Maharashtra State Electricity Distribution Co. Ltd.

TENDER DETAILS	
Tender Code	MMC/T-NSC-04/0419(AMENDMENT-1)
Type of Tender	OPEN
Type of Bid	TWO BID
Material Description	AMR Compatible, 3 phase 4 wire CT/PT operated 1A or 5A four quadrant (Import/Export) TOD Tri-Vector Energy Meter with availability based tariff (ABT) feature.
Estimated Cost inclusive of GST(Rupees In Lakhs)	147.15
Basis of Prices	Firm Price Basis
Tender Validity	Tender/Offer shall be kept valid for acceptance upto and including last day of calender month covering the completion of 120 days from the date of tender opening
Delivery Requirement(In Months)	1
Tender on rate contract basis	NO
Tender Fees(In Rupees)	5000.0
GST(@18% on Tender Fee:SAC No.9984) in Rs.	900.0
Total Tender Fee Amount including GST in Rs.	5900.0
Due Date of Submission upto	18-06-2019 03:00 PM
Techno-Commercial Bid Opening On	18-06-2019 03:30 PM
Price Bid Opening On	Will Be Declared Later
Total Number of Pages	101
Contact	cestores@mahadiscom.in

Tender Documents

Maharashtra State Electricity Distribution Company Limited

Plot No. 9 Prakashgad, First Floor, Station Road, Bandra (East), Mumbai - 400 051

INVITATION TO TENDER AND INSTRUCTION TO TENDERERS (SECTION I)

TENDER FORM (NOT TRANSFERABLE)

(TO BE SUBMITTED ONLINE DULY FILLED IN AND DIGITALLY SIGNED)

To be submitted online not later than the date mentioned in the tender details. For participating in tender opening, the tenderer can login at the specified time and date of opening of the tender, if he desires so.

The tenderer is requested to quote his lowest rates F.O.R. destination for the supply of materials. The material is required at various places in the State of Maharashtra. The tender documents duly filled-in and digitally signed, are to be submitted online before due time & date of the submission of tender in prescribed form.

FOR CHIEF ENGINEER (M.M.CELL)

INSTRUCTIONS TO THE TENDERERS

I. SCOPE OF WORK:

The scope of work under this tender is for design, engineering (wherever applicable), manufacture, inspection & testing before despatch, packing and supply of material / equipments as specified in Annexure-D/Technical Specifications, at various destination sites / stores Centers of the Purchaser in Maharashtra.

II. PRICES:

Prices are acceptable only on F.O.R. destination basis inclusive of Goods and Service Tax (GST for brevity) i.e. Integrated GST (IGST) for outside State / Central GST+ State GST (CGST+SGST) for with in State, risk in transit, freight showing the break-up as desired in the Annexure 'B'. It shall be noted that quotations not conforming to F.O.R. Destination basis inclusive of IGST/(CGST+SGST) etc. and to the unit as specified in Annexure 'B', shall be rejected even though the tenderer's offer may be lowest. Therefore, the prices shall be quoted only in the form of Annexure 'B' of the tender documents. The tenderer shall quote Ex-Works Price and element of freight and insurance alongwith applicable rate of IGST/(CGST+SGST). The F.O.R. destination price i.e. upto site or the Store Centre of the purchaser as the case may be inclusive of IGST/(CGST+SGST), risk in transit and freight prepaid will be programmatically calculated. While raising the invoices, however, IGST/(CGST+SGST) should be shown separately in the invoice raised.

The prices to be quoted by the tenderer should take into account the credit available on input under the 'Input Tax Credit' scheme available under GST Law including such credit allowed on the stock available as on the appointed day of GST as per Transitional Provisions.

The tenderer should give a declaration that any input tax credit in respect of duties on inputs as admissible under GST Law is being totally and unconditionally passed on the purchaser in the price quoted by him.

The tenderer should declare that in quoting the above price, tenderer has taken into account the entire credit on inputs available under under the 'Input Tax Credit' scheme available under GST Law.

The tenderer should further agree to pass on such additional duties/taxes as input tax credit as may become available in future in respect of all the inputs used in the manufacture of the final product on the date of the supply under under the 'Input Tax Credit' scheme available under GST Law by way of reduction of prices and advise the purchaser accordingly.

