders have to procure DSC at their own cost.

Bidders may contact e-Procurement support desk of Kerala State IT Mission over telephone at 0471- 2577088, 2577188, 2577388 or 0484 – 2336006, 2332262 - through email: [etendershelp@kerala.gov.in](mailto:etendershelp@kerala.gov.in) for assistance in this regard.

### **B). Online Tender Process:**

The tender process shall consist of the following stages:

- i. **Downloading of tender document:** Tender document will be available for free download on [www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in). However, tender document fees shall be payable at the time of bid submission as stipulated in this tender document.
- ii. **Publishing of Corrigendum:** All corrigendum shall be published on [www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in) and shall not be available elsewhere.
- iii. **Bid submission:** Bidders have to submit their bids along with supporting documents to support their eligibility, as required in this tender document on

[www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in). No manual submission of bid is allowed and manual bids shall not be accepted under any circumstances.

- iv. **Opening of Technical Bid and Bidder short-listing:** The technical bids will be opened, evaluated and short listed as per the eligibility and technical qualifications. All documents in support of technical qualifications shall be submitted (online). Failure to submit the documents online will attract disqualification. Bids short listed by this process will be taken up for opening the financial bid.
- v. **Opening of Financial Bids:** Bids of the qualified bidder's shall only be considered for opening and evaluation of the financial bid on the date and time mentioned in critical date's section.

**C).Documents Comprising Bid:**

- (i). **The First Stage (Pre-Qualification or Technical Cover based on 1cover or 2 cover tender system):**

Pre-Qualification or technical proposal shall contain the scanned copies of the following documents, which every bidder has to upload:

**As mentioned in clause no. 13 page no.14-16.**

The department doesn't take any responsibility for any technical snag or failure that has taken place during document upload.

- (ii). **The Second Stage (Financial Cover or as per tender cover system):**

The Bidder shall complete the Price bid as per format given for download along with this tender.

**Note:** The blank price bid should be downloaded and saved on bidder's computer without changing file-name otherwise price bid will not get uploaded. The bidder should fill in the details in the same file and upload the same back to the website.

**Fixed price:** Prices quoted by the Bidder shall be fixed during the bidder's performance of the contract and not subject to variation on any account. A bid submitted with an adjustable/ variable price quotation will be treated as non-responsive and rejected.

**D). Tender Document Fees and Earnest Money Deposit (EMD)**

As indicated in The Bid security is required to protect the purchaser against risk of Bidder's conduct, which would warrant the forfeiture of security.

**Online Payment modes:** The tender document fees and EMD can be paid in the following manner through e-Payment facility provided by the e-Procurement system:

- i. **State Bank of India (SBI) Internet Banking:** If a bidder has a SBT internet banking account, then, during the online bid submission process, bidder shall select SBT option and then select Internet banking option. The e-Procurement system will re-direct the bidder to SBI's internet banking page where he can enter his internet banking credentials and transfer the tender document and EMD amount.
- ii. **National Electronic Fund Transfer (NEFT)** If a bidder holds bank account in a different bank, then, during the online bid submission process, bidder shall select NEFT option. An online remittance form would be generated, which the bidder can use for transferring amount through NEFT either by using internet banking of his bank or visiting nearest branch of his bank. After obtaining the successful transaction receipt no., the bidder has to update the same in e-Procurement system for completing the process of bid submission. Bidder should only use the details given in the Remittance form for making a NEFT payment otherwise payment would result in failure in e-Procurement system.

**As NEFT payment status confirmation is not received by e-Procurement system on a real-time basis, bidders are advised to exercise NEFT mode of payment option at least 48 hours prior to the last date and time of bid submission to avoid any payment issues.**

NEFT payment should be done according to following guidelines:

- i. **Single transaction for remitting Tender document fee and EMD:** Bidder should ensure that tender document fees and EMD are remitted as one single transaction.
- ii. **Account number as per Remittance Form only:** Account no. entered during NEFT remittance at any bank counter or during adding beneficiary account in Internet banking site should be the same as it appears in the remittance form generated for that particular bid by the e-Procurement system. Bidder should ensure that tender document fees and EMD are remitted only to the account number given in the Remittance form provided by e-Procurement system for that particular tender.

Bidders must ensure that the banker inputs the Account Number (which is case sensitive) as displayed in the Remittance form. No additional



information like bidder name, company name, etc. should be entered in the account no. column along with account no. for NEFT remittance.

- iii. **Only NEFT Remittance Allowed:** RTGS payments, Account to Account transfers, State Bank Group Transfers (GRPT) or Cash payments are not allowed and are treated as invalid mode of payments. Bidder must ensure that the banker does NEFT transaction only irrespective of the amount and specially instruct the banks not to convert the payment type to RTGS or GRPT.
- iv. **Amount as per Remittance form:** Bidder should ensure that the amount being remitted is neither less nor higher than the amount shown in remittance form.
- v. **UTR Number:** Bidders should ensure that the remittance confirmation (UTR number) received after NEFT transfer should be updated as it is, in the e-Procurement system for tracking the payment.
- vi. **One Remittance Form per Bidder and per Bid:** The remittance form provided by e-Procurement system shall be valid for that particular bidder and bid and should not be re-used for any other tender or bid or by any other bidder.

Any transaction charges levied while using any of the above modes of online payment has been borne by the bidder. The supplier/contractor's bid will be evaluated only if payment status against bidder is showing "Success" during bid opening.

#### **E). SUBMISSION PROCESS:**

For submission of bids, all interested bidders have to register online as explained above in this document. After registration, bidders shall submit their Technical bid and Financial bid online on [www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in) along with online payment of tender document fees and EMD. For page by page instructions on bid submission process, please visit [www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in) and click "Bidders Manual Kit" link on the home page.

**It is necessary to click on "Freeze bid" link/ icon to complete the process of bid submission otherwise the bid will not get submitted online and the same shall not be available for viewing/ opening during bid opening process.**

## **Part I- INSTRUCTIONS TO THE BIDDERS.**

### **1. GENERAL**

#### 1.1 Scope of the Bid:-

1.1.1. **Managing Director, KCMMF Ltd.** invites bids from the well experienced contractors having work/ supply in Milk producing Unions/ Federations/ Kerala Public Works Department/ Public utilities/ other state/ Central Government departments as the Work detailed in the Notice Inviting Tender(NIT).

#### 1.1.2. Throughout these bidding documents:

- a) The terms 'in writing' means communicated in written form and delivered against receipt;
- b) Except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and any reference to masculine gender shall whenever required include feminine gender and vice versa
- c) "Day" means calendar day.
- d) The terms "bid" and "tender" and their derivatives "Bidder/ tenderer, bid/tender, bidding/tendering etc.," are synonymous.
- e) The term "Employer" shall mean Government of Kerala. Employer will carry out its functions and obligations through officers who have been delegated powers.
- f) The Tender Inviting Authority, Accepting Authority and the Agreement Authority means the officer who has invited and received bids for the Work and has executed agreement for execution on behalf of the Employer. The Tender Inviting Authority, Accepting Authority and the Agreement Authority shall be one and the same person unless otherwise specified.
- g) "Contract Price" means price approved by the Employer after bidding and stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

1.1.3. The bid invited shall be of item rate contract.

1.1.4. The mode of this tender is e-tender.

#### **1.1. Source of funds**

1.2.1. The expenditure on this Work will be met from the <plan/non plan> allocation of Government of Kerala / scheme fund sanctioned by GOI/ Beneficiary own fund as mentioned in the Contract Data.

#### **1.3. Eligible Bidders**

1.3.1. A Bidder shall be a registered contractor/ supplier with **M/s ANERT/ KSEBL / Any other Power Utility** ' in the relevant area as specified in the NIT.

1.3.2. Only those bidders having a valid and active registration, on the date of bid submission, shall submit bids online on the e-GP website.

- 1.3.3. Ineligible bidder or bidders who do not possess valid & active registration, on the date of bid submission, are strictly advised to refrain themselves from participating in this tender.
- 1.3.4. All Bidders are required to register in the e-procurement portal. The Bidder intending to participate in the bid is required to register in the e-tenders portal using his/her Login ID and attach his/her valid Digital Signature Certificate (DSC) to his/her unique Login ID. He/ She have to submit the relevant information as asked for about the firm/contractor. The bidders, who submit their bids for this tender after digitally signing using their Digital Signature Certificate (DSC), accept that they have clearly understood and agreed the terms and conditions including all the Forms/ Annexure of this tender.
- 1.3.5. A firm/bidder shall submit only one bid in the same bidding process. **A Bidder (either as a firm or as an individual or as a partner of a firm)** who submits or participates in more than one bid will cause all the proposals in which the Bidder has participated to be disqualified.
- 1.3.6. Joint ventures, Consortiums, Partnership firms of two or more registered contractors are not permitted.

#### **1.4. Cost of Bidding**

- 1.4.1. The bidder shall bear all costs associated with the preparation and submission of its bid, and the Tenderer will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.
- 1.4.2. The tender document(s), may be downloaded free of cost from the E-Government Procurement (e-GP) website/ ([www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in)). No payment is required for downloading the tender documents from the above website however a bid submission fee, as mentioned in the NIT, is required to be submitted along with the online bid.

#### **1.5. Site Visit**

- 1.5.1 The bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for construction of the Works. He shall examine the site condition and satisfy himself of the availability of materials at nearby places, difficulties which may arise during execution before submitting the bids. The costs of visiting the Site shall be at the bidder's own expense.
- 1.5.2. The bidder and any of his personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the bidder, his personnel or agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.

## **1.6. Getting information from web portal**

- 1.6.1. All prospective bidders are expected to see all information regarding submission of bid for the Work published in the e tender website during the period from the date of publication of NIT for the Work and up to the last date and time for submission of bid. Non observance of information published in the website shall not be entertained as a reason for any claim or dispute regarding a tender at any stage.
- 1.6.2. All bids shall be submitted online on the e-GP website only in the relevant envelope(s)/ cover(s), as per the type of tender. No **manual submission** of bids shall be entertained for the tenders published through e-GP system under any circumstances.
- 1.6.3. The e-GP system shall not allow submission of bids online after the stipulated date & time. The bidder is advised to submit the bids well before the stipulated date & time to avoid any kind of network issues, traffic congestion, etc. In this regard, the department/**KCMMF** shall not be responsible for any kind of such issues faced by bidder.

## **2. Bidding Documents**

### **2.1. Content of Bidding Documents.**

- 2.1.1. The bidding documents shall consists of the following unless otherwise specified
  - a) Notice Inviting Tender (NIT)
  - b) Instructions to Bidders
  - c) General and special Conditions of Contract
  - d) Technical Specifications
  - e) Form of Bid, Appendix to Bid, Preliminary agreement format
  - f) Bill of Quantities
  - g) Drawings (wherever required)
- 2.1.2. The Bidder is required to login to the e-procurement portal and download the listed documents from the website as mentioned in NIT. He shall save it in his system and undertake the necessary preparatory work off-line and upload the completed bid at his convenience before the closing date and time of submission.
- 2.1.3. The bidder is expected to examine carefully all instructions, conditions of Contract, Contract Data, Forms, Terms, Technical Specifications, Bill of Quantities, and Annexure & Drawings in the Bid Document. Failure to comply with the requirements of Bid Document shall be at the **Bidders own risk**.

### **2.2. Clarification of Bidding Documents**

- 2.2.1. A prospective bidder requiring any clarification of the bidding documents shall contact the office of the Tender Inviting Authority on any working day between 10 am and 5 pm.
- 2.2.2. In case the clarification sought necessitates modification of the bid documents, being unavoidable, the Tender Inviting Authority may affect the required modification and publish them in the website through corrigendum in pursuance to clause 2.3 of this bid document.

### **2.3. Amendment to bidding documents**

- 2.3.1. Before the deadline for submission of bids, the Tender Inviting Authority may modify the bidding document by issuing addenda.
- 2.3.2. Any addendum thus issued shall be a part of the bidding documents which will be published in the e-tender website. The Tender Inviting Authority will **not be responsible** for the prospective bidders not viewing the website in time.
- 2.3.3. If the addendum thus published does involves major changes in the scope of work, the Tender Inviting Authority may at his own discretion, extend the deadline for submission of bids for a suitable period to enable prospective bidders to take reasonable time for bid preparation taking in to account the addendum published.

### **3. Preparation of Bids.**

#### **3.1. Language of the Bid**

- 3.1.1. All documents relating to the bid shall be in the English language.

#### **3.2 Documents Comprising the Bid**

- 3.2.1. The online bid submitted by the bidder shall comprise the following
  - a) Details required for e-payment (Details of bank account having core banking facility and e-mail address of the contractor) in the prescribed format.
  - b) Online payment of bid submission fee as detailed in the tender web site.
  - c) Bid Security payment details.
  - d) Copy of Registration Certificate duly attested
  - e) Duly signed preliminary agreement.
  - f) Priced Bill of Quantities
- 3.2.2. Deleted
- 3.2.3. Bidders shall not make any addition, deletion or correction in any of the bid documents. If tampering of documents is noticed during tender evaluation, the bid will be rejected and the bidder **will be blacklisted**.

#### **3.3. Bid Prices**

- 3.3.1. The Bidder shall bid for the whole work as described in the Bill of Quantities.

- 3.3.2. For item rate tenders, the bidder shall fill in rates in figures and should not leave any cell blank. The line item total in words and the total amount shall be calculated by the system and shall be visible to the Bidder.
- 3.3.3. The rates quoted by the bidder shall include cost of all materials and conveyance, labor charges; hire charges of plant and machinery, overheads and all incidental charges for execution of the contract.
- 3.3.4. The quoted rates shall also include expenses towards all Quality Control tests (first tier) prescribed in the PWD Quality Control Manual to be done at Government approved institutions
- 3.3.5. Value Added Tax, purchase tax, turnover tax or any other tax applicable except service tax ( **Now as per GST act**) shall be payable by the Contractor in respect of this contract and Government will not entertain any claim whatsoever in respect of the same. However, in respect of service tax, same shall be paid by the contractor to the concerned department on demand and it will be reimbursed to him by the Employer after satisfying that it has been actually and genuinely paid by the contractor.
- 3.3.6. All taxes and other levies payable by the contractor under the contract, or for any other cause as of the date 28 days prior to the deadline for submission of bids shall be included in the rates, prices and total of bid price. The bid prices shall also cater for any change in tax pattern during the tenure of work.
- 3.3.7. No material will be issued departmentally for executing the work invited on LTSK basis. Procurement of all the materials and accessories for the fulfillment of compete scheme functioning under the scope of the contractor. The materials already delivered at the site by the previous contractor shall have to make use fully
- 3.3.8. The rates and prices quoted by the bidder shall remain firm during the entire period of contract. The bills have to be submitted based on the rates quoted in Bid/ work order issued other than the rate revision in taxes by the Gov/ GoI in time to time within the period of contract.

#### **3.4. Currencies of Bid and Payment**

- 3.4.1. The currency of bid and payment shall be quoted by the bidder entirely in **Indian Rupees**. All payments shall be made in Indian Rupees only.

#### **3.5. Bid Validity**

- 3.5.1. Bids shall remain valid for the period of **120 days** from the date of opening of the bid as specified in the NIT. A bid valid for a shorter period shall be rejected by the Employer as non responsive.
- 3.5.2. In exceptional circumstances, prior to expiry of the original bid validity period, the Tendering Authority may request the bidders to extend the

period of validity for a specified additional period. The request and the responses thereto shall be made in writing or by email. A bidder may refuse the request without forfeiting its bid security. A bidder agreeing to the request will not be required or permitted to modify its bid, but will be required to extend the validity of its bid security for the period of the extension and in compliance with Clause 3.6 in all respects.

### **3.6. Bid Security**

- 3.6.1. The Bidder shall furnish, as part of his Bid, a Bid Security (**Earnest Money Deposit**) for an amount as detailed in the Notice Inviting Tender (NIT). For e tenders, Bidders shall remit the Bid Security using the **online payment** options of e-Procurement system only. Bidders are advised to visit the “Downloads” section of e-Procurement website [www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in) for State Bank of India/ any nationalized Bank or by using **NEFT facility**. Bidders opting for NEFT facility of online payment are advised to exercise this option at least 48 hours before the last date of bid submission to ensure that payment towards Bid Security is credited and a confirmation is reflected in the e-Procurement system. The online NEFT remittance form provided by e-Procurement system for making a NEFT transaction is not a payment confirmation. KCMMF/NIC/SBI/ Nationalized bank shall not be responsible for any kind of delay in payment status confirmation.
- 3.6.2. Any Bid not accompanied by an acceptable Bid Security/ EMD shall be rejected by the tenderer as non-responsive.
- 3.6.3. The Bid Security of the unsuccessful Bidder shall become refundable as promptly as possible after opening of Price Bid and finalization of the tender.
- 3.6.4. The Bid Security of the successful Bidder will be discharged when the Bidder has signed the Agreement and furnished the required Performance Guarantee.
- 3.6.5. Deleted
- 3.6.6. **The Bid Security may be forfeited:**
- a) if the Bidder withdraws the Bid after Bid opening during the period of Bid validity including extended period of validity; or
  - b) if any modification is effected to the tender documents.
  - c) in the case of a successful Bidder, if the Bidder fails within the specified time limit to:
    - i. sign the Agreement; or
    - ii. Furnish the required Performance Guarantee
    - iii. If the bidder fails to convince the Employer about the reasonability of his bid prices in the case of an unbalanced bid.
- 3.6.7. The Bid Security deposited with the Employer will not carry any interest.

### **3.7. Bid submission fee**

- 3.7.1. For e tenders, the mode of remittance of Bid submission fee (Tender Fee) shall be the same as detailed for remitting Bid Security. For e tenders, Bidders shall remit the Tender fee using the online payment options of e-Procurement system only. Bidders are advised to visit the “Downloads” section of e-Procurement website [www.etenders.kerala.gov.in](http://www.etenders.kerala.gov.in) for State Bank of Travancore or by using NEFT facility. Bidders opting for NEFT facility of online payment are advised to exercise this option at least 48 hours before the last date of bid submission to ensure that payment towards Bid Submission Fee is credited and a confirmation is reflected in the e-Procurement system. The online NEFT remittance form provided by e-Procurement system for making a NEFT transaction is not a payment confirmation. KCMF/NIC/SBI/ nationalized shall not be responsible for any kind of delay in payment status confirmation. **It is advice to remit the cost of tender plus EMD amount as single payment.**
- 3.7.2 . Any bid not accompanied by the Tender Fee as notified shall be rejected by the Employer as non responsive.
- 3.7.3. Tender Fee remitted will not be refunded.
- 3.8. Alterations and additions
- 3.8.1. The bid shall contain no alterations or additions, except those to comply with instructions issued by Employer, or as necessary to correct errors made by the bidder, in which case such corrections shall be initialed by the person or persons signing the bid.
- 3.8.2. The tenderer shall not attach any conditions of his own to his Bid. The Bid price must be based on the tender documents. The tenderer is not required to present alternative construction options and he shall use without exception the Bills of Quantities as provided, with the amendments as notified in tender notices, if any, for the calculation of his tender price. Any tenderer who fails to comply with this clause will be disqualified.

