

Maharashtra State Electricity Distribution Co. Ltd.

Tender Details		27-12-2021 05:07:27
Tender Code	MMD/T-NSC-09/1221	
Tender Type	Works Tender	
Type Of Bid	Two Bid	
Description	Supply, Installation and FMS Activity for 5 Years for LTAC 3 Phase 4 Wire 40 - 200 A Fully Static TOD Trivector Energy Meter with Inbuilt CT and Modem for Ag. Distribution Transformer in	
Estimated Cost (In Lakhs)	10838.24	
Basis of prices	NA	
Tender Validity	NA	
Delivery Requirement (In Months)	NA	
Tender on rate contract basis	NO	
Tender Fee (In INR)	25000	
GST In INR (@18% on Tender Fee: SAC No.	4500	
Total Tender Fee Amount including GST in INR.	29500	
Contact	Mr Girish Gaikwad , 7506990821 ,cemmcmsedcl@gmail.com	
Pre-Qualifying Req	As per QR clause 2.4	
Budget Type	Capex	
Scheme Code	NA	
Scheme Name	Scheme not applicable	
Department	Material Management Cell	
Office Type	HO	
Location Type	Corporate Office	
Designation	Executive Engineer(Distribution)	
Pre-Bid Meeting Address	Office of Chief Engineer, Maharashtra State Electricity Distribution Co. Ltd., Material Management Dept., Plot No. G-9, "Prakashgad" First floor, Prof. Anant Kanekar Marg, Bandra (E), Mumbai – 400 051.	
Bid Opening Address	Office of Chief Engineer, Maharashtra State Electricity Distribution Co. Ltd., Material Management Dept., Plot No. G-9, "Prakashgad" First floor, Prof. Anant Kanekar Marg, Bandra (E), Mumbai – 400 051.	
Version No	1	
Call for Deviation	NO	
Is Annexure C1 Applicable	NA	
Is Manufacturer Applicable	NO	
Is Trader Applicable	NO	
Minimum % of Offered Quantity	NA	

Is Power Supplier Applicable	NO
Tender Sale Start Date	27-12-2021 18:00
Tender Sale End Date	18-01-2022 12:00
Bid Start Date	27-12-2021 18:05
Bid End Date	18-01-2022 15:00
Pre-Bid Meeting Date	04-01-2022 17:00
Techno-Commercial Bid opening on	18-01-2022 15:30
Price Bid opening on	Will be declared later
Annexure C1 Opening Date	NA
Winner Selection Date	Will be declared later



MAHARASHTRA STATE ELECTRICITY DISTRIBUTION CO. LTD.

Request for Proposal

Tender for Supply, Installation and FMS
Activity for 5 Years for LTAC 3 Phase
4 Wire 40 - 200 A Fully Static TOD Tri-
vector Energy Meter with Inbuilt CT and
Modem for Ag. Distribution Transformer
in Maharashtra.

Tender No: MMD/T-NSC-09/1221

Estimated Tender Cost: Rs. 108.38 Crores

CHIEF ENGINEER,
Maharashtra State Electricity Distribution Co. Ltd.,
Material Management Dept.,
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1.0 INTRODUCTION

1.1 Overview:

Maharashtra State Electricity Distribution Company Ltd (MSEDCL) has its operations in the North East area of Mumbai and rest of Maharashtra State with a customer base of around 2.83 Crores. MSEDCL expends substantial effort and resources in realizing its mission of 'Ensuring Excellence in Customer Services'.

1.2 Objective:

There are approx. 27,067 Nos. of Ag. Distribution transformers on 502 feeders spread across Maharashtra. Presently CT operated meters along with CT's & boxes are installed on these Distribution Transformers. Some of these meters are working and are read manually or through HHT. MSEDCL, as per the directives of MERC, has taken a decision to replace all these meters with 40-200 Amps meters through AMR on a monthly basis and publish the data on Website. Hence, it is necessary to replace the existing Cables, Boxes, CTs, and Meters of these DT's with 40-200 Amp Embedded Meters and boxes.

The main objective is to provide supply installation & FMS activity for 5 years for LTAC 3 Phase 4 Wire 40-200 Amps Fully Static TOD Tri-vector Energy Meter with Inbuilt CT and Modem (Thread through Concept) as per Category 'C-2' of IS: 15959/2011 for communication for Ag Distribution Transformers in Maharashtra.

These meters are to be installed by replacement at existing Ag DT's of MSEDCL and acquire meter data from these meters automatically from the remote for 5 years avoiding any manual intervention. The zone wise abstract of DT's is attached as Annexure-IX.

1.3 Implementation of DT Metering in MSEDCL

1.3.1 Intent of the Project:

The intent of the tender is to select agencies supplying and installing the 40-200 Amp meters with enclosure on Ag DT's in a time bound manner. The prospective bidder shall quote the meter + Box cost, installation charges and FMS Charges per meter for a period of 5 years from the date of installation of meters.

2.0 SCOPE OF WORK

2.1 Project

The work involves following activities:

- 2.1.1 The scope of the project covers removal of 27,251 Nos. of CT Operated metering cabinets along with Cables from existing DT locations connected to AG Feeders, including downloading of meter data through CMRI and submission of final readings thereof at the time of removing the meters to MSEDCL Division/Sub division offices.
- 2.1.2 Providing and fixing & (FMS) for the period of 5 years as specified in technical specification for 27,251 nos. of LT AC Three Phase Four Wire 40-200 Amps CT Embedded Meters as per MSEDCL technical specifications on the existing DT installation connected to AG Feeders and making 1st reading available from the date of successful commissioning of CT embedded Meter. List of DT details of meters is enclosed separately with tender documents as Annexure-IX.)
- 2.1.3 To submit the details of Cables, CT operated meters, Boxes & CT's removed from the DT's & details of CT embedded meter along with Boxes installed on the same location along with online feeding of the same in ERP by the bidder. The uninstalled Cables, Meters, Boxes & CT's shall be handed over to the MSEDCL division offices for depositing the same in stores.
- 2.1.4 The CT embedded meters are to be installed on the existing DT's using the XLPE cables of suitable size. Approx. 20 Meters of Cables would be required for each meter.

- 2.1.5 Installation of SIM Card and activation of SIM cards for complete AMR under umbrella scheme for Complete Connectivity (Bandwidth) from meter to ITC/Data Centre of MSEDCL. SIM cards shall be provided by MSEDCL under NBSP umbrella scheme of following service providers: Vodafone, Airtel, and Reliance Jio. The cost of SIM card & recurring monthly charges shall be borne by MSEDCL. However, the bidder has to decide location wise service provider and inform the service provider wise SIM requirement to MSEDCL.
- 2.1.6 Seamless Integration of meters with existing systems / software / solutions of MSEDCL & integration with Data Centre /Disaster Recovery Centre for making the same operational are in the scope of bidder.
- 2.1.7 Meter Replacement details (Old meter reading final reading, new meter initial reading, date of meter replacement etc.) to be fed by bidder directly to Central Server using MSEDCL New Connection App; mobile app. Required access and training for using the app will be given to successful bidder.

2.2 Communication connectivity scope:

- 2.2.1 SIM cards will be provided by MSEDCL. Also the monthly SIM charges will be borne by MSEDCL. The bidder should be responsible for choosing the service provider in given area as per the connectivity availability of various service providers.
- 2.2.2 The bidder should facilitate the signing of SLA and agreement between bidder and MSEDCL.
- 2.2.3 In case of meter not read between 1-7th of every month due to communication failure between meter and central server, the bidder shall make arrangements to communicate with meter through optical port, at its own cost. In such cases the bidder should read the meter data through optical port and the downloaded data should be uploaded to MDAS of MSEDCL. Any failure to meet this requirement shall attract penalty as per SLA with bidder for maintenance & support during warranty and FMS periods.
- 2.2.4 The bidder shall ensure and commit its SLA for maintenance and support during Warrantee and 5 year FMS periods of contract.
- 2.2.5 MSEDCL has its own in house developed MDAS module. The features of MSEDCL MDA solution are described below:
- 2.2.5.1 The Meter Data Acquisition System can acquire data from various meter make Energy Meters connected through serial communication using 2G/3G/ 4G.
- 2.2.5.2 The Successful Bidder is supposed to do the necessary seamless integration with MSEDCL's existing Meter Data Acquisition system and legacy systems.

2.3 Other Activities:

- Monthly report regarding reading performance based on the MDAS report required by MSEDCL shall be made available.
- Downloading the problematic/non-responsive meters in the field. Meter data of such problematic / non-responsive meters is to be provided within 7th of every month.
- Depending on the MDAS report, the related team shall be deputed to location to service the faulty meter/modem in the meter.
- Resolve issues that reflect in the exception report informed by field as well as exception reports generated through MDAS for Meters from which data was not downloaded.

2.4 QUALIFYING REQUIREMENTS

- 2.4.1 The bidder should be original manufacturers of L.T.A.C. Static Three Phase Energy Meters and shall have minimum experience of three years of supply & manufacturing for static energy meters up to the end of the last financial year.
- 2.4.2 The turnover in any one of the last three financial years shall be 60% of estimated cost of the tender or Rs. 100.00 Crores whichever is higher.

- 2.4.3 The bidders with project experience of supply & installation of at least 10,000 CT Embedded, CAT A meters in anyone of the Indian power sector utility with data availability more than 90% accompanying with Commissioning / work completion certificate duly signed by purchaser(s) shall be given Preference.
- 2.4.4 The bidder shall take single-point responsibility of the entire scope of work in the RFP including guarantee period of meters.
- 2.4.5 Bidder must possess the following certifications at the time of submission of the bid.
- a) The meter shall bear ISI mark as per IS: 13779/1999 amended up to date.
 - b) ISO 9000.
 - c) ISO 14000.
- 2.4.6 The participating firm should submit valid NABL accreditation Certification that they have in house National Accreditation Board for Testing and Calibration Laboratories (NABL) Lab for testing of Energy Meters or equivalent International accreditation certification.
- 2.4.7 The participating firms have to submit ISO 9001:2008 certifications or Capability Maturity Model Integration (CMMI Level – III) certificate or equivalent International standard certification along with offer.
- 2.4.8 The participating firms have to submit R & D certification from Department of Science and Industrial Research (DSIR) or equivalent International standard certification along with offer. However, those firms which are not having R & D certification but have applied for R&D Certification, they shall submit this certificate before opening of Commercial Bid (Price Bid) of subject tender. Non submission of Certification before opening of Commercial Bid (Price Bid) from bidders, their offer shall not be considered for further evaluation.

2.5 TIME OF PERFORMANCE:

- 2.5.1 Delivery and installation period requirement for meter is 6 & 8 months respectively. Time period of contract commences from date of LoA by MSEDCL which includes removal of existing meters, supply and installation of new Meters on Ag DT consumers and further five years for FMS activity of above installed meters through MDAS/Central Server.
- 2.5.2 Further it shall be ensured by the bidder that the supply of meters, should start after placement of LoA and subsequent activity of installation to be taken up. The activity of supply and subsequent installation, commissioning etc. should be uniform throughout the year such that the supply shall be commenced within 2 months from the date of LoA and installation & readings/ FMS activity shall be started in the immediate subsequent month. The bidder accordingly shall submit their milestones and strictly adhere to it.
- 2.5.3 The bidder should complete field survey and installation of Meters in-line with tender specification. No extra time for implementation or extension of contract period is allowed unless specifically agreed to in writing by the MSEDCL.

2.6 ACCEPTANCE OF SUPPLIES/INSPECTION:

- 2.6.1 The supplier shall normally offer at a time, the entire quantity required to be delivered every month as per the delivery schedule indicated at Annexure 'B' of A/T for the purpose of inspection by the Purchaser. However, in exceptional circumstances, the supplier may be allowed to offer quantity at a time not less than 50% of the quantity required to be delivered every month.
- 2.6.2 Materials shall be inspected by the Purchaser's Executive Engineer/or the representative authorized by the Purchaser before dispatch. The intimation in the prescribed proforma (Inspection call) shall be forwarded through online inspection portal (<https://mip.mahadiscom.in/InspectionPortal/>) and on e-mail id cemmcsedcl@mahadiscom.in & cemmcsedcl@gmail.com in advance failing which, the supplier shall be responsible for delay in delivery on account of inspection. On receipt of such intimation, the materials shall be inspected within 20 days. The materials shall be dispatched only after inspection and approval of same by the Inspector. The inspection approval letter shall be valid

for a period of 30 days from the date of issue of letter to enable the supplier pack the material and arrange transportation thereof so that material should be reached at the respective consignee within 30 days from the date of inspection approval letter. After this period of 30 days, the validity of this inspection approval letter will lapse. If the supplier fails to dispatch or the material is not reached within 30 days to respective consignees, the approval of purchaser is to be sought by the supplier for revalidation of inspection approval letter.

- 2.6.3 The supplier shall notify the names of the consignees to whom the inspected lot would be dispatched. The Inspector shall intimate change in destination, if any, at the time of inspection approval and accordingly the material shall be dispatched. The supplier shall get the copies of inspection approval letter together with witness certificate duly signed by the concerned Inspecting Officer IN BLUE INK only and also mention reference or inspection approval letter on the challan / invoice, failing which any delay occurred in getting the S.R. Notes from the consignees would be solely to supplier's account.
- 2.6.4 Factory address, from which the bidder has to supply the material, shall be as indicated in the latest approved on line vendor registration form on e-tendering through which the bidder has submitted the offer.
- 2.6.5 In the event, during the inspection by the Purchaser's Inspecting Officer, if it is observed that the quantity actually offered for inspection is less than the quantity indicated for inspection in the inspection call, the Purchaser shall be entitled to recover from the supplier, the actual expenses incurred for arranging the inspection, and the supplier shall not dispute the amount to be recovered.
- 2.6.6 The supplier shall submit the test certificates/reports from any approved laboratory or the laboratory of his own for the respective quantity of material, before dispatch. The material shall not be dispatched unless and until the test certificates are approved by the Purchaser.
- 2.6.7 All the necessary help shall be extended by the supplier to the authorized representative of the Purchaser to carry out testing of equipment/materials.

2.7 MILESTONES: To be submitted along with techno-commercial offer.

Milestone for Meters with enclosure	Qty. in Nos.	Timelines (Month wise)	% age penalty on Price
1	2	3	4
Supply	To be filled by the bidder	To be filled by the bidder	After the completion of timeline, LD @ 0.5% of committed lot value per week or part thereof with maximum 10% of the contract value may be levied from the bill of the contractor
Installation	To be filled by the bidder	To be filled by the bidder	
FMS / Meter reading through AMR	To be filled by the bidder	To be filled by the bidder	

The Milestone submitted by Bidder is tentative. After Award of LOA, Milestone shall be finalized mutually considering scope and time period of works.

- 2.8 The minimum quantity to be offered by the bidder shall be minimum 20% of the tender quantity failing which the offer is liable for rejection.

3.0 BIDDING PROCEDURE AND INSTRUCTION TO BIDDERS

3.1 ELIGIBILITY TO BID

The bidding process will be open to any agency who satisfies the **Qualifying requirement as per clause no 2.4.**

1. Bidder is eligible to submit only one bid.
2. Bids will be accepted by MSEDCL for those Bidders who have confirmed for their participation as mentioned in the Tender.

The bidder will be responsible for submitting the proposal and it will be the single point-of-contact for all information and clarification throughout the Procurement & Installation, Commissioning Process.

3.2 To be qualified for award of Contract, bidder shall also submit:

- 3.2.1 Copies of original documents defining the constitution or legal status, place of registration and principal place of business for the bidder; and
- 3.2.2 A written power of attorney / letter of authorization authorizing the signatory of the bid to commit the bidder; and Audited annual accounts including balance sheets and other financial statements for the any three (3) financial years (FY 17-18, 18-19 , 19-20 & 20-21); and
- 3.2.3 Authority to seek references from the bidder's Bankers along with details of the Banks;
- 3.2.4 Proposals regarding work methods, scheduling and resourcing which shall be provided in sufficient detail to confirm the bidder's capability to complete the work in accordance with scope of work and the time for completion, including qualifications and experience of personnel proposed for the contract.
- 3.2.5 The bidder shall submit the declaration along with the bid as below.
- 3.2.5.1 *The business dealings with the agency have not been debarred/ blacklisted by any Ministry of GoI / GoM/ state owned electricity distribution utility and still in force.*
- 3.2.5.2 *The Directors, Proprietors, Partners, Employee(s) or owner of the agency have not been either jointly or severally guilty of malpractices in relation to its business dealings with the Government or MSEDCL during the last five years.*

3.3 Overview of bidding process

The Bidding Process would comprise of following sequential steps. MSEDCL reserves the right to reject all or any of the Bidders or Bids or discontinue or cancel the bidding process without assigning any reason whatsoever. These include the following:

- 3.3.1 It will be 'Single Bid Two Stage 'tender process.
- 3.3.2 The key features of the tender in the form of Invitation for Bid will be released by MSEDCL on the MSEDCL website <http://www.mahadiscom.in> on tender release date.
- 3.3.3 Entire bidding document shall be available only in electronic format (softcopy) and is to be downloaded from MSEDCL's website <http://www.mahadiscom.in> (or directly from URL <https://etender.mahadiscom.in/eatApp/>) from tender release date onwards. It shall be the bidder's responsibility to ensure that the entire bid document is downloaded from the requisite website. No hard copy of tender document will be provided. All the subsequent instructions/corrigendum to the bidding document etc. shall also be available on the website mentioned above.
- 3.3.4 To clarify any points on the tender, MSEDCL may organize a Pre-Bid Meeting, where in all the interested bidders can participate. This meeting is not mandatory for the bidders.
- 3.3.5 The response to the Tender has to be submitted by the bidder who will be designated as a Bidder for the purpose of this Tender. The entire bidding process will be Tendering process. Bidder has to submit the documents through E-tender application in softcopy i.e. PDF as well as word/xls format

- 3.3.6 MSEDCL will open the Technical & Commercial Bid and the technically qualified Bidders will be informed based on the evaluation.
- 3.3.7 Technically Qualified Bidder's Price Bid will be taken forward for comparison & the Lowest Price Bid will be declared as the Bid Winner.
- 3.3.8 In case the bidder is successful, the contract agreement will be signed between MSEDCL and the Bidder.

4.0 CONTENTS OF THE BID

Tender Fee & Bid Security (EMD)

(a) Tender Fee:

A Non-Refundable Tender Fee of **Rs.25,000 (Rupees Twenty Five Thousand Only)** plus 18% Goods and service tax (GST) shall be furnished only by way online payment through e-tendering website.

(b) Bid Security (EMD):

The bid must be accompanied with Bid Security for an amount equal to 0.5% of Tender Estimate for **covering the entire scope of work. The bid security shall be denominated in** Indian Rupees only.

- i. The bid security shall, at the bidder's option, shall be in the form of a **demand draft** or an unconditional Bank Guarantee from any Nationalized / Scheduled Bank in favor of MSEDCL, payable at Mumbai. The format of the Bank guarantee shall be in accordance with the sample form of bid security as per Annexure – IV (A); other format may be permitted provided it contains all the terms & Conditions related to bid security mentioned in the tender subject to approval of MSEDCL.
- ii. Bidder should upload the Scanned copy along with the Bid documents on E-Tender website. However, Bidder will have to submit the original DD/Bank Guarantee to the MSEDCL on or before the last date of Submission of Tender.
- iii. The Bid Security shall remain valid for a period of **90 days** beyond the original validity period of the bid, and beyond any extension period subsequently requested under Tender Conditions.
- iv. Any tender not accompanied by the requisite Earnest Money Deposit (EMD) shall be rejected and shall not be considered for evaluation.
- v. The bid security of the successful bidder shall be returned after (i) acceptance of LOA by the bidder and (ii) the contract performance security is furnished by the bidder and accepted by the owner.
- vi. Unsuccessful bidder's bid security will be discharged/returned as promptly as possible in due course of time.
- vii. The bid security may be forfeited:
 - (a) If the bidder withdraws its bid, except that written notice of the withdrawal of bid is received by MSEDCL prior to the deadline for submission of bids; or
 - (b) If the bidder does not accept the correction of its bid price, pursuant to Tender Conditions; or
 - (c) If the bidder is determined, at any time prior to award of contract, to have engaged in corrupt, malpractice or fraudulent practices in competing for the contract; or
 - (d) In the case of a successful bidder, if it fails within the specified time limit to:
 - i. Sign the Contract Agreement, or
 - ii. Furnish the required contract performance security

- viii. No interest shall be payable by the owner on the above bid security.
- ix. MSEDCL will not entertain any request for adjusting the EMD from the bidder's due/running bills or from the EMD/Security Deposit of any other tender participated by the bidder.
- x. Offers received without Tender Fee and EMD are liable for rejection.

4.1 Confirmation on submission of documents & Mandatory requirements

A summary sheet confirming whether all documents/requirements have been met along with page reference to where in the Bid have compliance to these requirements which have been described / included should be furnished by the bidder (Refer Annexure - X):

4.2 Technical and Commercial Bid

This part of the bid consists of all the documents/ requirements except the price bid schedule Annexure – VI.

Note: submitting the bid to the e-tender web site confirms compliance of all the commercial conditions by the bidder.

4.3 Price Bid

The Price Bid should be submitted as per (Annexure – VI).

The bid shall contain no erasures or overwriting, except to correct errors made by the Bidder, in which case the person or persons signing the bid shall initial such corrections. Price should be quoted in number & words. In case of discrepancy and or difference in the value between the Quoted price in Number and as expressed in words, lower of the two/beneficial to MSEDCL shall be considered .

5.0 GENERAL BID INSTRUCTIONS

5.1 Intent of Bid Specification

Bids not covering the entire scope of work as detailed in the Bid Specification will be treated as non-responsive and hence rejected.

5.1.1 Conflict of Interest

- (i) Each Bidder shall submit only **one bid** for each contract (Tender). A bidder who submits or participate in more than one bid for same tender will be disqualified.
- (ii) All bidders found to be in conflict of interest shall be disqualified. A bidder may be considered to have a conflict of interest with one or more parties in a bidding process if they:
 - a. Have controlling shareholders in common; or
 - b. Receive or have received any director in direct subsidy from any of them; or
 - c. have the same legal representative for purposes of a bid; or
 - d. have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on a bid of another bidder, or influence the decisions of MSEDCL regarding the bidding process; or
 - e. Submit more than one bid for any particular contract package in the bidding process. This however does not limit the participation of subcontractors in more than one bid or as bidders in one bid and subcontractors in other bids simultaneously; or
 - f. Participated as a consultant in preparing the design or technical specifications of the goods and related services or works that are the subject of a bid.

For verification of conflict of interest, a copy of Articles of Association & Memorandum of Association in case of company & in case of partnership firm, a copy of partnership deed is required to be submitted by bidders along with bid.

5.1.2 Compliance to MSEDCL Ethical Standards

MSEDCL attaches top most priority to adherence to the highest ethical standards in all its transactions and expects the same from all entities it enters into any relationship with.

Accordingly, it expects every Bidder to observe the highest standard of ethics and integrity during the bidding process and if successful, during all stages of the project. If a bidder is found to have indulged in any corrupt or fraudulent practice or in any practice which is not in conformity with the highest ethical standards, then the bid will stand rejected. In such a case, MSEDCL may even go to the extent of black-listing the bidder and barring it from responding to any future enquiries / tenders floated by it.

To ensure uniformity in understanding of corrupt and fraudulent practices between MSEDCL and the bidders, the same has been defined below:

- (a) The term 'corrupt practice' means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and/or those close to them, or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and
- (b) The term 'fraudulent practice' means a misrepresentation of facts in order to influence procurement process or the execution of a contract to the detriment of MSEDCL, 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 MSEDCL of the benefits of free and open competition.
- (c) By signing the Bid Forwarding Letter, the Bidder represents that for the software & services it supplies, it is the owner of the Intellectual Property Rights. Willful misrepresentation of these facts shall be considered a fraudulent practice without prejudice to other remedies that the Purchaser may take.

5.1.3 Important Notes

The Bidder shall note the following:

- i. Bid documents are not transferable.
- ii. Not more than one bid for the work shall be submitted by one Bidder or one firm of Bidders.
- iii. If the Bidder deliberately gives wrong information in his bid to create circumstances for the acceptance of its bid, the Owner reserves the right to reject such bid and/or cancel the order if placed.
- iv. Bid documents submitted by the Bidder shall become the property of the Owner and the Owner shall have no obligation to return the same to the Bidder.
- v. Bid must cover the entire scope of work (as a full package) as specified in this tender document.
- vi. Bid covering partial scope of work shall not be acceptable.

5.1.4 Bidder to inform himself fully:

- i. The Bidder shall make independent enquiry and satisfy himself as to all the required information, inputs, conditions and circumstances and factors which may have any effect on its bid price and also on the execution of work covered under these specifications and documents. In assessing the bid it is deemed that the Bidder has inspected and examined the site conditions and its surroundings, examined the laws and regulations in force in India, the transportation facilities available, the conditions of roads, bridges, etc. for unloading and/or transporting heavy pieces of material and to have based its equipment size and fixed its price taking into account all such relevant conditions and also the risks, contingencies and other circumstances which may influence or affect the execution of the works as specified in these bid specification.
- ii. In their own interest, the Bidders are requested to familiarize themselves with the Income Tax Act, the Companies Act, the Customs Act and all other related acts and laws prevalent in India. The Owner shall not entertain any request for clarifications from the Bidders regarding such

local laws and the conditions. However, the owner shall direct the bidder from where to obtain such assistance provided the request for such assistance is received well in advance. However, non-receipt of such information shall not be a reason for the bidder to request for extension in opening date of the bid. The Bidder shall understand and agree that before submission of its bid all such factors, as generally brought out above, have been fully investigated and considered while submitting the bid. No claim for financial adjustment to the contract awarded under this specification and documents shall be entertained by the owner. The Owner shall also not permit any change in time schedule or any financial adjustment arising thereof which are based on lack of clear information for such site conditions, laws and regulations and other related information and/or its effect on the price quoted in the bid.

- iii. Availability of Acts & Regulations: The various acts and regulations referred in these documents are normally available for sale on the following address:

Deputy controller, Public Department, Govt. of India, New Delhi, 110006, INDIA

OR

With leading authorized booksellers

5.1.5 Interpretation of Bid Documents

If any is in doubt as to the true meaning of any part of the bid document or scope of work to be executed, he shall at once submit a written request in English language for clarification or interpretation of the doubt in question. Such request should reach the owner not later than 4 days prior to the date set for submission of the bids.

This written request shall be submitted in triplicate to MSEDCL on the following address:

Chief Engineer (MMD), Maharashtra State Electricity Distribution Co. Ltd. "Prakashgad", First Floor, Prof. Anant Kanekar Marg, Station Road, Bandra (East), Mumbai 400 051 (INDIA).

Appropriate interpretation shall be given in the form of a supplementary notice which will be updated on the website <http://www.mahadiscom.in>. MSEDCL shall respond to any request for clarification of the Bid Documents, which it receives not later than 4 days (four) prior to the deadline for submission of bids prescribed by MSEDCL. No oral or other interpretation shall be considered as binding on MSEDCL.

5.1.6 Amendment of Bidding Documents

- i. At any time prior to the deadline for submission of bids, the Owner may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the bidding documents by amendment.
- ii. The amendment shall be published on the website www.mahadiscom.in and shall be binding on the bidders.
- iii. In order to afford prospective Bidders reasonable time in which to take the amendment into account in preparing their bids, the Owner may, at its discretion, extend the deadline for the submission of bids.

5.1.7 Cost Incurred in Responding to Tender

MSEDCL will not be responsible or liable for any costs being incurred by individual Bidders in preparing their response to this Tender nor will it be under any obligation to reimburse the same or any part thereof to any Bidder. Each Bidder must bear all costs being incurred by it in responding to this Tender. MSEDCL will also not be responsible for providing any facility or infrastructure to any bidder to facilitate its preparation of its bid.

5.1.8 Language, Font Size etc.

The bid must be prepared in English language only. All supporting documents submitted as a part of bid must be in English language. Further, all communication with respect to the bid including any accompanying document, must be in English language only. Clarifications sought on the Tender Document must also be in English. While the Bidders are free to submit their response in color, the text

in both the original and the copies of the Bid must be black in color, font of size not less than 10.

5.1.9 **Bid Validity Period**

All bids, not rejected for any other reason, will remain valid for a period of 180 days after the date of opening of the technical bid prescribed in the Tender Document or as communicated by MSEDCL. MSEDCL reserves the right to reject a bid which is not valid for the prescribed period of 180 days as non-responsive, without any explanation.

5.1.10 **Extension of Period of Bid Validity**

In exceptional circumstances, MSEDCL may request all the Bidders consent to an extension of the period of validity of their respective bid. The request and the response there to will be made in writing. Extension of validity period by the Bidder must be unconditional. The bid EMD provided in the form of BG will also have to be accordingly extended. A Bidder will have the right to refuse the request without forfeiting the bid security. A Bidder granting the request will not be permitted to modify his bid.

5.1.11 **Date for Submission of the Bid**

(a) **Deadline for Submission of Bid**

The tender is to be submitted online on or before the due date and time for submission of the bid on the MSEDCL e-tendering website. It is advisable to submit the digitally signed bids sufficiently in advance of due date and time so as to avoid last minute trafficking at server. The prospective bidder should be well aware about the online submission of the bid. Any complaint for delay in submission of the bid due to any technical reason will not be entertained.

MSEDCL reserves the right to reject any or all tenders at our discretion without assigning any reason whatsoever.

(b) **Extension of Bid Submission deadline**

MSEDCL may, at its sole discretion, decide to extend this deadline for submission of Bids. In such a case, all rights and obligations of MSEDCL and Bidders previously subject to the deadline will thereafter be subject to the new deadline.

(c) **Bids Received Late**

As this is e-Tendering Process, the bidder will not be able to upload their bids after the expiry of due date & Time. Any bid received by MSEDCL after the expiry of the specified deadline for submission of bids will be considered as rejected. The Bidders must take all responsibility of submitting the Bids within the prescribed deadline. MSEDCL will not accept any excuse of non-receipt / non- delivery/non-uploading of the Bids.

5.2 **EVALUATION OF BID/AWARD OF CONTRACT**

5.2.1 **Opening of Bids**

- MSEDCL shall open the bids at its office located at the address mentioned below:
Chief Engineer (MMD), Maharashtra State Electricity Distribution Co. Ltd. "Prakashgad", First Floor, Prof. Anant Kanekar Marg, Station Road, Bandra (East), Mumbai 400 051 (INDIA) OR the bid can be opened from any other office on E-system.
- If any change is there in address the same will be informed to bidder well in advance. Bids received before the dead line of the submission of the bid will be opened on the date and time of opening as indicated in Invitation for Bid. Bidder may view the Bid Opening Online on the E-Tendering Website. Bidders wishing to be present at the time of such opening may send their duly authorized representative. (Maximum of 2) Only One Persons per bidder shall attend if permitted. Their signatures shall be obtained in a register evidencing their presence at the time of opening & certifying that all bids submitted were opened.
- The bid shall be opened in the following sequence:
 - 1) The Tender Fee & EMD is verified first. The bids of those bidders who have not paid the

Tender fee or EMD will not be opened and evaluated further.

- 2) The Technical bid will be opened online on e-tendering website on due date & time.
- 3) Price Bid will be opened in online on e-tendering website after completion of the Evaluation process of Technical Bid and the date & time will be informed to the technically qualified bidders in advance.

If MSEDCL is not satisfied with the proposed solution of the Bidder, then MSEDCL reserves the unconditional & undisputed rights to disqualify the Bidder from Tendering Process.

The purchaser will open the Price Bids (as defined in Tender Clause) of only those Bidders who qualify in technical bid evaluation. The date, time and place for opening the Price Bids will be communicated to the technically qualified bidders. The Bidders may attend the opening or view the Bid Opening Online on the e-Tendering Website.

Bids or modifications thereto may be rejected if they are not addressed as prescribed in the Tender Document. Bids may be rejected outright if it is not accompanied by the prescribed Bid security. Bids rejected during the bid opening phase will not be considered for further evaluation.

MSEDCL may at its sole discretion, seek clarification from the bidders to assist in the evaluation, comparison and an examination of bids. The request for clarification and the response will be in writing. If the response to the clarification is not received before the expiration of deadline prescribed in the request, MSEDCL reserves the right to make its own reasonable assumptions at the risk and cost of the Bidder.

5.2.2 **Deviations**

No deviation to this tender document is allowed. The bidder has to submit the Annexure – VII **‘No Deviation Form’**.

5.2.3 **Alternative Offer**

No alternative offer will be accepted.

5.2.4 **Preliminary Examination of Bids**

The Purchaser will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required securities (EMD amount) have been furnished, whether the documents have been properly signed, and whether the bids are generally in order. The Purchaser will ensure that each bid is from an eligible Bidder.

Arithmetical errors will be rectified on the following basis.

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

If there is a discrepancy between words and figures, lower of the two/beneficial to the MSEDCL shall be considered. If a Bidder does not accept the correction of errors, its bid will be rejected and its bid security (EMD) may be forfeited.