III. TAXES :

(i) The F.O.R. destination rate shall be quoted inclusive of IGST/(CGST+SGST). While raising the invoices, however, IGST/(CGST+SGST) should be shown separately in the invoice raised. The same shall be indicated against respective clauses of Annexure 'B' without any ambiguity.

(ii)It is imperative for the tenderer to indicate the amount of IGST/(CGST+SGST) included in their price while giving the break-up of F.O.R. destination price in Annexure 'B', failing which, the offer will be treated as ambiguous and will be rejected as per the provisions of clause IX of tender form. In case the IGST/(CGST+SGST) is not Payable partially / fully, the tenderer shall indicate the reasons thereof duly supported by documentary evidence.

(iii) The Purchaser is registered under Goods and Service Tax Act and should comply with all the statutory compliance requirements of GST Law diligently.

IV. BASIS OF PRICES:

The tenderer shall quote the prices on firm price basis or on variable price basis only, as has been specifically brought out in the Tender Details. For any deviation in this regard, the offer shall be summarily rejected.

V. PRICE VARIATION:

In case of offer which is called on price variation basis, the price variation shall be admissible as per the price variation formula specified in Annexure 'G' of this tender. No deviation shall be acceptable in the price variation formula. For any deviation, the offer shall be summarily rejected.

VI. DELIVERY:

(i) Tenderer is requested to quote delivery F.O.R. DESTINATION only. Tenderer should quote clear delivery schedule in the format specified in Techno-Commercial Bid. Offers, with qualified delivery schedule which directly or indirectly affects the Conditions of Tender & Supply given in Annexure 'A' shall be rejected.

(ii) It is mandatory on the part of the tenderer to quote the delivery on monthly basis. If the offered delivery is indicated on quarterly basis, then the delivery would be counted proportionately in three equal installments per month for liabilities of the contract including payment of price variation and levy of liquidated damages.

(iii) Size mix for the purpose of delivery, when delivery is quoted in assorted items, shall be determined by the Purchaser while issuing the A/T or despatch instructions and will be binding on the tenderer The Purchaser will also have the liberty of modifying the size mix for the purpose of delivery rates, even after the A/T is issued.

(iv) Offer shall be rejected if the commencement period and rate of delivery per month is not indicated.

VII. OFFERING THE MATERIAL:

The person/entity should not have controlling stake in more than one entity applied for the tender/ bid. **Necessary certificate duly certified by chartered engineer/accountant to this effect shall be submitted along with the tender documents**.

Factory address, from which the bidder intends to supply the material against the tender, shall be as indicated in the latest approved on line vendor registration form on e-tendering through which the vendor is submitting the offer.

The tenderer shall offer the rates, taxes as applicable for the factory location indicated in his latest approved on line vendor registration form on e-Tendering through which he is submitting his offer.

Tenderers shall quote the delivery only in the unit of the item specified in Annexure 'B' i.e. if the quantity is in sets or in tones or in numbers or in kilometers or in coils, the rate of delivery shall only be in the same unit. Similarly, if the tenderer quotes combined delivery in assorted sizes for all the items, he would be required to supply all the items ordered on him in fair proportion or particular item / items as may be required by the Purchaser at his option.

Further, if bidder s found to be 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 direct or indirect 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 the Employer regarding the bidding process.

VIII. QUOTATION:

(i) Tenderers shall quote his rate per unit specified in Annexure 'B' / Price Bid in figures.

(ii) Tenderer's printed terms and conditions will not be considered as forming part of the tender.

(iii) For each of the items quoted, tenderer shall offer minimum 20% (Twenty percent) of the advertised qty. (advertised qty. means the qty. required as indicated in Annexure 'B' / Price Bid) and the tenderer shall be able to deliver the said minimum offered qty. within the delivery requirement of the Purchaser as indicated in the tender documents, failing which, the offer shall not be acceptable. However the offered quantity for Distribution transformers and conductors shall be minimum 10%.

IX. AMBIGUITY IN QUOTATION:

The tenderer is requested to please make a note that in case of ambiguous terms in respect of F.O.R. condition, GST, basis of price (i.e. firm / variable) or if the blanks are not filled in/answered, the offer/tender shall be rejected.

X. FILLING IN OF ANNEXURE :

The tenderer is requested to ensure that the comments against each and every item / clause of Annexure shall be clearly filled in and answered. Any item/clause shall not be left blank or unanswered. If any item/clause is not applicable, the "Not Applicable (N.A.)" checkbox shall be selected.