### **4. Submission of Bids**

- 4.1. All documents of the Bid as required shall be typed or written in indelible ink and shall be signed by the bidder or person duly authorized to sign on behalf of the Bidder.
- 4.2. In the event of the tender being submitted by a partnership firm or **joint venture/consortium**, it must be signed by the lead partner holding a valid power-of attorney authorizing him to do so, such power of attorney to be produced with the tender, and it must disclose that the firm is duly registered under the Indian Partnership Act, 1952.
- 4.3. The Bidder shall submit their bid online only through the eGP web site of Kerala ([www.etenders.kerela.gov.in](http://www.etenders.kerela.gov.in)) as per the procedure laid down for e-submission as detailed by the web site. For e tenders, the bidders shall download the tender documents including the Bill Of Quantity (BOQ) file from the e tendering portal <http://www.etenders.kerala.gov.in>. The Bidder



shall fill up the documents and submit the same online using their Digital Signature Certificate. On successful submission of bids, a system generated receipt can be downloaded by the bidder for future reference. Copies of all certificates and documents shall be uploaded while submitting the tender online. The following scanned copies of documents are to be submitted online as required by the e-tenders portal.

- 4.3.1. Copy of remittance towards bid submission fee and Bid Security
- 4.3.2. Self attested Copy of the bidders valid registration certificate obtained from the **Kerala PWD/ work order copy of the department/ utility/ cooperative Milk union/ KCMMF** etc.
- 4.3.3. Duly filled and signed copy of bid submission letter as per item no-1 Part-VII of this bid document
- 4.3.4. Duly filled and signed copy of preliminary agreement as per item no-2 Part-VII of this bid document
- 4.3.5. Duly filled and signed copy of Integrity pact certificate as per item no-3 Part-VII of this bid document
- 4.3.6. Duly filled and signed copy of Affidavit as per item no-4 Part-VII of this bid document
- 4.3.7. Duly filled and signed copy of requisition for e-payment form as per item no-6 Part-VII of this bid document
- 4.3.8. Any other relevant information with testimonials
- 4.3.9 . The bidder shall digitally sign all statements, documents, certificates uploaded by him, owning sole and complete responsibility for their correctness/authenticity as per the provisions of the IT ACT 2000.
- 4.3.10. In addition to the above, the bidder shall upload a complete set of bid document with NIT and sections from 1 to VIII using his digital signature as a token of acceptance of all bid conditions and the absence of complete set of bid document in the submitted bid shall be treated as non-responsive and will be rejected by the tenderer.

#### **4.3.11. Price bid**

- 4.3.11.1. This shall contain only the duly filled BOQ-file in MS-Excel format and shall be uploaded using the digital signature of the bidder in the e-tenders portal.
- 4.4. After the submission of bid online in the e-tenders portal, the hard copies of the following are to be submitted to The Tender Inviting Authority before the opening date of the bid by Speed Post/Registered Post.
  - 4.4.1.1. Copy of remittance towards bid submission fee and Bid Security
  - 4.4.1.2. Copy of confirmation of bid submission in the e-tenders portal
  - 4.4.1.3. Self attested Copy of the bidder's valid registration certificate / Department/ KCMMF/ Milk Unions / utility experience certificates
  - 4.4.1.4. Duly filled and signed copy of bid submission letter as per item no-1 Part-VII of this bid document in original
  - 4.4.1.5. Duly filled and signed copy of preliminary agreement as per item no-2 Part-VII of this bid document in original

- 4.4.1.6. Duly filled and signed copy of Integrity pact certificate as per item no-3 Part-VII of this bid document in original
  - 4.4.1.7. Duly filled and signed copy of Affidavit as per item no-4 Part- VII of this bid document in original
  - 4.4.1.8. Duly filled and signed copy of requisition for e-payment form as per item no-6 Part-VII of this bid document in original.
- 4.5. This whole set of certificates and documents shall be send to the tender Inviting Authority's office address(as given in the NIT) by registered post/Speed post of India Post in such a way that it shall be delivered to the Tender Inviting Authority before the deadline of opening of bid. The Tender Inviting Authority reserves the right to reject any bid, for which the above details are not received before the date of opening of bid.
- 4.6. The Price bid shall only be submitted through online. The Tender inviting Authority shall open the price bid in the presence of bidders or their authorized representatives preferably on the last day of bid submission after the prescribed time for bid submission.
- 4.7. The Tender Inviting Authority shall not be responsible for any failure, malfunction or breakdown of the electronic system while downloading or uploading the documents by the Bidder during the e- procurement process.
- 4.8. Deadline for Submission of the Bids
- 4.8.1. Bid shall be received **only ONLINE on or before the date and time as notified in NIT.**
  - 4.8.2. The Tender Inviting Authority, in exceptional circumstances and at its own discretion, may extend the last date for submission of bids, in which case all rights and obligations of the Employer and the bidders previously subject to the original date will then be subject to the new date of submission.
  - 4.8.3. The Bidder will not be able to submit his bid after expiry of the date and time of submission of bid (server time).
- 4.9. Modification, Re submission and Withdrawal of Bids
- 4.9.1. Re submission or modification of bid by the bidders for any number of times before the date and time of submission is allowed. Re submission of bid shall require uploading of all documents including price bid afresh.
  - 4.9.2. If the bidder fails to submit his modified bids within the predefined time of receipt, the system shall consider only the last bid submitted.
  - 4.9.3. The Bidder can withdraw his/her bid before the date and time of receipt of the bid. The system shall not allow any withdrawal after the date and time of submission.

## **5. Bid Opening and Evaluation**

### **5.1. Bid Opening**

- 5.1.1. Bids shall be opened on the specified date & time, by the tender inviting authority or his authorized representative in the presence of bidders or their designated representatives who choose to attend.
- 5.1.2. Opening of bids shall be carried out in the same order as it is occurring in invitation of bids or as in order of receipt of bids in the portal. The bidders & guest users can view the summary of opening of bids from any system. Bidders are not required to be present during the bid opening at the opening location if they so desire.
- 5.1.3. In the event of the specified date of bid opening being declared a holiday for the Tenderer, **the bids will be opened at the same time on the next working day.**

## 5.2. Confidentiality

- 5.2.1. Information relating to the examination, clarification, evaluation, and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award has been announced in favor of the successful bidder.
- 5.2.2. Any effort by a Bidder to influence the Employer during processing of bids, evaluation, bid comparison or award decisions shall be treated as Corrupt & Fraudulent Practices, mentioned under Clause 8 of ITB and may result in the rejection of the Bidders' bid.

## 5.3. Clarification of Bids

- 5.3.1. To assist in the examination, evaluation, and comparison of bids, the tender Inviting Authority may ask the bidder for required clarification on the information submitted with the bid. The request for clarification and the response shall be in writing or by e-mail, but no change in the price or substance of the Bid shall be sought, offered, or permitted.
- 5.3.2. Subject to clause 5.3.1, no Bidder shall contact the Tender Inviting authority on any matter relating to the submitted bid from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Tender Inviting Authority, he shall do so in writing.

## 5.4. Examination of Bids, and Determination of Responsiveness

- 5.4.1. During the bid opening, the Tender Inviting Authority will determine for each Bid
  - a. whether meets the required registration class as specified in the NIT;
  - b. is accompanied by the required bid security, if submission fee and the required documents and certificates.
- 5.4.2. A substantially responsive bid is one which conforms to all the terms, conditions, and requirements of the bidding documents, without material deviation or reservation. A material deviation or reservation is one.
  - a. which affects in any substantial way the scope, quality, or performance of the Works;

- b. which limits in any substantial way, inconsistent with the bidding documents, the Employer's rights or the Bidder's obligations under the Contract; or
  - c. whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.
- 5.4.3 . If a Bid is not substantially responsive, it may be rejected by the Tender Inviting Authority, and may not subsequently be made responsive by correction or withdrawal of the nonconforming material deviation or reservation.
- 5.4.4. Non submission of legible or required documents or evidences may render the bid non-responsive.
- 5.4.5. Bidder can witness the principal activities and view the documents/summary reports for that particular work by logging on to the portal with his DSC from anywhere.
- 5.4.6. Single qualified bid in response to the first tender call will be rejected.

### **5.5. Negotiation on Bids**

- 5.5.1. The Tender Inviting Authority shall not resort to any negotiation on the Bids submitted by the responsive bidders. The rates quoted by the bidders are final and shall not be changed at any stage during evaluation and award of work.

### **6. Award of Contract**

- 6.1. Subject to Clause 5, the **Agreement Authority** will award the Contract to the Bidder whose bid has been determined to be substantially responsive and who has offered the lowest evaluated bid price.
- 6.2. In the eventuality of failure on the part of the lowest successful bidder to produce the original documents, or submit the performance security, or enter into agreement with the Agreement Authority within the specified time limit, subjected to clause 3.6.6 of this section, the Bidder shall be debarred in future from participating in all Government Bids for three years and will be recommended for blacklisting by the competent authority. In such a situation, the second lowest bidder will be requested to produce further documents for consideration of his bid at the second lowest quoted rate. If the second lowest bidder succeeds in executing agreement with the Agreement Authority, then the first lowest bidder is liable to pay the Employer compensation towards the loss on account of award of work at a higher amount. Such compensation shall be equal to the difference between the quoted amount of first lowest and the second lowest bidder.
- 6.3. If the second lowest bidder fails to execute agreement with the Agreement Authority in the stipulated period, the tender will be cancelled and work will be re-tendered.
- 6.4. If the quoted amount by a bidder is less than 75%(seventy-five percent) of the estimated cost put to tender, then such bid shall be rejected and the tender shall be finalized based on the merits of rest of the bids. But if more than one bid is quoted at 25% less the estimated cost, or, if two or more

bidders quote the same lowest amount, the Tender Inviting Authority will finalize the tender through a transparent draw of lots. The Tender Inviting Authority along with his subordinate officers and the contractors who have quoted the lowest and equal amounts in their bids(or contractor's authorized representatives) shall be present during the draw of lots.

6.5. The rates for the various items quoted by the Bidder shall be rounded to two decimal places. The decimal places in excess of two will be discarded during evaluation.

6.6. **Tenderer's Right to accept any Bid and to reject any or all Bids**

6.6.1. Notwithstanding Clause 6.1 to 6.4, the Tender Inviting Authority reserves the right to accept or reject any Bid and to cancel the Bidding process and reject all Bids at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Tender Inviting Authority's action.

6.7. Notification of Award and Signing of Agreement

6.7.1. The Bidder, whose Bid has been accepted, shall be notified of award the Agreement Authority prior to expiration of the Bid validity period by facsimile or e-mail confirmed by letter sent through post. This letter (hereinafter and in the Conditions of Contract called the "Letter of Acceptance") will state the sum that the Employer will pay the Bidder in consideration of the execution, completion and remedying defects, if any of the Works by the Contractor as prescribed by the Contract.

6.7.2. The notification of award will constitute the formation of the Contract, subject only to the furnishing of a Performance Guarantee in accordance with the provisions of Clause 7, within 14(fourteen) days of issue of letter of acceptance.

6.7.3. If the successful bidder fails to furnish the required Performance Guarantee as detailed in clause 7 of this section and enter into contract, within the above stipulated time, further ten days time will be allowed at the request of the bidder, for which the successful bidder has to remit a **fine equal to 1% of the Contract Price** as per his quote amount subject to a minimum of Rs.1000 and maximum of **Rs.25,000**. This fine shall be remitted in a nationalized bank in the respective of **KCMMF and the original DD/online transfer details** shall be submitted at the office of the Agreement Authority before executing agreement.

6.7.4. Upon the furnishing by the successful Bidder of the Performance Guarantee (5% **Security Deposit**), the Agreement Authority will promptly notify the other Bidders that their Bids have been unsuccessful and refund the Bid Security.

6.7.5. Solicitors fee, if any, to be paid to the Law Officers of Government for scrutinizing or drawing up of agreements- will be paid and the same recovered from the successful bidder.

- 7. Performance Guarantee and Performance Security Deposit ( BG's)**
- 7.1. The bidder whose tender is accepted shall be required to furnish the following
- 7.1.1. **Security Deposit of 5%** in the form of Bank Guarantee obtained from the Nationalized Bank drawn in favor of M/S KCMMF, Pattom, TVM -4 to be submitted before executing agreement and **the same shall be released after the satisfactory completion of the project & within three month grace time for obtaining NLC**
- 7.1.2. **Performance Security Deposit (5%)** to be recovered from running bills for **the case in which the contractor not furnished the required BG.**
- 7.2. SD to be submitted at the award of contract should be 5% of Contract amount and should be submitted within 14(fourteen) days of receipt of LOA (Letter of Acceptance) by the successful Bidder in the following form
- 7.2.1. Deleted
- 7.2.2. Performance Security Deposit in the form of bank guarantee. Bank Guarantee is to be submitted in the format prescribed by the Tenderer in the bid document. Bank Guarantee shall be irrevocable and it shall be from any Nationalized Bank/Scheduled Bank to be submitted before executing agreement and shall be valid till 30 days after the completion of defect liability of the Work, in approved format. The Bank Guarantee on installment basis with lesser period validity shall not be accepted. **Performance security deposit is in additional to the security deposit submitted as BG and the same shall be released only after the expiry of the Guarantee/ warranty period plus three month grace time for obtaining NLC.**
- 7.3. After the submission of Performance Guarantee and its acceptance the Bid Security will be refunded to the successful bidder.
- 7.4. Performance Guarantee Deposit shall be deducted **at 5%** from running bills **in case the contractor hadn't furnished the required BG.** Total of performance Guarantee and Performance Security Deposit shall not exceed **10%** of contract amount.
- 7.5. Additional performance Guarantee will be required to be deposited, if the quoted amount by the bidder is between 10 to 25% below the estimated rate. Additional performance guarantee will be required in all cases where quoted rate falls below 10% of the estimate cost but the maximum permissible lower limit is 25% below the estimated cost. The 10% standard exemption will be applicable to all estimates quoted below estimate cost up to 25 %. If the rate quoted by the contractor is "x%" below estimate cost (where x lies above 10% and up to 25%) the performance guarantee for an amount equal to (x- 10)% of the estimate amount shall be deposited by the contractor as additional performance guarantee. This will be released only after satisfactory completion of the work without any interest.
- 7.6. The above Guarantee amounts shall be payable to the tenderer without any condition whatsoever.
- 7.7. The Performance Guarantee shall cover additionally the following guarantees to the Employer:

- 7.7.1. The successful bidder guarantees the successful and satisfactory construction of the infrastructure and other related works under the contract, as per the specifications and documents.
  - 7.7.2. The successful bidder further guarantees that the infrastructure and equipments provided and installed by him shall be free from all defects in material and workmanship and shall, upon written notice from the Agreement Authority or the Engineer, fully remedy free of expenses to the Employer, such defects as developed under the normal use of the said infrastructure within the period of defect liability specified under clause 4.82 of the Conditions of Contract.
  - 7.8. The Performance Guarantee is intended to secure the performance of the entire Contract. However, it is not construed as limiting the damages stipulated in the other clauses in the bidding documents.
  - 7.9. The Agreement Authority shall be at liberty to deduct/appropriate from the Contract Performance Guarantee/Performance Security Deposit such sums as are due and payable by the contractor to the Employer as may be determined in terms of the contract, and the amount appropriated from the Performance Guarantee/Performance Security Deposit shall have to be restored by Contractor subsequently.
  - 7.10. The Performance Bank Guarantee submitted in the form of Bank Guarantee will be returned to the Contractor without any interest after 30 days after the satisfactory completion of defect liability period and obtaining non liability certificate from the end user/consignee.
  - 7.11. Failure of the successful Bidder to comply with the requirements of sub-clause 7.3 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Bid Security.
8. First tier Quality Control Tests
    - 8.1 Primary responsibility for maintaining quality of all items of work as per specifications and standards prescribed in the PWD Quality Control Manual vests with the Contractor. For all works for which the estimated cost exceeds Rs.15 lakhs, the Contractor shall carry out all First tier Quality Control tests prescribed by the PWD Quality Control Manual at his own expense and submit it along with the bills submitted for payment. If the estimated cost exceeds Rs. 2 Crores, the Contractor shall establish field laboratory at the site at his own expense wherever required.
9. Corrupt or Fraudulent Practices
    - 9.1. It is required that the bidders observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, it is defined, for the purposes of this provision, the terms set forth below as follows:
      - 9.1.1 "Corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution; and

- 9.1.2. "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Government of the benefits of free and open competition.
- 9.1.3. "Collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party;
- 9.1.4. "Coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party.
- 9.2. The Employer will reject a bid, and/or award if it determines that the Bidder recommended for award has engaged in any of the corrupt or practices in competing for the contract in question and will declare the firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract, if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing the contract.
10. Forms and declarations
- 10.1. Various forms and formats for declarations to be submitted by the Bidder for Bid submission are included in the sections- FORMS. Bidders are requested to fill in the required forms and declarations and submit the same with their bids both online and in hard copy.



## Part II- GENERAL CONDITIONS OF CONTRACT

1. Definitions
  - 1.1. Employer/ tenderer means **M/S KCMMF LTD** ,TVM on whose behalf the Work is taken up for execution. Employer will carry out its functions and obligations through officers who have been delegated powers.
  - 1.2. Accepting Authority/Agreement Authority means the officer who has invited and received bids for the Work and has executed agreement for execution on behalf of the Employer- **The MD, KCMMF LTD , TVM, .**
  - 1.3. Technical Sanction Authority means the competent Departmental Officer who has issued the technical sanction for the Work- **the MD, KCMMF LTD.**
  - 1.4. Engineer means all Engineers in charge of the Work from **Manager Projects to the Dy. Engineer.**
  - 1.5. Field Engineer means Engineers at the various **field units / Plant in charge** of operation who are directly in charge of execution of the Work.
  - 1.6. Engineer-in-Charge means the **Manager Projects, KCMMF, TVM,** who is responsible for the execution of the Work.
  - 1.7. Engineer's Representative means other subordinate staff posted to assist the **Dy. Engineer,** supervise execution and to maintain documents.
  - 1.8. Contract is the agreement between the Agreement Authority and the selected Bidder to execute, complete and maintain the Work.
  - 1.9. Contractor means person or persons or firms who have entered into contract for the execution of the work subject to the eligibility conditions of the NIT.
  - 1.10. Contract Price is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provision of the contract.
  - 1.11. Contract Data defines the documents and other information which comprise the contract.
  - 1.12. Bid or Tender means the Contractor's priced offer to the Employer for the execution and completion of the Work and the remedying of any defects therein in accordance with the provisions of Contract.
  - 1.13. Bill of Quantities means the priced and completed Bill of Quantities forming part of the bid.
  - 1.14. Specification means the instructions, provisions, conditions and detailed requirements contained in the tender documents which form part of the contract and any modification or addition made or approved by the Accepting Authority.
  - 1.15. Drawings mean all drawings, calculations and technical information related to the Work provided by the Engineer from time to time to the Contractor under the Contract.
  - 1.16. Letter of Acceptance or selection notice means intimation issued by the Accepting Authority as formal acceptance of Bid by the Employer.
  - 1.17. Date of commencement means the date of handing over the site to the Contractor.