The Purchaser may waive any minor nonconformity, or irregularity in a bid that does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any Bidder.

Prior to the detailed evaluation, the Purchaser will determine whether each bid is complete, and is substantially responsive to the Bidding Documents. For the purposes of this determination, a substantially responsive bid is one that conforms to all the terms, conditions, and specifications of the Bidding Documents without material deviations, exceptions, objections, conditionality or reservations. A material deviation, exception, objection, conditionality, or reservation is:

- i. One that limits in any substantial way the scope, schedule, quality, or performance of the desired project; or
- ii. One that limits, in any substantial way that is inconsistent with the Bidding Documents, the

Purchaser rights or the successful Bidder's obligations under the Contract; and

- iii. Acceptance of which would unfairly affect the competitive position of other Bidders who have submitted substantially responsive bids.

If a bid is not substantially responsive, it will be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the nonconformity. The Purchaser's determination of bid responsiveness will be based only on the contents of the bid submitted.

5.2.5 **Evaluation and Comparison of Bids**

The evaluation of responsive bids shall be done in 2 stages:

(a) STAGE-I: RESPONSE TO QUALIFYING REQUIREMENTS

These are mandatory requirements to be met by the Bidder. Only those bidders who meet all the mandatory requirements as provided in this document shall be considered for stage II evaluation.

(b) STAGE – II: EVALUATION OF THE PRICE BID

Bidders who qualify in the Stage I of evaluation will be considered for stage II evaluation and Price Bids will be opened only for these bidders.

The lowest bid (L-1) will be arrived by considering the package cost of (A)+(B) of Annexure VI and the bidder whose bid is lowest, will be considered as successful bidder L-1 bidder i.e.L-1 will be arrived as per package cost. All bidders who have qualified in Stage II evaluation and have quoted within range of 5% in comparison with the lowest rate will be asked to match the reverse bid lowest (L-1) rate.

After matching with L-1 rate, matching bidders may be awarded remaining quantity /towns at MSEDCLs discretion in order to fulfil the scope of tender.

5.2.6 **Contacting the Purchaser**

- i. From the time of bid opening to the time of Contract award, if any Bidder wishes to contact the Purchaser on any matter related to the bid, he shall do so in writing.
- ii. If a Bidder tries to influence the Purchaser directly or otherwise, interfere in the bid evaluation process and the Contract award decision, his bid will be rejected.

5.2.7 **Purchaser's Right to Accept or Reject Any or All Bids**

- i. The Purchaser reserves the right to accept or reject any bid or to annul the bidding process and reject all bids at any time prior to Contract award, without thereby incurring any liability to the Bidders.
- ii. The Purchaser reserves the right to negotiate with the Bidder who becomes eligible for award of the contract as per Tender conditions.
- iii. MSEDCL reserves the right to reject any or all the price bids or Tender at its own discretion without assigning any reason whatsoever.

5.2.8 **Notification of Award**

- i. Notwithstanding anything contained in this document, MSEDCL reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids, at any time prior to award of contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders the grounds for the MSEDCL's action.
- ii. Subject to above clause, the owner shall award the contract to the successful bidder whose bid has been determined to be substantially responsive and has been determined as the lowest evaluated bid provided further that the bidder is assessed to be qualified to satisfactorily perform the contract.
- iii. Notification of award of contract shall be made in writing through a 'Notice of Award', i.e.Letter of Award to the successful Bidder. This letter of award may be in writing by registered letter or by

cable or FAX, to be confirmed in writing by registered letter or courier service or by speed post that its bid has been accepted.

- iv. Till such time the formal contract is signed, the letter of award issued by the owner to the successful bidder and its acceptance by the bidder shall be construed as a contract document and conditions of contract contained in these documents shall become applicable.

5.2.9 **Signing of Contract**

- i. The successful bidder after submission of contract performance guarantee and its acceptance by the owner shall have to sign contract agreement with the Owner within fourteen (14) calendar days from the date of Letter of Award. This agreement shall be signed at the office of the owner in Mumbai on a date and time to be jointly decided.
- ii. The contractor shall send one copy of the final draft agreement to the Owner for his scrutiny and approval within fourteen days (14) of issue of letter of award by the Owner. The contractor shall sign the Form of Contract Agreement on a Rs. 100/- Stamp Paper (non-judicial) issued in Maharashtra and returns it to Owner.
- iii. The Contractor shall provide, before signing of the contract, appropriate power of Attorney and other requisite materials. The contractor shall provide free of cost to the Owner all the engineering data, drawings and descriptive materials submitted with the Bid, in at least six (6) copies to form a part of the contract, immediately after issue of Letter of Award accepting the bid.
- iv. All charges for preparing the contract documents including legal fee, stamp fee etc. shall be borne by the successful Bidder. The contract shall be signed in two original. One to be retained by the owner and one by the bidder. After signing of the contract, the contractor shall furnish to the owner 3 true copies of the signed contract agreement duly bound.
- v. If the successful Bidder fails to sign the contract, the same shall constitute sufficient ground for the annulment of the award of work and also the forfeiture of contract performance guarantee/security, in which event the owner may make the award to the next lowest evaluated responsive bidder or call for new bids.
- vi. All the conditions given in this document shall form the part of the contract. Based on the information submitted by the bidder in response to the instruction to bidder additional clauses may also have to be incorporated and shall be mutually agreed to.

5.2.10 **Contract Performance Security**

- i. The successful bidder shall provide to the owner within fourteen (14) days of issue of letter of intent, the contract performance guarantee as per the provisions of the clause mentioned in this document.
- ii. The contract performance security shall be denominated solely in Indian Rupees, and shall be in the form of an unconditional and irrevocable Bank Guarantee issued by a Nationalized or Scheduled Bank.

5.3 **Check List**

- i. The bidders are requested to go through carefully the instructions for preparation of their bids. Conditions elaborated in "General Conditions of Contract" and "Special Conditions of the Contract" may be borne in mind while bid preparation. The bid shall fully meet the technical requirement specified in this tender document.
- ii. The bidders may depute their representative to visit the site to get any additional information and to check the site conditions personally.
- iii. The bidder may submit additional information, which in his opinion shall help the owner to evaluate the bid. Bidder shall use continuation sheets wherever necessary.
- iv. The Bidders are requested to duly fill in the check list enclosed with Bid (Annexure – X). This check list gives only certain important items, to facilitate the bidder to make sure that the necessary data/information is provided by the Bidder in its proposal. This, however, does not

relieve the bidder of its responsibility to make sure that his proposal is otherwise complete in all respects.

5.3.1 Bid Data Sheet

- 1) The Chief Engineer Material Management Department (MMD), on behalf of Maharashtra State Electricity Distribution Company Limited (MSEDCL), hereby invites sealed bids from eligible bidders.
- 2) Entire bidding document is available online on <http://works.mahadiscom.in/eTender/etender> as per date indicated below. Any changes in the Bid Schedule, corrigendum etc. shall also be notified via MSEDCL's website. Prospective bidders are therefore requested to regularly check the website for any updates.
- 3) **Tender Cost: Rs. 108.38 Crores**
- 4) **Tender Fee:** Rs 25,000/- + 18% GST

The bidder should submit non-refundable Bid Fee of Rs. 25,000/- + 18% GST paid through online payment only, prior to the dead line for submission of bids as per the procedure led by the MSEDCL.

5) **Bid Security (EMD):**

The bid must be accompanied with Bid Security for an amount equal to 0.5% of tender estimated cost for covering the entire scope of work. The bid security shall be denominated in Indian Rupees only.

**THE CHIEF ENGINEER
(Material Management Department)
"Prakashgad" First floor, A.K.Marg,
Bandra(E),Mumbai-400051.
E-mail- cemmcsedcl@gmail.com,
cemmcsedcl@mahadiscom.in**

6.0 GENERAL CONDITIONS OF CONTRACT

6.1 DEFINITIONS

Definitions: In the contract (as herein after defined) the following words and expressions shall have meaning hereby assigned to them except where the context otherwise requires.

- i. "Employer" or "Owner" or "Purchaser" or "Principal" or "MSEDCL" means Maharashtra State Electricity Company Limited having its Registered Office at Prakashgad, Bandra (East), Mumbai 400051 and includes MSEDCL's representatives or successors or assigns. MSEDCL's representatives include "Project Manager".
- ii. "Project Manager" or "Project Coordinator" means the person appointed by MSEDCL in the manner provided in Tender to perform the duties delegated by MSEDCL.
- iii. "Manager" means any assistant of the Project Manager or any other employee or agent appointed from time to time by MSEDCL or the Project Manager to perform the duties related to this contract.
- iv. 'Site' shall mean the locations and places wherever business activities are conducted by MSEDCL.
- v. "Contractor" or "Supplier" or "Vendor" or "Bidder" or "SUPPLY, INSTALLATION & FMS ACTIVITY" shall mean whose tender has been accepted and shall include his/her/its/their heirs, executors, administrators, legal representatives/ successors/assigns and his/her/its/their Indian Agents approved by MSEDCL. SI/Bidder can be a company or a corporation and is the agency who provides all necessary services for the successful implementation of the project deliverables. SI/Bidder must be a single entity. No Consortium shall be allowed.
- vi. "Party" means the Owner or the Vendor, as the case may be and parties mean both of them.
- vii. "Successful Bidder" Successful Bidder means, the bidders whose bid has been accepted meeting MSEDCL's requirement in all respects and stands Lowest among acceptable bids.
- viii. "Contract" or "Work Contract" or "Work Order" means invitation to tender, instructions to Bidders, tender with all the enclosures thereto, articles of agreement, General conditions of Contract, Special conditions of Contract, specifications, price schedule, diagrams/drawings together with the letter of intent / contract itself (Work Order / Purchase Order) and other documents and correspondence specifically indicated therein.
- ix. "Scope" means "Scope of product vendor, Implementation Partner & service provider as covered in Section II" of this document, which forms part of these documents
- x. "GCC" means General Conditions of Contract and "SCC" means Special Conditions of Contract which form part of these documents
- xi. "Tender Specification" shall mean the GCC, SCC, SCOPE as mentioned at Section 2, Instructions to Bidders read with notice to inviting tender and subsequent clarification if any furnished by MSEDCL for the purpose of submitting the offer by the Bidder.
- xii. "CC" means the Conditions of Contract.
- xiii. "SUPPLY, INSTALLATION& FMS ACTIVITY" covers the entire scope of this tender document.
- xiv. "Notice in Writing" or "Written Notice" as per clause 4.2 Notices.
- xv. "Schedule" or "Work Schedule" shall mean the accepted schedules between the Bidder and MSEDCL forming part of the contract.
- xvi. "Letter of Intent (LOI)/ Notice of award/ Letter of Award (LOA)" means intimation from MSEDCL by a letter / fax / email to the Bidder that his tender has been accepted in accordance with the provisions contained in that letter / fax / email.
- xvii. "Contract Price" means the sum indicated in the LOI subject to such additions thereto or deductions there from as may be made under the Provisions hereinafter contained

- xviii. "Date of award of contract" shall mean the date of issue of Letter of Intent or the date of issue of acceptance of tender or date of contract whichever is earlier.
- xix. "Approval of MSEDCL" shall mean the written approval by MSEDCL or his authorized representative of a document, a diagram / drawing or other particulars of matters in relation to the contract.
- xx. Words importing persons shall include firms, companies, corporations, associations or body of individuals whether incorporated or not. Words importing masculine gender or singular number shall also include the feminine gender and plural number and vice-versa where the contract so requires or permits.
- xxi. The contract and all correspondence between the MSEDCL and the Bidder shall be in English language.
- xxii. 'In charge' of Bidder is a person from the Implementation Partner appointed by Bidder. He will be deemed as authorized agent of the Bidder.
- xxiii. The headings to various clauses of this contract shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof of the contract.
- xxiv. "Technical Requirements" mean the requirements mentioned & referred in the Scope of Work given in Section II.
- xxv. "Implementation Schedule" means the Implementation Schedule documented in the Agreed and Finalized Project Plan.
- xxvi. "Bidding Documents" refers to the collection of documents issued by the MSEDCL to instruct and inform bidders of the processes for bidding, selection of the winning bid, and Contract formation, as well as the Contractual conditions governing the relationship between the MSEDCL and the Bidder .
- xxvii. Bidder's Representative" means any person nominated by the Bidder and named as such in the Contract Agreement and approved by the MSEDCL in the manner provided Tender (Bidder 's Representative) to perform the duties delegated by the Bidder .
- xxviii. "System" or "Subsystem" means any application component, developed application or module to meet the technical requirements that may be supplied, installed, tested, and commissioned individually before Commissioning of the entire SUPPLY, INSTALLATION & FMS ACTIVITY.
- xxix. "Services" means all technical, logistics, management, and any other Services to be provided by the Bidder under the Contract to supply/ develop, install, implement, customize, integrate, and make operational the proposed SUPPLY, INSTALLATION & FMS ACTIVITY. Such Services may include, but are not restricted to Installation, Commissioning, Go-Live, testing and Training.
- xxx. "The Project Plan" means the document to be developed by the Bidder and approved by MSEDCL based on the requirements of the Contract and the Development and Implementation Plan included in the bid. For the sake of clarity, "the Agreed and Finalized Project Plan" refers to the version of the Project Plan approved by the MSEDCL. The project plan may be changed/ modified during the course of the project. Should the Project Plan conflict with the Contract in any way, the relevant provisions of the Contract, including any amendments, shall prevail.
- xxxi. "Materials" means all the deliverables as per the agreement to be provided to MSEDCL under the Contract.
- xxxii. "Intellectual Property Rights" means any and all copyright, moral rights, trademark, patent, and other intellectual and proprietary rights, title and interests worldwide, whether vested, contingent or future including without limitation all economic rights and all exclusive rights to reproduce, fix, adapt, modify, translate, create derivative works from, extract or re-utilize data from, manufacture, introduce into circulation, publish, distribute, sell, license, sublicense, transfer, rent, lease, transmit or provide access electronically, broadcast, display, enter into computer memory, or otherwise use any portion or copy, in whole or in part, in any form, directly or indirectly, or to authorize or assign others to do so.

- xxxiii. "Offered Product for evaluation purposes" means the product offered by the vendor or its version predecessors.
- xxxiv. "Delivery" means delivery of different items at MSEDCL's site as per the scope given in Tender.
- xxxv. "Installation" means that the Meter installed on the Distribution Transformer and made available for Commissioning as provided in Tender.
- xxxvi. "Day" means calendar day of the Gregorian calendar.
- xxxvii. "Week" means seven (7) consecutive Days, beginning the day of the week as is customary in the India.
- xxxviii. "Month" means calendar month of the Gregorian calendar.
- xxxix. "Year" means a period of twelve (12) consecutive Months.
- xl. "Effective Date/ Kick-off Date" means the date of signing of the Contract Agreement, for the purpose of determining the Delivery, Installation, and Acceptance dates for the "SUPPLY, INSTALLATION & FMS ACTIVITY".
- xli. "Contract Period" is the time period during which this Contract governs the relations and obligations of the MSEDCL and Bidder in relation to the SUPPLY, INSTALLATION & FMS ACTIVITY.

6.2 NOTICES

Any notice, request or consent required or permission to be given or made pursuant to this contract shall be in writing. Any such notice, request or consent shall be deemed to this contract shall be in writing. Any such notice, request or consent shall be deemed to have been given or made when delivered in person addressed to an authorized representative of the party with whom the communication is, or were sent by registered mail, telex, telegram or facsimile to such Party at the address specified in the clause of submission of proposal.

6.3 INTERPRETATION

- i. Language: All Contract Documents, all correspondence, and communications to be given shall be in English and the Contract shall be construed and interpreted in accordance with that language.
- ii. If any of the Contract Documents, correspondence, or communications are prepared in any language other than English, the translation of such documents, correspondence, or communications shall prevail in matters of interpretation. The originating party, with respect to such documents, correspondence, and communications, shall bear the costs and risks of such translation.
- iii. Headings: The headings and marginal notes in the CC are included for easy reference and shall neither constitute a part of the Contract nor affect its interpretation.
- iv. Persons: Words importing persons or parties shall include firms, corporations, and government entities.
- v. Entire Agreement: The Contract constitutes the entire agreement between the MSEDCL and Bidder with respect to the subject matter of Contract and supersedes all communications, negotiations, and agreements (whether written or oral) of parties with respect to the subject matter of the Contract made prior to the date of Contract.
- vi. Amendment: No amendment or other variation of the Contract shall be effective unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party to the Contract.
- vii. Severability: If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable such prohibition, invalidity, or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.

6.4 RELATIONSHIP AND LIMITED AUTHORITY

The Bidder shall not have, nor shall he represent himself as having, any authority to commit the Board to any contract, agreement, or other legal commitments in the name of or binding on the Board or to pledge or extend credit in the name of the Board. The Bidder shall perform the scope and services hereunder as an independent Bidder and not as an employee, agent, partner or joint venture partner of the Board.

6.5 OBLIGATIONSOFTHE SUPPLY, INSTALLATION& FMS ACTIVITY FOR CT EMBEDDED METER

i. GENERAL

Standard of Performance

The bidder shall always act, in respect of any matter relating to this Contract or to the Services, as faithful advisor to the Owner.

ii. CONFIDENTIALITY

The Bidder and their Personnel shall not, during the term and within two years after the expiration of this Contract, disclose any proprietary or confidential information relating to the Project, the services, this contract or the Owner's business or operations without the prior written consent of the Owner.

iii. DISCLOSURE

The Bidder shall agree that the MSEDCL has the right to fully disclose this contract and the identity of the Bidder, if such disclosure is required by legal authority or necessary to satisfy lender(s) information requests in support of GoM approval process etc.

iv. INDEMNITY

The Bidder assumes responsibility for and shall indemnify and save harmless MSEDCL, from all liability, claims, costs, expenses, taxes and assessments including penalties, punitive damages, attorney's fees and court cost which are, or may be required with respect to any breach of the Bidder's obligations under the Contract, or for which the Bidder has assumed responsibility under the Contract, including those imposed under any contract, local or national and international law or laws, or in respect of all salaries, wages or other compensation of all persons employed by the Bidder in connection with performance of any work covered by the Contract. The Bidder shall execute and deliver such other further instruments to comply with all the requirements of such laws and regulations as may be necessary there under to confirm and effectuate the Contract and to protect MSEDCL.

MSEDCL shall not be in any way held responsible for any accident or damages incurred or claims arising there from during discharge of the obligations by Bidder under this contract.

v. Liability of the Bidder

Subject to additional provision, if any, the Bidder's liability under this contract shall be as provided by the Applicable Law

vi. Bidder's actions requiring owner's prior approval

The Bidder shall obtain the Owner's prior approval in writing before taking any of the following actions:

- i) Appointing or removing any member of the Personnel as are listed in their bid ("Bidder's Key Personnel")
- ii) Taking up a similar kind of project elsewhere during discharge of duties /obligations under this contract.

vii. Assignment And Subletting

The Bidder shall not transfer or sublet or assign the contract or any part thereof or any benefit

or interest therein or there under. In the event of the Bidder contravening this condition, MSEDCL shall be entitled to place the contract elsewhere on the Bidder's account and at his risk and then the Bidder shall be liable for any loss or damage which MSEDCL may sustain in consequence or arising out of such replacing of contract.

viii. Patent Infringement

The Bidder shall protect, indemnify and save harmless MSEDCL, his customers and users of his products, against all liability, including cost, expenses, claims, suits or proceedings at law in equity or otherwise, growing out of or in connection with any actual or alleged patent infringement (including process patents, if any) or violation of any license and will defend or settle at the Bidder's own expense any such claims, suits or proceedings.

MSEDCL will notify the Bidder in writing of any such claim, suit, action or proceeding coming to his attention, giving authority and all available information and assistance for the Bidder's defense of the same. The Bidder shall appoint a counsel at his own expenses in consultation with MSEDCL to collaborate in the defense of any such claim, suit, action or proceeding.

ix. Reporting Obligations

The Bidder shall submit, to the Owner, the final project report along with the documents in the format as needed by the owner.

6.6 TERMINATION OF THE CONTRACT

Termination for Purchaser's Convenience: The Purchaser may at any time terminate the Contract for any reason by giving the Bidder a ninety days (90) notice of termination that refers to this Clause.

- i. Upon receipt of the notice of termination under above Clause, the Bidder shall either as soon as reasonably practical or upon the date specified in the notice of termination cease all further work, except for such work as the Purchaser may specify in the notice of termination for the sole purpose of protecting that part of the "SUPPLY, INSTALLATION OF CT EMBEDDED METER AND IMPLEMENTATION OF FMS already executed, or any work required to leave the site in a clean and safe condition. In addition, the Bidder, subject to the payment specified in below Clause, shall deliver to
 - (A) The Purchaser the parts of the "SUPPLY, INSTALLATION OF CT EMBEDDED METER AND IMPLEMENTATION OF FMS" executed by the Bidder upto the date of termination;
 - (B) The extent legally possible, assign to the Purchaser all right, title, and benefit of the Bidder to the "SUPPLY, INSTALLATION OF CT EMBEDDED METER AND IMPLEMENTATION OF FMS", or Subsystem, as at the date of termination, and, as may be required by the Purchaser;
 - (C) The Purchaser all non-proprietary drawings, specifications, and other documents prepared by the Bidder as of the date of termination in connection with the "SUPPLY, INSTALLATION OF CT EMBEDDED METER AND IMPLEMENTATION OF FMS.
- ii. In the event of termination of the Contract under above Clause, the Purchaser shall pay to the Bidder the payment for invoices submitted prior to the effective date of termination.
- iii. Termination for Bidder's Default
 - A. The Purchaser, without prejudice to any other rights or remedies it may possess, may terminate the Contract forthwith in the following circumstances by giving a notice of termination and its reasons therefore to the Bidder, referring to this Clause.
 - a. If the Bidder becomes bankrupt or insolvent, has a receiving order issued against it, compounds with its creditors, or, if the Bidder members are corporation, a resolution is passed or order is made for its winding up (other than a voluntary liquidation for the purposes of amalgamation), a receiver is appointed over any part of its undertaking or assets, or if the Bidder takes or suffers any other analogous action in consequence of debt;
 - b. If the Bidder assigns or transfers the Contract or any right or interest therein in

violation of the provision of Tender Clause (Assignment and subletting);

- c. If the Bidder, in the judgment of the Purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the Contract, including but not limited to willful misrepresentation of facts concerning ownership of Intellectual Property Rights in, or proper authorization and/or licenses from the owner to offer, the hardware, software, or materials provided under this Contract;
- d. If the Tenderer, before contract award, has committed a transgression through a violation of any of the terms under contract agreement or in any other form such as to put his reliability or credibility as Tenderer in to question, the Principal is entitled to disqualify the tenderer from the tender process or to terminate the contract, if already signed for such reason;
- e. If the tenderer, after the Contract award has committed a transgression through a violation of any of the tender terms or in any other form such as to put his reliability or credibility as Tenderer in to question, the Principal is entitled also to exclude the Tenderer / Contractor from future contract process. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the circumstances of the case, in particular the number of transgressions, the position of the transgressors within the company hierarchy of the Tenderer / Contractor and the amount of damage. The exclusion will be imposed for a minimum of 6 months and a maximum of 3 years.

B. If the Bidder:

- a. Has abandoned or repudiated the Contract;
- b. Has without valid reason failed to supply & installation and implementation of meter reading through DCU in project area as per Milestone (Annexure – XI) submitted by the bidder.
- c. Has failed to submit minimum 75 % meter data/readings through DCU for consecutive three months period in the awarded project area.
- d. Persistently fails to execute the Contract in accordance with the contract or persistently neglects to carry out its obligations under the Contract without just cause;
- e. Refuses or is unable to provide sufficient Materials, Services, or labour to execute and complete the SUPPLY, INSTALLATION OF CT EMBEDDED METER AND FMS in the manner specified in the Agreed and Finalized Project Plan furnished at rates of progress that give reasonable assurance to the Purchaser that the Bidder will implement as above solution in given area, then, the Purchaser may, without prejudice to any other rights it may possess under the Contract, give a notice to the Bidder stating the nature of the default and requiring the Bidder to remedy the same. If the Bidder fails to remedy or to take steps to remedy the same within fourteen (14) days of its receipt of such notice, then the Purchaser may terminate the Contract forthwith by giving a notice of termination to the Bidder that refers to this Clause.
- f. Upon receipt of the notice of termination, the Bidder shall ,either immediately or upon such date as is specified in the notice of termination:
 - a. Cease all further work, except for such work as the Purchaser may specify in the notice of termination for the sole purpose of protecting that part of the “SUPPLY, INSTALLATION OF CT EMBEDDED METER AND IMPLEMENTATION OF FMS” already executed or any work required to leave the site in a clean and safe condition;
 - b. Deliver to the Purchaser the parts of the “SUPPLY, INSTALLATION OF CT EMBEDDED METER AND FMS by the Bidder up to the date of termination, subject to the receipt of payment stated in clause.
 - c. To the extent legally possible, assign to the Purchaser all right, title and benefit of

the Bidder to the “SUPPLY, INSTALLATION OF CT EMBEDDED METER AND FMSIMPLEMENTATION” or subsystems as at the date of termination, Contract.

- d. Deliver to the Purchaser all drawings, specifications, and other documents prepared by the Bidder as at the date of termination in connection with the “SUPPLY, INSTALLATION OFCT EMBEDDED METER AND FMS IMPLEMENTATION”.
 - e. After termination of contract, infrastructure installed by the agency such as Boxes, Cables etc. shall be handed over to MSEDCL. All hardware and software installed during the contract period will be treated as MSEDCL property.
- iv. The Purchaser may enter upon the site, expel the Bidder, and complete the “SUPPLY, INSTALLATION OFCT EMBEDDED METER AND IMPLEMENTATION OF FMS itself or by employing any third party. Upon completion of the “SUPPLY, INSTALLATION AND IMPLEMENTATION OF FMS” or at such earlier date as the Purchaser thinks appropriate, the Purchaser shall give notice to the Bidder that such Bidder’s Equipment will be returned to the Bidder at or near the site and shall return such Bidder’s Equipment to the Bidder in accordance with such notice. The Bidder shall thereafter without delay and at its cost remove or arrange removal of the Bidder’s Equipment from the site.

6.7 FORCE MAJEURE

If at any time during the continuance of the Contract, the performance in whole or in part by either party or any obligations under the Contract shall be prevented or delayed by reason of any war, hostilities, act of public enemy, civil commotion, sabotage, fire, floods, explosions, epidemics, quarantine restrictions and Acts of God (hereinafter referred to as 'Events') and provided notice of the happening of any of the above mentioned Event duly certified by Indian Chamber of Commerce in case of Indian Parties or International Chamber of Commerce, Paris, France in case of foreign parties) is given by either party to the other within fifteen (15) days from the date of occurrence thereof, MSEDCL shall have the right by reason of such Event to terminate the Contract without however affecting the right to any claim for damages on the Bidder in respect of such non-performance or delay in performance. However, in the event of MSEDCL having agreed, the services under the Contract shall be resumed after such Event has come to end/ceases to exist. Should one or both the parties be prevented from fulfilling their contractual obligations by a state of force majeure lasting continuously for a period of at least 6 months and MSEDCL not having terminated the Contract by that time, the two parties shall consult each other regarding the further implementation of the Contract with the provision that if no mutually satisfactory arrangement is arrived at within a period of 3 months from the expiry of 6 months referred to above, the Contract shall be deemed to have expired at the end of the 3 months referred to above. The above mentioned expiry of the Contract will imply that both the parties have obligations to reach an agreement regarding the winding up and financial settlement of the Contract.

6.8 FAIRNESS AND GOOD FAITH

(i) Good Faith

The parties under take to act in good faith with respect to each other’s rights under this contract and to adopt all reasonable measures to ensure the realization of the objective so for this contract.

(ii) Operation of Contract

The parties recognize that it is impractical in this contract to provide for every contingency, which may arise during the life of this contract, and the parties hereby agree that it is their intention that this contract shall operate fairly as between them and without detriment to the interest of either of them.

6.9 SETTLEMENT OF DISPUTES

- (i) The decisions, opinions, directions, certificate so evaluation of the MSEDCL with respect to all or any of the matters under Tender clauses and special conditions of contract for the decision of which specific provisions have been made here of, which matters here in referred to as “excepted matters” shall be final and conclusive and binding on the parties hereto shall be without appeal.
- (ii) Any notice to be given to the Bidder under the terms of these conditions shall be considered as duly served if the same shall have been delivered to, left for, or posted by registered post to the address of the Bidder at their registered office or address given in the tender. Similarly, any notice to be given to MSEDCL shall be considered as duly served, if the same shall have been delivered to, left for, or posted by registered post to MSEDCL’S office at Mumbai
- (iii) The Agreement shall in all respects be construed and carried into effect and rights and liabilities of the parties hereto shall be regulated according to the laws of India.
- (iv) Mutual Settlement of Disputes : Except where otherwise provided for in the contract, all questions and dispute relating to any matter directly or indirectly connected with this agreement shall in the first place be resolved through mutual discussions, negotiations, deliberation and consultations between both the parties.
- (v) Conciliation: If the effort to resolve all or any of the disputes through mutual settlement fails, such disputes shall be referred to the conciliator to be appointed by the mutual agreement of both the MSEDCL and the Bidder. The conciliator shall make the settlement agreement after the parties reach agreement and shall give an authenticated copy thereof to each of the parties. The settlement agreement shall be final and binding on the parties. The settlement agreement shall have the same status and effect of an arbitration award. The venue of Conciliation shall be Mumbai, Maharashtra, India.
- (vi) Arbitration: Any disputes, differences, whatsoever, arising between the parties out of or relating to the construction, meaning, scope, operation or effect of this Contract shall be settled between the MSEDCL and the Bidder amicably as mentioned in Tender. If however, MSEDCL and the Bidder are not able to resolve their disputes / differences amicably as aforesaid the said disputes / differences shall be settled by Arbitration. The Arbitration proceedings, in case of foreign Contractor shall be regulated and governed by the rules of Arbitration and Conciliation of International Chamber of Commerce, Paris. The venue shall be Mumbai, Maharashtra, India.
- (vii) The arbitration proceedings in case of Indian Contractor shall be regulated and governed by Arbitration and Conciliation Act, 1996 and the statutory modification thereof to the said act if any. Each party shall appoint its arbitrator; the two arbitrators so appointed shall appoint a third arbitrator who shall be the presiding arbitrator. The Arbitral Tribunal shall give a reasoned award. The award made in pursuance thereof shall be binding on the parties. The arbitration shall be governed and regulated in all respect according to Laws of India. The venue shall be Mumbai, Maharashtra, India.
- (viii) The further progress of any work under the contract shall unless otherwise directed by MSEDCL continue during the arbitration proceedings and no payment due or payable by MSEDCL shall be withheld on account of such proceedings. It shall not be open to arbitrator(s) to consider and decide whether or not such work shall continue during the arbitration proceedings.
- (ix) The courts at Mumbai, Maharashtra, India shall alone have jurisdiction and the applicable laws shall be the Laws of India.

6.10 Policy & Procedure for Debarring of Agency from Business Dealings with MSEDCL.

The procedure for debarring the agency from business dealings with MSEDCL shall be as defined in the Policy & Procedure for Debarring of Agency from Business Dealings with MSEDCL. The same can be downloaded from MSEDCL website with the following link.

<https://www.mahadiscom.in/supplier/wp-content/uploads/2018/06/Final-Booklet-Single-Page.pdf>

SPECIAL CONDITIONS OF CONTRACT

Special Conditions of Contract (SCC) shall be read in conjunction with all the conditions specified in the General Conditions of Contract, scope for "SUPPLY, INSTALLATION OF CT EMBEDDED METER AND IMPLEMENTATION OF FMS", Instructions to tender read with notice inviting tender and any of their documents forming part of this tender where ever context so requires.

1) TENDER SAMPLE

The bidders who have participated in MSEDCL's earlier Tender MMD/T-NSC-08/1220 for procurement of LTAC Three Phase, four wire 40-200 Amps energy meter with in-built CT & Modem (CT Embedded Meter) and whose Price Bids were opened, they are exempted from submission of sample against present tender provided they submit an undertaking in original on stamp paper of Rs. 200/- along with offer that the meter will be supplied strictly as per Technical Specification of tender MMD/T-NSC-08/1220. In case of any deviation, the order placed shall be liable for cancellation without any financial liabilities on MSEDCL.

For testing of tender sample meters at any one NABL Lab., IT Section of MSEDCL and Testing Division MSEDCL, other bidders are required to submit 5 (Five) nos. of sample meters and 1 (One) No. of Hand Held Unit (HHU) as per technical specifications, in the office of the Chief Engineer, MSEDCL, Material Management Dept., 1st Floor, Prakashgad, Bandra (E), Mumbai – 400 051 on or before the time & date stipulated for submission of offer.

Packing of tender samples:

"Sample meters shall be suitably packed in order to avoid damage during transit or handling. In case, the sample meters found damaged, it shall be the bidder's sole responsibility. Therefore, bidders should ensure that the meters packed are intact."