XI. ADDITIONS/ALTERATIONS PROHIBITED:

The tenderer shall not make any additions, alterations or changes in the Tender Form and the Conditions of Tender & Supply (Annexure 'A') including the description of material mentioned in Annexure 'B'. They should quote rate for the material described or click the checkbox 'Not quoted' against each of the item in Annexure 'B' / Price Bid.

XII. DISCLOSING THE NAME OF THE MANUFACTURER:

Whenever a material is described by name of the particular brand or being offered on resale basis, the tenderer shall specifically disclose the name of the original supplier or the manufacturer in vendor registration form. The tenderer shall not be allowed to supply the material offered from any other manufacturer than specified by him unless the permission in Writing is obtained from the Purchaser.

XIII. I.S.I. LICENCE: (Applicable for requirement of ISI marked material only).

A scanned copy of valid ISI License (full Copy) duly sealed & signed must be uploaded in the registration form, failing which, the offer shall be rejected. In case the validity of the ISI license is expiring before date of submission of tender, necessary documentary proof of having applied for renewal of validity of the ISI license must be uploaded in vendor registration form.

XIV. MANDATORY REQUIREMENT OF SUBMISSION OF OFFER:

The offer shall be submitted online duly filled in; attaching all the required documents, completed in all respects and should be digitally signed.

XV. SUBMISSION OF DRAWING & BILL OF MATERIAL:

The tenderer shall submit the drawings and bill of material conforming to the tender specification wherever applicable. In such cases, the offer without the drawings and bill of material shall not be evaluated and considered. The drawings and bill of material submitted along with the tender shall not be considered for evaluation of the offer but the drawings and bill of material of the successful tenderer shall be scrutinized when the Purchaser decides to accept such tender. It may, however, be noted that Purchaser's action of evaluation of the tender bid would not mean approval of the drawings and bill of material submitted along with the tender bid.

The tenderer shall depute his representative for discussion on the drawings, either immediately on hearing from the Purchaser or after receipt of Letter of Award. The formalities like submission of drawings, bill of material etc. and getting the same approved by the Purchaser shall be completed by the successful tenderer within TEN WORKING DAYS from the date of Letter of Award of the contract. Any delay in this regard shall lead to cancellation of the Letter of Award at the risk and cost of the tenderer. Finalised drawings and bill of material will be attached to the A/T. The supplies against the contract shall conform to the approved detailed drawings/bill of material and the detailed technical specifications.

XVI. SUBMISSION OF SAMPLES:

Wherever mentioned, the sample of each item offered shall be submitted free of cost to the Executive Engineer (Respective Purchase Group) of this office before the due time and date of submission of the tender. The samples submitted shall be strictly conforming to the specification and drawings of the material offered. If the sample is found to be not as per the specifications and drawings, the offer will not be considered and no correspondence from the tenderer for accepting actual supplies conforming to Purchaser's requirement will be entertained. The sample of successful tenderer shall be retained with the Purchaser. Unsuccessful tenderer, on notification, shall collect the sample within 30 days from the date of notification at own Cost of the tenderer, failing which the sample shall be treated as Purchaser's property without any payment and any further notice.

The tenderer who sends the offer/sample by post should ensure superscribing the details of despatches of samples on the envelope containing their offer..

Whenever requirement of sample is specified, no tender/offer will be opened unless-the condition of the sample submission is complied with. In case the sample is not submitted as required, it will be considered that no offer is made by the tenderer for supply of material.

XVII. NAME OF AGENT/REPRESENTATIVE:

The digital certificate shall be in the name of person authorized by the firm during vendor registration process. In case, the digital certificate is compromised or the person holding the digital certificate is no longer authorized to digitally sign the tender, it is the responsibility of the tenderer to revoke this certificate and obtain the fresh certificate. While submitting the bids online only valid digital certificate shall be used. The registered vendors are requested to check the validity of digital signature and prior to the expiry date & they are requested to get their Digital signature key validated before expiry of the same. MSEDCL shall not be responsible for Non-submission of any of the Bids (Techno Commercial Bid, Deviation Bid, Price Bid, Annexure-C-1) by vendors due to expired/Invalid Digital signature. All vendors are requested to opt for class-III digital certificate from any of the certifying authority licensed from controller of certifying authorities (CCA) mentioned in certificate link(for registered vendor) & get digital certificate link (for new vendor) . You may please visit their center nearest to you or website or call on any of their phone numbers for new class-III digital signing certificate.