- 1.18 Time of completion means the period allowed for completing all works related to the Work including carrying out and passing the required quality control tests prescribed by the Quality Manual published by the Department and **General quality procedures in KCMMF Ltd**
- 1.19. Date of completion is the actual date of completion of all works related to the Work as certified by **the Dy. Engineer.**
- 1.20. Quality control tests means all relevant tests prescribed by the PWD Quality Control Manual applicable to the Work & **General quality procedures in KCMMF Ltd** which are to be made and passed before each part bill is presented for payment.
- 1.21. A Defect is any part of the work not completed in accordance with the contract.
- 1.22. Defects Liability Period is the period named in the contract data and calculated from the date of completion.
- 1.23 Plant is any integral part of the works which is to have a mechanical, electrical, electronic or biological function.
- 1.24. Equipment means contractor's machinery and vehicles brought temporarily to site for execution of the Work.
- 1.25. Site means the places provided by the Employer where the Work is to be executed. It may also include any other place or places as forming part of the site, mentioned in the Contract.
- 1.26 Materials means all supplies, including consumables used by the contractor for incorporation in the works
- 1.27. Works are what the Contract requires the contractor to construct, install and run over to the Employer as defined in Contract Data.
- 1.28 Days are calendar days, month's calendar months.
- 1.29. "Codes" shall mean the following, including the latest amendments, and/or replacements, if any:
- a. Standards of Bureau of Indian Standards/Indian Roads Congress relevant to the works under the Contract and their specifications.
  - b. Other Internationally approved Standards and/or rules and regulations touching the subject matter of the Contract.
  - c. Any other laws, rules, regulations and Acts applicable in India with respect to labor, safety, compensation, insurance etc.
- 1.30. Words importing singular only shall also include the plural and vice-versa where the context so requires.
- 1.31. Words importing "Person" shall include firms, companies, corporations, and associations or bodies of individuals, whether incorporated or not.
- 1.32. Terms and expressions, not defined herein, shall have the same meaning as are assigned to them in the Indian Contract Act, and failing that in the General Clauses Act.

- 1.33. "Government Approvals" shall mean all permits, licenses, authorizations, consents, clearances, decrees, waivers, privileges, approvals from and filing with government instrumentalities necessary for the development, construction and operation of the Work.
- 1.34 Payment arrangement & measurement:- Invoice original/ running bill in GST to be submitted by the contractor along with necessary documents to the field officer for proper measurement and certification. The certified bill shall be subjected to audit & payment from the Account Rendering Unit( ARU- Head Office)
2. Scope, extent, intent etc
- 2.1. Scope: The general character and the scope of the Work shall be as illustrated and defined in the Drawings, Specifications, Schedule of Rates and other Contract Documents.
- 2.2. Extent: The Contractor shall carry out and complete the Work under the contract in every respect, and his work shall include the supply of all labor, equipment, materials, plant and machinery, tools, transportation, form work, scaffolding and everything else necessary for the proper execution and completion of the Work in accordance with the Contract Documents and to the satisfaction of the Engineer-in charge. The Contractor shall be fully responsible and liable for everything and all matters in connection with or arising out of or being a result or consequence of his carrying out or omitting to carry out any part of the Work. Where any parts of the Work may be executed by Sub Contractors, such responsibility and liability of the Contractor shall cover and extend to the work of all such Sub-Contractors
- 2.3 Intent: The Contract Documents are complementary and what is called for by any one shall be binding as if called for by all. Wherever it is mentioned in the Contract Documents that the Contractor shall perform certain work or provide certain facilities, it is understood that the Contractor shall do so at his own cost. Materials or work described in words which so applied have a well-known technical or trade meaning shall be held to refer to such recognized standards as are applicable.
3. **SITE**
- 3.1 Contractor to satisfy himself about site conditions: The Contractor represents that before tendering for the Work the Contractor has visited the Site and satisfied himself about the Site conditions for construction and for logistics and smooth flow of workmen and materials as well as permission from Authorities for this purpose. The Contractor has examined the Site and taken note of character of the soil and of the excavations, the correct dimensions of the Work, and facilities for obtaining any special articles called for in the Contract Documents. The Contractor has also made its own assessment and obtained all information on the Site constraints and on all matters that will affect the execution, continuation and progress, and completion of the Works. Any extra claims or extension of time made in consequence of any misunderstanding, incorrect information on any of these

- points or on the grounds of insufficient description or information shall not be entertained or allowed at any stage.
- 3.2 It will be the responsibility of the bidder to obtain necessary land for stacking the materials and establishing plants and equipments for carrying out the work, if the specified site of work is of fewer extents.
- 3.3. Land required for the work may not be available in full. Further land will be handed over as and when it is received from the Land Acquisition Authority. The bidder shall not be eligible for any extra or enhance claims or for compensation due to the non-availability of entire land. He shall also not be eligible for any claims or compensative for the non completion of the work within the agreed time and for continuing the work in the agreed extended period of completion due to the above reasons.
- 3.4 In the case of any delay in shifting the Telephone posts, Electric posts, Electric over head line and cables, water lines etc. by the concerned Department, the Employer shall not in any way be liable for damages on account of this delay, provided a proportionate extension of time for completion of work will be granted in deserving cases on application by the Contractor.
- 3.5. Access to site by the contractor: The access to the Site will be shown immediately on award of the Contract to the Contractor and the Site shall be shared with other Contractors and Sub-Contractors as applicable. The Contractor shall upon being given such access, commence the Work and diligently proceed with the execution of the Work in accordance with the Contract Documents. Access to the Site by the Contractor shall be merely a license for carrying out the construction of the Work under the Contract, and the Contractor shall not by his being allowed such entry on the Site, acquire any right, lien or interest either in the Work carried out by him under the Contract or anything appurtenant or attached thereto or to any part of the Site, and his claim will only be in the nature of money found due and payable to him in accordance with the certificates issued by the Engineer-in-charge under the provisions contained herein. The Work shall be free from all liens, charges or claims of whatsoever nature from any party other than the Engineer. The Engineer shall have a lien over all work performed by the Contractor, Sub-Contractors and Vendors and also for the materials and equipment brought on Site by them.
- 3.6. The Department does not undertake to construct or make available any approach road or other means of approach to the proposed work site and the bidder shall get acquainted with the available means of approaches to the proposed site and quote for the various items. The Department shall not be liable for any claim raised later on the plea of non-availability or non-access to the site.
- 3.7. Treasures, Antiquities found are property of Employer: All fossils, antiquities and other objects of interest or value, which may be found in the Site at the commencement or during the progress of the Work, shall be the property of the Employer. The Contractor shall carefully take out and preserve all such fossils, antiquities and objects and shall immediately deliver the same in their discovered state into the possession of the Employer/ tenderer.

4. **Nature of contract**

- 4.1. The Contract shall be an item rate Contract wherein the item rates are for the finished work as per the Contract Documents. The estimated cost is tentative based on the estimated quantities and is liable to change as per the actual quantities executed and approved by the Engineer-in charge. The Contractor understands and agrees that the amount payable is assessed on a re-measurable basis in accordance with the tendered rates. The Contract Price shall include payment for the supply of all labor (including payment to his Sub-Contractors), equipment, materials, plant and machinery, tools, transportation, formwork, scaffolding, works under this contract and all applicable taxes including the Work Contract Tax (WCT), Value added tax(VAT), duties, octroi, levies, royalties, fees ( **Now in GST basis**), insurance premiums, contributions towards employees benefits including Employee State Insurance and Provident Funds, arrangement of power and water and all services and activities constituting the Scope of Work defined in the General Conditions of Contract.

The Contract Price shall also include expenses for the Contractor's site establishment, infrastructure, overheads & profits, establishing site laboratories(for works costing more than Rs. 2 Crores wherever required), first tier quality control tests(for works costing more than Rs.15 lakhs), expenses for all rectifications including that necessitated as a result of bad quality and all other charges required by the Contract to be borne by the Contractor and necessary for the proper execution and completion of the Work under the Contract, in conformity with the Contract Documents and according to the best engineering and construction practices and to the satisfaction of the Engineer-in-charge.

- 4.2. No variation of the prices shall be allowed during the period of the contract for works which have a period of completion of 6(six) months or below for any reasons whatsoever and the prices quoted by the Contractor shall be deemed to be fixed for the entire contract period. For works which have a original period of completion as or below 6(six) months, **The Rate Quoted shall be fixed rate**

5. Notices, Fees, Byelaws, Regulations, etc

- 5.1. The Contractor shall comply with all applicable laws and Government Acts including the Byelaws or regulations of Central and / or Local Authorities relating to the Work in so far as labor, construction, fabrication and installation activities are concerned, and he shall obtain from the Central and / or Local Authorities all permissions and approvals required for the plying of trucks, construction machinery etc., and also for construction of temporary offices, labor camps, stores and other temporary structures in connection with the Work, and the Contractor shall give all notices and pay all fees and charges that are and that can be demanded by law there under. In the Contract Price for the Work, the Contractor shall allow for such

- compliance and work, and for the giving of all such notices, and shall include the payment of all such fees and charges.
6. Licenses and permits
    - 6.1 The Contractor shall directly obtain all licenses and permits for the materials under Government control, and those required to be obtained by the Contractor for the execution of the Work. The Contract Price shall include all transportation charges and the other expenses that may be incurred in this connection.
  7. Contract documents
    - 7.1. The following documents shall constitute the Contract documents:
      - a. Articles of Agreement,
      - b. Notice Inviting Tender
      - c. Letter of Acceptance of Tender indicating deviations, if any, from the conditions of Contract incorporated in the Tender document issued to the bidder and/or the Bid submitted by the bidder,
      - d. Conditions of Contract, including general terms and conditions, instructions to bidders, additional terms and conditions, technical terms and conditions, erection terms and conditions, special conditions, if any etc. forming part of the Agreement,
      - e. Specifications, where it is part of Tender Documents,
      - f. Scope of works/Bills of quantities/schedule of works/quantities and
      - g. Contract Drawings and finalized work programme
    - 7.2. After acceptance of Tender the Contractor shall be deemed to have carefully examined all Contract Documents to his satisfaction. If he shall have any doubt as to the meaning of any portion of the Contract Documents, he shall before signing the Contract, set forth the particulars thereof, and submit them to the Agreement Authority in writing in order that such doubt may be removed. The Agreement Authority will provide such clarifications as may be necessary in writing to the Contractor. Any information otherwise obtained from the Employer or the Engineer shall not in any way relieve the Contractor of his responsibility to fulfill his obligations under the Contract.
    - 7.3. The Contractor shall enter into a Contract Agreement with the Agreement Authority within **14 (fourteen) days from the date of 'Acceptance of Tender'** or within such extended time as may be granted by the Agreement Authority. The date of dispatch of Letter of Acceptance by registered post shall be the date of Acceptance of Tender. **The performance Guarantee (Security Deposit 5%)** for the proper fulfillment of the Contract shall be furnished by the contractor in the prescribed form within fourteen **(14) days of 'Acceptance of Tender'**. The performance Guarantee shall be as per terms prescribed in the clause 7 of "Instructions to Bidders" of this Tender.
    - 7.4. The agreement, unless otherwise agreed to, shall be signed within 14(fourteen) days from the date of Acceptance of Tender, at the office of the Agreement Authority on a date and time to be mutually agreed. The Contractor shall provide required details for signing of the contract like, performance guarantee in copies as required, appropriate power of attorney and other requisite materials. In case it is agreed mutually that the

- contract is to be signed beyond the stipulated time as specified in clause 6.6.3 of section Instructions to Bidders, the Bid Security or EMD submitted with the tender will have to be extended accordingly.
- 7.5. The agreement will be signed in three originals and the contractor shall be provided with one signed original and the rest will be retained by the Agreement Authority. None of these documents shall be used by the Contractor for any purpose other than this Contract and the Contractor shall ensure that all persons employed for this Contract strictly adhere to this and maintain secrecy, as required of such documents.
- 7.6. The Contract shall be considered as having come into force from the date of the letter of 'Acceptance of Tender' issued by the Employer.
- 7.7. The laws applicable to this Contract shall be the laws in force in India.
8. **Assignment and subletting of contract**
- 8.1. The Contractor shall not assign this Contract. The Contractor shall not sub-let the Contract or any part thereof other than for supply of raw materials, for minor works or any special type of works for which makes are identified in the Contract or as approved by the Engineer-in charge. Suppliers of the equipment not identified in the Contract or any change in the identified supplier shall be subject to approval by the Engineer. The experience list of such equipment vendors under consideration by the Contractor for this Contract shall be furnished to the Engineer for approval prior to procurement of all such items/equipments. Such assignment /sub-letting shall not relieve the Contractor from any obligation, duty or responsibility under the Contract. Any assignment as above without prior written approval of Engineer-in Charge shall be void.
9. **Deductions from contract price**
- 9.1. All costs, damages or expenses, which the Employer may have paid, for which under the Contract the Contractor is liable, will be claimed by the Employer. The Engineer-in charge shall deduct the amount, from any moneys due or becoming due by him to the Contractor under the Contract or may be recovered by actions of law or otherwise, if the Contractor fails to satisfy the Employer of such claim.
- 11. Insurance**
- 11.1. The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance covers in two parts, i.e. (a) from the start date to the completion date, and (b) for the Defect Liability period, in the amounts and deductibles stated in the Contract Data for the following events which are due to the Contractor's risks:
- a. loss of or damage to the Works, Plants and Materials;
  - b. loss of or damage to Equipment;
  - c. loss of or damage of property (except the Works, Plant, Materials and Equipment) in connection with the Contract;
  - d. Workman compensation policy to cover personal injury or death.

- 12.2. **Policies and Certificates** for insurance shall be delivered by the contractor to the Engineer's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.
- 12.3. If the Contractor does not provide any of the policies and certificates required, the Engineer-in charge may affect the insurance which the Contractor should have provided and recover any such premiums which the Employer has paid from the payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.
- 12.4. Alterations to the terms of insurance shall not be made without the approval of the Employer.
- 12.5. Both parties shall comply with any conditions of the insurance policies.
- 12.6. Premium for all insurance policies shall be paid and borne by the Contractor and shall not be reimbursable. The Contractor shall provide to the Engineer-in-Charge all policies of insurance in original. These policies shall be fully executed and shall state that the policies cannot be cancelled until completion of the Contract or completion of defects liability period and any extensions thereof. The Contractor shall obtain similar policies from all Sub-Contractors and thereby assume responsibility for any claims or losses to the Employer and Engineer-in charge/ tenderer resulting from failure of any of the Sub-Contractors to obtain adequate insurance protection in connection with their work and shall indemnify and keep indemnified the Employer and Engineer-in-charge including their employees, officers, servants, agents and any other person moving in the premises, accordingly.
- 12.7. Unlimited liability: In addition to the liability imposed by law upon the Contractor for injury (including death) to persons or damage to property by reason of the negligence of the Contractor or his agents, which liability is not impaired or otherwise affected hereby, the Contractor hereby assumes liability for and agrees to save the Employer and Engineer-in-Charge including their employees, officers, servants, agents and any other person moving in the premises harmless and indemnifies them from every expense, liability or payment by reason of any injury (including death) to persons or damage to property suffered through any act or omission of the Contractor, his employees, agents, servants, workmen, suppliers or any of his Sub-Contractors, or any person directly or indirectly employed by any of them or from the conditions of the Site or any part of the Site which is in the control of the Contractor or his employees or any of his Sub-Contractors, or any one directly or indirectly employed by either of them or arising in any way from the Work. **Also the materials/ heavy equipments procured to be properly insured before bring to the site.**
13. Under the Contract, the Contractor shall be responsible for any loss or damage to the works under this contract until the works are completed and taken over in accordance with the Contract.

#### **14. Time of Completion**

- 14.1. Time: "the essence of the contract": The time allowed for carrying out the Work as entered in the tender shall be strictly observed by the Contractor



and shall be deemed to be of the essence of the Contract and shall be reckoned from the date of handing over the site to the Contractor. The Work shall proceed with due diligence until Final Completion. The Contractor shall prepare a Construction Programme with time schedule keeping in view the completion period stipulated for specific portions of the Work and also the overall completion time and submit the same for the approval of the Engineer-in-Charge after the receipt of letter of acceptance or selection notice. The approved work programme shall be made as part of the Contract agreement. The Contractor shall comply with this time schedule. In the event of the Contractor failing to comply with the overall and individual milestones contained in the time schedules, **he shall be liable to pay liquidated damages as provided** for in this Contract.

14.2. **Completion Period:** The date of commencement of the Work shall be taken as the date of handing over the site to the Contractor. The Milestone dates shall be those specified in the Contract Data or as mutually discussed and agreed. In case the Contractor fails to meet the above stipulated completion period, Contractor shall be liable to pay to the Employer, liquidated damages as specified in Clause 16 of General Conditions of Contract. In addition to his own work in the overall time period, the Contractor shall provide for the works of other Subcontractors and Vendors, including those employed directly by the Employer / Engineer-in-Charge.

**15. Liquidated damages (LD) for delay in completion**

15.1. If the Contractor fails to maintain the required progress in terms of the agreed time and progress chart or to complete the work and clear the site on or before the date of completion of Contract or extended date of completion, he shall without prejudice to any other right or remedy available under the law to the Employer on account of such breach, pay as compensation, Liquidated damages @ **0.1(zero point one)** percent of the contract price per week of delay or **0.015(zero point zero one five)** percent of the contract price per day of delay. The aggregate of such compensation / compensations shall not exceed **10 (ten) percent** of the total value as shown in the contract. This will also apply to items or group of items for which separate period of completion has been specified. The amount of compensation may be adjusted or set off against any sum payable to the contractor under this or any other contract with the Employer/ TENDERER. The incremental taxes and levies on account of delay in performance of the Contract by the Contractor shall be to the Contractor's account.

15.2. **The Agreement Authority, if satisfied**, that the work can be completed By the Contractor within a reasonable time after the specified time of completion, may allow further extension of time at its discretion with or without the levy of liquidated damages. In the event of extension granted being with Liquidated Damages, the Employer will be entitled without prejudice to any other right or remedy available in that behalf, to recover from the Contractor as agreed damages equivalent to @ 0.1(point one) percent of the contract price per week of delay or 0.015(point zero one five) percent of the contract price per day of delay.