The type test reports for meter & SMC meter box are to be submitted along with offer as per technical specifications.

2) Order Quantity, Delivery Schedule and Quality Testing:

- (a) The L.O.A. will be issued for entire ordered quantity and same shall be considered as release order for entire quantity.
- (b) The sample meters & meter box drawn from first lot and subsequent lot shall be sent for type test to NABL lab for Quality Testing.
- (c) In case of failure of the sample meters / meter box in type tests (Quality Testing), then the balance ordered quantity shall stand cancelled & for the quantity already accepted against the order and used, deduction in price of 10% of the value of material supplied plus applicable taxes, if any shall be made

3) GUARANTEE:

For Meter & Hand Held Unit (HHU):

"The meter/ HHU shall be guaranteed for the period of five (5) years from the date of commissioning or five and half years from the date of dispatch whichever is earlier".

For Meter Box / Enclosure:

"The supplier shall have to give five and half (5.5) years guarantee of the Meter Box from the date of supply or five (5) Years from Date of Commissioning whichever is later to MSEDCL."

4) CONTRACT PERFORMANCE DEPOSIT

Contract Performance Deposit amounting to 10% of the contract value shall be paid by the successful bidders.

5) Undertaking cum Indemnity Bond

The bidder has to submit Undertaking cum Indemnity Bond in Annexure - III.

6) Type Test

In case of placement of order, the successful bidder required to get the Type Test Reports of Energy Meter, Hand Held Unit (HHU) and SMC Meter Box approved from Chief Engineer (Testing) before commencement of supply.

OTHER PARTICULARS

A. ROLE OF BIDDER

1. The Bidder has the overall responsibility as per the Scope mentioned at Clause -2 of this document.
2. The Bidder shall be responsible for timely provision of all resources, information, and decision making under its control that are necessary to reach a mutually agreed and Finalized Project Plan as per delivery schedule of scope of work. Failure to provide such resources, information, and decision-making may constitute grounds for termination.
3. The Bidder shall acquire in its name all permits, approvals, and/or licenses from all local, state, or national government authorities or public service undertakings that are necessary for the performance of the Contract.
4. For any of the communication solution proposed by the bidder, selection of service provider will be responsibility of the bidder. MSEDCL will provide to the bidder the required SIM cards, under NBSP contract with service provider such as Airtel, Vodafone, and Reliance Jio.
5. The Bidder shall comply with all laws in force in India. The laws will include all national, provincial, municipal, or other laws that affect the performance of the Contract and are binding upon the bidder. The Bidder shall indemnify and hold harmless the MSEDCL from and against any and all liabilities, damages, claims, fines, penalties, and expenses of whatever nature arising or resulting from the violation of such laws by the Bidder or its personnel, but without prejudice to Tender Conditions. The Bidder shall not indemnify the MSEDCL to the extent that such liability, damage, claims; fines, penalties, and expenses were caused or contributed to by a fault of the MSEDCL.
6. The Bidder shall provide the key personnel namely the Project Leader, Module Leaders, Quality Assurance personnel any Specialist/Analysts required as appropriate, need to have sufficient experience as per Tender Conditions in terms of relevance and number of years required to implement the "SUPPLY, INSTALLATION OF CT EMBEDDED METER AND IMPLEMENTATION OF FMS". Should the profile of any personnel be not acceptable to the MSEDCL will require the Bidder to suitably replace such personnel. They are to be assigned to the project on full time basis.
7. If for any reason beyond the control of the Bidder, there arises a need to replace any personnel, the Bidder shall provide a replacement person of equivalent or better qualification and experience, subject to the written approval of the MSEDCL.
8. Neither the Bidder nor its Personnel shall during the term of this Contract, engage in any business or professional activities in India/ Abroad which would conflict with the activities assigned to them under this Contract.
9. The Bidder is responsible for performing and safely storing, timely and regular backups of its data and Software in accordance with accepted data management principles, except where such responsibility is clearly assigned to the MSEDCL elsewhere in the Contract.
10. The Bidder will have primary responsibility for the successful running and stabilization in accordance with Tender Conditions.
11. In case project gets delayed due to any reason attributed to Bidder, no additional payment shall be done.
12. The Bidder shall provide the adequate ONLINE Data as per demand of MSEDCL upto satisfaction of MSEDCL for the period of 5 years from Date of Commissioning. It will be responsibility of Bidder to provide and amend necessary software which will be matching with MSEDCL FMS System and Integration of Data.

B. ROLE OF MSEDCL

1. The MSEDCL shall ensure the availability of all information and/or data to be supplied by the MSEDCL to the Bidder.
2. The MSEDCL shall be responsible for arrangement of permission where meters will be installed by the bidder. Also MSEDCL will arrange the outages/shut downs of supply during installations

wherever required by the bidder.

3. The Bidder will provide the monthly installation program to MSEDCL at the beginning of each month. Also MSEDCL will issue identity cards to staff of the bidder.
4. The MSEDCL will design at appropriate staff for coordination of Shutdowns and arrangement of cables to be given by the Bidder and shall endeavor to make all appropriate arrangements for such training as specified in the tender, the Agreed and Finalized Project Plan, or other parts of the Contract.

C. PROJECT PLAN

1. In close cooperation with the MSEDCL and based on the Preliminary Project Plan included in the Bidder's bid, the Bidder shall develop a Project Plan encompassing the activities specified in the Contract.
2. The Bidder shall formally present to the MSEDCL the Project Plan in accordance with the Technical Requirements. The bidder has to specify the strategy and methodology with time frame and the synchronization of various phases of Project to ensure completion of Project in time. The Project plan shall also include a PERT chart describing the activities, resources required on the time for completion. The plan shall also bring out the critical areas needing continuous attention of the MSEDCL.
3. If required, the impact on the Implementation Schedule of modifications agreed during finalization of the Agreed and Finalized Project Plan shall be incorporated in the Contract by amendment, in accordance with Tender Conditions.
4. The Bidder shall undertake to supply, install energy meters and implement, integrate, commission AMR solution in accordance with the Agreed and Finalized Project Plan and the Contract.
5. The Progress and other reports specified shall be prepared by the Bidder and submitted to the MSEDCL in the format and frequency specified in the Agreed and Finalized Project Plan.
6. Changes to the Project Plan, if required, shall be made with the mutual consent of the MSEDCL and the Bidder.

D. PRODUCT UPGRADES

1. At any point during performance of the Contract, shall technological advances be introduced by the Bidder for Subsystems originally offered by the Bidder in its bid and still to be delivered, the Bidder shall be obligated to offer to the MSEDCL the latest versions of the available Subsystem having equal or better performance or functionality at the same or lesser unit prices, pursuant to Tender Conditions.
2. During performance of the Contract, the Bidder shall offer to the MSEDCL all new versions, releases, and updates as well as related documentation and technical support services, within twenty eight (28) days of their availability from the Bidder to other clients of the Bidder in the MSEDCL's Country, and no later than twelve (12) months after they are released in the country of origin. In no case will the prices for this Software exceed those quoted by the Bidder in the Price Schedule form in its bid.
3. During the contract period the MSEDCL may require the Bidder to provide at no additional cost to the MSEDCL all new versions, releases within twenty eight (28) days of their availability from the Bidder to other clients of the Bidder in the MSEDCL's country, and no later than twelve (12) months after they are released in the country of origin of the Software.
4. The MSEDCL may at its discretion introduce all new versions, releases or updates of the Software provided that the new version, release, or update does not adversely affect the operation or performance. In cases where the new version, release, or update adversely affects the System operation or performance, or requires extensive reworking, the Bidder shall continue to support and maintain the version or release previously in operation for as long as necessary to allow introduction of the new version, release, or update. In no case shall the Bidder stop supporting or maintaining the version or release of the Software in operation, during the contract period. The MSEDCL shall use all reasonable endeavors to implement any new version, release, or update.

5. No unauthorized code:

The Bidder shall not end any software that the MSEDCL is not licensed to use, unless the product is activated by a required license key. The Bidder shall also certify that all their products and updates as supplied to the MSEDCL shall be free from viruses, worms, Trojans, spy-ware etc.

E. REPLACEMENT OF Meters LOST, BROKEN OR DAMAGE

Agency has to make sure that infrastructure installed during contract period, should be always is in working condition. At the end of contract period, infrastructure in the field shall be verified and after verification if infrastructure installed is found in working condition then the last month payment and security deposit will be released in reasonable period.

F. GOVERNANCE LAW

This contract, its meaning and interpretation, and the relation between the Parties shall be governed by the Applicable Law. The laws applicable to this contract shall be the laws in force in India. The courts of Mumbai, India shall have exclusive jurisdiction in all matters arising under and on account of this contract.

G. GENERAL

1. There shall be no suspension of work on account of arbitration provided that the obligations of the MSEDCL and bidder shall not be altered by reasons of arbitration being conducted during the progress of Works. Neither party shall be entitled to suspend the work to which the dispute relates on account of arbitration.
2. The cost of arbitration shall be borne by the Implementation partner. The cost shall inter-alia include the fees of the arbitration(s) as per the rates fixed by the arbitrator from time to time.
3. The parties agree to comply with the awards resulting from arbitration and waive their rights to any form of appeal insofar as such waiver can validly be made.

H. INSURANCE

The insurance as per GoM guidelines and safety of all men and material of the Bidder at the MSEDCL's site shall be the responsibility of the Bidder. The Bidder, at his cost shall arrange, secure and maintain insurance as may be necessary and for all such amounts to protect his interests and the interests of the Owner against all risks.

I. BID SECURITY

The bid security of the successful bidder will be returned when the bidder has signed the Contract Agreement and furnished the required performance guarantee. The bid security of the unsuccessful bidders will be returned as promptly as possible, afterward and signing of the Contract Agreement or expiration of the period of bid validity, whichever is earlier.

J. PERFORMANCE GUARANTEE / SECURITY DEPOSIT

Within 14 (fourteen) days of receipt of the Letter of Award from MSEDCL, the successful bidder shall furnish to MSEDCL a Performance Bank Guarantee Bond for proper performance of the Contract as well as satisfactory performance of operational support, Product & Implementation to an amount not less than Ten Percent (10%) of the Contract Price in accordance with the Conditions of Contract. The form of performance guarantee is provided in Annexure – IV (B) of the bidding documents may be used or some other form acceptable to MSEDCL. The performance guarantee shall be denominated solely in Indian Rupees, and shall be in the form of an unconditional and irrevocable Bank Guarantee issued by a Nationalized or Scheduled Bank. The bank guarantee shall, if invoked, be encashable when presented in the branch office of such Bank located in Mumbai, Maharashtra.

1. Failure of the successful bidder to comply with the requirements Tender Conditions shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security.
2. The Performance Bank Guarantee shall be returned to the bidder after successful completion of the entire work to the fullest satisfaction of MSEDCL at the end of the contract period that is after the

defect liability period.

3. The successful bidder is required to fulfill requirement of Product & Implementation as per criteria defined in this document, for a period of five years from the date of start of project.
4. If required the amount and validity of additional Bank Guarantee/s in case of any changes necessitated to be submitted by the successful bidder shall be calculated by MSEDCL on the basis of details to be provided by the successful bidder. The successful bidder has to submit the fresh performance guarantee two months prior to completion of work. In case the contractor fails to submit the information and fresh Performance Guarantee, the retention amount available with MSEDCL will be withheld & it will be released only after submission of the required Performance Guarantee, by the successful bidder.
5. If Bidder or their employees damage, break, deface the property belonging to MSEDCL or others during the execution of the contract, the same shall be made good by the Bidder at his own expense and in default thereof; the MSEDCL may cause the same to be made good by other agencies and recover expenses from the Bidder for which the certificate of the MSEDCL shall be final.

K. FORFEITURE OF PERFORMANCE BANK GUARANTEE

- (a) Whenever any claim against the Bidder for the payment of a sum of money arises out of or under the contract, MSEDCL shall be entitled to recover such sum by encashing in part or whole the P.B.G. Bond submitted by the Bidder. In the event of the P.B.G. Bond being insufficient or if no other security has been taken from the Bidder, then the balance or the total sum recoverable as the case may be, shall be deducted from any sum then due or which at any time thereafter may become due to the Bidder. The Bidder shall pay to MSEDCL on demand any balance remaining due.
- (b) In the event of any breach by the Bidder or any loss or damage occasioned by MSEDCL which in the opinion of MSEDCL has arisen, the decision where of shall be final and binding on the Bidder or in the event of the termination of the contract for any such breach, the P.B.G. Bond is liable to be forfeited. The decision of forfeiture by MSEDCL shall be final and binding on the Bidder.

L. PRICES

1. The Bidder should submit their prices as per enclosed price bid format at Annexure – VI.
2. The Price quoted by the Bidder shall remain firm and binding during the Contract Period subject to the variations stipulated hereinafter. The break-up of Price with respect to the supply/service and the respective quantities for successful implementation shall be considered as indicative. The Bidder shall perform all his works as envisaged in the Agreement.
3. If the actual physical supplies and services are found more than those indicated by the Bidder in the Price Schedule, the Bidder shall not be entitled for any additional amount from MSEDCL. However in the event of decrease in actual supplies/services, the Contract Price shall be adjusted for the decreased supplies/services.
4. Unless specified otherwise in MSEDCL's Requirements, the prices to be quoted are intended to provide for all work duly and properly completed in accordance with the General Conditions of Contract and Special Conditions of Contract.
5. All payments shall be made directly to the bidder on necessary certification by the Bidder and on compliance of contractual terms & conditions. No Letter of Credit is envisaged for Rupee payment.
6. In case of shortage/missing/damage/ failure of any product identified at any point of time within the period specified by the Contract including guarantee period, the agency shall supply/replace the same without any financial implication to MSEDCL. The taxes, duties, clearing & forwarding and other charges incurred by MSEDCL in this regard shall be recovered from the Bidder's pending bills and in case no bills are pending the same shall be made good by the Bidder. The Bidder shall accordingly submit the subsequent invoices.
7. The bidder shall stand guarantee for the overall performance of the contract including for the supplies made/work done and work to be done by their Bidder members. Towards this guarantee,

the Bidder shall submit a performance BG/security deposit for 10% of the Contract Price as per tender Conditions.

8. Considering the progress of the works and in order to meet the Contract Schedule, the Contractor shall carry out the works on round the clock if required, duly complying the statutory and site requirements.
9. Any other activity necessary for the completion of the supply, installation, tests & commissioning up to guarantee period as per General Conditions of Contract, Special Conditions of Contract if any, and Specifications.
10. All procedures required under statutes, for availing any concessions under relevant tax laws shall be adhered to by the Contractor.
11. The bidder shall note that the prices quoted shall include all the items and services listed at Annexure - VI (Price bid format)

M. TAXES & DUTIES

The quoted prices should be 'FIRM' inclusive of all of Govt. Statutory/levies/taxes & duties as applicable.

1. The estimated cost of GST chargeable to MSEDCL by the Contractor, wherever applicable, shall be shown separately in the Bidder's quotation,
2. The bidder should also note that MSEDCL will discharge its tax liability under the most beneficial scheme for availing the maximum cost advantage. Bidder should therefore take any GST to which they may be legally entitled into consideration while offering their quoted rates / prices.
3. Upward variation in GST if any applicable after opening of price bid/revised price/revision in price as the case may be (based on which the order on contract shall be placed) shall be reimbursed by MSEDCL subject to production of necessary documents by the Bidder. Similarly withdrawal/downward revision in variation in GST shall be adjusted in the price quoted and benefit shall be passed to MSEDCL. Variation of GST shall be reimbursed and no other variation shall be considered. Fresh taxes & levies, if any, as may be applicable on this contract, shall be reimbursable against documentary proof to be submitted by the Bidder. The bidder has to consider all taxes & duties applicable on this contract. Any omission, or non- inclusion, either declared or not declared, of any taxes and duties that are applicable at the time of submission of price bid/revised price bid /revision in prices shall not be considered as a reason for reimbursement of such taxes and duties at a later date.
4. During tenure of the contract if any new taxes/duties/levies etc. are imposed or rates undergo changes, as notified by the Government and become applicable to the subject works, the same shall be reimbursed by MSEDCL on production of documentary evidence in respect of payment of the same. Similarly, benefits accruing to agency on account of withdrawal/reduction in any existing taxes and duties shall be passed on to MSEDCL.
5. Variation in GST after opening the Price Schedule and/or revised Price Schedule as the case may be (based on which the order on Contract shall be placed) shall be reimbursed by MSEDCL subject to production of necessary documentary evidence by the Contractor at the time of submission of bill. Similarly withdrawal/ downward revision in GST shall be adjusted in the price quoted and benefit shall be passed to MSEDCL. However if the Work is delayed for the reasons attributable to MSEDCL and extension of the Time for Completion is granted, variation in Taxes and Duties enacted during Contractual completion/execution period, the adjustment in contract price shall be allowed within the extended period of the Contract. Similarly, if the Work is delayed for the reasons attributable to the Contractor, variations in Taxes and Duties will not be paid.
6. The Contractor shall bear and pay all the liabilities in respect of non-observance of all legal requirements as per various statutory provisions.
7. The adjustment in the Contract Price towards imposition of new taxes or abrogation of existing taxes shall be applicable only if the new tax is enacted or existing tax is abrogated within Contractual delivery/execution period. For any variation due to enactment of new tax or abrogation of existing

tax after Contractual delivery / execution period, adjustment in the Contract Price shall not apply.

8. All formalities required under statutes, for availing any concessions under relevant tax laws shall be adhered to by the Bidder.

N. DEDUCTION OF TAXES AT SOURCES

1. Recovery at source towards income tax calculated at the rate prescribed from time to time under the Income Tax Act 1961 and other relevant sections of Income Tax Act shall be made from the bills of the Bidder and the amount so recovered shall be deposited with the Income Tax Department. Necessary TDS certificate to this effect will be issued to the Bidder in the prescribed pro-forma.
2. If any other taxes / duties are to be recovered at source as per government regulations from time to time the same shall be recovered from the bills payable to the Bidder. Necessary receipt to this effect will be issued to the Bidder in this regard.

O. LIQUIDATED DAMAGES :

1. The Bidder shall stand guarantee for the performance and output as envisaged in the tender specification
2. In case of a delay in the deliverables (milestones as per below table) within the period stipulated in the agreement, the Bidder shall be liable to pay, at the discretion of the competent authority of MSEDCL, the liquidated damages to MSEDCL up to ½ % + GST if applicable per week or part of week on the price, subject to a maximum ceiling of 10% reckoned on the total contract value. Due consideration may be given in the levy of liquidated damages for reasons absolutely beyond the control of the Bidder, for which documentary evidence shall be produced to the satisfaction of the competent authority of MSEDCL. The decision of MSEDCL undersigned shall be final and binding on Bidder.

The Liquidated Damages shall also be applicable 10 % for the Quantity of Unexecuted Work for the reasons attributable to the Bidder.

At any time after the placement of this order if the Bidder fails to fulfill the obligations arising out of this order MSEDCL will have the right to get the work done from any other agency for completing the remaining work at Bidder's risk & cost.

The Liquidated Damages will be made applicable considering the Milestones agreed by the bidder as per Annexure – XI

Milestone	Qty. in Nos.	Timelines (Month wise)	% penalty on Price
1	2	3	4
Supply	To be filled by the bidder	To be filled by the bidder	After the completion of timeline, LD @ 0.5% of committed lot value per week or part-thereof with maximum 10% of the contract value may be levied from the bill of the contractor
Installation	To be filled by the bidder	To be filled by the bidder	
FMS / Meter data communication through AMR	To be filled by the bidder	To be filled by the bidder	

The Milestone submitted by Bidder is tentative. After Award of LOA, Milestone shall be finalized mutually considering scope and time period of works.

P. TRANSFER OF OWNERSHIP

Ownership and the terms of usage of the hardware, infrastructure and Materials supplied under the Contract shall be governed by Tender Conditions. After the contract period is over, infrastructure installed by the bidder such as Cables, Meter Boxes, Meters etc. shall be handed over to MSEDCL. All the infrastructure installed during contract period, should be in good working condition while handing over to MSEDCL. All the hardware and software installed during the contract period shall be treated as MSEDCL property. The vendor shall grant the purchaser a perpetual license to use the software without any additional payment or obligations to enter into a contract for maintenance or support.

Q. BILLING AND PAYMENT TERMS

Payment would be made in the following sequence:-

(a) Payment against Supply:

a) For 40-200 A CT Embedded meter:

- (i) 50% of the 40-200 A CT Embedded meter cost for the supplied lot shall be paid after successful Inspection & delivery of the material at MSEDCL store location.
- Payment of the Contract price will be paid through RTGS/NEFT within 60 days from the date of receipt of material in stores in good condition, against inspected lot quantity.
- (ii) 20% of the 40-200 A CT Embedded meter cost shall be paid after successful Installation & uploading the data on billing system with 1st billing reading of meter in MSEDCL MDAS system.
- Will be paid through RTGS / NEFT within 45 days after confirmation of receipt of data through MDAS in consultation with IT & BR section.

b) For SMC meter Box:

- (i) 50% of the SMC meter Box cost for the supplied lot shall be paid after successful Inspection & delivery of the material at MSEDCL store location.
- Payment of the Contract price will be paid through RTGS/NEFT within 60 days from the date of receipt of material in stores in good condition, against inspected lot quantity.
- (ii) 20% of the SMC meter Box cost shall be paid after successful Installation & uploading the data of installed meter on billing system with 1st billing reading of meter in MSEDCL MDAS system.
- Will be paid through RTGS / NEFT within 45 days after confirmation of receipt of data through MDAS in consultation with IT & BR section.

(b) Payment against Installation:

100% payment towards installation of CT Embedded meter along with SMC meter Box for the installed quantity shall be made after successful Installation & uploading the data on billing system with 1st billing reading of meter after confirmation of receipt of data through MDAS in consultation with IT section.

- Will be paid through RTGS/NEFT within 45 days after 1st billing reading of meter after confirmation as above.

(c) Payment for FMS :

Monthly 100% payment towards meter reading actually received in MSEDCL MDAS system (FMS) & 0.5 % of meter cost/month & 0.5 % of SMC meter Box cost/month during the project duration of 5 years will be made after confirmation of receipt of monthly data through MDAS in consultation with IT & BR section on fulfillment of below:

- i. The Bidder shall submit monthly invoice as per agreed payment terms with supporting documents. All the deliverables completed and eligible for payment can be included. Payments will be made within 45 working days through account payee cheque or through RTGS only after submission of the bills and other documents which are correct in all respects for on account bills to the MSEDCL and as per availability of funds. Payment shall be released on submission of the bill with supporting documents and after deducting applicable taxes, penalty and other recoverable. Against deduction of statutory taxes, tax deduction certificates where ever applicable shall be issued at the end of the

month.

- ii. FMS / Billing by the agency shall be done, purely on per reading basis only i.e. for no. of Meter readings downloaded through AMR within reading program declared by the concerned sub-division. No separate charges will be paid for the readings submitted through HHT. Taxes applicable, if any, such as GST or any other tax applicable from time to time shall be paid extra.
- iii. No separate charges will be paid to agency for network support and integration of data collection software with MSEDCL central server i.e. MDAS.
- iv. Amount payable will be corresponding to number of Meters who's billing data downloaded through AMR within reading program in each month.
- v. In case of non-receipt of readings through AMR within reading program, readings should be submitted through HHT. The HHT/reading instrument should be arranged by the bidder at their own cost. No charges will be paid for the readings/billing data submitted through HHT.
- vi. Penalty is applicable for readings not received through AMR within reading program as per annexure-VIII for SLA.
- vii. The bidder shall submit the duly signed, monthly invoices in triplicate along with reading statistics for readings of meters through AMR, at the end of each month to Asst. General Manager (SB), Prakashgad, Mumbai. The invoices submitted will be processed on the basis of meter reading available in the web based data collection software of the bidder, during the reading program declared by the sub-division.
- viii. For communication the cost of SIM card & recurring monthly charges shall be borne by MSEDCL.

R. WAIVER

Failure of MSEDCL to insist upon strict performance of any terms and conditions of the contract will not be deemed a waiver of any rights or remedies that MSEDCL may have and will not be deemed a waiver of any subsequent default under the terms and conditions of the contract. No right or remedy of MSEDCL will be exclusive of any other right or remedy and MSEDCL will have all the rights and remedies given under the contract and now or hereafter existing in law or by statute. The shipping or delivery by the Bidder or receiving of or payment by MSEDCL for the work under this contract will not be deemed a waiver of any rights for any prior failure by the Bidder to comply with any of the provisions of the contract.

S. MEMBERS OF MSEDCL NOT INDIVIDUALLY LIABLE

No Director or official or employee of MSEDCL shall in any way be personally bound or liable for the acts or obligations of MSEDCL under the contract or answerable for any default or omission in the observance or performance of the acts, matters or things which are herein contained. The Bidder shall not be entitled to any increase on the scheduled rates or any other rights or claims whatsoever by reason of any representation, explanation, statement or alleged understanding, promise or guarantees given or to have been given to him by any person.

T. TRANSPORTATION

Bidder shall make his own arrangements for movement of human resources and equipment within and outside the sites/units/offices at the various locations covered by the Contract at his own cost.

U. SUPPLY, INSTALLATION OF CT EMBEDDED METER AND IMPLEMENTATION OF FMS BIDDER'S STAFF AND THEIR CONDUCT

1. The Bidder on award of work shall deploy qualified professionals as designated in the scope of the Contract for implementing SUPPLY, IMPLEMENTATION OF FMS. At any time in the opinion of the MSEDCL, any additional, qualified, experienced engineer is considered necessary; they shall be deployed by the Bidder without any additional charge. The Bidder shall ensure to the satisfaction of the MSEDCL competent and efficient supervision of the consulting services.
2. If any of the Bidder's employee in the opinion of MSEDCL be guilty of any misconduct or be incompetent or insufficiently qualified or negligent in the performance of their duties or that in the

opinion of the MSEDCL, undesirable for administrative or any other reasons, for such person(s) to be employed for providing consultancy services, then at the directions of the MSEDCL the Bidder shall at once remove such person (s) from the site(Works). Vacancy so created shall be immediately filled at the expense of the Bidder by a qualified and competent substitute. Should the Bidder be requested to repatriate any person or removed from this contract, he shall do so and shall bear all costs in connection therewith.

3. The Bidder shall be solely responsible for the proper behavior of his employees and staff employed by him/deputed by him to provide consultancy services. The Bidder shall exercise proper degree of control over them and in particular without prejudice to the said generality the Bidder shall be bound to prohibit/prevent any of his employees (as stipulated above) from trespassing or acting in anyway detrimental or prejudicial to the interest of the community or the properties or occupiers of land or properties in the neighborhood. In the event of such trespassing, the Bidder shall be responsible for all consequent claims or actions for damages or injury or any other grounds whatsoever. The decision of the MSEDCL upon any matter arising under this clause shall be final.
4. All Bidders' personnel entering MSEDCL's premises shall be properly identified by badges of a type acceptable to MSEDCL which must be worn at all times on MSEDCL's premises.
5. It is made clear that no relationship of MSEDCL and employee is created between MSEDCL and the Bidder's resident engineers, employees and no claim for employment of any such personnel shall be tenable or entertained

V. SECURITY AND SAFETY REGULATIONS

The Bidder shall abide by all the safety and security regulations of MSEDCL enforce and promulgated from time to time and other statutory requirements.

W. EMPLOYEES PROVIDENT FUNDS AND MISCELLANEOUS PROVISIONS ACT

1. The Bidder shall ensure strict compliance of provisions of the Employees' Provident Funds and Miscellaneous Provisions Act 1952 and the schemes framed there under so far as they are applicable to their establishments and agencies engaged by them. The Bidder also required indemnifying MSEDCL against any loss or claims or penal damages whatsoever resulting out of non-compliance on the part of the Bidder with the provisions of the aforesaid Act and the Schemes framed there under.
2. The Bidder agrees to and does hereby accept full and exclusive liability for the compliance with all obligations imposed by Employees State Insurance Act, 1948, and the Bidder further agrees to defend, indemnify and hold MSEDCL harmless from any liability or penalty which may be imposed by the Central, State or local authority by reason of any alleged violation by Bidder of the Employees' State Insurance Act, 1948 and also from all claims, suits or proceedings that may be brought against MSEDCL arising under, growing out of or by reason of the work provided for by the Contract whether brought by employees of the Bidder, by third parties or by Central or State Government authority or any political sub-division thereof.
3. The Bidder agrees to file with the Employees State Insurance Corporation (ESI), the Declaration forms and all forms which may be required in respect of the Bidder's employee whose aggregate remuneration is within the specified limit and who is employed in the work provided or those covered by ESI Act and Employees Provident Funds (EPF) Sand Miscellaneous provisions Act 1952 under any amendment to the Act from time to time.
4. In absence of ESI, bidder has to provide Workmen Compensation and medical Insurance (for accident arising out/during the course of employment) for all the employees engaged in the performance of this Contract.
5. The Bidder agrees to maintain all records as required under the Act in respect of employees and payments. Any expenses incurred for the contributions, making contribution or maintaining records shall be to the Bidder's account.
6. MSEDCL shall retain such sum as may be necessary from the total contract value until the Bidder shall furnish satisfactory proof that all contributions as required by the Employees State Insurance Act, 1948, have been paid.

- X.** The Bidder shall conform in all respects with the provisions of any statutory regulations, ordinances or byelaws of any local or duly constituted authorities or public bodies which may be applicable from time to time to the consulting services work.

Y. LIENS

If at any time there should be any evidence or any lien, claim for which MSEDCL might have become liable, which is chargeable to the Bidder, then MSEDCL may pay and discharge the same and deduct the amount so paid from any amount which may be or may become due and payable to the Bidder. If any lien or claim remain unsettled after all payments are made, the Bidder shall refund or pay to MSEDCL the cost such lien or claim including all payments and reasonable expenses. MSEDCL reserves the right to the same.

Z. OTHER TERMS AND CONDITIONS

1. The Bidder is required to enter into agreement after submission of Initial Security deposit.
2. Should MSEDCL at any time require the Bidder to do any work beyond what is provided under this agreement, the Bidder shall undertake to do such additional work for an additional remuneration to be mutually agreed upon.
3. MSEDCL may make modifications/revisions/changes/deletions in the scope of work from time to time and the same shall be complied with by the Bidder without prejudice to his rights under the contract

AA. PROFILES OF TEAMS

The Bidder has to deploy a specialized and trained team for the successful and timely completion of the Project. The bidder shall submit the details of experience with proof.

BB. TEMPORARY SUSPENSION

MSEDCL may at any time temporarily suspend or stop the execution of the Contract or any part thereof by notice in writing to Contractor. All works so suspended or stopped shall be resumed by Contractor based on a schedule to be mutually agreed upon between MSEDCL and Contractor. In case of temporary suspension because of MSEDCL suitable compensation will be paid by MSEDCL on mutually agreed basis.

1. MSEDCL reserves to itself the right to withdraw from the tendering process or from any part thereof, to accept or reject any or all tenders, in full or any part, at any stage of process and / or to modify the process or any part thereof at any time thereof without assigning any reasons whatsoever. No financial obligation shall debit to MSEDCL in such an event. The Tenderers are advised to submit the tender strictly based on the terms and conditions and scope contained in the tender documents including corrigenda/amendments, if any, issued by MSEDCL prior to submission of tender. For corrigenda/amendment with financial implications, if any, issued by MSEDCL after submission of tender, but before opening of Price Bids, the Tenderers shall be entitled to amend their prices.
2. Bid documents shall comprise of various Annexure and Attachments as specified in Tender documents. In addition, any other document / instruction / amendments / Minutes of Meeting/revisions issued by MSEDCL to the bidder during pre-bid Conference or later till due date of submission of the offers, shall also be deemed to be integral part of the bid documents and order. Failure to furnish all the information required by the bidding document in every respect will be at bidder's risk.

ANNEXURE -I
"INDEMNITY BOND"

UNDERTAKING TO BE SUBMITTED BY THE PARENT COMPANY SITUATED ABROAD IN CASE OF THE PARTICIPANT BIDDER WHO IS AN INDIAN BASED SUBSIDIARY ON GENERAL STAMP OF RUPEES 200/-

The Chief Engineer (MMD),
 Maharashtra State Electricity Distribution Co. Ltd.,
 Prakashgad,
 Bandra (E),
 Mumbai – 400 051.

Sub: Undertaking against Tender ____ for ____.

Dear Sir:

We, M/s. ____ having registered office at ____ are the Parent Company of M/s. ____ who have participated against your tender no. ____ for procurement of ____.

We have carefully read and have thoroughly understood and agree to the terms and conditions of the subject tender.