The registered vendors are requested to update their vendor registration details & documents from time to time and get the approval of the MSEDCL authority accordingly after verification of original documents.

The tenderer is responsible for all the contractual liabilities and responsibilities thereof.
In case the tenderer authorizes the agent or the representative to deal on behalf of the tenderer, the name and address of such person should be informed to the purchaser. The tenderer shall submit the power of Attorney in favour of agents / representative duly executed before the Notary. In the absence of the Power of Attorney, the purchaser shall not deal with the agent / representative.

XVIII. PAST EXPERIENCE:

To judge the capacity and capability of the tenderer or his manufacturer, the tenderer shall furnish the list of orders executed by him or his manufacturers/ principals for the last three years indicating the order reference, name of the purchaser, quantity ordered, value, delivery executed and deviation/slippage in delivery and also the details alongwith certificate if any in vendor

registration form and get the same approved from the purchaser before submission of tender. The details of pending orders and quantities outstanding against the orders of this Purchaser and others should be submitted separately in electronic document form.

XIX (A) OFFER OF MICRO & SMALL ENTERPRISES AND OTHER UNITS:

The tenderer registered with Directorate of Industries of Government of Maharashtra for manufacturing the items tendered / offered and those who have attached valid certificate at the time of vendor registration shall be considered for concessions applicable and procurement of reserved items as per GoM G.R. dtd. 30-10-2015 amended upto date . These benefits shall be available only to those items approved during the registration process and subsequent updates in registration upto the submission of this tender.

Based on concession of Central Government's Micro & Small Enterprises office order dtd. 23-03-2012, 241 items are being kept reserved. As per above reservation of items 100 % reserved items to be purchased from Micro & Small Enterprises out of which 20 % reserved items to be purchased from S.C./S.T. enterprises. Reservation is applicable for a limited period unless & until re-examined. If Micro & Small Enterprises participated in the tender and the tendered item is not reserved then 20 % order with L-1 rate to be given to Micro & Small Enterprises and out of this 20 % , 4 % to be given to S.C./S.T. enterprises.

If there are any specific Government Directives such as reservation of items for units in Maharashtra, non-eligibility of preference to SSI units etc. for particular items, price and purchase preference etc. the same would be applicable irrespective of the fact that it has not been specifically incorporated in the tender notice and/or tender documents.

XIX (B) PREFERENCE TO INDUSTRIAL UNITS LOCATED IN MAHARASHTRA AND OFFERS BY MATCHING RATES WITH LOWEST ACCEPTABLE TENDERER:

The lowest acceptable rate will be the unit rate worked out without considering IGST/(CGST+SGST) as applicable and the same rate will be considered as applicable to the respective tenderer who has agreed to accept order at lowest acceptable rate.

1) If the lowest acceptable rate received against the tender is from a tenderer outside Maharashtra, then they shall be considered for order upto 50% of Purchaser's requirement and if industrial units located in Maharashtra are agreeable to accept order at such lowest acceptable rate, such industrial unit in Maharashtra shall be considered for order upto 50% of Purchaser's requirement by matching their rates with lowest acceptable unit rates exclusive of IGST/(CGST+SGST).

   However, if industrial units located in Maharashtra are not agree to accept order at such lowest acceptable rate, then full supply order shall be placed on tenderers outside Maharashtra.The Purchaser reserves the right to distribute the quantity among Tenderers after matching their rates with the rate of lowest acceptable tenderer.

   Further, it is to note if the bidder registered outside Maharashtra submitted offer and given address of Maharashtra will be considered as bidder from Maharashtra only if offered the rate with (CGST+SGST).

2) The tenderers who are not eligible under the above clauses can also give their confirmation to accept order at the lowest acceptable rate received against the tender. They could be considered for this entitlement only after allocating quantities of Maharashtra State Industrial units as per the provisions stated at (1) above, in the order of merit as per price

ranking for the balance quantity remained to be procured. The Maharashtra State Industrial units who are not eligible for the purchase preference as above could also be considered for this preference under this clause in the order of merit of their prices. Other tenderers shall be considered for the order by matching their rates with the rate of lowest acceptable tenderer after allocating reasonable quantities first to the industrial units of Maharashtra eligible under Clause 5(a) and 5(b) of Annexure 'C-1'.