- 15.3. In the event of such termination of the contract as described in clauses 16.4 and 16.5 or both, the Employer, shall be entitled to recover Liquidated Damages up to ten percent (10%) of the contract value and forfeit the Performance Guarantee and Security Deposit made by the Contractor besides getting the work completed by other means at the risk and cost of the Contractor.
16. **Contractor's default- leads to termination & risk cost arrangement of the work**
17. **Extension of time of completion**
- 17.1. On happening of any events causing delay as stated hereinafter, the contractor shall intimate immediately in writing to the Engineer- in charge:
- a. due to any reasons defined as Force Majeure.
  - b. non-availability of stores which are the responsibility of the Employer to supply
  - c. non-availability or breakdown of tools and plant to be made available by the Employer
  - d. delay on the part of the Contractors or tradesmen engaged by the Employer not forming part of the Contract, holding up further progress of the work
  - e. non-availability of design or detailed drawings or specifications time, which are to be made available by the Employer during progress of the work
  - f. any other causes which, at the sole discretion of the Employer is beyond the control of the Contractor.
18. Language and measures
- 18.1. All documents pertaining to the Contract including specifications, schedules, notices, correspondence, operating and maintenance instructions, drawings or any other writing shall be written in English language. The metric system of measurement shall be used exclusively in the Contract. Measurements, quantities, prices or rates and amounts shall have two digit precision.
- 19 Release of information
- 19.1. The Contractor shall not communicate or use in advertising publicity, sales releases or in any other medium photographs or other reproduction of the works under this Contract, or descriptions of the site, dimensions, quantity, quality or other information, concerning the works unless prior written permission has been obtained from the Employer.
20. Completion of contract
- 20.1. Unless otherwise terminated under the provisions of any other relevant clause, this Contract shall be deemed to have been completed at the expiration of the Defects Liability Period as provided for under the clause 46.
21. Enforcement of terms
- 21.1. The failure of either party to enforce at any time of the provisions of this Contract or any rights in respect thereto or to exercise any option herein provided, shall in no way be construed to be a waiver of such provisions, rights or options or in any way to affect the validity of the Contract. The exercise by either party of any of its rights herein shall not preclude or

- prejudice either party from exercising the same or any other right it may have hereunder.
22. Engineer's decision
    - 22.1. In respect of all matters which are left to the decision of the Engineer including the granting or withholding of the certificates, the Engineer shall, if required to do so by the Contractor, give in writing a decision thereon.
  23. Co-operation with other Contractors, Consultants & Engineers
    - 23.1. The Contractor shall agree to co-operate with the Employer's other Contractors Consultants and consulting Engineers, if employed in the site, and freely exchange with them such technical information as is necessary for the satisfactory execution of works.
  24. Replacement of defective parts and materials
    - 24.1. If during the progress of the works the Engineer shall decide and inform in writing to the Contractor, that any part of work or materials used therein is unsound or imperfect or has furnished any work is inferior than the quality specified, the Contractor on receiving details of such defects or deficiencies shall at his own expense within seven (7) days of his receiving the notice, or otherwise, within such time as may be reasonably necessary for making it good, proceed to alter, reconstruct or remove such work and furnish fresh materials up to the standards of the specifications.
    - 24.2. In case the Contractor fails to do so, the Engineer may on giving the Contractor seven (7) days' notice in writing of his intentions to do so, proceed to remove the portion of the works or materials so complained of and, at the cost of the Contractor, perform all such work or furnish all such equipment provided that nothing in this clause shall be deemed to deprive the Employer of or affect any rights under the Contract which the Employer may otherwise have in respect of such defects and deficiencies.
  - 31.3. The Contractor's full and extreme liability under this clause shall be satisfied by the payments to the Employer of the extra cost, of such replacement procured, including erection, as provided for in the Contract, such extra cost being the ascertained difference between the price paid by the Employer for such replacements and the Contract price portion for such defective work and repayments of any sum paid by the Employer to the Contractor in respect of such defective work. Should the Employer not so replace the defective work or materials, the Contractor's extreme liability under this clause shall be limited to repayment of all sums paid by the Employer under the Contract for such defective works or works using the defective materials.
  25. Defense of suits:- **Courts situated in Trivandrum only**
  26. If any action in court is brought against the Employer or Engineer or an officer or agent of the Employer for the failure or neglect on the part of the Contractor to perform any acts, matters, covenants or things under the Contract, or for damage or injury caused by the alleged omission or negligence on the part of the Contractor, his agents, representatives or his sub-Contractors, workmen, suppliers or employees, the Contractor shall in all such cases indemnify and keep the Employer, and the Engineer and/or his representative, harmless from all losses, damages, expenses or decrees arising out of such action.
  27. Limitations of liabilities

27.1. The final payment by the Employer in pursuance of the Contract shall mean the release of the Contractor from all his liabilities under the Contract. Such final payment shall be made only at the end of the Defect liability period as detailed in clause 47 and till such time as the Contractual liabilities and responsibilities of the Contractor shall prevail. All other payments made under the Contract shall be treated as on account payments.

28. **Taxes, Permits & Licenses**

28.1. The Contractor shall be liable and pay all taxes, duties, levies, lawfully assessed against the Contractor in pursuance of the Contract. In addition the Contractor shall be responsible for payment of all Indian duties, levies and taxes lawfully assessed against the Contractor for his personal income and property. This clause shall be read in conjunction with clause 3.3.6 of section Instruction to Bidders.

29. **Payments**

29.1. The payment to the Contractor for the performance of the works under the Contract will be made by the Employer as per the guidelines and conditions specified herein. All payment made during the Contract shall be on account payments only. The final payment will be made on completion of all the works and on fulfillment by the Contractor of all his liabilities under this contract and also after issue of Completion Certificate by the Agreement Authority.

29.2. All payments under the Contract shall be in Indian Rupees only.

30. The Contractor will be required to produce income-tax and GST remittance certificates before the final payment and release of Performance Security Deposits.

31. Method of measurement and Bill Preparation:

31.1. GST Invoices in duplicate to be submitted as per the BOQ for arranging payments.

31.2 Invoice submitted shall be measured by the sight engineer and further check measurement and admitting the claim by the Managing Director. Final audit of the bill submitted and payment of the bill from the KCMMF office.

32. **Change orders (Approval for Variations)**

32.1. Employer reserves the right to alter the Scope of Work (See Clause 10 and 30) and consequently the Contract Price shall be suitably adjusted for such changes by applying the approved rates. All change orders shall be issued by the Engineer-in-Charge and the onus shall be on the Contractor to obtain such prior written consent of the Engineer in- Charge.

33. **Guarantee Period: 62 months from the supply or 5 year from the date of final completion cum commissioning the items whichever is less. Product Performance warranty of 25 years for solar PV modules and minimum 7 years for Inverter.**

- 33.1 All guarantees required under the Contract shall be in the format approved by the Engineer-in-Charge and submitted to the Engineer-in-Charge by the Contractor when requesting certification of the final bill.
34. **Defects liability:**
- 34.1. The Defect Liability Period shall be as mentioned in the contract data.
- 34.2. Maintenance by contractor during defects liability period: All defective items of work and defects noticed and brought to the attention of the Contractor during the Defects Liability Period shall be promptly and expeditiously attended to and replaced and/or rectified and made good by the Contractor at his own cost, to the complete satisfaction of the Engineer-in-Charge.
35. Final completion of the work: After completing the erection & testing commissioning work
36. **Taking over of the works:- After proper handing over with documents to the site charge**
- 36.1. Taking over of the works prior to completion of the Defects Liability Period by the Engineer-in-Charge shall not discharge the contractor of his responsibilities for the balance Defects Liability Period and the Defects Liability Period shall remain in force till completion of Defects Liability Period.
37. **Force majeure**
- 37.1. Force Majeure is herein defined as any cause which is beyond the control of the Contractor or the Employer as the case may be which they could not foresee or with a reasonable amount of diligence could not have foreseen and which substantially affect the performance of the Contract, such as:
- a. Natural phenomena, including but not limited to floods, draughts, earthquakes and epidemics:
- b. Acts of any government, including but not limited to war, declared or undeclared, priorities, quarantines, embargoes,
38. All communications, whether written or oral, including but not limited to this Contract, its Annexure, Drawings, data sheets, Specifications, bills of material, sketches, calculations, designs and all Other materials shall be treated as confidential and shall be the exclusive property of the Employer unless otherwise agreed in writing and must be given to the Employer upon request, but in any event all such materials shall be delivered to the Engineer-in-Charge upon termination/expiry of this Contract.
39. Governing law:
- 39.1. The governing Law of the Contract shall be Indian law.
40. **Standards of conduct:**
- 41.1. The Contractor, in performing its obligations under this Contract, shall establish and maintain appropriate business standards, procedures and control, including those necessary to avoid any real or apparent impropriety or adverse impact on the interests of the Employer / Engineer-in-Charge. The Employer / Engineer-in-Charge will in no event reimburse the Contractor for any costs incurred for purposes inconsistent with such policies.
42. Warranty as to documents submitted to Employer audit:

- 42.1 The Contractor represents that all documents, including invoice, vouchers, and financials to settlements, billings and other reports submitted or to be submitted by the Contractor to the Engineer-in-Charge in support of an application payment are true, correct, complete and accurate in all respects. And further audit by the KCMMF officials
- 43. Changes in Contractor's constitution:
  - 43.1 Where the contractor is a Partnership, prior approval in writing shall be obtained from the Engineer-in-Charge before any change is made in the Constitution of the partnership.
- 44. **Grounds for withholding payments:**

## **CONTRACTOR'S SITE ORGANIZATION AND RESOURCES**

- 45. Contractors representative and supervisory staff
  - 45.1. The Contractor shall at his cost provide and ensure continued effective supervision of the Work with the help of the Contractors Representative, assisted by team of qualified, experienced and competent engineers, supervisors and adequate staff, to the satisfaction of the Engineer-in-Charge for the entire duration of the Work. The Contractor shall submit his proposed site organization chart for the approval of the Engineer-in-Charge. The Contractors Representative shall be on the Site at all times as the Work and the Work progresses and shall be responsible for carrying out the Work to the true meaning of the Drawings, Specifications, Conditions of Contract, Schedule of Rates, the other Contract Documents, and instructions and directions of the Field Engineers.
- 46. **Safety Equipment & Personnel:**
  - 46.1. The Contractor shall provide sufficient helmets, safety boots/shoes, nets and protective clothing for use by the Work Management Team, Engineer, Engineer's Representative, contractor's own staff and staff of his sub-contractors. The Contractor shall make available at all times when work is being undertaken, a vehicle suitable for the emergency evacuation of personnel from the site to a hospital staffed and equipped to receive injured personnel.
- 47. First Aid Facilities:
  - 47.1. The Contractor shall provide adequate first aid facilities at site.
- 48. Payment of wages: The Contractor shall pay to labor employed by him
- 48.1 Safety Codes: In respect of all labor, directly or indirectly employed on the Work for the performance and execution of the Contractor's Work under the Contract, the Contractor shall at his own expense arrange for all the safety provisions as listed in
  - (i) Safety codes of Central Public Works Department and Bureau of Indian Standards, (ii) The Electricity Act, (iii) The Mines Act, and Regulations, (iv) Regulation of employment & conditions of service Act 1996, Rules and Orders made there under and such other acts as applicable.
- 49. In general, the Drawings shall indicate the dimensions, positions and type of construction, the Specifications shall stipulate the quality and the methods and performance criteria, and the Schedule of Rates shall indicate the rates for each item of work for evaluating change orders. However, the above

Contract Documents being complementary, what is called for by any one shall be binding as if called for by all. Wherever there is a discrepancy between drawings and specifications ie drawings shall be followed. In interpreting the specifications, the following order of decreasing importance shall be followed:

- i. Bill of Quantities
- ii. Technical Specifications
- iii. Drawing
- iv. Indian Standard Specification of BIS

50 **Materials and workmanship:**

50.1 The Contractor shall be responsible for the establishment of a full and comprehensive quality control system for the Work. The system shall include, but not be limited to, the means of controlling the testing and receipt of materials, the inspection of the Work, the filing and ordering of drawings and correspondence and the duties and responsibilities of staff members.

51 **Special makes or brands:**

Where special makes or brands are called for, they are mentioned as a standard. Others of equivalent quality may be used provided that Engineer-in-Charge considers the substituted materials as being equivalent to the brand specified, and prior approval for the use of such substituted materials is obtained in writing from the Engineer-in-Charge.

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## **Part III- SPECIAL CONDITIONS OF CONTRACT**

1. General
  - 1.1 The Special Conditions of Contract are an extension of and are to be read in conjunction with the General Conditions of Contract. Should there be any contradictory requirements in the two, the requirement as per the Special Conditions of Contract shall prevail.
  - 1.2 Definitions:\_
    - (Clause 1) a. The KCMMF is Kerala Co-operative Milk Marketing Federation Ltd.
    - b. The Contractor is the successful bidder whose bid has been accepted by the Federation and on whom the work order has been placed.
2. **Reference drawings**
  - 2.1. The Contractor shall maintain on site one set of all Drawings issued to him for reference.
3. Completion drawings (As Built) & Measurement books
  - 3.1. On completion of the Work, the Contractor shall submit three (3) complete sets of drawings and marked up prints of "AS BUILT" drawings verified and approved by the Engineer-in-Charge. These drawings shall include and show all the changes / deviations made from the working drawings during the course of construction and also the other details as called for by the Engineer-in-Charge. During the execution of the Works a set of drawings prepared initially shall be retained in the Contractors Site Offices for the exclusive purpose of recording changes made to the Work as the construction proceeds. The drawings shall be prepared on computer through AutoCAD Software and provided to the Engineer-in- Charge on CD.
4. **Testing of installations:**
  - 4.1. All water retaining structures and the basement shall be tested as specified for the waterproof qualities, in the presence of the Engineer-in- Charge or his authorized representative. The Contractor shall also perform all such tests as may be necessary and required by the Engineer-in-Charge to ensure quality of the executed works. The Contractor shall provide all labor, equipment, and materials etc., required for the performance of the tests.
5. **Inspection and Tests** (:-
  - 5.1 shall be carried out to check whether the Goods are in conformity with the technical specifications attached to the work order form and shall be in line with the inspection/test procedures laid down in the Schedule of Specifications and the Contract conditions.
  - 5.2 Contractor must have suitable facilities at their works for carrying out various performance tests on the equipment. The bidder should clearly confirm that all the facilities exist for inspection and shall be made available to the inspecting Authority.
  - 5.3 All load and functional tests as indicated in the specifications must be carried out at the manufacturer's works. Reliability of the equipment shall be



- demonstrated to the satisfaction of the appointed inspector or inspecting Agency.
- 5.4 Approved contractor's drawings shall not be departed from except as provided in the Bidding document.
- 5.5 The KCMMF shall have the right at all reasonable times to inspect, at the Contractor's premises all Contractor's drawings of any part of the work.
- 5.6 The contractor shall provide, within the time stated in the contract or in the programme, drawing showing how the plant is to be designed and any other information required for a. Preparing suitable foundations or other means of support b. Providing suitable access or the site for the plant and any necessary equipment to the place where the plant is to be erected and c. Making necessary electrical connections from the panel board provided in the individual sections to the machines.
- 5.7 Before the goods and equipment are taken over by the KCMMF, the Contractor shall supply operation and maintenance manuals together with drawings in quadruplicate of the goods and equipment as built. These shall be in such details as will enable the KCMMF to operate, maintain, adjust and repair all parts of the works as state in the specifications. The manuals and drawings shall be in the ruling language (English) and in such form and numbers as stated in the contract. Unless and otherwise agreed, the goods and equipment shall not be considered to be completed for the purposes of taking over until such manuals and drawings have been supplied to the KCMMF.
- 5.8 In case of Foreign Contractor, inspection can be carried out by an inspection agency acceptable to the KCMMF, which should be clearly mentioned in the bid. The charges for such inspection and tests shall be borne by the KCMMF and the Foreign Contractor should indicate the charges. However, the KCMMF reserves the right to appoint at its cost, any inspection Agency (other than the one suggested by the Contractor) that should be binding on the Contractor. In case of Indian Contractors, the goods will be accepted after inspection by the KCMMF, his representative or any inspection agency appointed by KCMMF and the costs for such Inspector/Agency shall be borne by the KCMMF

## **6. Quality assurance and Quality Control**

- 6.1. The Contractor shall establish an effective quality control system at the Site and implement the same through an independent team consisting of qualified and experienced Engineers and technical personnel to enforce quality control on all items of the Work at all stages. Generally the following are to be noted regarding the quality control of the works in this contract.
- 6.2. Quality control of various items in this Work shall be governed by the provisions of Kerala PWD Quality Control (QC)Manual approved vide GO(Rt) No-1339/2015/PWD dated 10-9-2015 and PWD laboratory Manual approved vide GO(Rt) No-1346/2015/PWD dated 11-9-2015 and published in the web portal of Kerala PWD. & **General quality procedures in KCMMF**
- 6.3. The intending bidders are expected to familiarize with the contents of QC manual before participating in the bid.

- 6.4. Technical audit as envisaged in clause 2406 of the revised PWD Manual-2012 shall be carried out for this Work. The contractor shall extend full cooperation to the agency entrusted with the technical audit.
- 6.5. Wherever specified, the contractor shall also obtain manufacture's test certificate from the manufacturer/dealer and submit the same before executing the items listed in such certificates. Contractor shall be responsible for the genuineness of the Manufacturer's Test Certificate obtained and submitted by him. He shall record a statement in the Manufacturer's Certificate that "This Certificate for supply of ..... (Name of material with item no in BoQ) has been obtained by me from.. ..... (Name and address of Manufacturer/Dealer) on ..... (date of receipt of certificate) for the actual materials supplied at site.
- 6.6. The rate quoted by the bidder shall include all expenses for carrying out the first tier quality control tests. Expenses for third party tests as detailed in clause 7.4 of the introduction to QC Manual, if, required, shall also be borne by the contractor.
- 7. Approval by statutory bodies: All required approvals from the statutory bodies shall be the responsibility of the contractor
- 8. Name board and publicity
- 9. Specialized Works to be carried out by licensed persons/firms:
- 10. Technically competent persons or firms holding valid licenses obtained from competent local authority/ proven experience record shall only carry out any special works and service installations included in the scope of the Work. The list of such special works are available in the Government order No-GO (Ms) No-65/2015//PWD dated 24-7-2015.
- 11. Contractor's temporary works design
  - 11.1. The Contractor shall, prior to commencing the construction of any temporary Works like earth protection works for deep excavations, temporary platforms/formworks for heavy concreting etc , submit a certificate to the Engineer signed by him certifying that the temporary Works have been properly and safely designed and checked to carry the intended load without failure and that the Contractor has checked the effect of the Temporary Works on the Permanent Works and has found this to be satisfactory. The Employer and the Engineer shall not be responsible for any failure of such temporary structures and the Contractor is bound to take care of all expenses related to such failures, its rectification and subsequent remedial measures if any at no extra cost.

**12. PAYMENTS**

**Mobilization Advance**

- 12.1.1. This clause 21.1 shall be applicable only when so provided in 'Contract Data'.
- 12.1.2. An amount up to 30% advance on acceptance of the order, after signing the agreement and against a Bank Guarantee for advance amount payment from a Nationalised bank/scheduled bank/New Generation bank or a foreign bank operating in India for an amount equal to **110 % value** ( of the advance amount equal value of contract

amount/ PAC)as per the terms of the contract/order and if required by the contractor.).