We hereby undertake that in case of placement of order against the subject tender on our subsidiary company, M/s. _____, in the event of we accept all the responsibilities and liabilities for supply of quality meters as per specification of the tender and execution of the contract. We further hereby undertake that we shall be responsible for any liability arising out of the contract placed on M/s. _____ and to pay MSEDCL on demand the sum of rupees as per agreement in the event of any breach of condition of the purchase order, loss and damage of the material till expiry of guarantee period as stipulated in the order. Our liability here under shall not be impaired or discharged by extension of time or variation or alteration made with or without our knowledge or consent by or between the parties to the said contract. This undertaking shall be valid and binding on us upto and including the execution and guarantee period of the order and shall not be terminable by notice or change in the constitution of any of the companies. In case of any dispute arising out of or in connection with this tender or contract, if concluded, the same shall be subject to the exclusive jurisdiction of the "Court in Mumbai (India)."

Yours faithfully,

(Authorized Signatory)

FOR _____

ANNEXURE - II
FORM OF AUTHORISED NOMINEE/ASSIGNEE
(To be submitted on the letter head of the foreign Bidder/Manufacturer)

Date:

To,
The Chief Engineer (MMD),
Maharashtra State Electricity Distribution Co. Ltd.
1st Floor, Prakashgad, Plot No. G-9,
Bandra (East), Mumbai – 400 051.
India

Sub.: Notification of invitation of bids against Tender No. ----- for supply of Static Energy Meters of foreign origin.

Dear Sir,

This has reference to the Tender No. ----- for supply of Static Energy Meters. We M/s. ----- (foreign Bidder/Manufacturer) authorize our Assignee/Nominee in India M/s. ----- to participate against Tender No. ----- . We M/s. ----- (foreign Bidder/Manufacturer) hereby agree, confirm, adopt unconditionally to abide by the offer of M/s. ----- (Assignee/Nominee) for supply of Static Energy Meters.

Thanking you,

Yours Faithfully,

(Signature of the Authorized Signatory of foreign Bidder/Manufacturer)
(Name)
(Designation)

ANNEXURE – III

UNDERTAKING CUM INDEMNITY BOND TO BE GIVEN BY THE BIDDERS ALONG WITH THE OFFER FOR CT EMBEDDED METERS ALONGWITH ENCLOSURES MANUFACTURED BY POLYCARBONATE MATERIAL ON GENERAL STAMP OF RUPEES 500/-

UNDERTAKING CUM INDEMNITY BOND

This undertaking cum Indemnity Bond is executed on this _____ day of _____ 2020 by M/s. _____ a Company incorporated under The Companies Act, 1956 and having its registered office at _____ (hereinafter referred to -----, which expression shall, unless repugnant to the context or otherwise meaning thereof, be deemed to include its successors, heirs, attorney, permitted assignees), in favour of MSEDCL, a Company incorporated under The Companies Act, 1956 and having its registered office at _____ (hereinafter referred to -----, which expression shall, unless repugnant to the context or otherwise meaning thereof, be deemed to include its successors, heirs, attorney, permitted assignees).

Whereas, I/we, M/s. _____ have participated in Tender No.----- of MSEDCL for the -----

And whereas necessary materials as specified hereinabove is required to be supplied which may cause any nuisance to or otherwise detrimental to the environment or otherwise may be unhygienic or affecting public health, therefore to indemnify MSEDCL against any losses/ damages, cost or consequences arising out of or pertaining to, any litigations in respect thereof, if any, the present indemnity Bond is executed to Indemnify MSEDCL towards and thus witnesses hereof --

1. That we undertake to take back polycarbonate materials.
2. That we undertake the entire liability in respect of taking back such material in future after the expiry of the life of such specified materials.
3. That we undertake to take all the due care that such materials may not cause any harm to environment or otherwise detrimental to it.
4. That we undertake all the responsibility / liability in respect thereof and MSEDCL will not be responsible or liable for the same
5. And we hereby agree that in case of the breach of any of above terms and conditions on our part, MSEDCL, shall be entitled not only to cancel the Work Order/ terminate the Contract, but also to take appropriate action in respect thereof and in case any losses/damages, cost & consequences etc., if suffered by MSEDCL, due to such non-performance, part performance or otherwise, giving birth to any litigation, the same shall be indemnified by I/we M/s. ----- and MSEDCL shall also be authorized/empowered to recover the same from us including any amount payable to us, by way of payments against invoices raised from time to time , any SD, retention amount or otherwise etc. our personal assets/ properties.

Executant

Proprietor/ partner/ authorized Director/Representative

In the presence of Witness

1.	Sign :	2.	Sign
	Name :		Name :
	Address :		Address :

Annexure IV(A): PROFORMA FOR BANK GUARANTEE FOR BID SECURITY (EMD)

To: Maharashtra State Electricity Distribution Company Limited

Represented by

CHIEF ENGINEER (MMD)

Maharashtra State Electricity Distribution Co. Ltd.,

Materials Management Department,

Plot No. G-9, "Prakashgad" First floor,

Prof. Anant Kanekar Marg,

Bandra (E), Mumbai – 400 051.

E-mail: cemmcmedcl@gmail.com

WHEREAS [name and address of Contractor] (hereinafter called "the **Contractor**") has undertaken, in pursuance of Tender No., dated for Supply and installation of 40-200 Amps CT EMBEDDED Energy Meters with enclosure, implementation of FMS for Meter Reading on AG , Distribution Transformer of MSEDCL, (hereinafter called "the **Contract**");

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligation in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of **Rs.-----/- (Rs. -----)** and we undertake to pay you, through our branch office at _____ [Address of branch office at Mumbai, Maharashtra], upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ [amount of Guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

The bank guarantee will remain in force from date of issue till _____ (210 days from the Date of Issue of Tender). Any demand in respect thereto should reach the Bank not later than the specified date i.e. _____. (210 days from the Date of Issue of Tender).

The bank guarantee for bid security may be forfeited:

- a) if the bidder withdraws its bid, except that written notice of the withdrawal of bid is received by MSEDCL prior to the deadline for submission of bids; or
- (b) if the bidder does not accept the correction of its bid price, pursuant to Tender Conditions; or
- (c) if the bidder is determined, at any time prior to award of contract, to have engaged in corrupt or fraudulent practices as defined under tender in competing for the contract; or
- (d) in the case of a successful bidder, if it fails within the specified time limit to:
 - (i) sign the Contract Agreement, or
 - (ii) furnish the required contract performance security

Yours truly,

Signature and seal of the Guarantor:

Name of Bank/Financial Institution:

Address:

Date:

ANNEXURE IV (B): PROFORMA FOR SECURITY / PERFORMANCE BANK GUARANTEE

(On Non-judicial paper for appropriate value)

To,

Maharashtra State Electricity Distribution Company Limited

Dear Sir,

In consideration of the Maharashtra State Electricity Distribution Company Limited, (hereinafter called 'the Company' which expression shall include its successors and assigns) having awarded to M/s. (Name)..... (Constitution)..... (address)..... (hereinafter referred to as "The vendor" which expression shall wherever the subject or context so permits include its successors and assigns) a supply contract in terms inter alia, of the Company's purchase order No..... dated..... and the General and Special Purchase Conditions of the Company and upon the condition of vendor's furnishing security for the performance of the vendor's obligations and/ or discharge of the vendor's liability under and/ or in connection with the said supply contract upto a sum of Rs. (in figures)..... Rs. (in words)..... only amounting to 10% (ten percent) of the total contract value.

We, (Name)..... (constitution)..... (hereinafter called "the Bank" which expression shall include its successors and assigns) hereby jointly and severally undertake and guarantee to pay to the Company in----- (Indian Currency) for the with on demand in writing and without protest or demur of any and all moneys any wise payable by the Vendor to the Company under in respect of or in connection with the said supply contract inclusive of all the Company's losses and expenses and other moneys any wise payable in respect to the above as specified in any notice of demand made by the Company to the Bank with reference to this Guarantee upto an aggregate limit of Rs. (in figures)..... Rs. (in words)..... only.

AND the Bank here by agrees with the Company that

- i. This Guarantee/undertaking shall be a continuing guarantee and shall remain valid and irrevocable for all claims of the Company and liabilities of the vendor arising up to and until midnight of
.....

This date shall be 6 months from the last date of guarantee period.

- ii. This Guarantee/ Undertaking shall be in addition to any other guarantee or security of whatsoever that the Company may now or at any time otherwise have in relation to the vendor's obligation/liabilities under and/ or connection with the said supply contract, and the Company shall have full authority to take recourse to or enforce this security in preference to the other security(ies) at its sole discretion, and no failure on the part of the Company in enforcing or requiring enforcement of any other security shall have the effect of releasing the Bank from its liability hereunder.
- iii. The Company shall be at liability without reference to the Bank and without effecting the full liability of the Bank hereunder to take any other security in respect of the vendor's obligations and/ or liabilities under or in connection with the said supply contract and to vary the terms vis-à-vis the vendor of the said supply contractor to grant time and/ or indulgence to the vendor or to reduce or to increase or otherwise vary the prices of the total contract value or to release or to for bear from enforcement all or any of the obligations of the vendor under the said supply contract and/ or the remedies of the Company under any other security(ies) now or hereafter held by the Company and no such dealing(s), variation(s), reduction(s), increase(s) or the indulgence(s) or arrangement(s) with the vendor or release or for bear ance whatsoever shall have the effect of releasing the Bank from its full liability to the Company hereunder or of prejudicing rights of the Company against the Bank.

- iv. This Guarantee / Undertaking shall not be determined by the liquidation or winding up or dissolution or change of constitution or insolvency of the vendor but shall in all respects and for all purposes be binding and operative until payment of all moneys payable to the Company in terms hereof.
- v. The Bank hereby waives all rights at any time in consistent with the terms of the Guarantee/Undertaking and the obligations of the Bank in terms hereof shall not be any wise affected or suspended by reason of any dispute or disputes having been raised by the vendor(whether or not pending before any Arbitrator, officer, Tribunal or Court) or any denial of liability by the vendor or any other order of communication whatsoever by the vendors topping or preventing or purporting to stop or prevent any payment by the Bank to the Company in terms hereof.
- vi. The amount stated in any notice of demand addressed by the Company to the Guarantor as liable to be paid to the Company by the vendor or as suffered or incurred by the Company on account of any losses or damages of costs, charges and or expenses shall as between the Bank and the Company be conclusive of the amount so liable to be paid to the Company or suffered or incurred by the Company, as the case may be and payable by the Guarantor to Company in terms hereof.

Yours faithfully,

(Signature)

NAME & DESIGNATION

NAME OF THE BANK

NOTES:

Annexure V**Commitments of the Tenderer/Contractor**

- i. The Tenderer /Contractor commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the Contract execution;
- ii. The Tenderer / Contractor will not directly or through any other person(s) or firm, offer, promise or give to the Principal, or to any of the Principal's employees involved in the tender process or the execution of the Contract or to any third person any material or immaterial benefit which he / she is not legally entitled to in order to obtain, in exchange, an advantage during the tender process or to vitiate the Principal's tender process or the execution of the Contract.
- iii. The Tenderer / Contractor will not enter with other Tenderers into any illegal agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or actions to restrict competitiveness or to vitiate the Principal's tender process or the execution of the Contract.
- iv. The Tenderer / Contractor will not commit any criminal offence under the relevant Anti- corruption Laws of India; further, the Tenderer / Contractor will not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- v. The Tenderer / Contractor will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.
- vi. The Tenderer/ Contractor will not take, directly or indirectly, any steps which could unduly influence the functioning of EIM.
- vii. The Tenderer / Contractor will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Annexure VI

PRICE BID

SUPPLY OF MATERIAL											
Item No.	Description of material	Quantity required in nos.	Quantity offered in nos.	Break-up of F.O.R. Destination Price							Total price (In Rs.)
				Ex-works price including packing charges but excluding taxes & duties (In Rs.)	Freight charges (In Rs.)	Transit Insurance charges (In Rs.)	Integrated GST @---- % for outside state transaction on(Ex-works price + Freight charges+ Transit Insurance charges) (In Rs)	Central GST @---- % for within state transaction on (Ex-works price + Freight charges + Transit Insurance charges) (In Rs)	State GST @---- % for within state transaction on (Ex-works price + Freight charges + Transit Insurance charges) (In Rs)	F.O.R. Destination price per No. (In Rs.)	
1	2	3	4	5	6	7	8	9	10	11=(5+6+7+8+9+10)	12 = (4 x 11)
1	LT AC Three Phase Four Wire 40-200 Amps CT embedded meter with modem as per Technical specification.	27,251									
2	SMC Meter box as per MSEDCL specifications	27,251									
SUB-TOTAL (1+2)											
(B)	SERVICES										
Item No.	Description	Quantity	Quantity offered in Nos.	Charges / meter	GST / meter	Total / meter	Total Installation Cost				
1	2	3	4	5	6	7 = (5+6)	8 = (4*7)				
1	Installation of LT AC Three Phase Four Wire 40-200 A CT Embedded meter along with SMC Meter box with required allied material viz. cable etc.	27,251 Nos.									
(C)	FMS ACTIVITY										
Item No.	Description	Quantity	Quantity offered in Nos.	Charges / meter / month	GST / meter / month	Total / meter / month	Total FMS Cost for 60 months				
1	2	3	4	5	6	7 = (5+6)	8 = (4*7)*60				
1	FMS activity per meter on Distribution Transformers for 60 months.	27,251 Nos									
TOTAL PACKAGE COST A + B + C											

Seal

Authorized Signature

Name and designation of Signatory

Annexure VII

Format for No Deviation Form

Tender Name:

Tender No. :

CERTIFICATE FOR NO DEVIATION

We, (Bidder's Name), hereby certify that there is no technical or commercial deviation from the Conditions mentioned in Tender Document and I am agreeing to all the terms and conditions mentioned in the Tender Specification.

Authorized Signatory with seal

Date:

Place:

Annexure VIII

SERVICE LEVEL AGREEMENT

1. Purpose of this Agreement

The purpose of this SLA is to clearly define the levels of service to be provided by Supplier to Purchaser for the duration of this contract or until this SLA has been amended. The benefits of this SLA are to:

- 1 Trigger a process that applies Purchaser and Supplier management attention to some aspect of performance only when that aspect drops below an agreed upon threshold, or target.
- 2 Makes explicit the performance related expectations on performance required by the Purchaser
- 3 Assist the Purchaser to control levels and performance of services provided by Supplier
- 4 This SLA is between Supplier and Purchaser.

2. Description of Services Provided

Supplier shall provide service as defined in Scope of Work, in accordance to the definitions and conditions as defined in this RFP.

2.1. Duration of SLA

This Service level agreement would be valid for entire period of contract. This SLA may be reviewed and revised according to the procedures detailed in “SLA Change Control”.

2.2. Service Level Agreements & Targets:

This section is agreed to by Supplier and Purchaser as the key Supplier performance indicator for this engagement. The following section reflects the measurements to be used to track and report systems performance on a regular basis.

(a) The indicative SLA to be measured is as below :

SLA Category	SLA	Measurement
End-to-end communication availability	95% of end-to end communication availability	Measured on the basis of average no. of non-communicating CT EMBEDDED meters per month.

(b) Penalty for non-availability of readings:

Readings (billing data) of CT EMBEDDED meters should be downloaded at every day and made available at data collection software by the bidder. Penalty will be calculated for missing number of days (for which readings are not downloaded) for each CT EMBEDDED meter in a month. Percentage of readings for SLA will be calculated as per following formula:

$$\text{\% of Readings for SLA} = \frac{\text{Sum of CT EMBEDDED Meter readings in a month (Considering one reading at every day per meter)}}{\text{Total no. of CT EMBEDDED Meters installed} \times 1 \times 30} \times 100$$

(c) Monthly Meter Reading Penalty for CT EMBEDDED meters

Percentage of no. of CT EMBEDDED meter readings (billing data) received through AMR and updated in data collection software per month	Incentive / Penalty (Considering one reading at every 15 minutes interval per CT EMBEDDED meter through AMR in a month)
> 95%	1% incentive on unit rate (rate per meter per month quoted in price bid) for no. of days readings (billing data) through AMR in excess of 95% in a month.
>= 90% and < =95%	No penalty
>= 80% and < 90%	20% penalty on unit rate on missing no. of days readings in a month.
>= 80% and < 75%	25 % penalty on unit rate on missing no. of days readings in a month.
<75%	No Payment for a month

Note:

1. Supplier should inform the list of faulty meters in each month. After confirmation from Corporate office, such meters will not considered for SLA calculation.
2. If readings are not downloaded due to SIM card issues, Supplier should inform the details of such SIMs immediately to Corporate office. After confirmation from Corporate office, meters not downloaded due to SIM card issues will not considered for SLA calculation.
3. In case of SIM card failures for more than three days, Supplier should replace the failed SIM cards with another service provider at no additional cost.

2.3. Breach of SLA

In case the Supplier does not meet the service levels mentioned in this Section for three (3) continuous time-periods as specified in the relevant clause, the Purchaser will treat it as a case of breach of Service Level Agreement. The following steps will be taken in such a case:-

1. Purchaser issues a show cause notice to the Supplier.
2. Supplier should reply to the notice within three working days.
3. If the Purchaser authorities are not satisfied with the reply, the Purchaser will initiate termination process as described GCC.

2.4. Exclusions

The Supplier will be exempted from any delays or slippages on SLA parameters arising out of following reasons:-

1. Delay in execution due to delay (in approval, review etc.) from Purchaser's side.
2. The network links will be provided by a third party and the Supplier will monitor and report any problems on behalf of third party. If Supplier notifies and Purchaser approves that the delay or fault was due to the third party link services then such loss will not be considered for tracking Supplier's SLA parameters (Also reduced from total service time). However it is the responsibility of the Supplier to maintain the uptime of the links

2.5. Monitoring and Auditing

Purchaser will review the performance of Supplier against the SLA parameters each month, or at any periodicity defined in the contract document. The review / audit report will form basis of any action relating to imposing penalty or breach of contract. Any such review / audit can be scheduled or unscheduled. The results will be shared with the Supplier as soon as possible. Purchaser reserves the right to appoint a third-party auditor to validate the SLA.

2.6. Reporting Procedures

The Supplier's representative will prepare and distribute SLA performance reports in an agreed upon format by the 10th working day of subsequent month of the reporting period. The reports will include "actual versus target" SLA performance, a variance analysis and discussion of appropriate issues or significant events. Performance reports will be distributed to the Purchaser's IT Team.

2.7. Issue Management Procedures

a. General

This process provides an appropriate management structure for the orderly consideration and resolution of business and operational issues in the event that quick consensus is not reached between Purchaser and Supplier. It is expected that this pre-defined process will only be used on an exception basis if issues are not resolved at lower management levels.

b. Issue Management Process

- Either Purchaser or Supplier may raise an issue by documenting the business or technical problem, which presents a reasonably objective summary of both points of view and identifies specific points of disagreement with possible solutions.
- Purchaser and the Supplier's representative will determine which committee or executive level should logically be involved in resolution.
- A meeting or conference call will be conducted to resolve the issue in a timely manner. The documented issues will be distributed to the participants at least 24 hours prior to the discussion if the issue is not an emergency requiring immediate attention.
- Management of Purchaser and Supplier will develop a temporary, if needed, and the permanent solution for the problem at hand. The Supplier will then communicate the resolution to all interested parties.
- In the event a significant business issue is still unresolved, the arbitration procedures described in the Contract will be used.

2.8. SLA Change Control

a. General

It is acknowledged that this SLA may change as Purchaser's business needs evolve over the course of the contract period. As such, this document also defines the following management procedures:

1. A process for negotiating changes to the SLA.
2. An issue management process for documenting and resolving particularly difficult issues.
3. Purchaser and Supplier management escalation process to be used in the event that an issue is not being resolved in a timely manner.

Any changes to the levels of service provided during the term of this agreement will be requested, documented and negotiated in good faith by both parties. Either party can request a change. Changes will be documented as an addendum to this document and consequently the contract.

b. SLA Change Process

Both the parties may amend this SLA by mutual agreement in accordance. Changes can be proposed by either party. Normally the forum for negotiating SLA changes will be Purchaser's monthly review meetings.

c. Version Control

All negotiated SLA changes will require changing the version control number. As appropriate, minor changes may be accumulated for periodic release (e.g. every quarter) or for release when a critical threshold of change has occurred.

2.9. Management Escalation Procedures

The purpose of this escalation process is to provide a quick and orderly method of notifying both parties that an issue is not being successfully resolved at the lowest possible management level. Implementing this procedure ensures that purchaser and Supplier management are communicating at the appropriate levels. Escalation should take place on an exception basis and only if successful issue resolution cannot be achieved in a reasonable time frame.

1. All issues would be raised to the project management team, which is completely responsible for the day to day aspects of the implementation. The project management team shall classify the issues based on their severity level and resolve them within appropriate timelines.
2. If project management team is unable to resolve an issue, the issue would be escalated to the top management with options/ risks detailed for decision. Purchaser's Top management will make decisions based on the options/ risks presented by Purchaser.
3. In case one or both the parties are unsatisfied with the decision of the top management of the Purchaser, the dispute will be resolved as specified in GCC.

2.10. Responsibility

The bidder shall be responsible for roles and responsibilities with respect to the Requisite Services. Further, terms & conditions mentioned in this RFP shall be binding on bidder.

2.11. Signature Page

IN WITNESS WHEREOF, the parties hereto have caused this Service Level Agreement to be executed by their respective authorized representatives as of the date first written above.

Supplier	Purchaser
Signature	Signature
Name	Name
Address	Designation
Company	Utility: Maharashtra State Electricity Distribution
Date	Date

Annexure IX

(Zone / Circle wise Summary of DTs)

Maharashtra State Electricity Distribution Company Ltd.																			
REGION	ZONE	CIRCLE	502 Feeders DTC Capacity count																
			10	100	1250	15	150	16	200	25	300	315	45	50	500	63	75	750	Grand Total
AURANGABAD REGION	AURANGABAD	AURANGABAD		225		4	1	59	3	47				1		400	63		803
		JALNA		230				104	1	20				3		212	25		595
	AURANGABAD ZONE Total			455		4	1	163	4	67				4		612	88		1398
	LATUR	BEED	74	238		4		5		32				3		338	38		732
		LATUR	105	215	8	5		46	1	68				11		472	90		1021
		OSMANBAD	75	382		6		8	7	42			3	6		423	50		1002
	LATUR ZONE, LATUR Total		254	835	8	15		59	8	142			3	20		1233	178		2755
	NANDED	HINGOLI	81	138				51		19						265	10		564
		NANDED	17	451	1	1		97	1	68				3		255	104	1	999
		PARBHANI		42				15		3						32	3		95
NANDED ZONE Total		98	631	1	1		163	1	90				3		552	117	1	1658	
AURANGABAD REGION Total			352	1921	9	20	1	385	13	299			3	27		2397	383	1	5811
KOKAN REGION	JALGAON	DHULE	53	216				9	1	20				2		251	18		570
		JALGAON	134	813				57	12	63		1	1	5		388	31		1505
		NANDURBAR	268	175				38	2	23						440			946
	JALGAON ZONE Total		455	1204				104	15	106		1	1	7		1079	49		3021
	NASIK	A' NAGAR	101	1058	2		5	175	24	144	1			11		800	39		2360
		MALEGAON	141	588	3	1		298	8	59				19		512	58	5	1692
		NASIK (U)	15	608	2	21		107	11	55			2	35		372	144		1372
	NASIK ZONE Total		257	2254	7	22	5	580	43	258	1		2	65		1684	241	5	5424
KOKAN REGION Total			712	3458	7	22	5	684	58	364	1	1	3	72		2763	290	5	8445
NAGPUR REGION	AKOLA	AKOLA		41				11		8					43	5		108	
		BULDHANA		382				276	1	10				1		575	1		1246
		WASHIM		207				371	2	4						274	6		864
	AKOLA ZONE Total			630				658	3	22				1		892	12		2218
	AMARAVATI	AMARAVATI		199				56	3	24					1	238	14		535
		YAVATMAL		538	20			355	2	48						422	56		1441
	AMARAVATI ZONE Total			737	20			411	5	72					1	660	70		1976
	GONDIA	BHANDARA		70				98		13						74			255
	GONDIA ZONE Total			70				98		13						74			255
	NAGPUR	NAGPUR (R)		167		7		120	2	29				2		124	43		494
WARDHA			119		2		44		45				2		92	4		308	
NAGPUR ZONE Total			286		9		164	2	74				4		216	47		802	
NAGPUR REGION Total				1723	20	9		1331	10	181				5	1	1842	129		5251
PUNE REGION	BARAMATI	BARAMATI		586	10		1	258	22	63				2		302	73		1317
		SATARA	224	604	1	1		369	15	25				7		621	30		1897
		SOLAPUR		841	1			253	12	128				1		722	71		2029
	BARAMATI ZONE Total		224	2031	12	1	1	880	49	216				10		1645	174		5243
	KOLHAPUR	KOLHAPUR	40	459	1			61	5	48	1			1		290			906
		SANGLI	51	591				127	24	33						381			1207
	KOLHAPUR ZONE Total		91	1050	1			188	29	81	1			1		671			2113
	PUNE	PUNE (R)		93				21	12	8						36	35		205
PUNE ZONE Total			93				21	12	8						36	35		205	
PUNE REGION Total			315	3174	13	1	1	1089	90	305	1			11		2352	209		7561
Grand Total			1379	10276	49	52	7	3489	171	1149	2	1	6	115	1	9354	1011	6	27068

Annexure X

Check List

We confirm that we have gone through the bid document and as instructed in the document, we hereby submit the following documents to form the bid:

Sr. No.	Name of document	Whether submitted Yes/ No	File Name*	Page No
1.	Annexure – I : Indemnity Bond for Foreign Bidder/Manufacturer			
2.	Annexure –II : For Authorized Assignee / Nominee in case of Foreign Bidder			
3.	Annexure –III : Indemnity Bond for Polycarbonate Meter Enclosure			
4.	Annexure –IV (A) : Proforma for Bid Security (EMD) Annexure –IV (B) : Proforma for Security / Performance Bank Guarantee			
5.	Annexure –V : Commitments of tenderer / contractor			
6.	Annexure –VI : Price Bid Format			
7.	Annexure –VII : No Deviation Proforma			
8.	Annexure –VIII : Proforma for Service Level Agreement (SLA)			
9.	Annexure –IX : Zone wise DT Details			
10.	Annexure –X : Check list			
11.	Annexure –XI : Milestone			
12.	Any other information/documents required as per RFP			

Annexure XI**MILESTONES**

Milestone for CT Embedded Meters along with SMC Meter Box	Qty. in Nos.	Timelines (Month wise)	% penalty on Price
1	2	3	4
Supply	To be filled by the bidder	To be filled by the bidder	After the completion of timeline, LD @ 0.5% of committed lot value per week or part-thereof with maximum 10% of the contract value may be levied from the bill of the contractor
Installation	To be filled by the bidder	To be filled by the bidder	
FMS / DT Meter	To be filled by the bidder	To be filled by the bidder	

Note: The milestone offered are such that, supply of CT Embedded meters along with SMC meter box shall start within 2 months from the date of LoA and subsequent activity of installation, commissioning & readings/ FMS activity shall be started in the immediate subsequent month.

ANNEXURE - XII

For smooth execution of project procedures defined as below are to be strictly followed.

<u>Working Manual (Tentative)</u>				
Sr. No.	Description of activity	Responsibility	No. of working days	Type of Invoice
1	Offering of material for inspection.	Supplier	As soon as material are ready as per Milestone.	-
2	Inspection of material for each lot at supplier's factory location.	MM Dept.	Within 3 working days of date of readiness of meters.	-
3	After successful completion of inspection dispatching the material to MSEDCL's store location.	Supplier	Within 10 working days	-
4	Issuance of RST letter.	MM Dept.	2 working days	-
5	RST of supplied stock and information to MMD / concern store in charge.	Testing / O&M division	2 working days	-
6	To convey RST report to remaining stores for acceptance / rejection.	Respective Store in charge	Same day	-
7	Creation of SR notes and forward to HO (SB Section) for payment.	Respective Store in charge	Immediately.	Eligible for 50% payment of meters & box against supplied lot quantity as per milestone
8	100% testing of CT embedded meters.	Respective Testing division	On top most priority as the project is to be completed within 8 months	-
9	Handing over of priority list to replace the meters	Respective circle/Division/ sub division/ Section.	Immediately.	-
10	To arrange shut down for installation, arrangement of SIM card for configuration and sealing of meter by using paper seals as per the guidelines enclosed.	MSEDCL employee	Immediately after intimation by suppliers installation team.	-
11	Installation of meters at site by supplier	A.E. of concerned Dn. office/Sub-Dn./Section to accompany the supplier's installation team.	Immediately as per Milestone.	-
12	Providing SIM card under Umbrella scheme of MSEDCL for AMR directly to the concerned suppliers on requisition from the suppliers.	local IT	Immediately.	-
13	Providing 1 st reading of newly installed meters to MSEDCL MDAS system through AMR	Supplier	Immediately as per Milestone.	Eligible for balance 20% payment of meters & Box against supplied lot quantity and 100% payment for installation, after confirmation of IT section.
14	FMS activity for 5 years	Supplier	As per Milestone.	Eligible for balance payment of meters & box @ 0.5 % per month and 100% payment for monthly reading after confirmation of IT section.

ANNEXURE - XIII

(Undertaking to be given by the Original Manufacturer of SMC Meter Box
to be submitted by the bidder along with the offer)

To,
The Chief Engineer (MMD),
Maharashtra State Electricity Distribution Co. Ltd.,
Prakashgad, Bandra (E),
Mumbai – 400 051.

Dear Sir,

Sub:- Undertaking against Tender No. MMD/T-NSC-09/1221 for Supply, Installation and FMS Activity for 5 Years for LTAC 3 Phase 4 Wire 40 - 200 A Fully Static TOD Tri-vector Energy Meter with Inbuilt CT and Modem for Ag. Distribution Transformer in Maharashtra.
--- Supply of SMC Meter Box thereof on behalf of bidders.

We, M/s. ----- original manufacturer of **SMC Meter Box** undertake that M/s. ----- requested us to supply the SMC Meter Box as per Technical Specifications and Conditions of subject tender on their behalf. In case of placement of order on M/s. ----- we agree that we shall supply quality SMC Meter Box as per Technical Specifications to the firm.

Yours Faithfully,

(Authorized Signatory)

Seal of Original Manufacturer

For Original Manufacturer of SMC Meter Box

MATERIAL SPECIFICATIONS CELL

TECHNICAL SPECIFICATION

OF

LT AC THREE PHASE, FOUR WIRE, 40 - 200 AMPS ENERGY
METER WITH IN-BUILT CT & MODEM (CT EMBEDDED
METER) WITH METER BOX FOR DISTRIBUTION
TRANSFORMER CENTRE

**TECH SPEC OF LT AC THREE PHASE, FOUR WIRE, 40 - 200 AMPS ENERGY METER
(CT EMBEDDED) WITH METER BOX FOR DTC**

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**TECH SPEC OF LT AC THREE PHASE, FOUR WIRE, 40 - 200 AMPS ENERGY METER
(CT EMBEDDED) WITH METER BOX FOR DTC**

1.00 SCOPE

- 1.01** This specification covers the design, engineering, manufacture, assembly, inspection, testing at manufacturers Works before dispatch and supply of high precision LT AC Three Phase Four Wire **3 x 240 volt, 40 - 200 Amp** fully static and AMR compatible TOD Tri-Vector Energy Meter of accuracy class 1.0, capable of primarily performing functions of tariff meters and GPRS enabled modem and suitable accessories for automatic and remote data transfer from energy meter. The complete meter unit i.e. meter, internal CTs and modem shall be housed in the same enclosure. The meter shall have provision in such a way that supply / service cable of consumer shall be directly passed through the meter for current measurement. Piercing screws shall be used in the meter for voltage connection. The meter shall be capable to record and display active energy, apparent energy, reactive energy (kVARh lag and kVARh lead separately) and maximum demand KW / KVA for Three Phase Four Wire for a power factor range of Zero lag - unity – Zero lead-unity for Distribution Transformer Centre. Meters shall be supplied along with base-computer software (BCS) suitable to read the meter remotely as per the details given in this specification.
- 1.02** The specification also covers design, engineering, manufacture, assembly stage testing, inspection and testing before dispatch and supply of Meter enclosure with provision of cables for connection from Distribution Transformer outgoing to meter to incoming of Distribution Box.
- 1.03** It is not the intent to specify completely herein all the details of the design and construction of material. However the material shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation in a manner acceptable to the purchaser, who will interpret the meanings of drawings and specification and shall have the right to reject any work or material which in his judgment is not in accordance therewith. The offered materials shall be complete with all components, accessories necessary for their effective and trouble free operation in the system for energy measurement. Such components shall be deemed to be within the scope of Bidder's supply irrespective of whether those are specifically brought out in this specification and / or the commercial order or not.
- 1.04** It is compulsory that the offered meter shall bear BIS certification i.e. the meters shall be ISI marked and the bidder shall have to furnish valid ISI licence along with the offer, which, if considered necessary, may be verified by the purchaser.

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2.00 MINIMUM TESTING FACILITIES

2.01 Manufacturer shall possess fully computerized Meter Test Bench System for carrying out routine and acceptance Tests as per IS: 13779 / 1999 (amended up to date).