The lowest acceptable rate is known only on the date of decision by the Competent Authority, hence the lowest acceptable rates of the tender cannot be declared in advance, however lowest acceptable rate of the tender would be equal to or more than the lowest rate received in the tender.

The confirmation for acceptance of the order at the lowest acceptable rate indicated as above shall be given in the format as per Annexure 'C-l' of the tender documents. The same should be submitted online on or before the due time and date of submission of Annexure 'C-1'. The confirmation shall be opened online on due time and date of opening of Annexure 'C-1'. Schedule for submission and opening of Annexure 'C-1' shall be communicated separately by e-mail and on the website. Though confirmation in Annexure `C-1' as above is called from all the qualified tenderers, the tenderers, who quoted rates within the range of 5 % in comparison with the lowest acceptable rates, shall only be considered and their Annexure `C-1' will be opened on the date and time intimated subsequently in the presence of tenderers who chose to be present. Provided, however, that the Annexure `C-1' of the tenderers, who have quoted above the range of 5 % in comparison with the lowest acceptable rates, shall also be considered in case the aforesaid tenderers within the range of 5 % are unable to fulfill the quantity requirement. In that case also, the date of opening of Annexure `C-1' will be intimated to the tenderers

In the above confirmation, if the tenderer indicates any rate, then the confirmation given by the tenderer will not be considered as valid.

Above confirmation for the quantity less than as indicated in Clause VIII (iii) of Instructions to the Tenderer shall not be acceptable.

The prices indicated in the original offer shall not be considered as valid once offer for acceptance of order by matching rates is given. In the event of withdrawal of offer by matching rates within the validity period, the entire offer against the tender shall become invalid and shall be summarily rejected and the earnest money paid by the tenderer shall be forfeited.

The lowest acceptable tenderer would be considered for awarding order upto 75% of requirement or any reasonable quantity subject to his capacity and capability with following restrictions:

Trial Order: - New firms, who have not supplied tendered item to any Government / Semi Government Utility or SEB, may be considered for trial orders limited up to 20 % of total requirement.

Restricted Order:-Firms which are new to Purchaser but have supplied tendered item to any Government / Semi Government Utility / SEB or the firms which have executed MSEDCL's one order, may be considered for restricted order up to 25% of the requirement.

Regular Order:-Firms who have satisfactorily executed MSEDCL's two orders for tendered items, may be considered for regular order.

If any balance quantity remained after allocation as mentioned above will be allocated amongst the bidders whose quoted price(s) are within 5% and have matched with Lowest Acceptable Tenderer, subject to their capacities.

Further quantity allocation in following events to be done as under:-

If matching rate offer is not available, 100% quantity will be allotted to L-1 bidder provided he is regular supplier and have capacity to supply total quantity. If L-1 bidder is new or semi regular then after allocation of quantity as per quantity allocation criteria, balance quantity will be allotted to offers available with matching rate who have quoted above the range of 5% in comparison with the lowest acceptable rates.

In case L-1 offer is either from new/semi regular supplier and only 1 matching rate offer from regular supplier is available then quantities will be allocated as per quantity allocation to new/semi regular supplier. The remaining quantities will be allotted to regular supplier.

In case L-1 offer is either from new/semi regular supplier and only 1 matching rate offer from new/semi regular supplier is available then quantities will be allocated as per quantity allocation to new/ semi regular supplier. The balance quantity will be allotted to offers available with matching rate who have quoted above the range of 5% in comparison with the lowest acceptable rates.

It is summarized as Wherever, only one offer of Regular supplier is available at L-1 or at matched price, after allotting quantity to new/ semi regular supplier if any, all remaining quantities shall be allotted to Regular Supplier.

XX. EARNEST MONEY DEPOSIT (EMD):

The tenderer should pay the Earnest Money @1% (One Percent) of the Estimated Value of Tender.

The earnest money shall be paid online or by demand draft drawn on the scheduled bank in Mumbai in favor of MSEDCL, Mumbai. Reference to the tender no. should be given in case the EMD is paid by demand draft before the due date of the tender and the relevant deposit amount should be mentioned in the tender. Interest shall not be allowed on EMD. Earnest money deposit shall be forfeited (i) in case the tenderer withdraws the tender/offer during the validity period (ii) in case the tenderer fails to pay the security deposit if the contract is awarded.