12.1.3. Before any installment of advance is released, the contractor shall execute a irrevocable Bank Guarantee Bond from a Nationalized or Scheduled Bank for the amount equal to 110% of the amount of advance and valid for the contract period. This (Bank Guarantee from Bank for the amount equal to 110% of the balance amount of advance) shall be kept renewed from time to time to cover the balance amount and likely period of complete recovery.

12.1.4. Mobilization advance, if paid, shall be deducted from the next immediate interim payment at the rate of 25% of the amounts of all Interim Payment Certificates until such time as the advance has been repaid, always provided that the advance shall be completely repaid prior to the expiry of the original/extended time for completion.

12.1.5 **A. Balance payments: - Supply**

i). 50% payment against safe receipt of the goods at site & deduction of 5% proportional retention money as performance security deposit in addition to the deduction of advance payment if any.

ii). Deleted

iii). 40% payment on completion of testing and commissioning of the items on group basis (completion of the total scheme- Final Bill) and deduction of 5% Proportional retention money as performance security deposit in addition to the deduction of complete outstanding balance of the advance payment if any. On completion of the entire work, the Contractor shall submit his final bill. After verifying the final bill, KCMMF will issue to the contractor a statement (hereinafter called as the final account statement.

iv). The final 10% payment (5% retention kept as performance security+ 5% submitted as BG as Bank Guarantee) will be released as follows.

**1. The Performance Security deposit ( 5%) will be released after the satisfactory completion of the work and within three months from the date of completion after obtaining the NLC**

**2. The Performance Guarantee Security deposit (5%) will be released after the expiry of the warranty/ guarantee period plus 3 month grace time for obtaining NLC**

12.1.6 **B. Balance payments: - Labour/ work**

i) 50% payment on erection of the equipment on group basis. Deduction @ 5% **proportional amounts** as retention money in addition to the deduction of advance payment if any.

ii) 30% payment on completion of erection, testing and commissioning of the items on group basis ( Running Bill) &

deduction @5% **proportional amount** as retention as performance security deposit in addition to the deduction of advance payment if any.

- iii) 20% payment on completion of erection, testing and commissioning of the items on group basis (final bill measurement )- Deduction @ 5% **proportional amount** as retention money in addition to the complete deduction of complete outstanding balance of the advance payment if any. On completion of the entire work, the Contractor shall submit his final bill. After verifying the final bill, KCMMF will issue to the contractor a statement (hereinafter called as the final account statement).
- iv). The final 10% payment (5% retention kept as performance security+ 5% submitted as BG as Bank Guarantee) will be released as follows
  - 1. **The Performance Security deposit ( 5%) will be released after the satisfactory completion of the work and within three months from the date of completion after obtaining the NLC**
  - 2. **The Performance Guarantee Security deposit (5%) will be released after the expiry of the warranty/ guarantee period plus 3 month grace time for obtaining NLC**

**12.1.7 Payments for the work awarded without supply & labour portion segregated- General.**

- i) Payment to the tune not exceeding 75% of the eligible payment of the RA Bills will be admitted for supply & erection after making required deductions (5% **proportional retention amount** + deduction of advance payment if any)
- ii) Balance 25% will be paid during the final bill submission after making the required deductions including the **proportional 5% retention amount** and outstanding advance amount if any.
- iii) Contracts valued at Rs.50, 000/- (combining Schedule I & II) and below are not eligible for advance payment.
- iv) All interim payment shall be treated as advance payment. On completion of the entire work, the Contractor shall submit his final bill. After verifying the final bill, KCMMF will issue to the contractor a statement (hereinafter called as the final account statement). The contractor shall return the final account statement duly signed as an acknowledgement of full and final value of work performed under the contract and full and final settlement of the payment. On receipt of this statement back from the contractor, the final payment shall be released.
- v). The final 10% payment (5% retention amount against performance security+ 5% submitted as BG as Bank Guarantee) will be released as follows.

1. **The Performance Security deposit ( 5%) will be released after the satisfactory completion of the work and within three months from the date of completion after obtaining the NLC**
2. **The Performance Guarantee Security deposit (5%) will be released after the expiry of the warranty/ guarantee period plus 3 month grace time for obtaining NLC**

**Common note:- Deduction of retention amount applicable for the cases of non furnishing the Performance SD/ Performance Guarantee SD BG's**

12.2. Secured Advance for non-perishable materials

12.2.1. This clause 22.1 shall be applicable only when so provided in ' Contract Data'.

12.2.2. The contractor, on signing an indenture in the form to be specified by the Engineer-in- Charge, shall be entitled to be paid during the progress of the execution of the work up to 90% of the assessed value of any materials which are in the opinion of the Engineer-in- Charge non-perishable, non-fragile and non combustible and are in accordance with the contract and which have been brought on the site in connection therewith and are adequately stored and/or protected against damage by weather or other causes but which have not at the time of advance been incorporated in the works. When materials on account of which an advance has been made under this sub-clause are incorporated in the work, the amount of such advance shall be recovered/ deducted from the next payment made under any of the clause or clauses of this contract.

12.2.3. Such Secured Advance shall also be payable on other items of perishable nature, fragile and combustible with the approval of the Engineer-in-Charge provided the contractor provides a comprehensive insurance cover for the full cost of such materials. The decision of the Engineer- in-Charge shall be final and binding on the contractor in this matter. No secured advance, shall however, be paid on high-risk materials such as ordinary glass, sand, petrol, diesel etc.

12.2.4. Secured advance, if paid, shall be recovered from each succeeding interim payment to the extent materials have been incorporated into the Works.

12.3. All advance payments shall be completely recovered before end of 80% of Contract period.

13.0 **Delivery and Documents:**

- i) The Contractor's invoice showing work Order No., Goods description, quantity, unit price, total amount;
- ii) Delivery note/packing list/lorry receipt;
- iii) Manufacturer's/Contractor's guarantee certificate in case applicable;
- iv) Inspection certificate issued by the nominated inspection agency, and the Contractor's factory inspection report;
- v). Certificate of origin;
- vi. Insurance policy;

- vi). Excise gate pass/octroi receipts, wherever applicable, duly sealed indicating payments made; and
- vii). any other document evidencing payment of statutory levies Note: The nomenclature used for the item description in the invoice/s, packing list/s and delivery note/s etc. should be identical to that used in the work order. The despatch particulars including name of transporter, LR No. and date should also be mentioned in the invoices.

**22. Insurance**

The insurance shall be in an amount equal to 110% of the FOR Destination value of the goods from "warehouse to warehouse" on All Risks" basis including war Risks and Strike clauses valid for a period not less than 3 months after the date of arrival of Goods at final destinations. After arrival of the goods and prior to the commencement of the mechanical erection the bidder shall arrange a comprehensive storage cum erection insurance naming KCMMF as the beneficiary. The storage cum erection insurance policy shall cover the entire value of the goods including erection work as per the order value of KCMMF.

**23. Incidental services**

The incidental services shall be provided as per the requirements outlined in the Schedule of Specifications and as covered under Clause 13. The cost shall be included in the contract price, if provided for in the scope for the Contract.

**24. Warranty/Guarantee**

The warranty/Guarantee shall be as per provision under Clause 14 of General Conditions. (The Whole scheme and equipment shall be **offered with 5 years warranty after the commissioning & handing over the project**).

25. Resolution of Disputes (Clause 25) In case of any dispute, the Registrar of Co-operative Societies of Kerala State shall be the sole arbitrator as per the provisions of Kerala Co-operative Societies Act 1969. 12. Notices (Clause 28) For the purpose of all the notices, the following shall be the address of the KCMMF and Contractor. KCMMF: Kerala Co-operative Milk Marketing Federation Ltd., Milma Bhavan, Pattom Palace P.O, Thiruvananthapuram. Pin 695 004 & Contractor: Address of the Tenderer mentioned in the issue letter of tender document with whom the work has been awarded.

**26. Packing and Marking**

26..1 The Contractor shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicted in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to temperature, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where

- appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.
- 26.2 The packing, marking and documents within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract and, in any subsequent instructions ordered by the KCMMF.
- a. Each package shall be marked to indicate.
  - b. Name of the Contractor
  - c. Details of items in the package
  - d. Name of the Consignee
  - e.. Work order Number
  - f. Gross, net and tare weight
  - g. Destination.

## **27. UNLOADING, TRANSPORTATION AND INSPECTION**

- 27.1 The Supplier to unload all the materials/equipment from the carrier, those received at site after Supplier's team arrives at site. Supplier shall be paid extra for unloading of the equipment being supplied by the KCMMF whereas no extra payment for unloading of the equipment/piping shall be paid to supplier for the equipment being supplied by the Supplier. The Supplier shall plan in advance, based on the information received from the KCMMF, Supplier's requirement of various tools, tackles, jacks, cranes, sleepers etc. required to unload the material/equipment promptly and efficiently. The Supplier shall ensure that adequate and all measures necessary to avoid any damage whatsoever to the equipment at the time of unloading are taken. Any demurrage/detention charges incurred due to the delay in unloading the material/equipment and releasing the carriers shall be charged to the Supplier's account. The Supplier shall be responsible for the reception on site of all plant and Supplier's equipment delivered for the purposes of the contract.
- 27.2 The Supplier shall safely transport/shift the unloaded materials/equipment by the Supplier to the storage area.
- 27.3 Materials handling
- 27.3.1 The materials/equipment would be carefully unpacked by opening the wooden cases/other modes of packing as the case may be.
- 27.3.2 All the information and observations shall be furnished in the form of 'INSPECTION REPORT' to the KCMMF with verification and satisfaction of Engineer in charge.

## **28. STORAGE OF EQUIPMENT**

- The Supplier shall be responsible for the proper storage and maintenance of all materials/equipment under Supplier's custody. Supplier shall take all required steps to carry out frequent inspection of equipment/materials stored as well as erected equipment until the same are taken over by the KCMMF. The following procedure shall apply for the same.
28. .1 The Supplier's inspector shall check stored and installed equipment/materials to observe signs of corrosion, damage to protective

coating to parts, open ends in pipes, vessels and equipment, insulation resistance of electrical equipment etc. The Supplier shall immediately arrange a coat of protective painting whenever required. A record of all observations made on equipment, defects noticed shall be promptly communicated to the KCMMF and KCMMF's advice taken regarding the repairs/ rectifications. The supplier shall there upon carry out such repairs/ rectifications at Supplier's own cost. In case the Supplier is not competent to carry out such repairs/ rectifications, the KCMMF reserves the right to get this done by other competent agencies at the Supplier's responsibility and risk and the entire cost for the same shall be recovered from the Supplier's bills.

28.2 All the necessary items/goods required for protection as described above shall be arranged by the Supplier and such cost shall be included in the Contract price.

### 29.0 APPROVALS

29.1 The Supplier shall obtain the necessary approvals of the Factory Inspector, Boiler Inspector, Electrical Inspector, Weights & Measures Inspector, Explosive Inspector and any other state and local authorities as may be required and the cost of obtaining such approvals shall be included in the contract price. The Supplier will furnish all the necessary details, drawings, submission of application and Performa to the KCMMF for verification/signature. The necessary application duly filled-inn, together with the prescribed fees shall be submitted to the appropriate authorities by the Supplier on behalf of the KCMMF

However all the actual statutory prescribed fees paid by the Supplier shall be reimbursed by the KCMMF upon production of the receipt/vouchers.

29.2 Wherever necessary or required, the Supplier shall furnish the necessary test and/or inspection certificates etc. from the appropriate authorities as per IBR, IER and other statutory regulations and the cost for obtaining these certificates shall be included in the contract price.

### 30.0 REVIEW AND CO-ORDINATION OF ERECTION WORK

The Supplier shall depute senior and competent personnel to attend the site co ordination meetings that would generally be held at the site every month. The Supplier shall take necessary action to implement the decisions arrived at such meetings and shall also update the erection schedule.

31. **Solvency:-** The Contractor/ bidder shall produce a solvency certificate of minimum amount **equal to the PAC** from the nationalized bank or from the Chartered Account in the prescribed format including the audited financial statements of the firm ( latest)

32. *The Rate to be Quoted including the total cost of design, supply, installation & commissioning and all the statutory fees to be remitted to the utility. No other amount will be borne by KCMMF other than the agreed PAC of the LSTK work.*

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### Part IV- CONTRACT DATA

Sl. No	Item	Clause reference	Data
1	Identification No. of the Contract	NIT	KCMMF /KHO/PROJ(498)/2022
2	Name of Work	NIT	Design & Supply 10 KW Roof Top Solar PV System.
3	Employer	GCC-1.1	KCMMF Ltd.
4	Tender Inviting Authority	GCC-2	Managing Director on the behalf of KCMMF
5	Name of Division		KCMMF Ltd., Trivandrum
6	Name of Sub Division		CFP, Pattanakkad
7	Estimated Probable Amount of contract		₹ 6,00,000/-
8	Source of Fund		Own fund
9	Location of Work	NIT	Cattle Feed Plant, Pattanakkad
10	Type of Work(brief description about the nature of work	NIT	Design, Supply, installation and testing & commission and hand over the 10 KW Roof Top Solar PV System to the CFP, Pattanakkad
11	Time of completion of work(in months)	GCC-1.17, 15	2 months
12	Work Milestones	GCC-15, 44, 77	Refer GCC
13	Class/Registration of Bidder	NIT, GCC-13.1,	Refer GCC
14	Pre-bid meeting date , venue and time	TCC	<b>NA</b>
15	Bid submission start date	NIT	21-03-2022
16	Last date and time for bid submission	NIT	28-03-2022, 2.30 PM
17	Bid submission fee	NIT/ ITB-3.7	₹ 1416 ( Rupees one thousands four hundred and sixteen only)
18	Bid Security ( EMD)	NIT/ ITB-3.6	6,000 (Rupees six thousand only)
19	Performance Guarantee	ITB-7	5% of the agreed PAC
20	Performance Security Deposit	ITB-7	5% of the PAC
21	Insurance requirements are	GCC -13	a. The Contractor shall obtain insurance cover for a minimum of Rs 5000. /- per occurrence. ( 0.5% of Contract Value) b. The insurance cover shall

			<p>be taken initially for a minimum of four occurrences, which shall be revised whenever an event involving contractor's Liability and Plant and Materials for payment arise, and additional insurances shall be taken so as to cover Minimum four occurrences always.</p> <p>c. 0.2% of the Contract Amount shall be deducted in the event of failure to obtain the insurance by the contractor within 15 days of Start Date .</p>
22	Defects Liability Period	GCC-46	Specify the period
23	Liquidated Damages	GCC-16	@ 0.1(point one) percent of the contract price per week of delay or 0.015(point zero one five) percent of the contract price per day of delay
24	Work items for which Guaranties required	GCC-46	<specify here the items for which Guarantees are required and the period of such guarantee
27	Contractors Equipments and Tools and Plants	SCC-18,	<provide the list of tools and plants required
28	Whether mobilization advance applicable	SCC-21.1	<yes/no> <b>YES</b> if the Contract required with production BG
29	Whether secured advance applicable	SCC- 21.2	-Do-
30	Deduction towards GST	SCC-19/20	Applicable - documentary evidence shall be provided by the contractor

**Managing Director**

## **Part V- TECHNICAL SPECIFICATIONS.**

### **1. Scope of the Work**

The scope includes guidelines and practices for the Supply, Installation, Testing and Commissioning of On-Grid PV(Mono crystalline half cut latest technology) power plants (Roof-top Mounted). All the necessary approvals from KSEBL/Electrical Inspectorate, feasibility study, necessary civil work, Mounting of Module Structures, PV Module Installation, Inverter Installation, DC/AC Cabling and interconnections, Installation of Lightning Arresters and Earthing System as per the standards, Net Metering, Arranging all the necessary inspections from KSEBL/Electrical Inspectorate/ KCMMF Office as part of Pre-Commissioning, if any, and the Commissioning of the PV Power Plant and handing over in all respect including 5 years maintenance are coming under the scope of the EPC company/ Contractor. The cost includes all utilities charges as lump sum.

### **2. Location**

Roof top of the Milma owned Cattle feed Plant, Pattanakkad, and Alappuzha Dist.

### **3. Definition**

Solar PV power plant system comprises of C-Si (Crystalline Silicon) preferably with high efficiency Monocrystalline ( latest model of half cut technology) with intelligent Inverter having MPPT technology and Anti-Islanding feature and associated power electronics, which feeds generated AC power to the Grid. Other than PV Modules and Inverter/Inverters, the system consists of Module Mounting Structures, appropriate DC and AC Cables, Array Junction Boxes (AJB) / String Combiner Boxes (SCB), AC and DC Distribution Box, Lightning Arrester, Earthing Systems, Net meter, etc.

The system should be capable for exporting the generated AC power to the Grid, whenever the Grid is available with all System Protection facilities.

### **4. Solar PV Module**

The EPC Company/ Contractor shall use only the top end model of PV modules that are approved by MNRE/ ANERT/ KSEBL. The List of PV modules under various categories (c-Si Mono/Mono PERC etc.) are attached and as specified in detailed technical parameters.

4. 1. The PV modules must be PID compliant, salt, mist & ammonia resistant and should withstand weather conditions for the project life cycle.
- 4.2. The back sheet of PV module shall be minimum of three layers with outer layer (exposure to ambience) and shall be made of PVDF or PVF. The Back sheets for PV Module with 2 layered or 3 layered Polyester types or the back sheets with Polyester (PET type) at Air side material are not permitted for the empanelment; The minimum thickness of the core layers (without adhesive and inner EVA coated) must be 300 microns. The maximum allowed water vapor transmission

rate shall be less than 2 g / m<sup>2</sup>/day and shall have a Partial Discharge > / = 1500V DC

- 4.3. The front glass shall meet the following specifications:
  - a. The facing glass must be Tempered, PV grade with Low iron and high transmission.
  - b. The transmission shall be > 93 %
  - c. Thickness shall be min 3.2 mm
  - d. Textured to trap more light
  - e. The glass shall have an Anti-reflective coating for the better transmission and light absorption.
  - f. Tempered glass to meet the external load conditions
- 4.4. The encapsulated used for the PV modules should be UV resistant in nature. No yellowing of the encapsulant with prolonged exposure shall occur. The sealant used for edge sealing of PV modules shall have excellent moisture ingress Protection with good electrical insulation and with good adhesion strength. Edge tapes for sealing are not allowed.
- 4.5. Anodized Aluminum module frames of sufficient thickness shall be used which are electrically & chemically compatible with the structural material used for mounting the modules having provision for earthing.
- 4.6. UV resistant junction boxes with minimum three numbers of by-pass diodes and two numbers of MC4 connectors or equivalent with appropriate length of 4 sq.mm Cu cable shall be provided. IP67 degree of protection shall be used to avoid degradation during Life. .
- 4.7. Shading correction/ bypass diode for optimizing PV out to be incorporated in each solar module or panel level.
- 4.8. Each PV module used in any solar power project must use a RF identification tag (RFID), which must contain the following information. The RFID can be inside or outside the module laminate but must be able to withstand harsh environmental conditions.
  - a) Name of the manufacturer of PV Module.
  - b) Name of the manufacturer of Solar cells.
  - c) Month and year of the manufacture (separately for solar cells and module).