In addition, this facility shall produce Test Reports for each and every meter. The bidder shall have fully automatic Test Bench having in-built constant voltage, current and frequency source with facility to select various loads automatically and print the errors directly. The list of testing equipments shall be enclosed.

2.02 The manufacturer shall have the necessary minimum testing facilities for carrying out the following tests.

Sr. No.	Name of Test
(a)	A.C. Voltage test
(b)	Insulation Resistance Test
(c)	Test of Accuracy Requirement
(d)	Test on limits of errors
(e)	Test on meter constant
(f)	Test of starting condition
(g)	Test of no-load condition
(h)	Repeatability of error test
(i)	Test of power Consumption
(j)	Vibration test
(k)	Shock Test
(l)	Transportation Test - as per MSEDCL specification
(m)	Tamper conditions - as per MSEDCL specification
(n)	Glow Wire Test
(o)	Long duration test

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(p)	Flammability Test
(q)	The manufacturer shall have duly calibrated RSS meter of class 0.1 accuracy

2.03 Meter Software

The Bidders will have to get appraised & obtain Capability Maturity Model Integration (CMMI)– Level III within one year from date of letter of award.

2.04 Notwithstanding anything stated herein under, the Purchaser reserves the right to assess the capacity and capability of the bidder to execute the work, shall the circumstances warrant such assessment in the overall interest of the Purchaser.

3.00 STANDARDS TO WHICH METERS SHALL COMPLY

Unless otherwise specified elsewhere in this specification, the performance and testing of the meters shall conform to the following Indian / International Standards and all related Indian / International standards to be read with upto-date and latest amendments / revisions thereof:

IS: 13779 / 1999 amended upto date and other relevant IS specifications including CBIP Tech report 325 amended upto date,

IEC 62053-21 Specification for AC static watt-hour meter for class 1 & 2

IS: 15959 / 2011 amended upto date for Data Exchange for Electricity Meter Reading, Tariff & Load Control – Companion Specification

CEA regulations and MERC guidelines with latest amendments.

IS: 15707 / 2006: Specification for Testing, evaluation, installation & maintenance of AC Electricity Meters-Code of Practice.

IS: 12063 Specification for degree of protection for enclosure.

IS: 11731 Specification for engineering plastic

The specification given in this document supersedes the relevant clauses of IS: 13779 / 1999 (amended up to date) wherever applicable.

The equipment meeting with the requirements of other authoritative standards, which ensures equal or better quality than the standard mentioned above, also shall be considered. For conflict related with the specification, the order of priority shall be – (i) this technical specification, (ii) IS: 13779 / 1999 amended upto date.

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Bidder must possess the following certifications at the time of submission of the bid.

- (a) ISO 9000.
- (b) ISO 14000.

4.00 SERVICE CONDITIONS

As per IS: 13779 / 1999 (amended upto date), the meter to perform satisfactorily under Non - Air Conditioned environment (within stipulations of IS).

The meter to be supplied against this specification shall be suitable for satisfactory continuous operation under the following tropical conditions:

Environmental Conditions

- a) Maximum ambient temperature 55° C
- b) Maximum ambient temperature in shade 45° C
- c) Minimum temperature of air in shade 35° C
- d) Maximum daily average temperature 40° C
- e) Maximum yearly weighted average temperature 32° C
- f) Relative Humidity 10 to 95 %
- g) Maximum Annual rainfall 1450 mm
- h) Maximum wind pressure 150 kg/m²
- i) Maximum altitude above mean sea level 1000 meter
- j) Isoceraunic level 50 days/year
- k) Seismic level (Horizontal acceleration) 0.3 g
- l) Climate: Moderately hot and humid tropical climate conducive to rust and fungus growth.

5.00 GENERAL TECHNICAL REQUIREMENTS

Meters are required for installation in the premises of LT consumers. The basic system parameters wherein these meters will be installed shall be as under:-

1.	Type of installation	Indoor/Outdoor
2.	TYPE	ISI marked LT AC, Three Phase, four wire, 40 - 200 Amps fully Static AMR compatible TOD Tri – vector Energy

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		Meters with in-built CTs & Modem with RS-232 port for measurement of different electrical parameters including Active Energy (kWh), Reactive Energy (kVARh), Apparent Energy (kVAh) etc. in three phase, four wire balanced / unbalanced loads of LT Consumers
3.	ACCURACY CLASS	1.0 (FOR ACTIVE AND REACTIVE ENERGY)
4.	CURRENT RATING	40 – 200 Amps
5.	RATED BASIC CURRENT (I _b)	40 Amps per phase
6.	MAXIMUM CONTINUOUS CURRENT (I _{max})	5 times (500 %) of I _b . The meter shall work accurately at 120% of I _{max} .
7.	STARTING CURRENT	0.2% of I _b .
8.	SHORT TIME CURRENT	As per IS 13779 / 1999.
9.	RATED VOLTAGE	3x240 Volts Phase to Neutral
10.	VOLTAGE RANGE	+ 20 % to – 40 % of rated voltage.
11.	TEMPERATURE	The standard reference temperature for performance shall be 27°C. The mean temperature co-efficient shall not exceed 0.07%.
12.	FREQUENCY	50 Hz ±5%
13.	NO. OF PHASES	3 phase 4 wire
14.	SYSTEM EARTHING	Solidly grounded

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15.	POWER FACTOR	<p>Power Factor range: Zero Lag to unity to Zero Lead to unity</p> <p>Avg. P.F = $\frac{\text{Total(kWh)}}{\text{Total (kVAh)}}$</p> <p>$\text{kVAh} = \sqrt{(\text{kWh})^2 + (\text{RkVAhlag} + \text{RkVAhlead})^2}$</p>
16.	POWER CONSUMPTION	<p>(i) The active and apparent power consumption in each voltage circuit at reference voltage, reference temperature and reference frequency shall not exceed 2.0 W and 10 VA.</p> <p>(ii) The apparent power taken by each current circuit, at basic current Ib, reference frequency and reference temperature shall not exceed 4 VA.</p>
17.	AUXILIARY POWER	The meter shall draw power for working of electronic circuit from phase & neutral.
18.	DESIGN	Meter shall be designed with application specific integrated circuit (ASIC) or micro controller; shall have no moving parts; electronic components shall be assembled on printed circuit board using surface mounting technology; factory calibration using high accuracy (0.1 class) software based test bench.
19.	POWER SUPPLY	Switched-Mode Power Supply (SMPS)
20.	ISI MARK	The meter so supplied must bear ISI Mark.

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**6.00 CONSTRUCTIONAL REQUIREMENT / METER COVER & SEALING
ARRANGEMENT**

- 6.01** The meter shall be designed and constructed in such a way as to avoid introducing any danger in normal use and under normal conditions, so as to ensure especially:
- (a) personal safety against electric shock;
 - (b) personal safety against effects of excessive temperature;
 - (c) protection against spread of fire;
 - (d) protection against penetration of solid objects, dust & water in meter.
- 6.02** Meters covered under this specification shall be fully static type with non-volatile memory to register various billing parameters and complete with other features as detailed out in this specification. Any other design meeting technical specification or features/accuracy etc., better than this specification and manufactured as per relevant IEC / IS / CBIP report shall also be acceptable.
- 6.03** Meter shall be installed in consumer premises out door or indoor, directly under the sun and extreme weather conditions. Suitability of such use shall be confirmed.
- 6.04** Meters shall be suitable for accurate measurement and display of energy and other billing parameters within the specified limits of errors under balanced and unbalanced load conditions in a poly phase network.
- 6.05** All insulating materials used in the construction of meters shall be non-hygroscopic, non-ageing and of tested quality.
- 6.06** All parts that are likely to develop corrosion under normal working condition shall be effectively protected against corrosion by suitable method to achieve durable results. The construction of the meter shall be such as to be sealed independently and prevent unauthorised tampering.
- 6.07** Any protective coating shall not be liable to damage by ordinary handling nor damage due to exposure to air, under normal working conditions.
- 6.08** The electrical connections shall be such as to prevent any opening of the circuit under normal conditions of use as specified in the standard.

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6.09 The construction of the meter shall be such as to minimize the risks of short-circuiting of the insulation between live parts and accessible conducting parts due to accidental loosening or unscrewing of the wiring, screws, etc. The meter shall not produce appreciable noise in use.

6.10 MATERIAL USED

6.10.1 The meter base & cover shall be made out of transparent / opaque unbreakable, high grade, fire resistant Polycarbonate material so as to give it tough and non-breakable qualities. The meter case shall also have high impact strength.

6.10.2 The entire design and construction shall be capable of withstanding likely to occur in components is preferred for this purpose. Components used shall be of high quality and comply with International Industrial Standard practices.

6.11 Construction of the meter shall be such as to permit sealing of meter cover, piercing screw cover, etc. independently to ensure that the internal parts are not accessible for tampering without breaking the seals.

6.12 METER BODY

6.12.1 The poly carbonate body of the meter shall conform to IS: 11731 (FV-2 category) besides meeting the test requirement of heat deflection test as per ISO 75, glow wire test as per the IS: 11000 (part 2/SEC-1) 1984 or IEC-60695-2-12, Ball pressure test as per IEC-60695-10-2 and Flammability Test as per UL 94 or as per IS: 11731 (Part-2) 1986. The type test certificate shall be submitted along with the offer.

6.12.2 The meter shall be projection type and shall be dust and moisture proof. The meter cover shall be secured to base by means of sealable unidirectional captive screws. The provision shall be made on the Meter for at least two seals to be put by utility user.

6.12.3 The meter shall be compact and reliable in design e.g. to transport and immune to vibration and shocks involved in transportation/handling.

The construction of the meter shall be suitable for its purpose in all respects and shall give assurance of stable and consistent performance under all conditions especially during dust storms / heavy rains / very hot days.

6.12.4 The meter shall conform to the degree of protection **IP 54 of IS: 12063 / IEC: 529** for protection against ingress of dust, moisture and

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vermin's. The type test certificate shall be submitted along with the offer.

- 6.12.5 The thickness of material for meter cover and base shall be 2 mm (minimum).

6.13 METER CASE AND FRONT DOOR

- 6.13.1 The meter shall have a case, which shall be sealed in such a way that the internal parts of the meter are not accessible unless body is broken. Minimum three sets of seals i.e. for Piercing screws, meter cover and the front door shall be provided. The case shall be so constructed that any temporary deformation may not effect the satisfactory operation of the meter.

- 6.14** The meter unit shall have front-hinged door with suitable sealing arrangement (screws) and transparent window to view the display parameters. The front door shall be sealed independently over the terminal cover. Approach to the reading button and RS-232 port shall only be possible after opening the front cover or meter unit shall have one push button on outside of transparent meter cover which shall be accessible from front side of meter where communication port shall be provided on right side of the meter with proper sealing arrangement.

6.15 TERMINALS & TERMINAL BLOCK

- 6.15.1 The meter shall have provision in such a way that service cable of consumer shall be directly passed through the meter for measurement. Piercing screws shall be used in the meter for voltage connection.
- 6.15.2 The meter shall be suitable to accommodate aluminium cable of 200A current carrying capacity. Piercing screw shall have the quality and capability to puncture the cable of 200 A capacity.
- 6.15.3 The meter connection arrangement shall be such that so there is no need to remove insulation for connecting cable for current measurement. Design shall support thread through concept where connecting cable directly passed through the meter for measurement.
- 6.15.4 As the cable directly passed through the meter, the offered meter shall not have provision for meter terminal connection as well as terminal block.
- 6.15.5 The entire design and construction shall be capable of withstanding stresses likely to occur in actual service and rough handling during transportation.

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The meter shall be convenient to transport and immune to shock and vibrations during transportation and handling.

- 6.15.6 The voltage circuit and current circuit shall be solidly connected inside the meter body without any link.

A firm connection shall be established within the meter case to energise the voltage/current circuit. The connections shall be as per the recommended methods given in IS: 13779 / 1999 (amended upto date).

6.16 TERMINAL (PIERCING SCREW) COVER

- 6.16.1 The PT Piercing screw cover for the meter shall be extended type, which can be sealed independently & over the meter cover. The PT terminals shall not be accessible without removing the seals of the terminal cover when energy meter is mounted on the meter board/wall.
- 6.16.2 Suitable Piercing teeth shall be provided for PT connection, connector shall have multiple teeth (minimum 5) such that in any case minimum 3 teeth shall pierce the insulation and the connection shall be firm.

6.17 INSULATION

The meter shall have durable and substantially continuous enclosure made of wholly insulating material, including the terminal cover, which envelops all metal parts with the exception of small parts and shall withstand an insulation test at 4 KV.

6.18 SEALING OF THE METER

- 6.18.1 Proper sealing arrangement shall be provided on the meter to make it tamper proof and avoid mishandling by any unauthorised person. It is necessary to provide unidirectional screws with single holes for sealing purpose.
- 6.18.2 The meter body shall be provided with minimum 2 nos. seals.
- 6.18.3 All the seals shall be provided on front side only.
- 6.18.4 Access to the working part shall not be possible without breaking the seals.
- 6.18.5 Provision of at least 2 nos. seals on front door, 1 no. seal on communication port, 2 nos. seals on the piercing screw terminal cover shall also be made. Rear side sealing arrangement is not acceptable.
- 6.18.6 The seals provided shall have proper locking arrangement to avoid opening of the seal in any case by means of tampering.

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- 6.18.7 Beside body seals provided by the manufacturer, provision shall also be made to provide at least one utility lash wire seals on the body.

6.19 RESISTANCE TO HEAT AND FIRE

The piercing screw block, the piercing screw cover, the insulating material retaining the main contacts in position and the meter body shall ensure reasonable safety against the spread of fire. They shall not be ignited by thermal overload of live parts in contact with them. The material of the piercing screw block shall not deflect under heating. To comply therewith, they must fulfill the tests as specified in 12.4 of IS: 13779 / 1999 amended upto date.

- 6.20** A push button shall be provided on the front side of the meter for high resolution reading of display with two decimal digits as brought out elsewhere in this specification (optional). Likewise, a push button shall be provided for scrolling the parameters in Alternate Display (On Demand) mode.

6.21 OUTPUT DEVICE

Energy Meter shall have test output, accessible from the front, and be capable of being monitored with suitable testing equipment while in operation at site. The operation indicator must be visible from the front. The test output device shall be provided in the form of blinking LED. Resolution of the test output device shall be sufficient to enable the starting current test in less than 10 minutes and accuracy test at the lowest load shall be completed with desired accuracy within 5 minutes. The pulse rate of output device (separate blinking LED must be provided for each parameter) which is Pulse / kWh and Pulse / kVArh (meter constant) shall be indelibly provided on the nameplate. It shall be possible to check the accuracy of active energy measurement of the meter on site by means of LED output.

- 6.22** The meter accuracy shall not be affected by external AC / DC / permanent magnetic field as per CBIP Technical Report 325 with latest amendments. If the meter gets affected under influence of any magnetic field (AC / DC / Permanent), then the same shall be recorded as magnetic tamper event with date & time stamping and the meter shall record energy maximum value current (Imax) and reference voltage at unity power factor

- 6.23** Power supply unit shall be micro control type instead of providing conventional transformer and then conversion to avoid magnetic influence.

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6.24 REAL TIME INTERNAL CLOCK (RTC)

The real time quartz clock shall be used in the meter for maintaining time (IST) and calendar. The RTC shall be non - rechargeable and shall be pre-programmed for 30 Years Day / date without any necessity for correction. The maximum drift shall not exceed +/- 300 Seconds per year. Facility for adjustment of real time shall be provided with proper security. The calendar and the clock shall be correctly set to Indian Standard Time.

The clock day / date setting and synchronization shall only be possible through password / Key code command from one of the following:

- a) HHU, Laptop or Meter testing work bench and this shall need password enabling for meter;
- b) From remote server through suitable communication network or Sub-station data logger 'PC'.

The RTC battery & the battery for display in case of power failure shall be separate.

6.25 Non-specified display parameters in the meter shall be blocked and same shall not be accessible for reprogramming at site through any kind of communication

6.26 Complete metering system & measurement shall not be affected by the external electromagnetic interference such as electrical discharge of cables and capacitors, harmonics, electrostatic discharges, external magnetic fields and DC current in AC supply etc. The Meter shall meet the requirement of CBIP Tech-report 325 (amended up to date).

6.27 SELF DIAGNOSTIC FEATURES

- (a) The meter shall keep log in its memory for unsatisfactory / non - functioning of Real Time Clock battery and can be downloaded for reading through RS-232 port to read in base computer.
- (b) The meter shall be capable of performing complete self-diagnostic check to monitor the circuits for any malfunctioning to ensure integrity of data memory location all the time.
- (c) LCD Test display shall be provided for checking of all display Segments.

6.28 The meter shall have facility to read the default display parameters during Power supply failure. For this purpose an internal battery may be provided.

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The internal battery shall be Ni-mh or Li-ion or NI CD maintenance free battery of long life of 10 years. A suitable Push Button arrangement for activation of this battery shall be provided. Alternatively, push button provided for displaying alternate mode (On Demand Mode) parameters shall also be acceptable for activation of battery during power OFF condition.

After activating the battery during power OFF condition, the meter shall display all Default Display (Auto Scrolling Mode) parameters only once, after which the battery shall switch OFF automatically. The battery shall be locked after 3 operations during one power OFF cycle. As soon as the supply is resumed to meter, the battery shall automatically come to normal.

Billing Data downloading and Reading through HHU shall also be possible in power outage condition.

6.29 PCB used in meter shall be made by Surface Mounting Technology.

6.30 The meter shall also be capable to withstand and shall not get damaged if phase-to-phase voltage is applied between phase to neutral for 5 minutes.

6.31 The meter shall record and display total energy including Harmonic energy.

6.32 PERFORMANCE ON DC INJECTION

Apart from all the technical requirements as specified above, it shall also be ensured that meter shall not stop and record consumption accurately even on injection of DC voltage in neutral.

6.33 The accuracy of the meter and the measurement by meter shall not get influenced by injection of High frequency AC Voltage / chopped signal / DC signal and harmonics on the terminals of the meter. The meter accuracy shall not be affected by magnetic field from all sides of the meter i.e. front, sides, top and bottom of the meter.

6.34 The meter shall withstand any type of High Voltage and High Frequency surges, which are similar to the surges produced by induction coil type instruments without affecting the accuracy of the meter.

The accuracy of the meter shall not be affected with the application of abnormal voltage / frequency generating device such as spark discharge of approximately 35 kV. The meter shall be tested by feeding the output of this device to meter in any of the following manner for 10 minutes:

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- (a) On any of the phases or neutral terminals
- (b) On any connecting wires of the meter (Voltage discharge with 0-10 mm spark gap)
- (c) At any place in load circuit.

The accuracy of meter shall be checked before and after the application of above device.

6.35 COMMUNICATION CAPABILITY

- (a) The meter shall be provided with a hardware port compatible with RS 232 specifications (RJ - 11 / RJ - 45 type is also acceptable) which shall be used for local data downloading through a DLMS compliant HHU.

It shall be possible to download all data through RS-232 port provided on the meter. RS-232 port or TCP / IP port, as required, on terminal block is also acceptable.

Sealing arrangement for RS-232 port shall be provided. The RS-232 port shall support the default and minimum baud rate of 9600 bps. Necessary chord for RS-232 Port of minimum length of 1 (One) metre in the ratio 50:1 shall be provided free of cost.

- (b) **Remote communication mode for data retrieval**

Meter shall be provided with 4G intelligent modem embedded in meter body.

Modem should be compatible with data transmission over 2G, 3G, 4G/LTE. Modem should have facility for fall back to 2G/3G networks, where 4G network is not available. Modem should support both Data and SMS transmission. It should have GPRS/EDGE features.

Modem should be capable of working on intelligent mode (Push mode) to transparent mode (Pull mode). Modem should have store and forward feature, while working in intelligent mode. By default, the modem should be working on intelligent mode. It should be possible to configure the modem for schedule to download data from meter (15 minutes/hourly/daily/weekly/monthly) through configuration tool and SMS. Modem should automatically download data from meter at configured intervals and this data should be stored in the modem. Also modem should automatically establish the connection with server configured and data stored in modem should be pushed to server at configured intervals.

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It should be possible to convert mode of working of modem from intelligent mode (Push mode) to transparent mode (Pull mode) and vice-versa. Such conversion should be done through locally and remotely, over the air through configuration tool or through SMS. While working on transparent mode, modem should act as a completely transparent channel i.e. the Commands received from Centralized Head End System/MDAS should be conveyed to meter and data from meter should be conveyed to Centralized Head End System/MDAS without any changes in the mode.

Modem shall be connected such that the RS-232 port of meter shall be free for the data downloading through HHU.

On insertion of SIM card, modem should configure APN settings automatically based on SIM card inserted. APN details of network service providers will be shared with successful bidders.

Configuration of modem using modem configuration utility:

It should be possible to read and write various modem configuration parameters such as baud rate, parity, data bits, APN details, Master SIM numbers etc. locally using PC/Laptop & over the air, remotely using this configuration utility. Also it should be possible to update the modem firmware locally and remotely using modem configuration utility.

Bidder should submit the configuration utility along with offer.

Configuration over the air:

Modem configuration parameters such as baud rate, parity, data bit, flow control, APN details with user name and Password, Network signal strength (CSQ), Server IP, Modem listening port, IP address of SIM, Master SIM numbers configured should be read by sending SMS to modem from any mobile phone. The SMS sent by modem should be readable in mobile phones with various operating systems e.g. Android, i-OS, Windows etc.

Modem can be configured for various parameters such as baud rate, parity, data bit, flow control, APN details with user name and Password, Server IP, Modem listening port, Master SIM numbers by sending SMS to modem from master SIM.

Modem should also support rebooting through SMS. SMS will be sent through master SIM only.

The bidder should share set of instructions required for over the air configuration through SMS.

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Bidder has to provide software application to receive data sent by modems working on intelligent mode. It should be possible to generate XML file of meter data as per MIOS format, through this application. This application should be handed over to MSEDCL and the same should be deployed at MSEDCL. The demonstration of this application is to be done by bidder at the time of evaluation of sample meter.

6.36 RETENTION TIME OF THE NON-VOLATILE MEMORY

The meters shall make use of Non Volatile Memory capable of storing & retaining all the data required to be stored, without the help of any power source or battery back up.

The data stored in the meters shall not be lost in the event of power failure. The meter shall have Non Volatile Memory (NVM), which does not need any battery backup. The NVM shall have a minimum retention period of 10 years.

6.37 WIRE / CABLE LESS DESIGN

The meter shall be wireless to avoid improper soldering & loose connection / contact.

6.38 CALIBRATION, CONFIGURATION & PROGRAMMING

The Meter shall be only factory calibrated, configured and programmed. No device, such as potentiometers shall be used which can result in change of calibration at site. The above activities shall not be possible at site through the use of user software or any such means. It shall, however, be possible to check the accuracy in the field by means of the test output. No setting points / setting registers etc. shall be provided for adjustment of measurement errors. Once finalised, the meter constants shall be freezed and it shall not be possible by the manufacturer or the user to alter the meter constants either at factory or at site.

6.39 GPRS CONNECTIVITY SCOPE

- 6.39.1 MSEDCL will provide VPN based SIM cards under Network Bandwidth Service Provider (NBSP) umbrella contract. Presently, following service providers are participated under umbrella contract.

Vodafone, Airtel, Idea, Tata.

- 6.39.2 The cost of SIM card & recurring monthly charges shall be borne by MSEDCL. The bidder has to decide location wise service provider and inform the service provider wise SIM requirement to MSEDCL.

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- 6.39.3 The bidder must provide at the time of commissioning all technical documentation and manuals for all the equipments so that if required, a third party is also able to maintain them.
- 6.39.4 Configuration of all meters / AMR devices installed in MSEDCL MDAS s/w for establishing the network using IP addresses so as to enable their monitoring through the system.

7.00 ENCLOSURE OF METER

As per Annexure IV

8.00 TOD TIMINGS

The meter shall be capable of registering the time-of-day energy and maximum demand.

There shall be provision for at least 6 (Six) TOD time zones for energy and demand. The number and timings of these TOD time Zones shall be programmable.

At present the time zones shall be programmed as below.

Zone "A" : 00=00 Hrs. to 06=00 Hrs. and 22=00 Hrs. to 24=00 Hrs

Zone "B" : 06=00 Hrs. to 09=00 Hrs. and 12=00 Hrs. to 18=00 Hrs

Zone "C" : 09=00 Hrs. to 12=00 Hrs

Zone "D" : 18=00 Hrs. to 22=00 Hrs.

9.00 MAXIMUM DEMAND INTEGRATION PERIOD

The maximum demand integration period shall be set at 30 minutes with block window method.

10.00 MD RESET

It shall be possible to reset MD by the following options:

- a) Communication driven reset through hand held terminal (HHU).
- b) Automatic reset at the end of certain predefined period (say, end of the month) or auto reset MD at 24:00 hrs at the end of each billing cycle.

The auto reset option shall be programmable for any date and time as per requirement.

No push button shall be provided for MD reset.

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11.00 TAMPER AND FRAUD MONITORING FEATURES
11.01 ANTI TAMPER FEATURES

The meter shall detect and correctly register energy only in forward direction under following tamper conditions:

- (i) Change of phase sequence: The meter accuracy shall not be affected by change of phase sequence. It shall maintain the desired accuracy in case of reversal of phase sequence.
- (ii) The three-phase meter shall continue to work even without neutral.
- (iii) The three-phase meter shall work in absence of any two phases, i.e. it shall work on any one phase wire and neutral, to record relevant energy.
- (iv) Visual indication shall be provided to safeguard against wrong connections to the meter.
- (v) If a consumer tries to steal power by disconnecting the voltage supply of one or two phases of the meter externally or by tampering so that no voltage or partial voltage ($< 50\%$ of V_{ref}) is available to voltage circuit of meter & current is flowing in that phase, the meter shall record energy at V_{ref} , current available in these phases & UPF.
- (vi) The meter accuracy shall not be affected by external AC / DC / permanent magnetic field as per CBIP Technical Report 325 with latest amendments. If the meter gets affected under influence of any magnetic field (AC / DC / Permanent), then the same shall be recorded as magnetic tamper event with date & time stamping and the meter shall record energy maximum value current (I_{max}) and reference voltage at unity power factor.
- (vii) Meter shall also be immune for tamper by application of remote loop induction device (jammer).
- (viii) The meter shall not get affected by any remote device. When meter is subjected to approx. 35 KV abnormal high voltage / frequency burst and remote loop induction device (jammer), it shall not hang and in case if it hangs once, it shall remain hanged permanently.

The bidder shall furnish detailed explanation as to how the meter is able to detect / protect recording the above tamper and fraud features with sketches and phaser diagram. Additional features, if any, in the meter may also be clearly indicated.

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11.02 TAMPER EVENTS

- 11.02.1 The meter shall work satisfactorily under presence of various influencing conditions like External Magnetic Field, Electromagnetic Field, Radio Frequency Interference, Harmonic Distortion, Voltage / Frequency Fluctuations and Electromagnetic High Frequency Fields, etc. as per relevant IS.
- 11.02.2 The meter shall record the occurrence and restoration of tamper events of current, voltages, kWh, kVAh, power factor, event code, date & time etc. listed in Table 32 to 37 of IS: 15959 / 2011.
- 11.02.3 The detection of the tamper event shall be registered in the tamper event register. The no. of times the tampering has been done shall also be registered in the meter.
- 11.02.4 Tamper details shall be retrieved by authorized personnel through either of the following:
- i) HHU.
 - ii) Remote access through suitable communication network.
- 11.02.5 Minimum 200 numbers of events (occurrences & restoration with date & time) shall be available in the meter memory. The recording of abnormal events shall be on FIFO basis. The unrestored events shall be recorded separately and shall not be deleted till they get recovered (permissible upto 3 months).
- 11.02.6 All the information of data shall be made available in simple & easy to understand format.
- 11.02.7 The threshold values for various tampers are as below.

Sr. No.	Description	Occurrence (With Occ. Time 5 min.)	Restoration (With Rest. Time 5 min.)
1.	PT link Missing (Missing potential)	< 50% of Vref and current in that phase is > 1% Ib	> 50 % of Vref
2.	Over voltage in any phase	> 115 % of Vref	< 115 % of Vref
3.	Low voltage in any phase	< 70 % of Vref	> 70 % of Vref
4.	Voltage Unbalance	Vmax - Vmin > 10 % Vmax	Vmax - Vmin < 10 % Vmax

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5.	Current Unbalance (Diff. of phase currents)	> 30 % I _{ref} * for 15 min	< 30 % I _{ref} * for 15 min
6.	Over Current in any Phase	> 120 % I _{max}	< 120 % I _{max}
7.	Influence of permanent magnet or AC / DC electromagnet / permanent magnet	Minimum 10 seconds	1 minute after removal
8.	Neutral Disturbance	--	--
9.	Power failure	Immediate	Immediate
10.	Very Low PF	--	--
11.	Current Bypass	Bypass current >50% of I _{ref}	Bypass current <30% of I _{ref}
* Higher of 3 phase currents shall be taken as reference for this purpose.			

12.00 QUANTITIES TO BE MEASURED & DISPLAYED

The meter shall be capable of measuring and displaying the following electrical quantities within specified accuracy limits for polyphase balanced or unbalanced loads:

- Instantaneous Parameters such as phase and line voltages, currents, power factors, overall kVA, kW, kVA_r, power factor, frequency etc as per details given in the table below and IS: 15959 / 2011.
- Block Load Profile Parameters such as kVA_h / kWh / kVA_{rh} (lag / lead) / Maximum Demand (MD) in kW / kVA / power factor / phase and line voltages / currents etc. as per details given in the table below and IS: 15959 / 2011.
- Billing Profile Parameters such as cumulative energy kWh / cumulative kVA_h / cumulative energy kVA_{rh}, etc. as per details given in the table below and IS: 15959 / 2011.

In addition to above the meter shall also record the Name plate details, programmable parameters (readable as profile), occurrence

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and restoration of tamper events along with the parameters (Table 30, 31 32, 33, 34, 35, 36, 37 & 39 respectively) of IS: 15959 / 2011.

Detail of category wise parameters requirement suitable for

LT consumer metering is given in following tables of IS: 15959 / 2011.

Category C2	Parameter group	Annexure Table No.
LT consumer Energy Meters	Instantaneous parameters	27
	Block Load Profile parameters	28
	Billing Profile Parameters	29
	Name Plate details	30
	Programmable Parameters	31
	Event Conditions	32 to 37
All logging parameters for each of the event condition for 3 Φ / 4W	Capture parameters for event (Event Log Profile)	39

13.00 DISPLAY OF MEASURED VALUES

13.01 DISPLAY INDICATORS

The supply indication & calibration (pulse indication) indication shall be displayed permanently by LED / LCD as a minimum and shall be visible from the front of the meter.

13.02 The display shall be permanently backlit Liquid Crystal Display LCD with wide viewing angle for clear visibility of the display of the meter reading & shall be visible from the front of the meter. Large viewing area with large display icons is preferred.

13.03 LCD shall be suitable for temperature withstand of 70° C.

13.04 Adequate back up arrangement for storing of energy registered at the time of power interruption shall be provided.

13.05 The display shall be electronic and when the meter is not energized, the electronic display need not be visible.

13.06 The display shall not be affected by electrical and magnetic disturbances.

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- 13.07** Dot-Matrix type LCD display is not acceptable.
- 13.08** The meter shall make use of non-volatile memory capable of storing and retaining all the data required to be stored, without the help of any power source or battery back up and shall have a minimum retention time of 10 years under un-powered condition.
- 13.09** The accuracy of display parameters for all parameters shall be matching with the accuracy class of meter as per IS.
- 13.10 MINIMUM CHARACTER SIZE**
- (a) The meter shall have 7 digits parameter identifier,
 - (b) The height of the display characters for the principal parameters values shall not be less than 5 mm. The size of digit shall be minimum 10x5 mm.
- 13.11** The decimal units upto 2 digits shall not be displayed in auto scroll mode. However it shall be displayed in push button mode for high-resolution display for testing.
- 13.12** In case of multiple values presented by single display, it shall be possible to display the contents of all relevant memories. When displaying the memory, the identification of each parameter applied shall be possible. The principle unit for measured values shall be the kilowatt-hour (kWh) for active energy, kVArh for reactive energy & kVAh for apparent energy.
- 13.13** The display of various parameters shall be scrolling one after another. The display shall have ON time of at least 10 seconds for each measured value.
- 13.14** The meter shall be pre-programmed for following details.
- (a) MD Integration Period: 30 Minutes.
 - (b) The meter shall Auto reset kVAMD at 24.00 Hrs. of last day of the month and this value shall be stored in the memory along with the cumulative kWh, kVAh, kVArh (lag) & kVArh (lead) readings.
 - (c) No reset push button shall be provided.
 - (d) Average power factor with 2 decimal digits shall be displayed.
 - (e) The array of data to be retained inside the meter memory shall be for the last 60 days for a capture period of 30 minutes. The load survey data shall be first in first out basis (FIFO).
- 13.15** There shall be two display modes on the meter – (1) The Default Display (Auto scrolling mode) and (2) the Alternate Display Mode (On Demand Mode or Push Button Mode)

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- 13.16** The Default Display (Auto scrolling mode) shall switch to Alternate Display (On Demand Display Mode) after pressing the push button continuously for 5 seconds.
- 13.17** The meter display shall return to Default Display Mode if the “On Demand” Push Button is not operated for 15 sec.
- 13.18** Auto display cycling push button is required with persistence time of 10 Seconds.
- 13.19 MINIMUM DISPLAY CAPABILITY (MEASURING PARAMETERS)**

The sequence of display of various instantaneous parameters in Default Display Mode (Auto Scroll Mode) & Alternate Display Mode (On Demand Mode) shall be as per table 27 & 29 (except 8 & 9) of Annex E of IS: 15959 / 2011 in the sequence as below.