However, tenderers from the following categories are exempted from payment of earnest money deposit.

1) All Government and semi Government institutions under Govt. of Maharashtra and Zilla Parishad in Maharashtra and fully owned undertaking of any State Govt. and Govt. of India only for the items manufactured by such institutions.

2) Micro and Small Enterprises registered under Micro, Small and Medium Enterprises Development Act-2006 only for the items mentioned in their permanent registration certificate at the time of vendor registration.

3) The tenderer registered with N.S.I.C. and those who have attached valid N.S.I.C. Registration Certificate at the time of vendor registration.

The benefits mentioned in (1) to (3) above shall be available only to those items approved during the registration process and subsequent updates in registration upto the date of submission of this tender.

Exempted bidders should upload a latest valid certificate issued by any approved body of 'Ministry of Small & Medium Enterprises' (MSME) such as 'National Small Industries Corporation' (NSIC) or 'District Industries Centre' (DIC) for EMD exemption.

XXI. SIGNING OF THE TENDER DOCUMENTS:

Offer shall be submitted alongwith the tender documents and duly filled in with all Sections / Annexures / Appendixes / Schedules etc. The offer shall be signed with valid digital signature.

XXII. SUBMISSION / SUPERSCRIBING OF THE TENDER DOCUMENTS: The offer is to be submitted as follows:

1)Online Submission:

[a] Techno - Commercial Bid (Part I)

This part shall contain all technical and commercial aspects of the bid and documents supporting the same except the Price Bid.

The tenderer is requested to please make a note that in case of, the Price Bid(Part-II) is submitted instead of Techno-Commercial Bid in Part I or submitted Price Bid (Part-II) along with Techno-Commercial Bid in Part I , the offer shall be rejected.

[b] Price Bid (Part II)

This part shall contain only the Price Bid strictly in the prescribed format i.e. Annexure 'B'.

2) Offline Submission:

[c] Physical submission of documents (Part III) –

Envelope for this part shall contain documents like Type Test Reports, Drawings, Bill of Material, Catalogues etc. wherever applicable as per technical specification and they shall be scanned and these scanned documents to be taken into PDF format on CD media (2 sets) and are to be submitted to EE (SM) in sealed envelope on or before due date & time of submission.

METHOD OF SUBMISSION OF PART III AND THEIR OPENING:

[d] This envelope shall be individually sealed and shall be superscribed with the name and address of tenderers and the following information before posting or delivering the same:
(i) Tender No.
(ii) Due date and time of submission.
(iii) Due date and time of opening.

Envelope as above shall be submitted on or before the prescribed due date and time of submission and shall be opened on due date and time of opening prescribed.

In case of tenderers whose techno-commercial bid is acceptable, their Price Bids will be opened at a later date. This date shall be intimated to such tenderers separately.

XXIII. TIMELY SUBMISSION OF OFFER:

(a) The tender is to be submitted online on or before due date and time of submission to the Purchaser at website.
(b) It is advisable to submit the digitally signed offer sufficiently in advance of due date and time so as to avoid last minute trafficking at server.
(c) Offer received after the due date and time of submission shall not be accepted.
(d) In case, the due date of opening of tender happens to be holiday, the offer shall be opened on the next working day at the same time.

XXIV. The Purchaser reserves the right to reject any offer without assigning any reason whatsoever.

XXV. DISREGARD OF TENDER CONDITIONS:

Tender containing any deviations / additions / alterations /changes in the conditions of the tender and supply as stated in Annexure 'A', 'B', 'C-l', 'D', 'E', 'G' shall not be acceptable.

The tenderer having digitally signed all the tender documents indicates any deviations/ additions/alterations/changes in the covering letter, unrelated annexures and schedules of the offer or elsewhere, the same shall be ignored and the offer shall be treated as meeting with all specified tender conditions.

XXVI. PROHIBITION FOR POST TENDER CORRESPONDENCE:

The Tenderer should note that no correspondence shall be entertained or considered after the due date and time of submission of tender unless otherwise sought by the Purchaser.