- d) Country of origin (separately for solar cell and module).
  - e) I-V curve for the module.
  - f) Peak Wattage, IM, VM and FF for the module.
  - g) Unique Serial No. and Model No. of the module.
  - h) Date and year of obtaining IEC PV module qualification certificate.
  - i) Name of the test lab issuing IEC certificate.
  - j) Other relevant information on traceability of solar cells and module as per ISO 9000 series.
- 4.9. The following details should be provided on the module
- a) Name of the manufacture.
  - b) Month and year of manufacture.
  - c) Rated Power at STC.
  - d) VMP, IMP, VOC, Isc.
- 4.10. The successful bidder shall arrange an RFID reader to show the RFID details of the modules transported to sites, to the site Engineer in charge up to their satisfaction, which is mandatory for the site acceptance test.
- 4.11. Each PV module used in any solar power project must use a RF identification tag (RFID), which must contain the following information. The RFID can be inside or outside the module laminate but must be able to withstand harsh environmental conditions.
- 4.12. The PV modules must qualify (enclose Test Reports/Certificates from IEC/NABL accredited laboratory) as per relevant IEC standard. The Performance of PV Modules at STC conditions must be tested and approved by one of the IEC/NABL Accredited Testing Laboratories.
- 4.13. PV modules used in solar power plant/ systems must be warranted for 10 years for their material, manufacturing defects, workmanship. The output peak watt capacity which should not be less than 90% at the end of 10 years and 80% at the end of 25 years
- 4.14. Original Equipment Manufacturers (OEM) Warrantee of the PV Modules shall be submitted by the successful bidder when the materials delivered at site.

**4.15. The PV Module should be under the Indigenous / DCR (Domestic Content Requirement) category (Based on the specific requirement).**

- 4.16. The PV modules shall conform to the following standards:
- i **IS 14286:** Crystalline silicon terrestrial photovoltaic (PV) modules —design qualification and type approval.
  - ii. **IEC 61215 / IEC 61646:** c-Si (IEC 61215): Crystalline silicon terrestrial photovoltaic (PV) modules –Design qualification and type approval Thin Film (IEC 61646): Design, Qualification & Type Approval
  - iii. **IEC 61730-1:** Photovoltaic Module safety qualification- Part1 Requirements for construction
  - iv. **IEC 61730-2** : Photovoltaic Module safety qualification-Part 2: requirements for testing
  - v. **IEC 61701:** Salt mist corrosion testing of photovoltaic modules.
  - vi, **IEC 62716** : Test Sequences useful to determine the resistance of PV Modules to Ammonia (NH<sub>3</sub>)

4.17. The PV module should have IS14286 qualification certification for solar PV modules (Crystalline silicon terrestrial photovoltaic (PV) modules —design qualification and type approval). The exemption of this certification and other details are described, as per MNRE's Gazette Notification No. S.O. 3449 (E)/ Dated 13<sup>th</sup> July, 2018.

4.18. PV Module of same Make/ Model in the same series shall be considered as a single product while making the payment as per MNRE Order No. 283/54/2018-Grid Solar (ii) Dt. 06-Feb-2020.

**Preferred Model/Make:- Waree/Vikram/Adani/Trina/Rensola/Panasonic or higher end models**

## **5. POWER CONDITIONING UNIT (PCU)/ INVERTER**

The Power Conditioning Unit shall be String Inverter with power exporting facility to the Grid. The List of Inverters under On-Grid category is attached as Annexure II-F. However the specifications for the ON-Grid Inverters are detailed below:

### **General Specifications:**

- 5.1. All the Inverters should contain the following clear and indelible Marking Label & Warning Label as per IS16221 Part II, clause 5. The equipment shall, as a minimum, be permanently marked with:
- a. The name or trademark of the manufacturer or supplier.
  - b. A model number, name or other means to identify the equipment.

- c. A serial number, code or other markings allowing identification of manufacturing location and the manufacturing batch or date within a three-month time period.
  - d. Input voltage, type of voltage (A.C. or D.C.), frequency, and maximum continuous current for each input.
  - e. Output voltage, type of voltage (A.C. or D.C.), frequency, maximum continuous current, and for A.C. outputs, either the power or power factor for each output.
  - f. The Ingress Protection (IP) rating
- 5.2. The inverter output shall be 415 VAC, 50 Hz, 3 phase or 230 VAC, 50 Hz, 1 phase.
- 5.3. The inverter shall include appropriate self-protective and self-diagnostic feature to protect itself and the PV array from damage in the event of inverter component failure or from parameters beyond the inverter's safe operating range due to internal or external causes.
- 5.4. The Technical Specification of On-Grid Inverters are summarized below:

**Specifications of Inverters**

<b>Sl.No</b>	<b>Parameters</b>	<b>Detailed specification</b>
1	Nominal voltage	230V/415V
2	Voltage Band	Between 80% and 110% of V nominal
3	Nominal Frequency	50 Hz
4	Operating Frequency Range	47.5 to 50.5 Hz
5	Waveform	Sine wave
6	Harmonics	AC side total harmonic current distortion < 3%
7	Ripple	DC Voltage ripple content shall be not more than 1%
8	Efficiency	Efficiency shall be >97%
9	Casing protection levels	Degree of protection: Minimum IP-54 for internal units and IP-65 for outdoor units
10	Operating ambient Temp range	-10 to + 60 degree Celsius
11	Operation	Completely automatic including wakeup, synchronization (phase locking) and shutdown
12	MPPT	MPPT range must be suitable to individual array voltages
13	Protections	Over voltage: both input and output Over current: both input and output Over / Under grid frequency Over temperature ,Short circuit Lightning Surge voltage induced at

			output due to external source & Islanding
14	Ingress Protection		IP 65 for Outdoor / IP 54 for Indoor
15	Recommended indications	LED	ON Grid ON Under/ Over voltage Overload Over temperature
16	Recommended LCD Display on front Panel		DC input voltage DC current AC Voltage (all 3 phases) AC current (all 3 phases) Frequency Ambient Temperature Instantaneous power Cumulative output energy Cumulative hours of operation Daily DC energy produced
17	Communication Interface		RS485/ RS232/Wi-Fi (with or without USB)

**5.5. The Technical Specification for Interconnection are summarized below :-**

Sl.No	Parameters	Requirements	Reference
1	Overall conditions of service	Reference regulations to	Conditions for Supply of Electricity
2	Overall Grid Standards	Reference regulations to	Central Electricity Authority (Grid standards) Regulations 2013
3	Equipment	Applicable industry standards	IEC/EN standards
4	Safety and Supply	Reference regulations, (General safety requirements to	Central Electricity Authority (Measures of safety and electricity supply) Regulations, 2010 and subsequent amendments
5	Meters	Reference regulations and additional conditions issued by the commission to	Central Electricity Authority (Installation & operation of meters) regulations 2006 and subsequent amendments



6	Harmonic current	Harmonic current injections from a generating station shall not exceed the limits specified in IEEE 519	IEEE 519 relevant CEA (Technical Standards for connectivity of the distributed generation resource) regulations 2013 and subsequent amendments
7	Synchronization	Photovoltaic system must be equipped with a grid frequency synchronization device, if the system is using synchronizer inherently built in to the inverter then no separate synchronizer is required	Relevant CEA (Technical Standards for Connectivity of the distributed generation resources) regulations 2013 and subsequent amendments
8	Voltage	The voltage-operating window should minimize nuisance tripping and should be under operating range of 80% to 110% of the nominal connected voltage. beyond the clearing time of 2 seconds, the Photovoltaic system must isolated itself from the grid	Relevant CEA (Technical Standards for Connectivity of the distributed generation resources) regulations 2013 and subsequent amendments
9	Flicker	Operation of Photovoltaic system should not cause voltage flicker in excess of the limits stated in IEC 61000 or other equivalent Indian standards if any	Relevant CEA regulations 2013 and subsequent if any, (Technical standards for connectivity of the distributed generation resource)
10	Frequency	Frequency deviates outside the specified limits (50.5 Hz on upper side and 47.5 Hz on lower side) up to 0.2 sec, the Photovoltaic systems shall automatically disconnect from grid	As above

		and be in island mode.	
11	DC injection	Photovoltaic system shall not inject DC current greater than 0.5% of full rated output at the interconnection point or 1% rated inverter output current into distribution system under any operating conditions	As above
12	Power Factor	While the output of the inverter is greater than 50%, a lagging power factor greater than 0.9 shall be maintained	As above
13	Islanding and Disconnection	The photovoltaic system in the event of voltage or frequency variations must island/disconnect itself with the time stipulated as per IEC standards	As above
14	Overload and Overheat	The inverter should have the facility to automatically switch off in case of overload or overheat and should restart when normal conditions are restored	As above

**5.7. The IEC Certifications of On-Grid Inverters are summarized below:**

Sl.No	Standard	Description
1	IEC 61683	Photovoltaic systems - Power conditioners - Procedure for measuring efficiency
2	IEC 61727	Photovoltaic (PV) systems- Characteristics of the utility interface
3	IEC/EN 62109-1	Safety of power converters for use in photovoltaic power systems - Part 1: General requirements
4	IEC/EN 62109-2	Safety of power converters for use in photovoltaic power systems - Part 2:

		Particular requirements for inverters
5	IEC/EN 61000-3-3/ 3-11/ 3-5	Electromagnetic compatibility (EMC) - Part 3-11; Limits; Limitation of Voltage Change, Voltage Fluctuations and Flicker in Public Low- Voltage Supply Systems; Rated Current <16A / >16A and <75A / >75A per Phase respectively
6	IEC/EN 61000-3-2/ -3-12/ -3-4	Electromagnetic compatibility (EMC) - Part 3-12; Limits; Limits for Harmonic Currents produced by equipment connected to the public low voltage systems with Rated Current <16A / >16A and <75A / >75A per Phase respectively
7	*IEC/EN 61000-6-1 / 6-2	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for residential and commercial / industrial environments
8	*IEC/EN 61000-6-3 / 6-4	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for residential and commercial / industrial environments
9	IEC 62116	Utility-interconnected photovoltaic inverters - Test procedure of islanding prevention measures
10	IEC 60068-2-1	Environmental testing - Part 2-1: Tests - Test A: Cold
17	IEC 60068-2-2	Environmental testing - Part 2-2: Tests - Test B: Dry heat
18	IEC 60068-2-14	Environmental testing - Part 2-14: Tests - Test N: Change of temperature
19	IEC 60068-2-30	Environmental testing - Part 2-30: Tests - Test Db:, Damp heat, cyclic (12 h + 12 h cycle)

Note:- \* recommended but not mandatory.

**Preferred Model/ Make: - ABB/ Delta/Fronius or higher end models only.**

## **6. DATA LOGGING**

A dedicated data logging system (Hardware and software) for monitoring the plant shall be provided even if the inverter has embedded data logging system. The following weather parameters are to be measured as part of the data logging system.

### **1. a) Solar Irradiance:**

A Pyranometer/ Solar cell based irradiation sensor (along with calibration

certificate) shall be provided, with the sensor mounted in the plane of the array. Readout shall be integrated with data logging system : **from 10kWp to less than 100kWp**

Pyranometer (Class II or better) shall be provided with the sensor mounted in the place of the array. Readout shall be integrated with data logging system: **for 100kWp and above.**

**b) Temperature:** Integrated temp, sensors for measuring the module surface temp., inverter inside enclosure temp, and ambient temp to be provided complete with readouts integrated with the data logging system.

2. It is recommended that the following important parameters shall be accessible through the Data Logging Facility.

a) AC Voltage

b) AC Output current

c) Output Power

d) Energy in kWh

e) DC Input Voltage

f) DC Input Current

g) Temperatures (C)

h) Inverter Status

i) Irradiation

j) Module temperature

k) String Voltage & Current (For PV Plants from 100kWp onwards)

6.3. Provision for Internet monitoring and download of historical data shall be incorporated. GSM Modem/Wi Fi modem in case GSM connectivity is used or Wireless Router + modem in case Ethernet connection is being used for remote access must be provided.

### **Performance Ratio**

6. 4. Performance Ratio (PR) is to be assessed for Grid Connected PV Plants above 25kWp. The data from the data monitoring system will be used for calculating the Performance Ratio (PR) of the power plant as per IEC 61724 and the recommended procedure is described in the below clause.

6. 5. The plant acceptance test period is five days long with the following minimum irradiance criteria for PR measurement.

- At least three days must have irradiance measured in the plane of the array that is greater than 600 W/sq.m for three continuous hours, and the

daily total irradiance must exceed 3,000 Wh/sq.m/day.

• If there are not five days that meet these minimum irradiance criteria, the test period may be extended until five sufficient days have been recorded. There will not be any liquidated damages triggered as a result of this weather-related test delay.

**7. Performance Ratio (PR) is to be assessed for Grid Connected PV Plants above 25kWp.**

There shall be special clause in the tender Document under different schemes.

**8. MODULE MOUNTING STRUCTURE**

8.1. Photo voltaic arrays must be mounted on a stable, durable structure that can support the array and withstand wind, rain, and other adverse conditions. The modules will be fixed on structures with fixed arrangement.

8.2. The module mounting structures shall have adequate strength and appropriate design suitable to the locations, which can withstand the load and high wind velocities. Stationary structures shall support PV modules at a given orientation, absorb and transfer the mechanical loads to the surface properly.

8.3. Each structure with fixed tilt should have a tilt angle as per the site conditions to take maximum insolation which will be approximately equal to the latitude of the location facing true South with a North -South orientation. The tilt angle can vary from 9 degree to 12 degree based on the location's latitude in Kerala

8.4. The PV module mounting structure shall have a capacity to withstand a wind velocity of 150 km/hr unless specified for dedicated requirements

8.5. Suitable fastening arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed. The PV array structure design shall be appropriate with a factor of safety of min 1.5.

8.6. The materials used for structures shall be Hot dip Galvanized Mild Steel conformed to IS 2062:1992 or aluminum of suitable grade minimum alloy 6063 or better.

8.7. The minimum thickness of galvanization for hot dip Galvanized Mild Steel should be at least 80 microns as per IS 4759.

8.8. The Bolts, Nuts, fasteners, and clamps used for panel mounting shall be of Stainless Steel SS 304.

8.9. No Welding is allowed on the mounting structure

8.10. Aluminium structures used shall be protected against rusting either

by coating or anodization.

8.11. Aluminium frames should be avoided for installations in coastal areas.

8.12. The structure shall be designed to withstand operating environmental conditions for a period of minimum 25 years. And shall be free from corrosion while installation.

8.13. Screw fasteners shall use existing mounting holes provided by module manufacturer. No additional holes shall be drilled on module frames.

8.14 The total load of the structure (when installed with PV modules) on the terrace should be less than 60 kg/m<sup>2</sup>.

8.15. Minimum distance between the lower level of PV Module and the ground shall be 0.6m from the ground level.

8.16 The PV Panel area shall be accessible for cleaning and for any repair work.

8.17. Sufficient gap need to be provided between the rows to avoid falling of shadow of one row on the next row. Seismic factors for the site will be considered while making the design of the foundation.

8.18. Adequate spacing shall be provided between any two modules secured on PV panel for improved wind resistance.

8.19. Installation of structure for solar PV mounting should not tamper with the water proofing of the roofs.

8.20. The Structural Drawing of the Module Mounting Structure is as per Annexure II-H

8.21. The above drawing is specific for RCC flat roofs and may vary for slope roofs. However the drawings shall be approved by concerned Technical Officer before installing the plant

## **9. SOLAR METER and NETMETER**

### **Solar Meter:**

A separate Energy Meter called Solar Meter shall be provided at the output of PCU to record the energy generation from the Solar System. (This energy meter should not be integrated with PCU). Solar energy meter means a unidirectional meter to be installed at the delivery point of the solar energy system to measure the solar electricity generated. This Energy Meter should be tested along with the Net Meter (Import-Export Meter).

### **Net meter:**

As per Kerala State Electricity Regulatory Commission (Renewable Energy and Net Metering) Regulations 2020, net metering system is to be provided to the solar consumer. Net meter means the bidirectional energy meter to

be installed at the interconnection point of the consumer with the network of distribution licensee

Energy meters shall be installed and maintained in accordance with the provisions of The Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time. The Contractor shall maintain the Metering System as per metering code and CEA guidelines. The defective meter shall be immediately tested and rectified/replaced.

A solar meter and bidirectional energy meter suitable for the installed solar plant shall be supplied and installed by the contractor after testing and sealing from respective TMR Divisions of KSEB Ltd. Energy Meters must be provided with the necessary data cables if required.

The solar energy meter and net energy meter shall be of accuracy as given and CT and PT shall be utilized according to CEA metering regulations 2006 and its amendment.

Capacity	Type of Operation	Class Accuracy	
		Solar Meter	Net Meter
Up to 35 kWp	LT Whole Current Meter 10-60A	1.0 (LT)	1.0 LT
Above 35 kWp & below 100 kWp	CT operated Meter	0.5s	0.5 s
100 kWp and above	CT operated meter	0.5 s	0.5s

Meters shall be microprocessor based conforming IEC 60687 / IEC 6205211 / IEC 62053-22 / IS 14697 and solar energy meter or its display shall be placed adjacent to net energy meter.

Display parameters : LCD test, kWh import, kWh export, MD in kW export, MD in kW import, Date & Time, AC current and voltages and power factor (Cumulative kWh will be indicated continuously by default & other parameters through push-button). The solar energy meters and net energy meters should be DLMS compliant and AMR compatible with RS 485 communication port for measurement of specified electrical parameters.

The solar energy meters shall be provided with two ports for communication of the measured / collected data. One port compatible with RS 485 specifications, which shall be used for remote access through suitable GPRS modem. The other port shall be an optical port complying with hardware specifications detailed in IEC 62056-21.

Preferred model/ make:- Schneider/ Secure/ Genus or higher end model

## 10. EARTHING

The Solar PV Plant should have a dedicated earthing system. The Earthing for array and LT power shall be made as per the provisions of **IS:3043-2018** “Code of practice for earthing (Second Revision),” that governs the earthing practices of a PV system and **IS 732:2019** “Code of practice for electrical wiring installations (Fourth Revision)

10.1. Earthing System shall connect all non –current carrying metal receptacles, electrical boxes, appliance frames, chassis and PV module mounting structures in one long run. The earth strips should not be bolted. **Earthing GI strips/ (or Copper equivalent area of cross section)** shall be interconnected by proper welding.

10.2. The earthing conductor should be rated for 1.56 times the maximum short circuit current of the PV array. The factor 1.56 considers 25 percent as a safety factor and 25 percent as albedo factor to protect from any unaccounted external reflection onto the PV modules increasing its current

10.3. In any case, the cross-section area or the earthing conductor for PV equipment should not be less than 6 mm<sup>2</sup> if copper, 10 mm<sup>2</sup> if aluminium or 70 mm<sup>2</sup> if hot-dipped galvanized iron. For the earthing of lightning arrester, cross-section of the earthing conductor should not be less than **16 mm<sup>2</sup> of copper or 70 mm<sup>2</sup> if hot-dipped galvanized iron**. The complete Earthing system shall be mechanically & electrically connected to provide independent return to earth.