Display other than specified below shall be blocked.

(A) DEFAULT DISPLAY MODE (AUTO SCROLL MODE)

The following parameters shall be available in Default Display Mode (Auto Scroll Mode). The scroll period for auto scroll shall be 10 secs.

Default Display Mode (Auto Scroll) (Scrolling Time 10 Secs.)	
1.	LCD Test
2.	Real Time Clock – Date & Time
3.	Cumulative Energy – kWh
4.	Cumulative Energy – kWh - TOD Zone A (TZ1)
5.	Cumulative Energy – kWh - TOD Zone B (TZ2)
6.	Cumulative Energy – kWh - TOD Zone C (TZ3)
7.	Cumulative Energy – kWh - TOD Zone D (TZ4)
8.	Cumulative Energy – kVARh - Lag
9.	Cumulative Energy – kVARh - Lag- TOD Zone A (TZ1)
10.	Cumulative Energy – kVARh - Lag- TOD Zone B (TZ2)
11.	Cumulative Energy – kVARh - Lag- TOD Zone C (TZ3)

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12.	Cumulative Energy – kVARh - Lag- TOD Zone D (TZ4)
13.	Cumulative Energy –kVARh - Lead
14.	Cumulative Energy – kVARh - Lead- TOD Zone A (TZ1)
15.	Cumulative Energy – kVARh - Lead- TOD Zone B (TZ2)
16.	Cumulative Energy – kVARh - Lead- TOD Zone C (TZ3)
17.	Cumulative Energy – kVARh - Lead- TOD Zone D (TZ4)
18.	Cumulative Energy – kVAh
19.	Cumulative Energy – kVAh - TOD Zone A (TZ1)
20.	Cumulative Energy – kVAh - TOD Zone B (TZ2)
21.	Cumulative Energy – kVAh - TOD Zone C (TZ3)
22.	Cumulative Energy – kVAh – TOD Zone D (TZ4)
23.	Current MD – kVA with occurrence date & time
24.	MD - kVA – TOD Zone A (TZ1) with occurrence date & time
25.	MD - kVA – TOD Zone B (TZ2) with occurrence date & time
26.	MD - kVA – TOD Zone C (TZ3) with occurrence date & time
27.	MD - kVA – TOD Zone D (TZ4) with occurrence date & time
28.	Number of MD – kVA reset
29.	Rising MD with elapsed time
30.	Three Phase Power Factor – PF
31.	Cumulative Tamper Count
32.	Meter Cover Opening – Occurrence with date and time.

**(B) ALTERNATE DISPLAY MODE (ON DEMAND DISPLAY MODE)
THROUGH PUSH BUTTON**

The following parameters shall be available in Alternate Display (On demand Display Mode).

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The display of these parameters shall be continuously scrolling one after another through push button. Display parameters shall move forward if button pressed prior to the programmed time for display of each parameter.

Alternate Display (On – Demand Display) (Push Button mode) (Scrolling Time 6 Secs.)	
1.	Last date & time of MD - kVA reset
2.	Current – I_R
3.	Current – I_Y
4.	Current – I_B
5.	Voltage – V_R
6.	Voltage – V_Y
7.	Voltage – V_B
8.	Signed Power Factor – R Phase
9.	Signed Power Factor – Y Phase
10.	Signed Power Factor – B Phase
11.	Frequency
12.	High resolution kWh (for calibration)
13.	High resolution kVAh Lag(for calibration)
14.	High resolution kVAh Lead(for calibration)
15.	High resolution kVAh (for calibration)
16.	Running Demand kVA (for calibration)
17.	M1 MD - kVA – TOD Zone A (TZ1) with occurrence date & time
18.	M1 MD - kVA – TOD Zone B (TZ2) with occurrence date & time
19.	M1 MD - kVA – TOD Zone C (TZ3) with occurrence date & time

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20.	M1 MD - kVA – TOD Zone D (TZ4) with occurrence date & time
21.	M2 MD - kVA – TOD Zone A (TZ1) with occurrence date & time
22.	M2 MD - kVA – TOD Zone B (TZ2) with occurrence date & time
23.	M2 MD - kVA – TOD Zone C (TZ3) with occurrence date & time
24.	M2 MD - kVA – TOD Zone D (TZ4) with occurrence date & time
25.	Last Tamper Event with date and time.
Note: (1) Other kVA MD values shall be available in reset backup data for 12 months. (2) The meter display shall return to Default Display Mode if the “On Demand Push Button” is not operated for 15 sec. (3) The meter shall display the tamper meter cover open with date & time in auto scroll mode along with other parameters	

14.00 BILLING DATA, BILLING HISTORY, LOAD SURVEY & TAMPER DATA

14.01 BILLING DATA

The billing data shall be as per table 29 of Annex E of IS: 15959 / 2011 for category C2 and is summarized as below.

Sr. No.	Parameters
1.	Billing Date
2.	System Power Factor for Billing Period
3.	Cumulative Energy – kWh
4.	Cumulative Energy – kWh - TOD Zone A (TZ1)
5.	Cumulative Energy – kWh - TOD Zone B (TZ2)
6.	Cumulative Energy – kWh - TOD Zone C (TZ3)
7.	Cumulative Energy – kWh - TOD Zone D (TZ4)
8.	Cumulative Energy – kVarh – Lag

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9.	Cumulative Energy – kVArh – Lead
10.	Cumulative Energy – kVAh
11.	Cumulative Energy – kVAh - TOD Zone A (TZ1)
12.	Cumulative Energy – kVAh – TOD Zone B (TZ2)
13.	Cumulative Energy – kVAh – TOD Zone C (TZ3)
14.	Cumulative Energy – kVAh – TOD Zone D (TZ4)
15.	MD – kVA with occurrence date & time
16.	MD – kVA – TOD Zone A (TZ1) with occurrence date & time
17.	MD – kVA – TOD Zone B (TZ2) with occurrence date & time
18.	MD – kVA – TOD Zone C (TZ3) with occurrence date & time
19.	MD – kVA – TOD Zone D (TZ4) with occurrence date & time
20.	MD – kW occurrence date & time
21.	MD – kW – TOD Zone A (TZ1) with occurrence date & time
22.	MD – kW – TOD Zone B (TZ2) with occurrence date & time
23.	MD – kW – TOD Zone C (TZ3) with occurrence date & time
24.	MD – kW – TOD Zone D (TZ4) with occurrence date & time

14.02 BILLING HISTORY

The meter shall have sufficient non-volatile memory for recording history of billing parameters for last 12 months.

14.03 LOAD SURVEY PARAMETERS

The array of data to be retained inside the meter memory shall be for the last 60 days for a capture period of 30 minutes. The capture period for load survey data should be configurable. The load survey data shall be first in first out basis (FIFO). Load survey data shall be logged on non-time based basis, i.e. if there is no power for more than 24 hours, the day shall not be recorded. Whenever meter is taken out and brought to laboratory, the load survey data shall be retained for the period of actual use of meter.

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The load survey data can be retrieved as and when desired and load profiles shall be viewed graphically / analytically with the help of meter application software.

The meter application software shall be capable of exporting / transmitting these data for analysis to other user software in spreadsheet format.

The load survey parameters are as below.

(1)	Real Time Clock – Date and Time
(2)	Current - I_R
(3)	Current - I_Y
(4)	Current - I_B
(5)	Voltage - V_{RN}
(6)	Voltage - V_{YN}
(7)	Voltage - V_{BN}
(8)	Block Energy – kWh
(9)	Block Energy – kVArh – lag
(10)	Block Energy – kVArh – lead
(11)	Block Energy – kVAh

The above billing data, TOD register's data, load survey data, tamper information and instantaneous parameters data shall all be retrievable through RS-232 port through a common meter reading instrument (HHU) and shall be transferred (downloaded) to a PC with Windows based software to get complete details in numerical and/or graphic form. The necessary base computer software (BCS) for this purpose shall be provided by the supplier with complete details.

15.00 DEMONSTRATION

The purchaser reserves the right to ask to give the demonstration of the equipment offered at the purchaser's place.

16.00 PERFORMANCE UNDER INFLUENCE QUANTITIES

The meters performance under influence quantities shall be governed by IS: 13779 / 1999 (amended upto date) and CBIP Tech.

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Report 325. The accuracy of meter shall not exceed the permissible limits of accuracy as per standard IS: 13779 / 1999 (amended upto date). In case of conflict, the priority shall be as per clause no. 3.00 of this specification.

17.00 HAND HELD UNIT (HHU)

- 17.01** To enable local reading of meters data, a DLMS (Device Language Message Specification) compliant HHU shall be provided.
- 17.02** The HHU shall be as per specification given in Annex J of IS: 15959 / 2011.
- 17.03** It shall be compatible to the DLMS compliant energy meters that are to be procured / supplied on the basis of this specification.
- 17.04** The HHU shall be supplied by the meter manufacturer along with the meter free of cost in the ratio of one for each 250 Nos. meters supplied including user manual and a set of direct communication cords for data downloading to the Laptop or PC for each HHU.
- 17.05** There shall be a provision for auto power save on HHU, which shall force the instrument in the power saving mode in case of no-activity within 5 minutes. The data shall not be lost in the event the batteries are drained or removed from the HHU.
- 17.06** The HHU shall have a memory capacity of 512 MB SRAM (Static RAM) with battery backup & upgradeable and BIOS / OS on FLASH / EEPROM Memory of 256 KB (RAM-512 MB, FLASH-2GB, SD Card- 8GB with USB facility)
- 17.07** The manufacturer / supplier shall modify the compatibility of HHU with the meter and the base computer system due to any change in language or any other reasons at their own cost within guarantee period.
- 17.08** The HHU shall be type tested for (a) Tests of Mechanical requirement such as Free fall test, Shock Test, Vibration test, (b) Tests of Climatic influences such as Tests of Protection against Penetration of Dust and Water (IP 6X), Dry Heat test, Cold Test, Damp Heat Cyclic Test, (c) Tests for Electromagnetic Compatibility (EMC), (d) Test of Immunity to Electromagnetic HF Fields and (e) Radio Interference Measurement.
- 17.09** The equipments offered shall be fully type tested at approved laboratory by National Accreditation Board for Testing and Calibration Laboratories (NABL) as per relevant standards within last 5 years from the date of opening of tender & the type test reports shall be enclosed with the offer.

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18.00 COMPUTER SOFTWARE

- 18.01** For efficient and speedy recovery of data downloaded through HHU on base computer, licensed copies of base computer software shall have to be supplied free of cost. This software will be used at number of places up to Division level. As many copies of base computer software as required up to Division level shall be provided by Supplier.
- 18.02** The meter shall be capable to communicate directly with laptop computer. Base Computer Software shall generate the reports in pdf or excel format.
- 18.03** The Base Computer Software shall be "Windows" based & user friendly. The data transfer shall be highly reliable and fraud proof (No editing shall be possible on base computer as well as HHU by any means). The software shall have capability to convert all the data into ASCII format/XML format as per MIOS.
- 18.04** The total time taken for downloading Billing, Tamper and Load Survey Data for 60 days shall be less than or equal to 8 minutes.
- 18.05** Downloading time of only Billing data shall be less than or equal to 20 secs.
- 18.06** It shall be possible to upload the HHU data to any PC having HHU software. A consumer based data uploading facility is required so that HHU shall upload data only in that PC which has the concerned consumers` data. The consumer code + meter no. shall be the key for creating consumers` files or overwriting consumers` files in PC. The software system files and data files shall be stored in different directories.
- 18.07** The BCS software shall create one single file for the uploaded data, e.g. if HHU contains the meter readings of, say, 2,000 consumer meters and the said data is uploaded to BCS, then the BCS shall create a single file containing separate records for each consumer meter reading in XML file as per MIOS for individual meter reading.
- 18.08** Meter manufacturers should also need to submit Convert API (API3) as per MIOS universal standard along with Base Computer System free of cost. This API should capable of converting both data i.e. AMR data collected from Read API (API1) and MRI data collected from CMRI.
- 18.09** Also there shall be a provision to give filenames while creating the file.
- 18.10** As and when the meter manufacturer releases new or latest or advanced versions of meter hardware / firmware / software (such as Base Computer System, API3 etc), the same shall be made available to

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purchaser immediately on the release date free of cost. The latest version shall support all existing hardware / meters in the field. The meter manufacturer should also provide support for changes and integration of Base Computer System and API3.

18.11 The meter samples shall be tested by our IT Department for the time required for downloading the data as per specifications and as confirmed by the bidder.

18.12 Downloading software shall also be provided so as to install on our Laptop for downloading data directly on Laptop from meter without the use of HHU.

18.13 The software provided on laptop or PC shall be compatible to read the data from USB drive and for that purpose a sample cable (1 No.) shall be provided with USB termination.

USB being the de-facto standard, this is the requirement.

18.14 MSEDCL is procuring large quantity of meters. As such manufacturer have to depute Hardware Engineers and Software Engineers on call basis, who shall have thorough knowledge of meter hardware / software used for downloading and converting so as to discuss the problems, if any, or new development in the hardware / software with Chief Engineer, Testing & Control Cell / Chief General Manager (IT), MSEDCL, Prakashgad, Bandra (E), Mumbai – 400051 without any additional charge.

19.00 METERING PROTOCOL

As per Category C2 of IS: 15959 / 2011.

20.00 CONNECTION DIAGRAM AND TERMINAL MARKINGS

The connection diagram of the meter shall be clearly shown on inside portion of terminal cover & shall be of permanent nature.

Meter terminals shall also be marked & this marking shall appear in the above diagram.

21.00 INSTALLATION CHECK

While installing the meter, it shall be possible to check the correctness of the connection to the meters and their polarity from the functioning of the meter with the help of HHU under load condition. The phase sequence and phased association of voltage and current can be checked with the help of HHU.

22.00 NAME PLATE AND MARKING OF METERS

Meter shall have a nameplate clearly visible, effectively secured

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against removal and indelibly and distinctly marked with all essential particulars as per relevant standards.

Meter Serial Number shall be Bar Coded along with numeric number. The manufacturer's meter constant shall be marked on the nameplate. The size of bar coded number shall not be less than 35x5 mm. Meter serial number & bar code on sticker will not be allowed. In addition to the requirement as per IS, following shall be marked on the nameplate.

- (i) Purchase order No & date
- (ii) Month and Year of manufacture
- (iii) Name of purchaser, i.e. MSEDCL
- (iv) Guarantee Five Years
- (v) ISI mark
- (vi) Category of Meter: **Category C2 – IS: 15959 / 2011**. The character height of the same shall be minimum 3 mm in capital letters.

23.00 MOUNTING ARRANGEMENT

Suitable wall mounting arrangement for the complete meter unit shall be provided such that the mounting bolts shall be operated/ opened or accessible only after operation of a set of seal.

Proper locking arrangement shall be provided to protect from unauthorised removal of meter from its mount.

24.00 TESTS

24.01 TYPE TESTS

The meter offered shall have successfully passed all type tests described in the IS: 13779 / 1999 (amended up to date), external AC / DC magnetic influence tests as per CBIP Tech Report 325 with latest amendments.

The Type Test Reports shall clearly indicate the constructional features of the type-tested meter. The type test reports of the meter shall be same as the meter offered. Separate type Test Reports for each offered type of meter shall be submitted.

All the Type Tests shall be carried out from Laboratories which are accredited by the National Accreditation Board for Testing and Calibration Laboratories (NABL) of Govt. of India such as CPRI, ERDA, ERTL, etc. to prove that the meter meets the requirements of specification.

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Type Test Reports conducted in manufacturers own laboratory and certified by testing institute shall not be acceptable.

The Type Test Certificate as per IS: 13779 / 1999 shall be submitted along with the offer. The Type Test certificate carried out during last five years shall be valid.

Further Purchaser shall reserve the right to pick up energy meters at random from the lots offered and get the meter tested at third party lab i.e. CPRI / agencies listed at Appendix-C of Latest – standardization of AC static electrical energy meters – CBIP publication No. - 325/ NPL / CQAL/ ERTL / ERDA at the sole discretion of the Purchaser. The supplier has no right to contest the test results of the third party lab or for additional test and has to replace / take corrective action at the cost of the supplier. It shall be the responsibility of the supplier to arrange such tests and Purchaser shall be informed of the date and time of conduction of tests well in advance to enable him to witness such tests. Test charges of the testing authority, for such successful repeat type tests, shall be reimbursed at actual by the Purchaser.

Make & type of major components used in the type-tested meter shall be indicated in the QAP.

- 24.02** The meter shall pass all the acceptance and routine tests as laid down in IS: 13779 / 1999 (amended up to date) and also additional acceptance tests as prescribed in this specification. (3 to 8 meters from a lot more than 1,000 will be sealed randomly in the factory and will be tested for tamper events).

24.03 ADDITIONAL ACCEPTANCE TESTS

The following additional tests shall be carried out in addition to the acceptance tests specified in IS: 13779 / 1999 (amended up to date).

(a) Transportation Test

At least 50% of the samples of the meter be tested for error at I_{max} , I_b and 5% I_b at unity power factor and 50% I_{max} and 10% I_b at 0.5 lagging Power Factor besides checking them for starting current. This test shall be conducted on ready to install meter i.e. meter cover ultrasonically welded & sealed. After recording these errors, the meter be put in their normal packing and transported for at least 50 km in any transport vehicle such as pick up van, Jeep, etc. on uneven rural roads and then re-tested at all these loads after the transportation. The variation in errors recorded before and after transportation shall not exceed 1% at higher loads

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and 1.5% at loads below Ib.

(b) Other Acceptance Tests

- i. The meter shall withstand continuously for a period of at least 5 minutes at a voltage of 440 V between phase and neutral without damage / problems.
- ii. Meter shall be tested for tamper conditions as stated in this specification.
- iii. Glow wire testing for polycarbonate body.
- iv. Power consumption tests shall be carried out.
- v. The meter shall comply all the tests for external AC / DC magnetic field as per CBIP Tech Report 325 with latest amendments. Moreover, the magnetic influence test for permanent magnet of 0.5 T for minimum period of 15 minutes shall be carried out by putting the magnet on the meter body. If, during the test, the accuracy of the meter gets affected, then the same shall be recorded as magnetic tamper event with date & time stamping. After removal of magnet, meter shall be subjected to accuracy test as per IS: 13779 /1999 (amended up to date). No deviation in error is allowed in the class index as per IS: 13779 /1999 (amended up to date) & this specification.
- vi. The meter shall withstand impulse voltage at 10 kV.

The test 24.03 (b) (i) to (iv) shall be carried out at factory for each inspected lot at the time of pre dispatch inspection.

The tests 24.03 (b) (v) & (vi) shall be carried out on one sample from first lot as per procedure laid down in IS 13779 / 1999 (amended up to date) and CBIP Tech Report 325 (with latest amendments) in NABL LAB. The test report shall be got approved from the Chief Engineer, MSEDCL, Testing & Quality Control Cell, 5th Floor, Prakashgad, Bandra (East), Mumbai – 400 051 before commencement of supply.

Likewise the type test certificate for the meter protocol used in the meter as per Category C2 of IS: 15959 / 2011 shall be got approved from the Chief Engineer, MSEDCL, Testing & Quality Control Cell, 5th Floor, Prakashgad, Bandra (East), Mumbai – 400 051 before commencement of supply.

(c) Limits of error

- (i) Limits of variation in percentage error due to change in voltage shall not exceed the values given in the following table:

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S N	Influence quantities	Value of current (Balanced, unless otherwise stated)	Power factor	Limits of variation in % error for class 1 meter
(a)	Voltage variation – 15% to +10%	Ib	1	0.7
		Ib	0.5 lag	1.0
(b)	Voltage variation – 40%, + 20% & + 10%	Ib	1	1.1
		Ib	0.5 lag	1.5

(ii) The meter shall be tested at (-) 15% and at (-) 40% of reference voltage as well as (+) 10% and (+) 20% of reference voltage and shall record energy within limits of variation indicated above. However the meter shall continue to register energy up to 50% of the rated voltage.

For other influence quantities like frequency variation, voltage unbalance etc. the limits of variation in percentage error will be as per IS: 13779 / 1999 (amended up to date).

25.00 GUARANTEED TECHNICAL PARTICULARS

The tenderer shall furnish the particulars giving specific required details of Meters in schedule 'A'.

The offers without the details in Schedule 'A' shall stand rejected.

26.00 PRE DESPATCH INSPECTIONS

All Acceptance tests and inspection shall be carried out at the place of manufacturer unless otherwise specially agreed upon by the manufacturer and purchaser at the time of purchase. The manufacturer shall offer to the inspector representing the purchaser, all the reasonable facilities, free of charge, for inspection and testing, to satisfy him that the material is being supplied in accordance with this specification. The MSEDCL's representative / Engineer attending the above testing will carry out testing on suitable number of meter as per sampling procedure laid down in IS: 13779 / 1999 (amended up to date) and additional acceptance test as per this specification and issue test certificate approval to the manufacturer and give clearance for dispatch. The meter shall be sealed after inspection at works.

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The first lot of meter may be jointly inspected by the Executive Engineer, Testing Division and the Executive Engineer, Inspection Wing.

27.00 JOINT INSPECTION AFTER RECEIPT AT STORES (Random Sample Testing)

For carrying out Random Sample Testing (RST), the sample meters shall be drawn from any one of the stores against inspected lot and same shall be tested at any of the Testing and Quality Assurance Units at Aurangabad, Bhandup, Kolhapur, Nagpur, Nashik and Pune. Sample meters shall be drawn as per Annex H (Recommended Sampling Plan) of IS: 13779 / 1999 (amended upto date). Sample meters shall be tested by MSEDCL Testing Engineer in presence of supplier's representative jointly for (i) Starting Current, (ii) Limits of error, (iii) Repeatability of error, (iv) No Load Test as per IS: 13779 / 1999 (amended upto date) & (v) tamper conditions as per technical specifications and (vi) Data downloading time as per specifications.

The 5 days advanced intimation shall be given to the supplier and if the supplier fails to attend the joint inspection on the date informed, the testing shall be carried out by our Testing Engineer in absence of supplier's representative.

If the meters failed in above Random Sample Testing, the lot shall be rejected

28.00 GUARANTEE

The meter, Modem and HHU shall be guaranteed for the period of five years from the date of commissioning or five and half year from the date of dispatch whichever is earlier. The Power battery of the HHU shall however be guaranteed for 2 Years from the date of supply. The bidder shall ensure that battery used in the HHU shall not be of proprietary nature and it shall be available in the open market at competitive rate.

29.00 PACKING

29.01 The meters & HHUs shall be suitably packed in order to avoid damage or disturbance during transit or handling. Each meter & HHU may be suitably packed in the first instance to prevent ingress of moisture and dust and then placed in a cushioned carton of a suitable material to prevent damage due to shocks during transit. The lid of the carton may be suitably sealed. A suitable number of sealed cartons may be packed in a case of adequate strength with extra cushioning, if considered necessary. The cases may then be properly sealed against

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accidental opening in transit. The packing cases may be marked to indicate the fragile nature of the contents.

29.02 The following information shall be furnished with the consignment:

- Name of the consignee
- Details of consignment
- Destination
- Total weight of the consignment
- Sign showing upper / lower side of the crate
- Sign showing fragility of the material
- Handling and unpacking instructions
- Bill of Materials indicating contents of each package & spare material

30.00 QUALITY CONTROL

30.01 The purchaser shall send a team of experienced engineers for assessing the capability of the firm for manufacturing of meters as per this specification.

The team shall be given all assistance and co-operation for inspection and testing at the bidder's works.

30.02 The meters supplied shall give service for a long period with out drifting from the original calibration & performance must be near to zero percent failure.

31.00 MANUFACTURING PROCESS, ASSEMBLY, TESTING

31.01 Meters shall be manufactured using latest and 'state of the art' technology and methods prevalent in electronics industry. The meter shall be made from high accuracy and reliable surface mount technology (SMT) components. All inward flow of major components and sub assembly parts (CT, PT, RTCs / Crystal, LCDs, LEDs, power circuit electronic components etc.) shall have batch and source identification. Multilayer 'PCB' assembly with 'PTH' (Plated through Hole) using surface mounted component shall have adequate track clearance for power circuits. SMT component shall be assembled using automatic 'pick-and-place' machines, Reflow Soldering oven, for stabilized setting of the components on 'PCB'. For soldered PCBs, cleaning and washing of cards, after wave soldering process is to be carried out as a standard practice. Assembly line of the manufacturing system shall have provision for testing of sub-assembled cards. Manual placing of components and soldering, to be

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minimized to items, which cannot be handled by automatic machine. Handling of 'PCB' with ICs / C-MOS components, to be restricted to bare minimum and precautions to prevent 'ESD' failure to be provided. Complete assembled and soldered PCB shall undergo functional testing using computerized Automatic Test Equipment.

Test points shall be provided to check the performance of each block / stage of the meter circuitry. RTC shall be synchronized with NPL time at the time of manufacture. Meters testing at intermediate and final stage shall be carried out with testing instruments, duly calibrated with reference standard, with traceability of source and date.

The manufacturer shall submit the list of plant and machinery along with the offer.

Meter shall be manufactured using SMT (Surface Mount Technology) components and by deploying automatic SMT pick and place machine and reflow solder process.

Further, the Bidder shall own or have assured access (through hire, lease or sub-contract, documentary proof shall be attached with the offer) of above facilities.

The calibration of meter shall be done in-house.

31.02 MANUFACTURING ACTIVITIES

Quality shall be ensured at the following stages.

- 31.02.1 At PCB manufacturing stage, each Board shall be subjected to computerized bare board testing.
- 31.02.2 At insertion stage, all components shall under go computerized testing for conforming to design parameter and orientation.
- 31.02.3 Complete assembled and soldered PCB shall under go functional testing using Automatic Test Equipments (ATEs).
- 31.02.4 Prior to final testing and calibration, all meter shall be subjected to ageing test ('burn-in' test process) (i.e. Meter will be kept in ovens for 72 hours at 55 deg C temperature & at full load current.
After 72 hours meter shall work satisfactory) to eliminate infant mortality.
- 31.02.5 The bidders shall submit the list of all imported and indigenous components separately used in meter along with the offer.
- 31.02.6 Bought out items:

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A detailed list of bought out items, which are used in the manufacturing of the meter, shall be furnished indicating the name of firms from whom these items are procured.

The bidder shall also give the details of quality assurance procedures followed by him in respect of the bought out items.

31.02.7 List of Plant and Machinery used for production of energy meter:

SN	List of Plant and Machinery used for Energy meter Production	
1	Fully automatic testing Bench with ICT for testing link less meter	Routine Testing and Calibration of Meter
2	Semi automatic testing Bench with MSVT	Routine Testing and Calibration of Meter
3	IR Tester	Insulation testing
4	HV Tester	Insulation testing
5	Error calculators	Error testing
6	Long duration Running test set ups	Reliability Testing
7	Reference Meter Class 0.1 accuracy	Error calculation
8	Ultrasonic welding Machines	Welding of meter
9	Automatic Pick and Place Machines	Automatic placing of SMT components
10	Solder Paste Printing Machine	SMT soldering
11	Soldering Furnace IR reflow	SMT soldering
12	PCB Scanner	For testing of PCBs
13	ATE functional tester	For testing of Components
14	Programmeters and Program Loaders	Chip Programming Tools
15	CAD PCB designing setups	PCB designing
16	Furnace IR type for Hybrid Micro Circuits	Resistance network and HMC manufacturing
17	Laser Trimming Machines	Trimming of resistances for higher accuracy

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		measurement
18	Wave Soldering Machines	Wave soldering of PCBs
19	Humidity Chamber	Accelerated testing for Life cycle
20	Dry Heat Test Chamber	Accelerated testing for Life cycle
21	Thermal Shock Chamber	Accelerated testing for Life cycle
22	PRO - E Mechanical Design Stations	Mechanical CAD stations
23	Spark Erosion Tool fabricating Machine	Tool fabrication and Die manufacturing
24	CNC wire Cut Tool Fabrication machine	Tool fabrication and Die manufacturing
25	CNC Milling Machine for composite tool fabrication	Tool fabrication and Die manufacturing
26	Injection Moulding Machine	Moulding of plastic parts
27	Vibration testing Machine	Vibration testing of Meter
28	Glow Wire Test machine	Testing of Plastic Material
29	Fast transient burst testing setup	Type testing of Meter
30	Short term over Current testing setup	Type testing of Meter
31	Magnetic and other tamper testing setups	Tamper Testing
32	Impulse Voltage Testing Setup	Type testing of Meter
33	Composite Environmental testing chambers	Type testing of Meter

32.00 QUALITY ASSURANCE PLAN

32.01 The tenderer shall invariably furnish QAP as specified in Annexure I along with his offer. The QAP shall be adopted by him in the process of manufacturing.

32.02 Precautions taken for ensuring usage of quality raw material and sub component shall be stated in QAP

33.00 COMPONENT SPECIFICATION

As per Annexure - II enclosed.

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34.00 SCHEDULES

The tenderer shall fill in the following schedules, which are part and partial of the tender specification and offer. If the schedules are not submitted duly filled in with the offer, the offer shall be liable for rejection.

Schedule 'A' Guaranteed and technical particulars.

35.00 DOCUMENTATION

a. All drawings shall conform to International Standards Organisation (ISO "A" series of drawing sheet / India Standards Specifications IS: 656. All drawings shall be in ink and suitable for microfilming. All dimensions and data shall be in S.I. Units.

b. List of drawings and documents:

The bidder shall furnish the following along with bid

(i) Two sets of drawing clearly indicating the general arrangements, fitting details, electrical connections etc.

(ii) Technical leaflets (user's manual) giving operating instructions.

(iii) Three copies of dimensional drawings of the quoted item.

c. The manufacturing of the equipment shall be strictly in accordance with the approved drawings and no deviation shall be permitted without the written approval of the purchaser. All manufacturing and fabrication works in connection with the equipment prior to the approval of the drawing shall be at the supplier's risk.

d. Approval of drawings by purchaser shall not absolve the supplier of his responsibility and liability for ensuring correctness and correct interpretation of the drawings for meeting the requirements of the latest revision of application standards, rules and codes of practices.

The equipment shall conform in all respect to high standards of engineering, design, workmanship and latest revisions of relevant standards at the time of ordering and purchaser shall have the power to reject the materials which, in his judgement, is not fully in accordance therewith.

e. The successful Bidder shall, within 2 weeks of notification of award of contract, submit three sets of final versions of all the drawings as stipulated in the purchase order for purchaser's approval. The

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purchaser shall communicate his comments / approval on the drawings to the supplier within two weeks.

The supplier shall, if necessary, modify the drawings and resubmit three copies of the modified drawings for approval. The supplier shall within two weeks, submit 10 prints and two good quality report copies of the approved drawings for purchaser's use.

- f. Ten sets of operating manuals / technical leaflets shall be supplied to each consignee for the first instance of supply.
- g. One set of routine test certificates shall accompany each dispatch consignment.
- h. The acceptance test certificates in case of pre-dispatch inspection or routine test certificates in cases where inspection is waived shall be got approved by the purchaser.

36.00 GENERAL

- a) Principle of operation of the meter, outlining the methods and stages of computation of various parameters starting from input voltage and current signals including the sampling rate, if applicable, shall be furnished by the bidder.
- b) The bidder shall indicate the method adopted to transform the voltage and current to the desired low values with explanation on devices used such as CT / shunt, potential divider as to how they can be considered superior in maintaining ratio and phase angle for variation of influencing quantities during its service period.
- c) The bidder shall furnish details of memory used in the meter.