10.4. Masonry enclosure with the earth pit of size not less than 400mm X 400 mm (depth) complete with cemented brick work (1:6) of minimum 150mm width duly plastered with cement mortar (inside) shall be provided. Hinged inspection covers of size not less than 300mm X 300mm with locking arrangement shall be provided. Suitable handle shall be provided on the cover by means of welding a rod on top of the cover for future maintenance.

10.5. Minimum four (04) numbers of interconnected earth pit needs to be provided in each location. Minimum required gap shall be provided in between earth pits as per the relevant standard. Body earthing shall be provided in inverter, each panel frame, module mounting structure, and kiosk and in any other item as required.

Earth pit shall be constructed as per IS: 3043-2018. Electrodes shall be embedded below permanent moisture level.. Earth pits shall be treated with salt and charcoal if average resistance of soil is more than 20 ohm meter

10.6. Earth resistance shall not be more than **5 ohms**. Earthing system must be interconnected through **GI strip/ Cu strip** to arrive equi-potential bonding. The size of the GI earth strip must be minimum **25mm X 6mm/ meeting the equivalent “Cu”area**.



10.7. In compliance to Rule 11 & 61 Of Indian Electricity Rules,1956(as amended up to date), all non-current carrying metal parts shall be Earthing with two separate and distinct earth continuity conductors to an efficient earth electrode.

10.8. The equipment grounding wire shall be connected to earth strip by proper fixing arrangement. Each strip shall be continued up to at least 500mm from the equipment.

10.9. Necessary provisions shall be made for bolted isolating joints of each earthing pit for periodic checking of earth resistance.

10.10. For each earth pit, a necessary test point shall be provided.

10.11. Total no of Earth pits for solar plants:

i. Up to 50kWp: AC-01, DC-02, LA-01

ii. Above 50kWp: AC-02, DC-02, LA-01

**10.12. The bidder shall submit the detailed specification and drawings for the Earthing arrangements.**

## **11. LIGHTNING PROTECTION**

The SPV power plant should be provided with lightning and over voltage protection. The source of over voltage can be lightning or other atmospheric disturbance. The lightning conductors shall be made as per applicable Indian Standards in order to protect the entire array yard from lightning stroke.

The design and specification shall conform to **IS/IEC 62305, “Protection against lightning”** govern all lightning protection-related practices of a PV system

11.1. The entire space occupying SPV array shall be suitably protected against lightning by deploying required number of lightning arresters. Lightning protection should be provided as per IS/ IEC 62305.

11.2. Lightning system shall comprise of air terminations, down conductors, test links, earth electrode etc. as per approved drawings.

11.3. The protection against induced high voltages shall be provided by the use of surge protection devices (SPDs) and the earthing terminal of the SPD shall be connected to the earth through the earthing system.

11.4. The EPC Contractor / Company shall submit the drawings and detailed specifications of the PV array lightning protection equipment to Employer for approval before installation of system.

## **12. ARRAY JUNCTION BOX (AJB)/ STRING COMBINER BOX (SCB)**

AJB shall be provided as per the design requirement of the Inverter, if required. AJB comprises of an enclosure, copper bus bars, Fuses, Surge Protection Device (SPD) and Isolator. DC generated by the solar modules is transmitted through the appropriate cables from Array Yard to Control facility. AJB bus & panel shall be provided for the incoming DC supply from array yard.

AJB, if required, should be equipped with an adequate capacity indoor DC circuit breaker along with control circuit, protection relays, fuses, etc.

AJB, if required, shall have sheet from enclosure of dust and vermin proof, the bus bar / cables are to be made of copper of desired size.

The Array Junction Boxes are to be provided in the PV array for termination of connecting cables. The Array Junction Boxes shall be made of GRP/FRP/with full dust, water& vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JB's shall be such that input & output termination can be made through suitable cable glands.

12.1. Suitable markings shall be provided on the bus bar for easy identification and the cable ferrules must be fitted at the cable termination points for identification.

12.2. Copper bus bars/terminal blocks housed in the junction box with suitable termination threads conforming to IP 65 standard to prevent water entry, Single/ double compression cable glands, provision of earthing. It should be placed at a height suitable for ease of accessibility.

12.3. Each Junction Box shall have high quality Suitable capacity Metal Oxide Varistors (MOVs)/ SPDs. The Surge Protective Device shall be of Type 2 as per IEC 60364-5-53

12.4. The junction Boxes shall have suitable arrangement for the followings (typical):-Combine groups of modules into independent charging sub-arrays that will be wired into the controller. The Junction Boxes shall have arrangements for disconnection for each group and attest point for subgroup for fault location. AJB/SCB shall be wired with optical fibre cables for enabling data collection for PV Plants from 100kWp onwards.

12.5. The current carrying ratings of the string combiner box/ junction box shall be suitable with adequate safety factor, to inter connect the Solar PV array.

12.6. All fuses shall have DIN rail mountable fuse holders and shall be housed in thermoplastic IP65 enclosures with transparent covers.

12.7. Fuse for both positive and negative inputs of each string, Isolator of MCB, SPD of type 2 shall be provided.

12.8. The surge arresters shall be type 2 (with reference to IEC 61643-1) rated at a continuous operating voltage of at least 125 percentages of the open-circuit voltage of the PV string, and a flash current of more than 5A.

12.9. Not more than two strings can be connected in parallel to a single input of SCB/AJB. One spare input terminal along with connector shall be

provided for each SCB/AJB.

12.10. Every SCB/AJB input shall be provided with fuses on both positive and negative side.

12.11. DC switch disconnecter of suitable rating shall be provided at AJB/SCB output to disconnect both positive and negative side simultaneously.

### **13. AC DISTRIBUTION BOARD**

AC Distribution Board (ACDB) shall control the AC power from inverter and should have necessary surge arrestors.

An ACDB panel shall be provided in between PCU and Utility grid. It shall have MCB/MCCB/ACB or circuit breaker of suitable rating for connection and disconnection of PCU from grid.

13.1 The connection between ACDB and Utility grid shall be of standard cable/ Conductor with suitable termination. It shall have provision to measure grid voltage, current and power.

13.2 The incomer shall be selected at required rating. The ACDB enclosure shall be of good protection and suitable for mounting on the trenches / on wall.

13.3 All the 415 V AC or 230 V AC devices/equipment like bus support insulators, circuit breakers, SFU isolators (if applicable), SPD, etc. mounted inside the switch gear shall be suitable for continuous operation

13.4 Switches/ circuit breakers/ connectors meeting general requirements and safety measurements as per IS 60947 Part I, II, III and IEC 60947 part I, II and III.

13.5 Junction boxes, enclosures, panels for inverters/ Controllers shall meet IP 54 (for outdoor)/ IP 65 (for indoor) as per IEC 529.

### **14. AC/DC CABLING**

Cabling is required for wiring from AC output of inverter/PCU to the Grid Interconnection point. It includes the DC cabling from Solar Array to AJB and from AJB to inverter input.

14.1. All cables of appropriate size to be used in the system shall have the following characteristic:

- a. Shall conform to IEC 60227 / IS 694 & IEC 60502 / IS 1554 standards.
- b. Temperature Range: -10 degree Celsius to +80 degree Celsius
- c. Voltage rating: 660/1000V

d. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation

e. Flexible

14.2. Sizes of cables between any array interconnections, array to junction boxes, junction boxes to inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum (2%).

14.3. The length of exceeding **25m** ( Actual length required for interconnection to be provided by the bidder) **of AC cable** from Inverter to ACDB and to the Grid connection point shall be borne by the customer.

13.4. For the DC cabling, XLPE or XLPO insulated and sheathed, UV stabilized single core flexible copper cables shall be used; Multi-core cables shall not be used.

14.5. For the AC cabling, PVC or XLPE insulated and PVC sheathed single or, multi-core flexible copper cables shall be used. However, for above 25kWp systems, XLPE insulated Aluminium cable of suitable area of cross section can be used in the AC side subject to a **minimum area of cross section of 10 mm<sup>2</sup> size**. Outdoor AC cables shall have a UV -stabilized outer sheath IS/IEC 69947.

14.6. All LT XLPE cables shall conform to IS: 7098 part I&II.

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

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

14.9. The DC cables from the SPV module array shall run through a UV-stabilized PVC conduit pipe of adequate diameter with a minimum wall thickness of 1.5mm

14.10. Cables and wires used for the interconnection of solar PV modules shall be provided with solar PV connectors (MC4) and couplers

14.11. All cables and conduit pipes shall be clamped to the rooftop, walls and ceilings with thermo-plastic clamps at intervals not exceeding 50cm; the minimum DC cables size shall be **4.0mm<sup>2</sup> copper & the minimum AC cable size shall be 4.0mm<sup>2</sup> copper/ equivalent area cross section Electrolytic stranded Aluminium cable can be used** . In three phase systems, the size of the neutral wire size shall be equal to the size of the phase wires.

14.12. Cable Marking: All cable/wires are to be marked in proper manner by good quality ferule or by other means so that the cable can be easily identified. The following color code shall be used for cable wires

a. DC positive: red (the outer PVC sheath can be black with a red line marking

b. DC negative: black

- c. AC single phase: Phase: red; Neutral: black
- d. AC three phase: phases: red, yellow, blue; neutral: black
- e. Earth wires: green

14.13. Cables and conduits that have to pass through walls or ceilings shall be taken through PVC pipe sleeve.

14.14. Cable conductors shall be terminated with tinned copper end ferrules to prevent fraying and breaking of individual wire strands. The termination of the DC and AC cables at the Solar Grid Inverter shall be done as per instructions of the manufacturer, which in most cases will include the use of special connectors.

14.15. All cables and connectors used for installation of solar field must be of solar grade which can withstand harsh environment conditions including high temperatures, UV radiation, rain, humidity, dirt, salt, burial and attack by moss and microbes' for 25 years and voltages as per latest IEC standards. DC cables used from solar modules to array junction box shall solar grade copper (Cu) with XLPO insulation and rated for 1.1 kV as per relevant standards only.

14.16. Bending radii for cables shall be as per manufactures recommendations and IS: 1255.

14.17. For laying/termination of cables latest BIS/IEC Codes/ standards shall be followed.

## **15. CIVIL WORKS**

Existing shade-free roof-top space shall be used to install Solar PV array. While installing solar power plants on rooftops, the physical condition of the rooftop, chances of shading, chances water level rise in the rooftop during raining due improper drainage in the roof-top should be taken in to consideration.

15.1. PV array shall be installed in the terrace space free from any obstruction and/or shadow and to minimize effects of shadows due to adjacent PV panel rows.

15.2. PV array shall be oriented in the south direction in order to maximize annual energy yield of the plant.

15.3. The solar PV array must be installed on the rooftop in such a way that there is sufficient space on the rooftop for maintenance etc.

15.4. There should not be any damage what so ever to the rooftop due to setting up of the solar power plant so that on a later day there is leakage of rainwater, etc. from the rooftop.

15.5. Some civil works are inevitable for erecting the footings for the

module mounting structure as discussed in Module Mounting Structure section. The roof top may be given a suitable grading plaster with suitable leak proof compound so as to render the roof entirely leaking proof.

15.6. Ample clearance shall be provided in the layout of the inverter and DC/AC distribution boxes for adequate cooling and ease of maintenance.

15.7. While cabling the array, care must be taken such that no loose cables lie on the rooftops.

15.8. The roof top should look clean and tidy after installation of the array.

15.9. Neatness, tidiness and aesthetics must be observed while installing the systems.

15.10. RCC Works - All RCC works shall be as per IS 456 and the materials used viz. Cement reinforcement, steel etc. shall be as per relevant IS standards. Reinforcement shall be high strength TMT Fe 415 or Fe 500 conforming to IS: 1786-1985.

15.11. Brick Works (If any) - All brick works shall be using 1st class bricks of approved quality as per IS 3102.

15.12. Plastering - Plastering in cement mortar 1:5, 1:6 and 1:3 shall be applied to all.

15.13. Display of mandatory items- Single Line Diagram and layout diagram of modules and interconnection at installation site shall be provided near the inverter for greater than 10 kWp systems.

15.14. For painting on concrete, masonry and plastered surface IS: 2395 shall be followed. For distempering IS 427 shall be followed referred. For synthetic enamel painting IS 428 shall be followed. For cement painting IS 5410 shall be followed.

15.15. All Civil works required for the installation of the PV Plant and other civil and electrical work in evacuation infrastructure, wherever necessary, shall be within the scope of the bidder

15.16. The layout of Inverter accommodation shall be designed to enable adequate heat dissipation and availability. Mount within the existing infrastructure available in consultation with the Site in charge. String Inverters may be installed with Canopy type structure over it to protect it from frequent monsoon and weather changes.

**Note:- 1.** AC panel required for interconnection for solar generation to KSEB and net work on LV side shall be through separate distribution panel provided by KCMMF being there is no spare feeder panel available in the plant

**Note :-2.** Remote monitoring facility features required for viewing at the office. Provision in the inverter can be utilized-necessary Wi-fi/LAN shall be extended up to the inverter point by KCMMF.

## 16. CONNECTIVITY

The output of the Solar Power Conditioning Unit has to be connected to the Main ACDB in the building

SL. NO	Plant Capacity	Connecting Voltage
1	Up to 10 kWp	240V-single phase or 415V-three phase
2	Above 10kWp and up to 100 kWp	415V – three phase or higher at the option available
3	Above 100 kWp	At HT/EHT level (11kV/33kV/66kV)

## 17. GENERAL PROCEDURES FOR PROJECTS:-

The projects to be strictly executed as per the direction of the KCMMF official or Engineer in charges and based on approved schemes.

## 18. PERMISSION AND PROCEDURES FOR THE CONNECTIVITY GRID CONNECTED SOLAR POWER PLANTS PUBLISHED BY KSEBL

18.1 The procedures for Grid Connectivity of the PV Plants for capacities from 1kWp to 1MWp is as per the KSEBL Circular No. CE (REES)/Escot /AEE6/Solar-General/16-17/766(1) Dt. 09-09-2016 and its Amendments.

18.2 The beneficiary shall obtain a feasibility certificate by submitting an application form along with the documents and a fee of Rs 1000/-as per the Annexure-I form of KSEBL.

18.3 The Feasibility certificate has a validity of one month.

18.4 For LT feeder 75% of the transformer capacity will be permitted for connecting the Grid tied PV power plant whereas it is 80% for the 11kV feeder as per KSERC (Renewable Energy and Net Metering) Regulations, 2020 Dt. 07-02-2020.

18.5 Within the period of one month, application of the registration of installed PV power plant should be submitted for which the section office, KSEBL has to appeal for any further clarification within 3 working days.

18.6 After submitting all the documents and clarification required by KSEBL, the applicant has to pay Registration fee of Rs 1000/-per kW to KSEBL (Eg: If the plant size is 3.65kW then it will be considered as 4kW and the applicant has to pay a sum of Rs 4000/-) to acquire a SPIN (Solar Plant Identification Number). For example, 5501-00001 where 5501 is the section office code for the locality and 00001 is the solar plant number.

18.7 The PV power plant has to be installed within 2 months from the date of registration. Tendering authority can approve for an extension the term of registration to another 2 months upon the request of applicant, if found necessary.

18.8 If the applicant withdraws the registration without any valid reason, the amount will not be reimbursed.

18.9 80% of the amount of fee of solar PV plant registration will be refunded by KSEBL if the applicant has installed the PV plant within the term of 6 months from the date of registration.

18.10 Request for the cancellation of Registration by the applicant will be verified by the Assistant Engineer, KSEBL and a decision will be taken on this by division Executive Engineer, KSEBL and 80% of the amount shall be reimbursed based upon the recommendation of Assistant Engineer.

18.11 The application for testing of the installed PV power plant has to be submitted at the Electrical Section office. For plant capacities above 10kWp the application must be submitted along with Energization Certificate from Electrical Inspectorate and for the plant capacities below 10kWp the application must be submitted along with a Completion Report of a Certified Electrical Contractor. The minimum qualification for carrying out the installation work of a PV Plant shall be a B-Class contractor licensee and depending upon the capacity of installation, eligible contractors can carryout the work. (Circular no. B2-13958/2017/CEI Dtd 24.07.2018. No fees shall be remitted for pre commissioning or routine tests.

18.12 The officials from Electrical Inspectorate and KSEBL will visit the site on the schedule day within 10 days from the date of application with prior notice to the beneficiary.

18.13 The test will be carried out for parameters like:

a. Anti-Islanding

b. Harmonics Current Injection

c. Direct Current Injection and Flicker

18.14 Test Certificate for Solar Plant Installation as per annexure 9 of KSEBL order will be issued by the Assistant Engineer, once the PV plants is successfully performing as per the standards

18.15 Agreement for Connecting Solar Energy System as per Annexure 10 of KSEBL order shall be signed between KSEBL and the applicant as per the Annexure 11 (KSEBL Order) in which the capacity of the net meter should be mentioned.

18.16 Then a Net meter and a Solar meter shall be installed for the plant within 7 days which shall be either bought by the applicant or rented by the



KSEBL. The tariff of rent will be as per Annexure 12 of the KSEBL order. The applicant shall submit Test Certificates from NABL or KSEBL test labs for the Net meter and Solar meter purchased.

18.17 The import and export will be calculated based upon the Net meter installed at the site of the consumer for which the reading will be taken on every month from the Net meter and Solar meter.

## **19. WARRANTY**

- (i) 5 years system warranty should be provided by the EPC contractor for the equipment and the components installed.
- (ii) The successful bidder should submit the copies of the Warrantee Certificates for the on-site warrantee provided by the OEM for the important components like PV Modules, Inverters, and Junction Boxes etc.
- (iii) The Warrantee/CMC modalities is between the customer and the EPC Company

## **20. OPERATION MANUAL**

An Operation, Instruction and Maintenance Manual, should be provided with the system. The following minimum details must be provided in the manual:

- About solar power plant –its components and expected performance.
- DO's and DON'T's
- Cleaning of Solar PV Modules in regular intervals
- Clear instructions on regular maintenance and troubleshooting of solar power plant
- AS built Drawings for the Installation
- OEM Warrantee Certificates of Inverters, PV Modules, Batteries etc.
- Specification of PV Plant
- Data Sheets of major equipment like PV Module, Inverter etc.
- Name and address of the E.P.C Contractor and the contract person in case of non-functionality of the solar power plant.

**21. BILL OF MATERIALS ( GTP)**

The EPC Contractor should provide the bill of material mentioning the quantity of each of the item consisting in the system, for the projects they are undertaking/ offer submitted based on the bid invited by KCMMF in the following format as below.