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ANNEXURE – I

QUALITY ASSURANCE PLAN

- A) The bidder shall invariably furnish the following information along with his bid, failing which his bid shall be liable for rejection. Information shall be separately given for individual type of material offered.
- i) Statement giving list of important raw materials, names of sub - suppliers for the raw materials, list of standards according to which the raw materials are tested. List of tests normally carried out on raw materials in presence of Bidder's representative, copies of test certificates,
 - ii) Information and copies of test certificates as in (i) above in respect of bought out accessories,
 - iii) List of manufacturing facilities available,
 - iv) Level of automation achieved and list of areas where manual processing exists,
 - v) List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections,
 - vi) List of testing equipments available with the bidder for final testing of equipment specified and test plan limitation, if any, vis-à-vis, the type, special acceptance and routine tests specified in the relevant standards. These limitations shall be very clearly bought out in schedule of deviation from specified test requirements.
- B) The successful bidder shall within 30 days of placement of order, submit following information to the purchaser.
- i) List of raw materials as well as bought out accessories and the names of sub - suppliers selected from those furnished along with offers.
 - ii) Type test certificates of the raw materials and bought out accessories if required by the purchaser.
 - iii) Quality assurance plan (QAP) with hold points for purchaser's inspection. The quality assurance plant and purchasers hold points shall be discussed between the purchaser and bidder before the QAP is finalized.
- C) The contractor shall operate systems which implement the following:
- i) Hold point: A stage in the material procurement or workmanship process beyond which work shall not proceed without the documental approval of designated individuals organizations. The purchaser's

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written approval is required to authorize work to progress beyond the hold points indicated in quality assurance plans.

- ii) Notification point: A stage in the material procurement or workmanship process for which advance notice of the activity is required to facilitate witness. If the purchaser does not attend after receiving documented notification in accordance with the agreed procedures and with the correct period of notice, then the work may proceed.
- D) The successful bidder shall submit the routine test certificates of bought out accessories and central excise passes for raw material at the time of routine testing if required by the purchaser and ensure that Quality Assurance program of the contractor shall consist of the quality systems and quality plans with the following details.
- i) The structure of the organization.
 - > The duties and responsibilities assigned to staff ensuring quality of work.
 - > The system for purchasing taking delivery and verification of material.
 - > The system for ensuring quality workmanship.
 - > The system for retention of records.
 - > The arrangement for contractor's internal auditing.
 - > A list of administration and work procedures required to achieve and verify contractor's quality requirements.

These procedures shall be made readily available to the project manager for inspection on request.
 - ii) Quality Plans:
 - > An outline of the proposed work and programme sequence.
 - > The structure of the contractor's organization for the contract.
 - > The duties and responsibilities assigned to staff ensuring quality of work.
 - > Hold and notification points.
 - > Submission of engineering documents required by the specification.
 - > The inspection of materials and components on receipt.
 - > Reference to contractor's work procedures appropriate to each activity.
 - > Inspection during fabrication / construction.
 - > Final inspection and test.

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ANNEXURE - II
COMPONENT SPECIFICATION

The make/grade and the range of the components should be from the following list makes **or equivalent reputed makes**

SN	Component Function	Requirement	Makes & Origin
1.	Current Transformers	<p>The Meters shall be with the current transformers as measuring elements.</p> <p>The current transformer shall withstand for the clauses under 5 & 9 of IS: 13779 / 1999</p>	
2.	Measurement or computing chips	The measurement or computing chips used in the Meter shall be with the Surface mount type along with the ASICs.	<p>USA: Teridian, Analog Devices, Cyrus Logic, Atmel, Philips, Dallas, ST, Motorola, Texas Instruments, Maxim, Freescale, National Semiconductor, Onsemiconductors.</p> <p>Germany: Siemens.</p> <p>South Africa: SAMES.</p> <p>Japan: NEC, Toshiba, Renasas, Hitachi.</p> <p>Austria: AMS.</p> <p>Holland: Philips (N X P)</p> <p>Taiwan: Prolific</p>

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3.	Memory chips	<p>Memory chips shall not be affected by external parameters like sparking, high voltage spikes or electrostatic discharges.</p> <p>Meter shall have nonvolatile memory (NVM). No other type of memory shall be used for data recording and programming. (The life of the NVM is highest). There shall be security isolation between metering circuit, communication circuit, and power circuit.</p>	<p>USA: Teridian, Atmel, Philips, ST, National Semiconductors, Texas Instruments, Microchip, Spansion (Fujitsu), Ramtron.</p> <p>Japan: Hitachi, Renesas.</p> <p>Germany: Siemens</p>
4.	Display modules	<p>The display modules shall be well protected from the external UV radiations.</p> <p>The display visibility shall be sufficient to read the Meter mounted at a height of 0.5 meter as well as at the height of 2 meters (refer 3.2 d for viewing angle).</p> <p>The construction of the modules shall be such that the displayed quantity shall not disturb with the life of display (PIN Type).</p> <p>It shall be Tran-reflective HTN or STN type industrial grade with extended temperature range.</p>	<p>Singapore: Bonafied Technologies, Displaytech, E-smart</p> <p>Korea: Advantek, Jebon, Union Display Inc.</p> <p>Hong Kong: Genda</p> <p>China: Success, Truly, Tianma.</p> <p>Japan: Hitachi, Sony, L & G.</p> <p>Malaysia: Crystal Clear Technology.</p>
5.	Communication Modules	<p>Communication modules shall be compatible for the two ports (one for IR port for communication with meter reading instruments</p>	<p>USA: Agilent, HP, Fairchild, National Semiconductors, Optonica.</p>

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		(HHU) & the other for the hardwired RS-232 port to communicate with various modems for AMR)	Holland: Philips. Korea: Phillips. Japan: Hitachi. Taiwan: Ligitek
6.	Power supply	The power supply shall be with the Capabilities as per the relevant standards. The power supply unit of the meter shall not be affected in case the maximum voltage of the system appears to the terminals due to faults or due to wrong connections. It shall not also be affected by magnet	SMPS Type
7.	Electronic Components	The active & passive components shall be of the surface mount type & are to be handled & soldered by the state of art assembly processes.	USA: Atmel, National Semiconductors, BC Component, Philips, Texas Instruments, Analog Devices, ST, Onsemiconductors, Maxim, Muruta, Kemet, Freescale, AVX, Intersil, Raltron, Fox, Fairchild, Agilent, Abracon, Diode Inc., Honeywell, Sipex Power Integration, Roham. Japan: Hitachi,

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			<p>Oki, AVZ, Ricon, Toshiba, Epson, Kemet, Alps, Muruta, TDK, Sanyo, Samsung.</p> <p>India: RMC, VEPL, KELTRON, Incap, PEC, Cermet, Gujarat Polyavx, Prismatic, MFR Electronic Components Pvt. Ltd, CTR.</p> <p>Korea: Samsung</p> <p>Japan: Panasonic</p> <p>Germany: Kemet, Vishay, Epcos, Diotech, Infineon.</p> <p>Taiwan: Yageo</p>
8.	Mechanical parts	<p>The internal electrical components shall be of electrolytic copper & shall be protected from corrosion, rust etc.</p> <p>The other mechanical components shall be protected from rust, corrosion etc. by suitable plating / painting methods.</p>	
9.	Battery	<p>Maintenance free battery (Ni-mh or Li-ion) of long life of 10 years.</p> <p>Only non-rechargeable battery shall be used for RTC as well as display in absence of Power since the life & Reliability of these are better than the</p>	<p>USA: Varta, Tedirun, Sanyo or National, Maxell, Renata.</p> <p>Japan: Panasonic, Sony.</p> <p>France: Saft.</p> <p>Korea: Tekcell.</p>

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		rechargeable batteries.	Germany: Varta.
10	RTC & Micro controller.	The accuracy of RTC shall be as per relevant IEC / IS standards.	USA: ST, Teridian, Philips, Dallas, Atmel, Motorola, Microchip. Japan: NEC, Oki, Epson, Mitubishi.
11	P.C.B.	Glass Epoxy, fire resistance grade FR4, with minimum thickness 1.6 mm.	

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ANNEXURE – III

**MSEDCL DEFINED OBIS CODES FOR PARAMETERS NOT PRESENT IN
IS 15959/2011**

SR. NO.	PARAMETERS	OBIS Code						Interface Class No./ Attribute
		A	B	C	D	E	F	
1.	Cumulative Energy – kVARh - Lag- TOD Zone A (TZ1)	1	0	5	8	1	255	3/2
2.	Cumulative Energy – kVARh - Lag- TOD Zone B (TZ2)	1	0	5	8	2	255	3/2
3.	Cumulative Energy – kVARh - Lag- TOD Zone C (TZ3)	1	0	5	8	3	255	3/2
4.	Cumulative Energy – kVARh - Lag- TOD Zone D (TZ4)	1	0	5	8	4	255	3/2
5.	Cumulative Energy – kVARh - Lead- TOD Zone A (TZ1)	1	0	8	8	1	255	3/2
6.	Cumulative Energy – kVARh - Lead- TOD Zone B (TZ2)	1	0	8	8	2	255	3/2
7.	Cumulative Energy – kVARh - Lead- TOD Zone C (TZ3)	1	0	8	8	3	255	3/2
8.	Cumulative Energy – kVARh - Lead- TOD Zone D (TZ4)	1	0	8	8	4	255	3/2

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ANNEXURE – IV

**TECHNICAL SPECIFICATIONS OF THREE PHASE SMC METER BOX FOR
THREE PHASE EMBEDDED METER**

1.0 SCOPE:

This specification covers design, manufacturing, testing at works and supply of Three Phase Meter Box. The Meter Box shall be made out of Sheet Moulding Compound (SMC) confirming to IS: 13410 / 1992 amended upto date & IS: 14772 / 2020 (amended upto date) for use in electrical distribution system in Maharashtra. The system shall be AC three phase, four wires, 415 V, 50 Hz with effectively grounded neutral. The Meter Box shall be suitable for housing LT AC Three Phase, Four Wire, 40-200 Amp AMR Compatible Static TOD Tri-Vector Energy and suitable cables for connection of DTC Meter to Meter to Distribution Box.

2.0 SERVICE CONDITION:

The Meter Box to be supplied against this specification shall be suitable for satisfactory continuous operation under the following service conditions.

Max. & ambient air temperature	50 degree C
Max. relative humidity	100%
Max. annual rainfall	1450 mm
Max. wind pressure	150 Kg/Sq.m
Max. altitude above mean sea level	1000 mtrs
Seismic level (Horizontal acceleration)	0.3 g
Climatic condition	Moderately hot and humid Tropical climate conducive to rust and fungus growth
Ambient temperature for temperature rise	50 deg.C

3.0 APPLICABLE STANDARDS:

Unless otherwise modified in this specification, the meter box shall generally confirm with the provisions of IS: 14772 / 2020 (Amended upto date) and material of construction i.e. for SMC to IS: 13410 / 1992 & requirement of this specification.

4.0 DESIGN & CONSTRUCTION:

- 4.1** The Meter Box shall be made from Thermosetting Plastic i.e. glass reinforced polyester sheet moulding compound (SMC) confirming to IS: 13410/ 1992, & requirement of this specification.

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- 4.2** Meter Box shall comprise of a moulded base and moulded door manufactured with SMC. The manufacturing process of Box shall be Hot Press Compression Moulding Process for (SMC).
- 4.3** The base and cover of meter box shall be individually in one piece except for fixing of accessories like hinges, clamp, handles etc.
- 4.4** The meter box shall be so constructed as to have roof tapering down for easy flow of rainwater.
- 4.5** SMC Meter Box shall be moulded using 100% virgin SMC, grade S-3 material. The box shall be weather proof, unbreakable and scratch resistant & shall have good workmanship. For SMC, the wall thickness of the meter box base shall be minimum 3 mm on load bearing side and 2 mm on all other sides, thickness of cover shall be minimum 2 mm.
- 4.6** The Colour of the SMC Meter box shall be Siemens Grey.
- 4.7** The SMC meter box shall be made of anti-corrosive, dust proof, rust proof, vermin and water proof, ultra violet stabilized and flame retardant high grade SMC material having good dielectric and mechanical strength property.
- 4.8** The surface appearance or part of meter box must be smooth, non porous and homogeneous, free from ripples, defects and marks. No fillers or fibres shall be visible at any place.
- 4.9** The meter box shall have base raised by about 20 mm in the box for easy wiring for fixing the meter. The meter screws shall not protrude outside.
- 4.10** The Meter Box shall facilitate wireless data communication with minimal disruption for AMR purpose.
- 4.11** The boxes shall be suitable for outdoor application.
- 4.12** Corners of the Meter Box shall be round and not pointed ones.
- 4.13** The minimum inside dimensions of the meter box shall be as per enclosed drawing suitable for installation of all types of meters purchased from various meter manufacturers.
- 4.14** Hinges, locking arrangement shall be of stainless steel only for SMC Boxes.
- 4.15** For SMC, the base and cover must be UV stabilized to ensure that it does not get 'Yellow' over a period of time. It shall not change in colour, shape, size, dimensions when subjected to 200 hrs on UV ageing test as per ASTM: G53 (Cl. No. 9.3), 4 Hours UV at 600

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deg C and 4 Hours Condensation at 500 deg C. The base and cover shall be capable of withstanding temperature of boiling water for five minutes continuously without distortion or softening.

4.16 The enclosure shall comply with the requirements of IP – 55 for SMC as per IS: 12063 or the latest version thereof.

4.17 For meter reading, the box shall have window with Toughened Glass of 5 mm thickness fixed with stainless steel frame from inside. Glass shall have scratch proof “MSEDCL” logo on the right side bottom corner of the glass. This glass shall be fixed from inside of the cover of Meter Box, with single piece stainless steel frame (Glass Holder). The glass has to be fitted with a wrap around single piece rubber ring without joint made from good quality neoprene rubber so that it can withstand weather effect. The box shall have windows of size 85 mm x 170 mm (\pm 5 mm).

4.18 The mounting arrangement of the meter shall be on MS Patti/Clamp suitable for meter.

4.19 For cable entry and exit holes of suitable dia with Plastic Gland shall be provided as shown in drawing.

4.20 Earthing Bolts of size 25 x 6 mm fitted with the box from inside, shall be provided for external earthing with 2 plain washers, one spring washer & two nuts. Earthing bolt shall have no layer of powder coating and shall be property zinc plated.

4.21 The body of the meter box shall be moulded in a single piece forming sheet moulding compound without fabrication joints. Minimum clearance 50 mm shall be maintained from left, right and bottom side of the meter, 100 mm shall be maintained from top side of meter. Besides, there should be minimum clearance of 20 mm in the front from the face of meter

4.22 Rubber gasket shall be provided all around, wherever required for protecting against entry of dust and water

a. The contents of the box:-

Internal hinges: Internal hinges well protected against corrosion shall be provided on left side of the box. The hinges of the door shall be concealed and they shall be fixed to the flanges provided to the base and cover of the box in such a manner that the door opens by a Min. 90 degrees

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- b. **Handle:** Suitable handle or knob shall be provided for opening the box door(s).
- c. **Earthing Bolt:** A 8mm dia Zinc plated bolt with two numbers washers should be provided.
- d. **Fixing Arrangement:** The meter unit fixing Nut-bolts shall not protrude outside. The meter composite unit is to be installed in the box and the box shall be supplied in assembled condition.

4.23 The top cover of the meter box should be of Hinge type having at least 2 nos. U clamps to hold the cover with base with provision of sealing arrangement. The cover and base shall have groove all along with the fitting edge, so that after fixing the top cover, no wire or any device can be, temporary or permanently, inserted in the box.

4.24 Meter shall be fitted on the base of SMC box along with required Metallic hardware. The meters shall be supplied duly mounted on the base of meter box.

4.25 Suitable holes (approx. 18-25 mm diameter) shall be provided at the two sides of the meter box for inlet and at bottom for outlet of Phase Wise Power cables as thread through type arrangement

4.26 The box should have proper mounting arrangement so that it could be mounted on the wall or the pole, as the case may be.

4.27 The tolerance permissible on the various dimensions of the Box shall be (+) 5%. However, the tolerance for the fittings shall be (+/-) 3%

4.28 The minimum internal dimensions of the meter box shall be 650 mm height (H) x 500 mm width (W) x 250 mm depth (D) as per enclosed drawing.

4.29 Distribution transformer rating wise cable size

Sr. no.	Distribution Transformer		Cable size	
	Rating (kVA)	Current carrying capacity (Amps)	Rating (Sq. mm)	Current carrying capacity (Amps)
1	63	84.00	Single Core, LT XLPE cable unarmored, 35 sqmm	119 A

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2	100	133.34	Single Core, LT XLPE cable unarmored, 50 sqmm	145 A- for 50 sqmm cable
Note: Four cables (for each phase & neutral) of length 7 m of suitable size as mentioned above with lugs for connection from Distribution Transformer outgoing to meter to incoming of Distribution Box shall be provided.				

4.30 Roof of meter box shall be tapering down for easy flow of rainwater.

4.31 Heat shrinkable collars shall be fixed to avoid any rainy water in the meter box

5.0 TESTS & TEST CERTIFICATES:

The meter box shall be fully type tested in accordance with the relevant standards and as per MSEDCL requirement. All the Type Tests specified in the technical specifications shall be carried out from laboratories which are accredited by the National Board of Testing and Calibration Laboratories (NABL) of Government of India such as CIPET, EQDC, ERDA, ERTL, CPRI, etc. to prove that equipments meet the requirement of the specification.

The type test report shall clearly indicate the constructional features identifying material of construction and its grade / composition as per respective IS.

The tenderer shall also furnish certificate from laboratories where type tested that required test facility available in-house for that particular test.

The Box shall be fully type tested as per IS: 14772/2020 (amended up to date) and IS: 13410 / 1992 (amended up to date) and as per requirement of this specification. The type test report shall clearly indicate the constructional features identifying material of construction and its grade / composition as per respective IS and other type tests as well as acceptance tests as per table below.

All the Type Tests shall be carried out from Laboratories which are accredited by the National Board of Testing and Calibration Laboratories (NABL) of Govt. of India such as CPRI, Bangalore /Bhopal, ERDA Baroda, ERTL, EQDC, CIPET to prove that the box meets the requirements of specification. Type Test Reports

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conducted in manufacturers own laboratory and certified by testing institute shall not be acceptable.

The type test report of meter box having identical constructional and other features carried out during last five years prior to due date of opening of offer shall be valid.

The detailed type test reports shall be furnished with relevant oscillogram and certified drawings of the equipment tests. The offers without type test reports shall be rejected.

The purchaser reserves the right to demand repetition of some or all the type tests in presence of purchaser's representative at purchaser's cost. All the type test reports shall be got approved from the Chief Engineer (Testing & QC), MSEDCL, 5th Floor, Prakashgad, Bandra (E), Mumbai - 400 051 before commencement of supply.

Type Tests for SMC Meter Box

Sr. No.	Test	Reference Standard	Required Value
1	Ratings	IS 14772:2020, Cl. 6	As per IS and specification
2	Classification	IS 14772:2020, Cl. 7	As per IS
3	Marking	IS 14772:2020, Cl. 8	As per IS and Specification
4	Dimensions	IS 14772:2020, Cl. 9	As per specification and drawing
5	Protection against Electric Shock	IS 14772:2020, Cl. 10	As per IS
6	Provision for Earthing	IS 14772:2020, Cl. 11	As per IS
7	Construction	IS 14772:2020, Cl. 12	No Crack or Damage
8	Resistance to ageing, protection against ingress of solid objects and against harmful ingress of water	IS 14772:2020, Cl. 13	No Crack or Damage
9	Insulation resistance and electric strength	IS 14772:2020, Cl. 14	Insulation resistance shall be not less than 5 MΩ. No flashover or breakdown shall occur

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			during the electrical strength test
10	Mechanical Strength	IS 14772:2020, Cl. 15	No Crack or Damage
11	Resistance to Heat	IS 14772:2020, Cl. 16	No ball impression
12	Creepage distance, clearance and distance through seating compound	IS 14772:2020, Cl. 17	As per IS
13	Resistance to insulating material to abnormal heat and fire	IS 14772:2020, Cl. 17	No Flame and Glowing
14	Resistance to Tracking	IS 14772:2020, Clause No. 19	No failure or breakdown occurs before 50 Drops 175V
15	Resistance to corrosion	IS 14772:2020, Clause No. 20	No sign of rust observed
16	Heat Deflection/Distortion Temperature @ 1.8 Mpa (On Enclosure)	IS 13411:1992	> 150 deg C
17	Exposure to Flame	IS 4249:1967	Self Extinguishing
18	Flammability	UL-94/IS-11731	V0
19	Melting Point	IS:13360 (Part-6/Sec-10):1992	Does not melt upto 400 deg C
20	Degree of Protection (IP-55)	IEC 60529:2001/IS:60947 :1993	IP-55
21	Glow wire test at 960 Deg C	IS:11000	No flame and glowing observed
22	Ball Pressure Test	IEC-335	No Ball Impression Observed
23	UV Ageing Test for 200 Hours	ASTM-G-154	No Colour Change, no chalking and No discoloration observed
24	Water Absorption	IS:13411-1992	< 0.20%
25	Material Identification	As per Laboratory Method	Glass reinforced polyester Sheet Moulding compound

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			(SMC)
26	Glass content, percent by mass (Min.)	IS:13410-1992	20
27	Izod impact strength (Notched), KJ/m ²	IS:13410-1992	55
28	Flexural Strength, MPa, Min	IS:13410-1992	170
29	Power Arc Resistance Sec. Min.	IS:13410-1992	180
30	Modulus of Elasticity, 10 ³ , MPa	IS:13410-1992	12 to 15
31	Tracking Resistance CTI, Min	IS:13410-1992	1000
32	Dielectric Strength at 90°C in Oil KV/mm	IS:13410-1992	11
33	Dissipation factor (4 days at 80 % RH & 1 KHz)	IS:13410-1992	0.01
34	Oxygen Index,% Min	IS:13410-1992	24

For Acceptance Test, 5 Samples for each lot offered for inspection shall be selected randomly.

6.0 GUARANTEED TECHNICAL PARTICULARS

The tenderer shall furnish the particulars giving specific required details of Meter box in schedule 'A' attached (As per Guaranteed Technical Particulars uploaded on e - Tendering site). The offers without the details in Schedule 'A' stand rejected.

7.0 TESTING & MANUFACTURING FACILITIES:

The Tenderer must clearly indicate the details of testing facilities available in the works of manufacturer and whether the facilities are adequate to carry out all the Routine and Acceptance tests. These facilities shall be available to MSEDCL Engineers, if deputed to carry out or witness the tests in the manufacturer's works. The tenderer must have all in-house testing facility to carry out acceptance & routine tests on the meter box as per relevant IS. If any test cannot be carried out in the manufacturer works, the same shall be clearly stated. All testing equipments shall be duly

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calibrated in the NABL approved laboratories. The Bidder shall have the testing facility of flammability test of V0 for SMC Meter Box.

8.0 MANUFACTURING FACILITIES:

SMC Meter Box is offered, the tenderer shall have the following minimum manufacturing facilities in house to prove his reliability as a manufacturer of Energy Metering Box.

- (a) SMC material manufacturing machine
- (b) Hydraulic press for hot press compression moulding
- (c) Assembly lines for fabrication and fitting

9.0 GUARANTEE:

The meter box shall be guaranteed for a period of five years from the date of commissioning or five and half years from the date of dispatch whichever is earlier.

10.0 MARKINGS:

The meter box shall have an indelibly and distinctly marked with all essential particulars as per relevant standards. In addition to the requirement as per relevant standard, following information shall clearly & indelibly be embossed on the cover of the meter box.

- a) Purchase order number and date
- b) Year and month of manufacture
- c) Name of Purchaser: MSEDCL
- d) Guarantee: 5 years
- e) Name and trademark of manufacturer
- f) Danger logo (Screen Printed)

11.0 INSPECTION:

All Acceptance tests and inspection shall be carried out at the place of manufacturer unless otherwise specially agreed upon by the manufacturer and purchaser at the time of purchases. The manufacturer shall offer to the inspector representing the purchaser all the reasonable facilities, free of charge, for inspection and testing, to satisfy him that the material is being supplied in accordance with this specification. Inspection of the first lot shall be carried out jointly by representative of the Chief Engineer (MM Cell) and Executive Engineer Testing Division.

The MSEDCL representative / Engineer attending the above testing shall carry out testing as per IS: 13947, IS: 13410 / 1992

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(amended upto date) & IS: 14772 / 2020 (amended upto date) & this specification and issue a test certificate approval to the manufacturer and give clearance for dispatch.

The manufacturer shall give minimum 14 days notice for inspection of material.

12.0 PACKING:

The meter box shall be suitably packed in corrugated boxes in order to avoid damage during transit or handling.

13.0 REJECTION:

After dispatch of material against inspected lot to various store centers, the Chief Engineer, MM Cell may select one complete meter box at random from the lot of each type that may be supplied to various store centers and shall test the same for all the acceptance and routine tests at any third party NABL Lab.

The 5 days advance intimation shall be given to the supplier and if the supplier fails to attend the same on the date informed, the testing will be carried out in absence of supplier's representative. The results of the testing lab shall not be disputed by the supplier. If the meter box fails in above random sample testing, the lot will be rejected.

14.0 PROTOTYPE SAMPLE:

The successful bidders should manufacture 1 No. of prototype SMC Meter Boxes as per the specification and keep ready at their works for the purpose of sample inspection and testing. The MSSEDCL at their option may sent a team of Engineers to the works. Prior intimation of this inspection may not be given to the Bidder.

15.0 SCHEDULES:

The tenderer shall fill in the following schedules which are part and parcel of the tender specification and offer and submit along with the offer. If the schedules are not submitted duly filled in with the offer, the offer shall be rejected.

Schedule 'A' – Guaranteed Technical Particulars

The discrepancies, if any, between the specification and the catalogues and/or literatures submitted as part of the offer by the

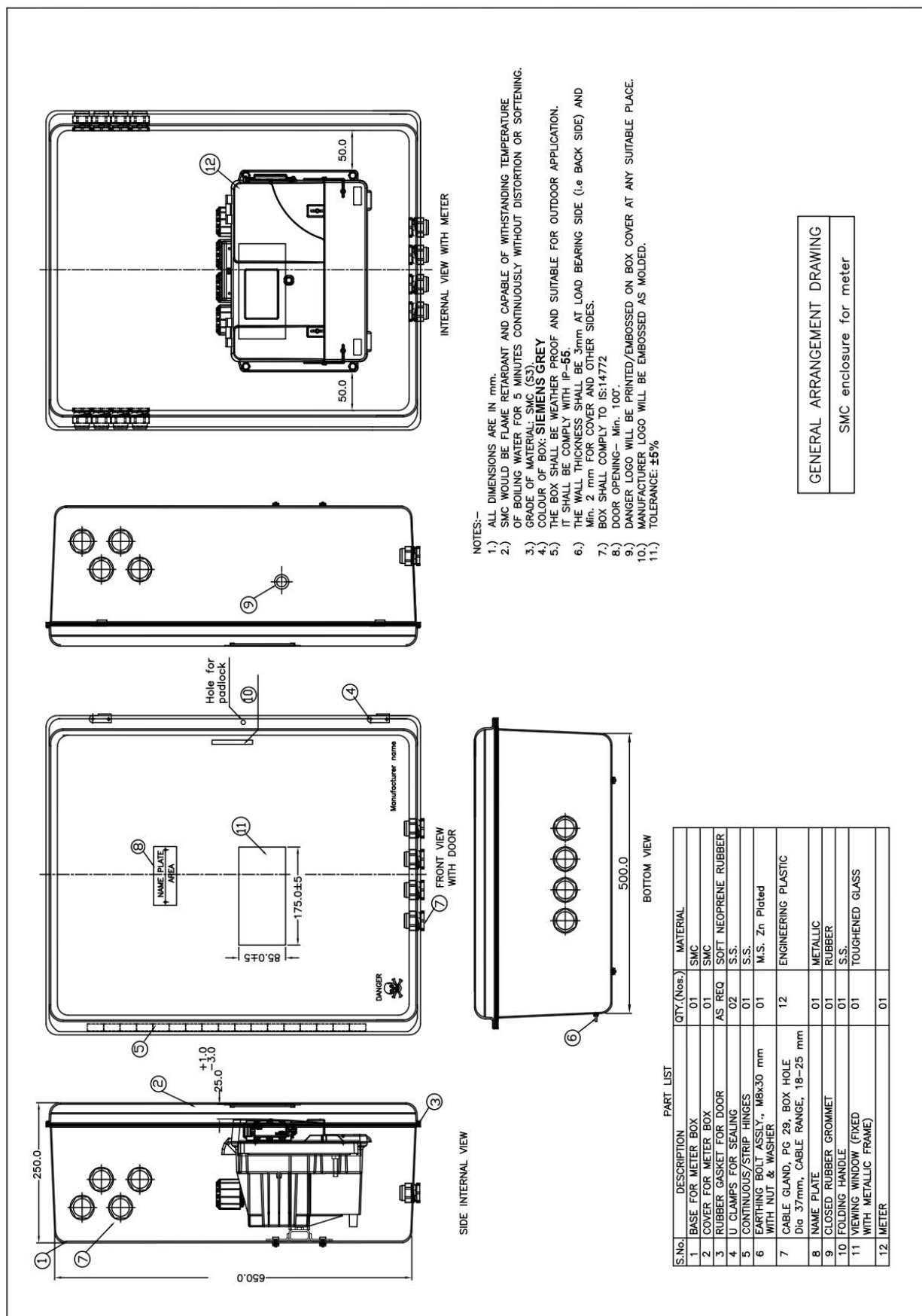
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bidders, shall not be considered and representations in this regard will not be entertained.

16.0 DRAWINGS:

The successful bidder shall submit set of all above drawings of the distribution box and its components shall be submitted in triplicate to CE (Testing & QC) office and get approved before commencement of supply.