**TABLE 1**

Sl.No.	Items	Make	Model No& individual capacity	Qty No	Rating/ capacity
1	PV Module				
2	PCU/ Inverter				
3	DC Cables				
4	AC Cables				
5	AJB/ SCB				
6	Module Mounting structure				
7	ACDB				
8	Lightning Arrester				
9	Earthing System details and N of Earth pipe				
10	Data Acquisition systems including Solar meter & net metering				

**22. SITE INSPECTION**

The EPC Contractor should visit site / sites for the checking the feasibility before proceeding. With bid submission

**23. DRAWINGS AND DOCUMENTS**

Once the work is awarded the EPC contractor must submit drawings/documents required by statutory authorities and obtain the approval before the installation.

- i) Schematic drawing showing the PV panels, Power conditioning Unit(s)/Inverter, Array Junction Boxes (AJBs)/String Combiner Boxes (SJB), AC and DC Distribution Box, Net meters, MSB etc.
- ii) Layout of solar PV array
- iii) Single Line diagram (SLD) with specification of all the components.
- iv) Design document of the module mounting structure including wind wing speed withstanding capacity of the structure.
- v) Module mounting structure drawing along with foundation drawing.
- vi) Sizes and specification of cables for PV Module interconnections. PV array to Array junction boxes. Array Junction boxes to inverter, Inverter to ACDB/ Grid connection point etc shall be furnished

The Contractor shall submit PVsyst report for PV power plants from 25 kWp and above. All PV plant design should contain the following details which should be approved by KCMMF official before the installation.

- i. Design of strings including the number of PV modules in series and number strings.
- ii. AC protection ( Circuit Breaker, switches, Fuses, SPD)
- iii. DC Protection ( switches, Fuses, SPD)
- iv. AJB/ SCB details
- v. DC cable size and length from point to point
- vi. Earthing system details and number of pits
- vii. Lightning protection details/ specification
- viii. PV System Simulation Report for above 25 kWp

#### 24 Additional Monthly Maintenance/ AMC Charges

The proposed factory site at Pattanakkad is highly polluted due to the flying of fine particle of the cattle feed, there is greater chance to accumulate dust on the SPV. Hence additional monthly maintenance including full washing of the PV module may require for obtain maximum generation. Hence the Bidder may quote for the AMC charges separately in addition to the committed regular maintenance & up keeping up to the 5 year full warranty period.

**MANAGING DIRECTOR**

**Part VI- FORMS and DECLARATIONS**

**1. FORM OF TENDER**

Name of Work:

To

**Managing Director, KCMMF, Pattom. P.O, TVM**

Sir,

1. I/We do hereby tender to execute the works enumerated in the Schedule accompanying in accordance with the terms in your tender Notification \_\_\_\_\_ date.....and specifications and conditions of contract in the bidding document.

2. Copy of the electronically signed specifications signed is also enclosed.

3. I/We further agree to complete the whole work in..... weeks/months from date of receipt of order to start work, and / or in the case of piece-works, maintain the minimum rate or progress specified in the Tender Schedule.

4. I/We do/do not agree to accept and carry out such portion of the work included in my/our tender as may be allotted to me /us if the whole work be not given to me/us.

5. In consideration I/We being registered as a Bidder in the Kerala PWD/ KCMMF/ Utility and invited to tender, I/We agree to keep the tender open for acceptance.....days from the date of submission thereof and not to make any modifications in its terms and conditions which are not acceptable to the KCMMF.

6. I/We agree that Arbitration shall not be a means of settlement of any disputes or claims arising out of the contract relating to the work. A sum of Rs..... is hereby remitted online on the e-GP web site as Earnest Money. If I/We fail to keep the tender open as aforesaid or make any modifications in that terms and conditions of the tender which are not acceptable to the KCMMF

OR

If after tender is accepted, I/We fail to execute the agreement as provided in clause \_\_\_ of tender notifications or to commence the execution of the work as provided in the conditions. I/We agree that the government shall , without 108 prejudice to any other right or remedy be at liberty to forfeit the said earnest money absolutely and also recover from me/us the entire loss that may be caused to the KCMMF t by the re-tender or rearrangement of the work or otherwise under the provision of the Revenue Recovery Act or otherwise.

Acc:

- i. Tender Schedule (submitted with Financial Bid) :
- ii. Earnest Money Rs.....
- iii. Signed copy of full tender/bid documents:
- iv. Signed copy of drawings :

Nationality:

Signature  
Full Name of Bidder:

Place of Residence:

## 2. PRELIMINARY AGREEMENT FORMAT

### PRELIMINARY AGREEMENT ( BID Agreement)

(To be executed on stamp per Rs.200/-)

Preliminary Agreement entered into on this ..... day of

..... Two thousand and ..... between  
.....<Tender Inviting Authority> for and on  
behalf of

the Governor of Kerala (hereinafter called for the KCMMF Ltd.) of the one part and  
Sri.....

.....  
...

..... (here enter full name and address of the Bidder)  
hereinafter called the Bidder of the other part for the execution of the agreement as  
well as for the execution of the work

.....  
.....

WHEREAS the KCMMF Ltd. invited tenders for the work of  
..... 109

.....(here  
enter name of the work) by Notification No.....Dated  
.....in the ..... I/We  
undersigned hereby offer to construct the proposed work in strict accordance with  
the contract/bid document for the consideration to be calculated in terms of the  
priced schedule of quantities.

I/We undertake to complete the whole of the works as per the attached schedule  
from the date of issue of intimation by you that our tender has been accepted and  
upon being permitted to enter site. I/We further undertake that on failure, subject  
to the conditions of the contract relating to extension of time, I/We shall pay  
agreed 'Liquidated Damages' for the period during which the work shall remain  
incomplete.

I/We hereby deposit with you as Earnest money Rs. \_\_\_\_ /- (Rupees \_\_\_\_)  
[carrying no interest] by means of online payment in the e-GP web site of Kerala in  
favour of <tender inviting authority> and I/We agree that this sum shall be  
forfeited in the event of the Employer accepting my/our tender and I/We fail to  
take up the contract when called upon to do so as per clause 3.6.6 and 7 of ITB of  
the bid document.

I/We further agree for the deduction of 2.5% from the 'Interim Payment/RA Bill'  
and up to a maximum of 2.5% of the contract value towards the 'Performance  
Security Deposit', which will be returned as per the relevant clauses in the  
agreement. I/We will furnish the Performance Guarantee Bond as per the  
approved format, if our bid is accepted. Bid Security deposited shall be treated as  
security for the proper fulfillment of the same and shall execute an agreement for  
the work in the prescribed form. If I/We fails to do this or maintain a specified rate  
of progress (as specified in the Milestone details of contract data in the bid

document), the performance guarantee (both treasury fixed deposit and irrevocable bank Guarantee) and Performance Security Deposit if any deducted from the RA Bills shall be forfeited to KCMMF Ltd. and fresh tenders shall be called for or the matter otherwise disposed off. If as a result of such measures due to the default of the Bidder to pay the requisite deposit, sign contract or take possession of the work any loss to KCMMF Ltd. due to the same will be recovered from me/us as arrears of revenue, but should it be a saving to KCMMF Ltd.. I/We shall have no claim whatever to the difference. Recoveries on this or any other account will be made from the sum that may be due to us on this or any or other subsisting contracts or under the

Revenue Recovery act or otherwise the KCMMF Ltd. may decide.

I/We further agree that, in the case of becoming the lowest bidder in this tender and in the event of failure on part of me/us to produce any of the original documents, or submit the performance guarantee, or enter into agreement with the first part within the specified time limit, the first part may take appropriate action as provided in the bid document. In such a situation, if the second lowest bidder gets awarded with the work at his quoted rate, I shall agree to pay to the first part compensation towards the loss on account of award of work at a higher amount. Recoveries on this or any other account will be made from the sum that may be due to us on this or any or other subsisting contracts or under the Revenue Recovery act or otherwise the KCMMF Ltd. may decide.

NOW THEREFOR IN THE PRESENCE OF WITNESS it is mutually agreed as follows.

1) The terms and conditions for the said contract having been stipulated in the said tender document and forms to which the I/We have agreed and a copy of which is here to be appended which forms the part of this agreement, it is agreed that the terms and conditions stipulated therein shall bind the parties to this agreement except to the extent to which they are abrogated or altered by express terms and conditions herein agreed to and in which respect the express provisions herein shall supersede those of said tender form.

2) The I/We hereby agreed and undertake to perform and fulfill all the operations and obligations connected with the execution of the said contract work .....

..... (hereinafter the name of the work) if awarded in favor of the me/us.) 3) If the Bidder does not come forward and to execute the original agreement after the said work is awarded and selection notice issued in his favor or commits breach of any of the conditions of the contract as stipulated in clause of the notice inviting tenders as quoted above, within the period stipulated then the KCMMF Ltd. may rearrange the work otherwise or get it done departmentally at the risk and the cost of the Bidder and the loss so sustained by the KCMMF Ltd. can be realized from the Bidder under the Revenue recovery Act as if arrears of land revenue as assessed quantified and fixed by an adjudicating authority consisting of the Secretary Public works, Chief Engineer (Admn) or any other officer or officers authorized by KCMMF Ltd. in this behalf, taking into consideration the prevailing P.W.D rates and after giving due notice to the Bidder. The decision taken by such authority officer or officers shall be final and conclusive and shall be binding on the Bidder.

4) The Bidder further agrees that any amount found due to the KCMMF Ltd. under or by virtue of this agreement shall be recoverable from the Bidder from his EMD

and his properties movable and immovable as arrears of Land Revenue under the provision of the Revenue Recovery Act for the time being in force or in any other manner as the KCMMF Ltd. may deem fit in this regard.

5) The Bidder further assures that it is clearly understood that the settlement of claims either by part bills or by final bills will be made only according to the availability of budget provision and allotment of funds made with the Divisional officer in charge of the work under the respective heads of account in which the work is sanctioned and arranged and also subject to the seniority of such bills. No claims for interest or for damages whatsoever shall be made for the related settlement of claims of bills.

IN WITNESS THERE OF SRI.....  
..... (here enter the name of the officers of the Department ) for  
on behalf of the Governor of Kerala State and .....

..... the  
Bidder have set their hand on the day and year first above written  
Signed by Sri.....(officer / Officers of Public Works  
Department)

In the presence of witnesses:

- 1.
- 2.

Signed and delivered by .....(Bidder) in the presence of

- 1.
- 2.

### 3. Format for Integrity Pact

(Certificate to be furnished by the bidder with the tender document downloaded from e-GP Website)

#### **CERTIFICATE**

I/We..... undertake that the tender submitted by us is downloaded from e-GP Website ([www.etenders.kereala.gov.in](http://www.etenders.kereala.gov.in)) and is same in content and form (verbatim), and any deviation, if detected, at any stage, would entitle the Employer to reject our bidding/ offer without assigning any reason or recourse to any penal action and would be legally binding on us.

Signature.....(of tenderer)

Seal.....



**4. Format for Affidavit**

Non-Judicial Stamp Paper

**AFFIDAVIT**

1. I/We, ....., bidder/Partner/Legal Attorney/Accredited Representative of M/s ..... solemnly declare that: 1. I/We are submitting Tender for the Work ..... against Tender Notice No..... dated .....
2. None of the Partners of our firm is relative of employee of .....  
(Name of the Employer) who is involved with the arrangement and execution of this work.
3. All information furnished by us in respect of fulfillment of eligibility criteria and qualification information of this Tender is complete, correct and true.
4. All documents/credentials submitted along with this Tender are genuine, authentic, true and valid.
5. I/we undertake to deploy all plant and machinery, tools and tackles, man and materials etc. as required for execution of the work.
6. I/We hereby declare that I/We have perused in detail and examined closely the Central Public Works Department Specifications, Revised Kerala PWD Manual-2012, Kerala PWD Quality Manual and Laboratory Manual/ General practice of KCMMF Ltd., before I/We submit the tender/ bid and I/We agree to be bound by and comply with all such specifications and requirements.
7. If any information and document submitted is found to be false/incorrect at any time,  
department may cancel my/our Tender and action as deemed fit may be taken against us, including termination of contract, forfeiture of all dues including Earnest Money, revoking of Bank Guarantees and banning/delisting of our firm and all partners of the firm etc.

Signature of the Tenderer,

Seal of Notary Dated .....

## 5. Form of Performance Guarantee by Bank (SD)

- 1) This deed of Guarantee made on the day of ..... (Month & year) between Bank of..... (hereinafter called the "Bank") represented by \_\_\_\_\_(name of authorised signatory ) of the one part, and the <tender inviting authority> (hereinafter called "the Employer") represented by \_\_\_\_\_(name) of the other part.
- 2) Whereas Employer has awarded the contract for ..... (Name of work as per Notice Inviting Tender) (hereinafter called the contract) to ..... (Name of the Contractor) hereinafter called the "Contractor".
- 3) AND WHEREAS the Contractor is bound by the said Contract to submit to the Employer a Performance Guarantee for a total amount of .....(Amount in figures and words).
- 4) Now we the Undersigned ..... (Name of the Bank and Branch) being fully authorized to sign and to incur obligations for and on behalf of and in the name of..... (Full name of Bank), hereby declare that the said Bank will guarantee the Employer the full amount of ` ..... (Amount in figures and Words) as stated above.
- 5) After the Contractor has signed the aforementioned Contract with the Employer, the Bank is engaged to pay the Employer, any amount up to and inclusive of the aforementioned full amount upon written order from the Employer to indemnify the Employer for any liability of damage resulting from any defects or shortcomings of the Contractor or the debts he may have incurred to any parties involved in the Works under the Contract mentioned above, whether these defects or shortcomings or debts are actual or estimated or expected. The Bank will deliver the money required by the Employer immediately on demand without delay and demur and without reference to the Contractor and without the necessity of a previous notice or of judicial or administrative procedures and without it being necessary to prove to the Bank the liability or damages resulting from any defects or shortcomings or debts of the Contractor. The Bank shall pay to the Employer any money so demanded notwithstanding any dispute/disputes raised by the Contractor in any suit or proceedings pending before any Court, Tribunal or Arbitrator/s relating thereto and the liability under this guarantee shall be absolute and unequivocal.
- 6) This Guarantee is valid till ..... (valid till 28(twenty-eight) days from the completion of defects liability period as per clause \_\_\_ of bidding document).
- 7) At any time during the period in which this Guarantee is still valid, if the Employer agrees to grant a time extension to the Contractor or if the Contractor fails to complete the Works within the time of completion as stated in the Contract, or fails to discharge himself of the liability or damages or debts as stated under Para 5, above, it is understood that the Bank will extend this

- Guarantee under the same conditions for the required time on demand by the Employer and at the cost of the Contractor.
- 8) The Guarantee hereinbefore contained shall not be affected by any change in the Constitution of the Bank or of the Contractor.
  - 9) The neglect or forbearance of the Employer in enforcement of payment of any moneys, the payment whereof is intended to be hereby secured or the giving of time by the Employer for the payment hereof shall in no way relieve the bank of their liability under this deed.
  - 10) The expressions "the Employer", "the Bank" and "the Contractor" hereinbefore used shall include their respective successors and assigns.
  - 11) Notwithstanding anything contained herein:
    - a) Our liability under this Bank Guarantee shall not exceed .....(Rupees.....)
    - b) This Bank Guarantee shall be valid up to .....

IN WITNESS WHEREOF

I/We of the bank have signed and sealed this guarantee on the ..... day of ..... (Month & year) being herewith duly authorized. For and on behalf of the..... Bank.

Signature of Authorized Bank official

Name: .....

Designation: .....

Stamp/Seal of the Bank: .....

Signed, sealed and delivered for and on behalf of the Bank by the above named .....

in the presence of :

Witness 1.

Witness 2.

Signature .....  
 Name .....  
 Address .....

Signature .....  
 Name .....  
 Address .....

## 6. Requisition Form for e-Payment

Requisition for e-Payment

[To be attached with tender form as per G.O (P) No.06/2012/PWD dated 10/01/2012]

Certified that I am having a Savings / Current Account in <Name of Bank> at <Name of

Branch> with IFSC Code \_\_\_\_\_

The Account Number is: \_\_\_\_\_

I wish to receive all payments in this account through NEFT and RTGS systems, as the case may be, for all payments relating to this work.

Name of Bidder

Place: \_\_\_\_\_

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

**7. SAMPLE GUARANTEE BOND for termite-proof/water and leak-proof Works.**

This AGREEMENT made this ..... day of .....two thousand.....between M/s ..... (Hereinafter called the Guarantor/Contractor of the one part) and the..... (Employer on behalf of the Managing Director of KCMMF Ltd. Kerala hereinafter called the Tenderer of the other part).

WHEREAS this agreement is supplementary to the contract (hereinafter called the Contract) dated ..... made between the Guarantor of the one part and the Employer of the other part, whereby the Contractor, inter alia, undertook to render the buildings and structures in the said Contract recited, completely termite-proof/water and leak-proof.

AND WHEREAS the Guarantor agreed to give a guarantee to the effect that the said structure will remain termite-proof for ten years to be reckoned from the date after the maintenance period prescribed in the contract expires. During this period of guarantee the Guarantor shall make good all defects and for that matter, shall replace at his risk and cost such wooden members as may be damaged by termites, and in case of any other defect being found he shall render the building waterproof/termite-proof at his cost to the satisfaction of the Engineer-in-charge, and shall commence the works of such rectification within seven days from date of issuing notice from the Engineer-in charge/ Competent authority calling upon him to rectify the defects, failing which the work shall be got done by the Department by some other Contractor at the Guarantor's cost and risk, and in the later case the decision of the Engineer-in-charge as to the cost recoverable form the Guarantor shall be final and binding. 116 That if the Guarantor fails to execute the waterproofing/anti-termite treatment or commits breaches hereunder then the Guarantor will indemnify principal and his successors against all loss, damage, cost, expense or otherwise which may be incurred by him by reason of any default on the part of the Guarantor in performance and observance of this supplemental agreement. As to the amount of loss and/or damage and/or cost incurred by the KCMMF Ltd., the decision of the Engineer-in-charge will be final and binding on the parties.

IN WITNESS WHEREOF these presents have been executed by the Obligor ..... and by ..... for and on behalf of the Governor of Kerala on the day, month and year first above written.

Signed, sealed and delivered by OBLIGOR in the presence of witnesses

- 1.
- 2.

Signed for and on behalf of THE GOVERNOR OF KERALA by ..... in the presence of witnesses

- 1.
- 2.

**VII- Materials issued free of cost at site/ part of work done**

**No Materials will be supplied by KCMMF**

**Note:- The guaranteed specification in sheet no VII The Contractor shall invariably fill this sheet and submit by the contractor**

**COMMERCIAL DOCUMENTS**  
**GUARANTEED TECHNICAL PARAMETERS OF IMPORTANT ITEMS**

Sl.No.	Items	Make	Model No& individual capacity	Qty No	Rating/ capacity
1	PV Module				
2	PCU/ Inverter				
3	DC Cables				
4	AC Cables				
5	AJB/ SCB				
6	Module Mounting structure				
7	ACDB				
8	Lightning Arrester				
9	Earthing System details and N of Earth pipe				
10	Data Acquisition systems including Solar meter & net metering				
11	All other accessories required for complete assembly				

**Signature of Contractor**