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SCHEDULE 'A'

GUARANTEED TECHNICAL PARAMETERS

ITEM: LT AC THREE PHASE FOUR WIRE 40 - 200 AMPS FULLY STATIC AMR COMPATIBLE TOD TRI - VECTOR ENERGY METER WITH IN - BUILT CT MODEM AND RS-232 PORT		
SR. NO.	PARAMETERS	GTP VALUES
1.0	MANUFACTURER'S / SUPPLIER'S NAME AND ADDRESS WITH WORKS ADDRESS	TO BE FILLED BY MANUFACTURER
2.0	MAKE & TYPE	TO BE FILLED BY MANUFACTURER
3.0	APPLICABLE STANDARD	IS 13779, IS 15959, CBIP 325
4.0	METER BEARS ISI MARK	YES
5.0	ACCURACY CLASS 1.00	YES
6.0	CURRENT RATING	40 - 200 AMPS
7.0	RATED BASIC CURRENT (IB)	40 AMPS PER PHASE
8.0	STARTING CURRENT	0.2% OF IB.
9.0	SHORT TIME CURRENT	AS PER IS 13779 / 1999.
10.0	RATED VOLTAGE	3X240 VOLTS PHASE TO NEUTRAL
11.0	VOLTAGE RANGE	+ 20 % TO - 40 % OF RATED

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		VOLTAGE.
12.0	SYSTEM EARTHING	SOLIDLY GROUNDED
13.0	POWER FACTOR	ZERO LAG TO UNITY TO ZERO LEAD TO UNITY
14.0	STANDARD REFERENCE TEMPERATURE FOR PERFORMANCE	27°C
15.0	MEAN TEMPERATURE CO-EFFICIENT DOES NOT EXCEED	0.07%.
16.0	FREQUENCY RANGE	50 Hz ±5%
17.0	ACTIVE AND APPARENT POWER CONSUMPTION IN EACH VOLTAGE CIRCUIT AT REFERENCE VOLTAGE, REFERENCE TEMPERATURE AND REFERENCE FREQUENCY	SHALL NOT EXCEED 2.0 W AND 10 VA
18.0	APPARENT POWER TAKEN BY EACH CURRENT CIRCUIT, AT BASIC CURRENT IB, REFERENCE FREQUENCY AND REFERENCE TEMPERATURE	SHALL NOT EXCEED 4 VA
19.0	METER DRAWS POWER FOR WORKING OF ELECTRONIC CIRCUIT FROM PHASE & NEUTRAL.	YES
20.0	KVA MD PROVIDED	YES
21.0	INTEGRATION PERIOD OF KVAMD	30 MINUTES WITH BLOCK METHOD
22.0	METER BASE & COVER IS MADE OUT OF TRANSPARENT / OPAQUE, UNBREAKABLE, HIGH GRADE, FIRE RESISTANT, HIGH IMPACT STRENGTH POLYCARBONATE MATERIAL.	YES
23.0	CONSTRUCTION OF THE METER IS SUCH AS TO	YES

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	PERMIT SEALING OF METER COVER, PIERCING SCREW COVER, ETC. INDEPENDENTLY TO ENSURE THAT INTERNAL PARTS ARE NOT ACCESSIBLE FOR TAMPERING WITHOUT BREAKING SEALS.	
24.0	POLYCARBONATE BODY OF METER CONFORMS TO (a) IS: 11731 (FV-2 CATEGORY)	YES
25.0	(b) HEAT DEFLECTION TEST AS PER ISO 75,	YES
26.0	(c) GLOW WIRE TEST AS PER THE IS: 11000 (PART 2/SEC-1) 1984 OR IEC-60695-2-12,	YES
27.0	(d) BALL PRESSURE TEST AS PER IEC-60695-10-2 AND	YES
28.0	(e) FLAMMABILITY TEST AS PER UL 94 OR AS PER IS: 11731 (PART-2) 1986.	YES
29.0	TYPE TEST CERTIFICATE OF ABOVE SUBMITTED ALONG WITH OFFER.	YES
30.0	TYPE TEST CERTIFICATE NO. & DATE OF ABOVE	TO BE FILLED BY MANUFACTURER
31.0	METER IS PROJECTION TYPE, DUST AND MOISTURE PROOF.	YES
32.0	METER COVER IS SECURED TO BASE BY MEANS OF SEALABLE UNIDIRECTIONAL CAPTIVE SCREWS.	YES
33.0	PROVISION IS MADE ON THE METER FOR AT LEAST TWO SEALS TO BE PUT BY UTILITY USER.	YES
34.0	METER CONFORMS TO IP 54 OF IS: 12063 / IEC: 529 FOR PROTECTION AGAINST INGRESS OF DUST, MOISTURE AND VERMIN'S.	YES
35.0	TYPE TEST CERTIFICATE OF IP 54 SUBMITTED ALONG WITH THE OFFER.	YES

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36.0	TYPE TEST CERTIFICATE NO. AND DATE OF IP 54	TO BE FILLED BY MANUFACTURER
37.0	THICKNESS OF MATERIAL FOR METER COVER AND BASE IS MINIMUM 2 MM.	YES
38.0	METER HAS A CASE, WHICH CAN BE SEALED IN SUCH A WAY THAT THE INTERNAL PARTS OF THE METER ARE NOT ACCESSIBLE UNLESS BODY IS BROKEN.	YES
39.0	MINIMUM THREE SETS OF SEALS, I.E. FOR PIERCING SCREWS, METER COVER AND THE FRONT DOOR ARE PROVIDED.	YES
40.0	ANY TEMPORARY DEFORMATION OF CASE DOES NOT EFFECT THE SATISFACTORY OPERATION OF THE METER.	YES
41.0	METER HAS FRONT-HINGED DOOR WITH SUITABLE SEALING ARRANGEMENT (SCREWS) AND TRANSPARENT WINDOW TO VIEW THE DISPLAY PARAMETERS.	YES
42.0	FRONT DOOR CAN BE SEALED INDEPENDENTLY OVER TERMINAL COVER.	YES
43.0	APPROACH TO READING BUTTON AND RS-232 PORT IS ONLY POSSIBLE AFTER OPENING THE FRONT COVER.	YES
44.0	METER HAS PROVISION TO PASS CONSUMER SERVICE CABLE DIRECTLY THROUGH METER FOR MEASUREMENT.	YES
45.0	PIERCING SCREWS ARE USED IN THE METER FOR VOLTAGE CONNECTION.	YES
46.0	METER IS SUITABLE TO ACCOMMODATE ALUMINIUM CABLE OF 200A CURRENT CARRYING CAPACITY.	YES
47.0	METER CONNECTION ARRANGEMENT IS SUCH	YES

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	THAT THERE IS NO NEED TO REMOVE INSULATION FOR CONNECTING CABLE FOR CURRENT MEASUREMENT	
48.0	METER DESIGN SUPPORTS THREAD THROUGH CONCEPT WHERE CONNECTING CABLE DIRECTLY PASSED THROUGH THE METER FOR MEASUREMENT.	YES
49.0	OFFERED METER DOES NOT HAVE PROVISION FOR METER TERMINAL CONNECTION AS WELL AS TERMINAL BLOCK.	YES
50.0	VOLTAGE CIRCUIT AND CURRENT CIRCUIT ARE SOLIDLY CONNECTED INSIDE THE METER BODY WITHOUT ANY LINK.	YES
51.0	A FIRM CONNECTION IS ESTABLISHED WITHIN METER CASE TO ENERGISE VOLTAGE / CURRENT CIRCUIT.	YES
52.0	PT PIERCING SCREW COVER FOR METER IS EXTENDED TYPE, WHICH CAN BE SEALED INDEPENDENTLY	YES
53.0	PT TERMINALS ARE NOT ACCESSIBLE WITHOUT REMOVING THE SEALS OF THE TERMINAL COVER WHEN ENERGY METER IS MOUNTED ON THE METER BOARD/ WALL.	YES
54.0	SUITABLE CONNECTOR WITH MULTIPLE PIERCING TEETH ARE PROVIDED FOR PT CONNECTION	YES
55.0	MINIMUM 3 TEETH PIERCE THE INSULATION OF THE CABLE	YES
56.0	METER HAS DURABLE AND SUBSTANTIALLY CONTINUOUS ENCLOSURE MADE OF WHOLLY INSULATING MATERIAL, INCLUDING THE TERMINAL COVER, WHICH ENVELOPS ALL METAL PARTS WITH THE EXCEPTION OF SMALL PARTS AND SHALL WITHSTAND AN INSULATION TEST AT 10 KV.	YES

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57.0	SEALING ARRANGEMENT IS MADE WITH UNIDIRECTIONAL SCREWS WITH SINGLE HOLES	YES
58.0	SEALS ARE PROVIDED ON FRONT SIDE ONLY.	YES
59.0	ACCESS TO WORKING PART IS NOT POSSIBLE WITHOUT BREAKING THE SEALS.	YES
60.0	PROVISION OF AT LEAST 2 NOS. SEALS ON FRONT DOOR, 1 SEAL ON COMMUNICATION PORT, 2 SEALS ON PIERCING SCREW TERMINAL COVER IS MADE.	YES
61.0	MATERIAL OF PIERCING SCREW BLOCK DOES NOT DEFLECT UNDER HEATING AND FULFILL THE TESTS AS SPECIFIED IN 12.4 OF IS: 13779 / 1999 AMENDED UPTO DATE.	YES
62.0	PUSH BUTTON ARRANGEMENT PROVIDED AS PER SPECIFICATION	YES
63.0	OPERATION INDICATOR VISIBLE FROM THE FRONT & IN THE FORM OF BLINKING LED OR OTHER SIMILAR DEVICES LIKE BLINKING LCD IS PROVIDED.	YES
64.0	RESOLUTION OF TEST OUTPUT DEVICE IS SUFFICIENT TO ENABLE STARTING CURRENT TEST IN LESS THAN 10 MINUTES AND ACCURACY TEST AT LOWEST LOAD CAN BE COMPLETED WITH DESIRED ACCURACY WITHIN 5 MINUTES.	YES
65.0	PULSE RATE OF OUTPUT DEVICE WHICH PULSE / KWH AND PULSE / KVARH (METER CONSTANT) IS INDELIBLY PROVIDED ON NAMEPLATE.	YES
66.0	IT IS POSSIBLE TO CHECK THE ACCURACY OF ACTIVE ENERGY MEASUREMENT OF THE METER ON SITE BY MEANS OF LED OUTPUT OF OUTPUT DEVICE.	YES
67.0	METER ACCURACY IS NOT AFFECTED BY	YES

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	MAGNETIC FIELD (AC / DC / PERMANENT) ON ALL THE SIDES OF METER, I.E. FRONT, SIDES, TOP AND BOTTOM OF THE METER AS PER CBIP TECHNICAL REPORT 325	
68.0	THE METER ACCURACY SHALL NOT BE AFFECTED BY EXTERNAL AC / DC / PERMANENT MAGNETIC FIELD AS PER CBIP TECHNICAL REPORT 325 WITH LATEST AMENDMENTS. IF THE METER GETS AFFECTED UNDER INFLUENCE OF ANY MAGNETIC FIELD (AC / DC / PERMANENT), THEN THE SAME SHALL BE RECORDED AS MAGNETIC TAMPER EVENT WITH DATE & TIME STAMPING AND THE METER SHALL RECORD ENERGY MAXIMUM VALUE CURRENT (IMAX) AND REFERENCE VOLTAGE AT UNITY POWER FACTOR	YES
69.0	NON - RECHARGEABLE AND PRE-PROGRAMMED FOR 30 YEARS DAY / DATE WITHOUT ANY NECESSITY FOR CORRECTION, REAL TIME QUARTZ CLOCK IS USED IN THE METER FOR MAINTAINING TIME (IST) AND CALENDAR.	YES
70.0	MAXIMUM DRIFT OF RTC DOES NOT EXCEED +/- 300 SECONDS PER YEAR.	YES
71.0	CLOCK DAY / DATE SETTING AND SYNCHRONIZATION IS POSSIBLE ONLY THROUGH PASSWORD / KEY CODE COMMAND FROM METER TESTING WORK BENCH OR REMOTE SERVER	YES
72.0	RTC BATTERY & THE BATTERY FOR DISPLAY IN CASE OF POWER FAILURE ARE SEPARATE	YES
73.0	NON-SPECIFIED DISPLAY PARAMETERS IN THE METER ARE NOT ACCESSIBLE FOR REPROGRAMMING AT SITE THROUGH ANY KIND OF COMMUNICATION	YES
74.0	COMPLETE METERING SYSTEM & MEASUREMENT IS NOT AFFECTED BY	YES

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	EXTERNAL ELECTROMAGNETIC INTERFERENCE	
75.0	METER KEEPS LOG IN ITS MEMORY FOR UNSATISFACTORY / NON -FUNCTIONING OF REAL TIME CLOCK BATTERY AND CAN BE DOWNLOADED FOR READING THROUGH RS-232 PORT TO READ IN BASE COMPUTER.	YES
76.0	METER HAS FACILITY TO READ DEFAULT DISPLAY PARAMETERS DURING POWER SUPPLY FAILURE.	YES
77.0	INTERNAL BATTERY PROVIDED	YES
78.0	DOWNLOADING OF BILLING DATA THROUGH HHU IS POSSIBLE IN POWER OUTAGE CONDITION.	YES
79.0	METER CAPABLE TO WITHSTAND PHASE-TO-PHASE VOLTAGE APPLIED BETWEEN PHASE TO NEUTRAL FOR 5 MINUTES	YES
80.0	METER RECORDS AND DISPLAYS TOTAL ENERGY INCLUDING HARMONIC ENERGY	YES
81.0	METER DOES NOT STOP AND RECORDS CONSUMPTION ACCURATELY EVEN ON INJECTION OF DC VOLTAGE IN NEUTRAL	YES
82.0	35 KV SPARK DISCHARGE TEST CARRIED OUT	YES
83.0	WIRELESS PCB IS DESIGNED	YES
84.0	METER PROVIDED WITH A HARDWARE PORT COMPATIBLE WITH RS-232 SPECIFICATIONS FOR LOCAL DATA DOWNLOADING THROUGH A DLMS COMPLIANT HHU	YES
85.0	SEALING PROVISION IS MADE FOR RS-232 PORT	YES
86.0	BAUD RATE OF RS-232 PORT	YES
87.0	1 MTR LONG CABLE PROVIDED FOR DOWNLOADING DATA ON HHU OR LAPTOP FROM RS-232 PORT	YES

**TECH SPEC OF LT AC THREE PHASE, FOUR WIRE, 40 - 200 AMPS ENERGY METER
(CT EMBEDDED) WITH METER BOX FOR DTC**

88.0	GSM (GPRS ENABLED) MODEM IS PROVIDED EMBEDDED IN THE METER BODY.	YES
89.0	MAKE OF CHIPSET USED FOR MODEM	TO BE FILLED BY MANUFACTURER
90.0	MODEM CAN BE CONNECTED SUCH THAT RS-232 PORT IS FREE FOR DATA DOWNLOADING THROUGH HHU.	YES
91.0	NON VOLATILE MEMORY OF MINIMUM RETENTION PERIOD OF 10 YEARS PROVIDED	YES
92.0	6 (SIX) TOD TIME ZONES ARE PROVIDED FOR ENERGY AND DEMAND	YES
93.0	METER IS CAPABLE OF REGISTERING THE TIME-OF-DAY ENERGY AND MAXIMUM DEMAND.	YES
94.0	THE MAXIMUM DEMAND INTEGRATION PERIOD SHALL BE SET AT 30 MINUTES.	YES
95.0	PROVISION OF MD RESET THROUGH HHU	YES
96.0	PROVISION OF MD RESET AT 24:00 HRS AT THE END OF EACH BILLING CYCLE OR AUTOMATIC RESET AT THE END OF CERTAIN PREDEFINED PERIOD (SAY, END OF THE MONTH). NO PUSH BUTTON SHALL BE PROVIDED FOR MD RESET.	YES
97.0	AUTO RESTTING OPTION OF MD IS PROGRAMMABLE FOR DAY / DATE AS PER REQUIREMENT	YES
98.0	ALL ANTI TAMPER FEATURES INCORPORATED IN THE METER AS PER SPECIFICATION	YES
99.0	METER DETECTS AND LOGS TAMPER EVENTS AS PER SPECIFICATION	YES
100.0	METER KEEPS RECORD OF MINIMUM 200 ABNORMAL EVENTS ON FIFO BASIS	YES

**TECH SPEC OF LT AC THREE PHASE, FOUR WIRE, 40 - 200 AMPS ENERGY METER
(CT EMBEDDED) WITH METER BOX FOR DTC**

101.0	METER DISPLAYS SUPPLY INDICATION & CALIBRATION (PULSE INDICATION) PERMANENTLY BY LED / LCD	YES
102.0	PERMANENTLY BACKLIT LIQUID CRYSTAL DISPLAY LCD WITH WIDE VIEWING ANGLE OF MINIMUM 45°C TO 60°C AND UP TO ONE-METER DISTANCE VISIBLE FROM THE FRONT OF THE METER IS PROVIDED.	YES
103.0	LCD IS DESIGNED SUITABLY TO WITHSTAND TEMPERATURE OF 80°C (STORAGE) & 65°C (OPERATION).	YES
104.0	DISPLAY DOES NOT GET AFFECTED BY ELECTRICAL AND MAGNETIC DISTURBANCES	YES
105.0	METER HAS 7 DIGITS PARAMETER IDENTIFIER	YES
106.0	HEIGHT OF DISPLAY CHARACTERS FOR PRINCIPAL PARAMETERS VALUES IS NOT LESS THAN 5 MM.	NOT LESS THAN 5 MM
107.0	SIZE OF DIGITS	TO BE FILLED BY MANUFACTURER
108.0	AUTO DISPLAY CYCLING PUSH BUTTON IS PROVIDED WITH PERSISTENCE TIME OF	10 SECONDS.
109.0	DEFAULT DISPLAY MODE SWITCHES TO ALTERNATE DISPLAY MODE AFTER PRESSING THE PUSH BUTTON CONTINUOUSLY FOR 5 SECONDS.	YES
110.0	METER DISPLAY RETURNS TO DEFAULT DISPLAY MODE IF THE "ON DEMAND" PUSH BUTTON IS NOT OPERATED FOR 15 SEC.	YES
111.0	METER IS CAPABLE OF MEASURING AND DISPLAYING THE ELECTRICAL QUANTITIES WITHIN SPECIFIED ACCURACY LIMITS FOR POLYPHASE BALANCED OR UNBALANCED LOADS AS PER CATEGORY C2 OF IS: 15959	YES

**TECH SPEC OF LT AC THREE PHASE, FOUR WIRE, 40 - 200 AMPS ENERGY METER
(CT EMBEDDED) WITH METER BOX FOR DTC**

112.0	METER HAS SUFFICIENT NON-VOLATILE MEMORY FOR RECORDING HISTORY OF BILLING PARAMETERS (CUMULATIVE KWH and CUMULATIVE KVAH AT THE TIME OF RESET AND KVAMD) FOR LAST 12 MONTHS.	YES
113.0	PROVISION FOR LOAD SURVEY DATA FOR LAST 60 DAYS FOR A CAPTURE PERIOD OF 30 MINUTES ON FIFO BASIS.	YES
114.0	METER STORES NAME PLATE DETAILS AS GIVEN IN THE TABLE 30 OF ANNEX F OF IS: 15959 / 2011 & ARE READABLE AS A PROFILE AS AND WHEN REQUIRED	YES
115.0	A DLMS COMPLIANT HHU AS PER ANNEX J OF IS: 15959 / 2011 IS PROVIDED	YES
116.0	PROVISION FOR AUTO POWER SAVE IS MADE ON HHU	YES
117.0	HHU HAS A MEMORY CAPACITY OF 512 MB SRAM (STATIC RAM) WITH BATTERY BACKUP & UPGRADEABLE AND BIOS / OS ON FLASH / EEPROM MEMORY OF 256 KB (RAM-512 MB, FLASH-2GB, SD CARD- 8GB WITH USB FACILITY)	YES
118.0	HHU OFFERED IS FULLY TYPE TESTED AT APPROVED NABL LABORATORY FOR (a) TESTS OF MECHANICAL REQUIREMENT SUCH AS FREE FALL TEST, SHOCK TEST, VIBRATION TEST	YES
119.0	(b) TESTS OF CLIMATIC INFLUENCES SUCH AS TESTS OF PROTECTION AGAINST PENETRATION OF DUST AND WATER (IP 6X), DRY HEAT TEST, COLD TEST, DAMP HEAT CYCLIC TEST	YES
120.0	(c) TESTS FOR ELECTROMAGNETIC COMPATIBILITY (EMC)	YES
121.0	(d) TEST OF IMMUNITY TO ELECTROMAGNETIC	YES

**TECH SPEC OF LT AC THREE PHASE, FOUR WIRE, 40 - 200 AMPS ENERGY METER
(CT EMBEDDED) WITH METER BOX FOR DTC**

	HF FIELDS	
122.0	(e) RADIO INTERFERENCE MEASUREMENT	YES
123.0	TYPE TEST REPORT OF HHU SUBMITTED WITH OFFER	YES
124.0	TYPE TEST REPORT NOS. & DATE OF HHU	YES
125.0	BASE COMPUTER SOFTWARE IS "WINDOWS" BASED & USER FRIENDLY	YES
126.0	LICENSED COPIES OF BASE COMPUTER SOFTWARE ARE SUPPLIED FREE OF COST	YES
127.0	METER IS CAPABLE TO COMMUNICATE DIRECTLY WITH LAPTOP COMPUTER.	YES
128.0	BASE COMPUTER SOFTWARE IS SUITABLE FOR ALL TYPES OF DOT MATRIX & INKJET PRINTERS	YES
129.0	NO EDITING IN TRANSFERRED DATA IS POSSIBLE ON BASE COMPUTER AS WELL AS HHU BY ANY MEANS	YES
130.0	DOWNLOADING SOFTWARE IS SUBMITTED TO INSTALL ON OUR LAPTOP / PC FOR DIRECTLY DOWNLOADING DATA FROM METER WITHOUT THE USE OF HHU	YES
131.0	SOFTWARE PROVIDED ON LAPTOP / PC IS COMPATIBLE TO READ DATA FROM USB DRIVE	YES
132.0	CABLE WITH USB TERMINATION PROVIDED	YES
133.0	TOTAL TIME TAKEN FOR DOWNLOADING BILLING, TAMPER AND LOAD SURVEY DATA FOR 60 DAYS	LESS THAN OR EQUAL TO 8 MINUTES
134.0	DOWNLOADING TIME OF ONLY BILLING DATA	LESS THAN OR EQUAL TO 20 SECS
135.0	METERING PROTOCOL AS PER CATEGORY C2 OF IS: 15959 / 2011	YES

**TECH SPEC OF LT AC THREE PHASE, FOUR WIRE, 40 - 200 AMPS ENERGY METER
(CT EMBEDDED) WITH METER BOX FOR DTC**

136.0	METER PROTOCOL REPORT NO. & DATE	TO BE FILLED BY THE MANUFACTURER
137.0	NAMEPLATE IS CLEARLY VISIBLE, EFFECTIVELY SECURED AGAINST REMOVAL AND INDELIBLY AND DISTINCTLY MARKED WITH ALL ESSENTIAL PARTICULARS AS PER RELEVANT STANDARDS NAME PLATE	YES
138.0	METER SERIAL NUMBER IS BAR CODED WITH SIZE OF NOT BE LESS THAN 35X5 MM ALONG WITH NUMERIC NUMBER	YES
139.0	METER STORES NAME PLATE DETAILS AS GIVEN IN THE TABLE 30 OF ANNEX F OF IS: 15959 / 2011 & ARE READABLE AS A PROFILE AS AND WHEN REQUIRED	YES
140.0	MOUNTING ARRANGEMENT AS PER SPECIFICATION PROVIDED	YES
141.0	WHETHER METER IS TYPE TESTED	YES
142.0	TYPE TEST REPORT ENCLOSED WITH THE BID DOCUMENTS	YES
143.0	TYPE TEST REPORT NO. & DATE	TO BE FILLED BY THE MANUFACTURER
144.0	ALL ACCEPTANCE & ROUTINE TESTS, AS PER IS: 13779 / 1999 AMENDED UPTO DATE & THIS SPECIFICATION ARE CARRIED OUT ON METER & METER BODY	YES
145.0	TRANSPORTATION TEST IS CARRIED OUT	YES
146.0	METER, MODEM AND HHU GUARANTEED FOR THE PERIOD OF FIVE YEARS FROM THE DATE OF COMMISSIONING OR FIVE AND HALF YEAR FROM THE DATE OF DISPATCH WHICHEVER IS EARLIER	YES

**TECH SPEC OF LT AC THREE PHASE, FOUR WIRE, 40 - 200 AMPS ENERGY METER
(CT EMBEDDED) WITH METER BOX FOR DTC**

147.0	GUARANTEE TO REPLACE METER / HHU FREE OF COST WHICH ARE FOUND DEFECTIVE / INOPERATIVE AT THE TIME OF INSTALLATION OR BECOME INOPERATIVE / DEFECTIVE DURING GUARANTEE PERIOD	YES
148.0	POWER BATTERY OF HHU IS GUARANTEED FOR 2 YEARS FROM DATE OF SUPPLY	YES
149.0	10 (TEN) SAMPLE METERS OF OFFERED TYPE AS PER TECHNICAL SPECIFICATIONS ALONG WITH 1 SAMPLE HHU, API SOFTWARE, BCS, CHECKSUM LOGIC & DOCUMENTATION IS SUBMITTED ALONG WITH THE OFFER.	YES
150.0	MANUFACTURING PROCESS, ASSEMBLY, TESTING & MANUFACTURING ACTIVITIES AS PER TECHNICAL SPECIFICATION	YES
151.0	MANUFACTURING ACTIVITIES AS PER SPECIFICATION	YES
152.0	AGEING TEST CARRIED OUT	YES
153.0	QUALITY ASSURANCE PLAN AS PER SPECIFICATION SUBMITTED ALONG WITH OFFER	YES
154.0	COMPONENT SPECIFICATION IS AS PER SPECIFICATION	YES
155.0	TWO SETS OF DRAWING CLEARLY INDICATING THE GENERAL ARRANGEMENTS, FITTING DETAILS, ELECTRICAL CONNECTIONS ETC. ARE SUBMITTED ALONG WITH THE OFFER.	YES
156.0	TECHNICAL LEAFLETS (USER'S MANUAL) GIVING OPERATING INSTRUCTIONS ARE SUBMITTED ALONG WITH THE OFFER	YES
157.0	THREE COPIES OF DIMENSIONAL DRAWINGS OF THE QUOTED ITEM ARE SUBMITTED ALONG WITH THE OFFER	YES

**TECH SPEC OF LT AC THREE PHASE, FOUR WIRE, 40 - 200 AMPS ENERGY METER
 (CT EMBEDDED) WITH METER BOX FOR DTC**

158.0	DETAILS OF MEMORY USED IN THE METER.	TO BE FILLED BY THE MANUFACTURER
159.0	FOLLOWING IN HOUSE TESTING FACILITIES ARE AVAILABLE A. INSULATION RESISTANCE MEASUREMENT	YES
160.0	B. NO LOAD CONDITION	YES
161.0	C. STARTING CURRENT TEST	YES
162.0	D. ACCURACY TEST REQUIREMENT	YES
163.0	E. POWER CONSUMPTION	YES
164.0	F. TRANSPORTATION TEST AS PER CLAUSE NO. 20.03	YES
165.0	G. FULLY COMPUTERISED METER TEST BENCH SYSTEM FOR CARRYING OUT ROUTINE AND ACCEPTANCE TEST IS AVAILABLE	YES
166.0	H. MANUFACTURER HAS DULY CALIBRATED STANDARD METER OF 0.1 CLASS ACCURACY	YES
167.0	I. GLOW WIRE TESTING	YES
168.0	FURNISH PRINCIPLE OF OPERATION OF METER OUTLINING METHODS AND STAGES OF COMPUTATIONS OF VARIOUS PARAMETERS STARTING FROM INPUT VOLTAGE AND CURRENT SIGNALS INCLUDING SAMPLING RATE IF APPLICABLE	TO BE FILLED BY THE MANUFACTURER
169.0	FURNISH PHYSICAL WATER ABSORPTION VALUE	TO BE FILLED BY THE MANUFACTURER
170.0	FURNISH THERMAL HDDT VALUE	TO BE FILLED BY THE MANUFACTURER
171.0	FURNISH FLAMMABILITY VALUE	TO BE FILLED BY THE

**TECH SPEC OF LT AC THREE PHASE, FOUR WIRE, 40 - 200 AMPS ENERGY METER
(CT EMBEDDED) WITH METER BOX FOR DTC**

		MANUFACTURER
172.0	FLAMMABILITY V2	TO BE FILLED BY THE MANUFACTURER
173.0	GLOW WIRE TEST AT 650° C	TO BE FILLED BY THE MANUFACTURER
174.0	TENSILE STRENGTH	TO BE FILLED BY THE MANUFACTURER
175.0	FLEXURE STRENGTH	TO BE FILLED BY THE MANUFACTURER
176.0	MODULUS OF ELASTICITY	TO BE FILLED BY THE MANUFACTURER
177.0	IZOD IMPACT STRENGTH NOTCHED 23° C	TO BE FILLED BY THE MANUFACTURER
178.0	GPRS CONNECTIVITY FROM METER TO MSEDCL EXISTING MDAS SYSTEM ENSURED.	YES
179.0	SNMP SUPPORT FOR MODEM	YES

**TECH SPEC OF LT AC THREE PHASE, FOUR WIRE, 40 - 200 AMPS ENERGY METER
(CT EMBEDDED) WITH METER BOX FOR DTC**

**GUARANTEED TECHNICAL PARTICULARS OF SMC THREE PHASE
METER BOX WITH MCB MOUNTING ARRANGEMENT FOR THREE
PHASE EMBEDDED METER 40-200A**

SR. NO.	PARTICULARS	REQUIRED	Offered
1	MATERIAL	GLASS REINFORCED POLY ESTER SHEET MOULDING COMPOUND (SMC)	
2	GRADE OF MATERIAL	SMC AS PER IS:13410-1992	
3	<u>PROPERTIES OF MATERIAL OF CONSTRUCTION OF METER BOX</u>		
A	FLAMMABILITY (REF. STD: UL-94 / IS-11731)	V0	
B	HEAT DEFLECTION TEMPERATURE (REF. STD. IS:13411)	150 DEG. C (MINIMUM)	
C	EXPOSURE TO FLAME (REF. STD. IS - 4249)	SELF EXTINGUISHING	
D	MELTING POINT (REF. STD. IS-13360)	DOES NOT MELT	
4	<u>CONSTRUCTIONAL FEATURES OF THE BOX:</u>		
4(A)	CLEAR MINIMUM INSIDE DIMENSIONS OF METER BOX		
I.	HEIGHT	650 MM	
II.	WIDTH	500 MM	
III.	DEPTH	250 MM	
IV.	THICKNESS OF METER BOX	3 MM ON LOAD BEARING SIDE AND 2 MM ON ALL OTHER SIDES	
4(B)	<u>WINDOW ON FRONT DOOR:</u>		
I.	MATERIAL OF VIEWING WINDOW	TOUGHENED GLASS	
II.	THICKNESS OF TOUGHENED GLASS	5 MM (MIN.)	
III.	SIZE OF OPENING (MIN)	85 X 170 MM (\pm 5 MM)	
6	SEALING ARRANGEMENT	HOLES FOR WIRE SEAL	
7	EARTHING BOLT	EARTHING BOLT OF SIZE M6 X 25 MM WITH 2 NOS. WASHER AND 2 NOS. NUT.	

**TECH SPEC OF LT AC THREE PHASE, FOUR WIRE, 40 - 200 AMPS ENERGY METER
(CT EMBEDDED) WITH METER BOX FOR DTC**

8	WIRE ENTRY	CABLE ENTRY HOLES WITH PLASTIC GLAND	
9	METER MOUNTING ARRANGEMENT	MS PATTI/CLAMP	
10	MCB MOUNTING ARRANGEMENT	G.I. CLAMP FOR MCB MOUNTING	
11	INGRESS PROTECTION (IP)	IP-55	
12	COLOUR OF METER BOX	SIEMENS GREY	
13	SEALING ARRANGEMENT	FOR HOLDING & SEALING OF DOOR WITH BASE TWO NOS. (MIN.) OF "U" SHAPED CLAMPS WITH PROVISION OF SEALING SHALL BE PROVIDED	

LIST OF SERVICES

SR. NO.	SERVICE NAME	ACTIVITY NUMBER	UOM	SAC CODE	REQ. QTY	VERSION	MATERIAL TYPE
1	Installation Commisioning of	PM.OTH.INS TALL	Activity unit	998736	1		null

Required Documents (To be uploaded online)

Sr. No.	NAME	SECTION	ITEM	DESCRIPTION
1	Annexure VI - Price Bid	Price Section	Installation Commissioning	Annexure VI - Price Bid
2	Guaranteed Technical Parameters (GTP) as per Technical Specifications for Meter	Technical Section	Installation Commissioning of	Guaranteed Technical Parameters (GTP) as per Technical Specifications for Meter
3	Documentary evidence for QAP of Technical Specification i.e. Annexure-D	Technical Section	Installation Commissioning of	Documentary evidence for QAP of Technical Specification i.e. Annexure-D
4	Guaranteed Technical Parameters (GTP) as per Technical Specifications for SMC Meter Box	Technical Section	Installation Commissioning of	Guaranteed Technical Parameters (GTP) as per Technical Specifications for SMC Meter Box
5	Doc. Evid. in respect of classification of your unit as per Micro, Small and Medium Enterprises	Commercial Section		Doc. Evid. in respect of classification of your unit as per Micro, Small and Medium Enterprises Development Act 2006.
6	The bidder shall submit the undertaking certifying that you have not approached any one for undue in	Commercial Section		The bidder shall submit the undertaking certifying that you have not approached any one for undue influence
7	Doc. Evidence as per Cl. 2.4 of Section I i.e. Q.R.	Commercial Section		Doc. Evidence as per Cl. 2.4 of Section I i.e.
8	ISO & BIS Certificates	Commercial Section		ISO & BIS Certificates
9	Doc. evid. from NSIC/DIC of not crossed prescribed monetary limit/limit for invest. in plant & m/c f	Commercial Section		Doc. evid. from NSIC/DIC of not crossed prescribed monetary limit/limit for invest. in plant & m/c for mfg. entrp. resp. & are entitled for Tender fee/EMD exmpn(MSE cert /Notarized valid NSIC cert)
10	Annexure –I - Indemnity Bond	Commercial Section		Annexure –I - Indemnity Bond
11	Annexure – II - Form Of Authorised Nominee/Assignee	Commercial Section		Annexure – II - Form Of Authorised Nominee/Assignee
12	Annexure – III - Undertaking Cum Indemnity Bond	Commercial Section		Annexure – III - Undertaking Cum Indemnity Bond
13	Annexure V - Commitments of the Tenderer/Contractor	Commercial Section		Annexure V - Commitments of the Tenderer/Contractor
14	Annexure VII - Format For No Deviation Form	Commercial Section		Annexure VII - Format For No Deviation Form
15	Annexure VIII - Service Level Agreement	Commercial Section		Annexure VIII - Service Level Agreement
16	Annexure X - Check List	Commercial Section		Annexure X - Check List
17	Annexure XI - Milestones	Commercial Section		Annexure XI - Milestones

Sr. No.	NAME	SECTION	ITEM	DESCRIPTION
18	Annexure XIII - Undertaking to be given by OEM of SMC Meter Box	Commercial Section		Annexure XIII - Undertaking to be given by OEM of SMC Meter Box
19	Undertaking as per Sample Submission Clause on Rs. 200 Stamp Paper that meter will be supplied stric	Commercial Section		Undertaking as per Sample Submission Clause on Rs. 200 Stamp Paper that meter will be supplied strictly as per Technical Specification of tender
20	Notarized power of attorney in favor of appointed agent / representative.	Commercial Section		Notarized power of attorney in favor of appointed agent / representative.
21	Copy of latest turnover certificate for the product offered for last 3 years duly certified by Chart	Commercial Section		Copy of latest turnover certificate for the product offered for last 3 years duly certified by Chartered engineer/accountant
22	Declaration certifying that the business dealings with firm have not been debarred by any Ministry o	Commercial Section		Declaration certifying that the business dealings with firm have not been debarred by any Ministry of GoI / GoM / state owned electricity distribution utility and still in force.
23	Certificate duly certified by C.E./C.A. that the person/entity does not have controlling stake in mo	Commercial Section		Certificate duly certified by C.E./C.A. that the person/entity does not have controlling stake in more than one entity applied for the Tender/Bid.
24	List of year wise, item wise orders executed and under execution duly certified by C.A.	Commercial Section		List of year wise, item wise orders executed and under execution duly certified by C.A.