XXVII. RIGHT TO ORDER OUT QUANTITY IN VARIANCE TO OFFERED QUANTITY:

The Purchaser reserves the right to order out / procure any quantity in excess to the extent of 50% or any less quantity, of the quantities offered by the tenderer. The quantity specified may be for despatch to one destination or several places.

XXVIII. ACCEPTANCE OF TENDER:

The Purchaser does not bind itself to accept the lowest or any tender, neither will any reasons be assigned for the rejection of any tender or part of tender. It is also not binding on the Purchaser to disclose any analysis report on tender/samples. The tenderer on his part binds himself to supply any item or items selected from his offer in part or whole at the option of the Purchaser.

XXIX. NOTIFICATION OF AWARD:

Notification of Award of contract will be made by a letter of Award, to be sent by registered post or given by hand, to the successful tenderer by the Purchaser. It could also be made, by e-mail or by Fax to be confirmed in writing by registered post to the successful tenderer by the Purchaser.

XXX. EARNEST MONEY OF UNSUCCESSFUL TENDERER:

Earnest money deposited shall be returned to the unsuccessful tenderer as soon as possible after the tender has been decided and on submission of receipt of E.M.D. payment to the G.M. (F&A-SB), MSEDCL, Prakashgad, Station Road, Bandra (East), Mumbai -400051.

XXXI. VALIDITY OF OFFERS:

The tenderer shall keep the offer valid for acceptance upto and including last date of calender month, covering the date of completion of 120 days (one hundred and Twenty days) from the date of opening of the tender and shall also agree to extend the period of validity required by the Purchaser. The tenderer shall not be allowed to modify or change the conditions of the tender while extending the period of validity.

XXXII. The Policy & Procedure for Debarring of Agency from Business Dealings with MSEDCL is as per Section-IV in order to ensure participation of reliable and honest bidders / contractors / vendors, etc. and forms the parts of tender document.

The bidder shall submit the declaration along with the bid as below:

a) The business dealings with the agency have not been debarred by any Ministry of GoI / GoM / State owned electricity distribution utility and still in force.

b) 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.

XXXIII. CORRUPT OR FRAUDULENT PRACTICES:

The Maharashtra State Electricity Distribution Company Ltd. and the State require that bidders/ suppliers/ contractors observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, MSEDCL:

(a) defines for the purposes of this provision, the terms set forth below as follows:

(i) “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

(ii) “fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition.

(b) will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

(c) will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded an MSEDCL contract if at any time it determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, an MSEDCL contract.

XXXIV. INFLUENCE:

Any efforts by the bidders to influence the owner during evaluation process before order placement will be rejected. Similarly deviation in the term of payments, penalty, security deposit, delivery period will be treated as non-responsive quotation / offer and will not be considered for evaluation /order placement.

Bidder shall submit the undertaking certifying that they have not approached any one for undue influence.

XXXV. TENDER FEES EXEMPTION:

Tenderers from the following categories are exempted from payment of Tender fees:

1) All Government and semi Government institutions under Govt. of Maharashtra and Zilla Parishad in Maharashtra and fully owned undertaking of any State Govt. and Govt. of India only for the items manufactured by such institutions.

2) Micro and Small Enterprises registered under Micro, Small and Medium Enterprises Development Act-2006 only for the items mentioned in their permanent registration certificate at the time of vendor registration.

3) The tenderer registered with N.S.I.C. and those who have attached valid N.S.I.C. Registration Certificate at the time of vendor registration.

The benefits mentioned in (1) to (3) above shall be available only to those items approved during the registration process and subsequent updates in registration upto the date of submission of this tender.

The tender fee paid against the particular tender shall not be refunded /transferred /adjusted at all.

XXXVI. PRE-BID MEETING :

1) The bidder or its official representative is invited to attend pre-bid meeting(s) which will take place at the place, date and time designated in the Bidding Data.

2) The purpose of the pre-bid meeting(s) will be to present the salient features of the bidding documents to the bidders, including the bid submittal requirements, the Conditions of Contract (including payment terms and conditions), the technical features of the project, and to clarify issues and to answer questions on any matter that may be raised by the bidders.

3) The bidder is advised to visit the Site and study the bid document thoroughly, and is requested to submit any questions in writing or by fax, to reach the Employer not later than one week before the pre-bid meeting.

4) Minutes of the meetings, including the text of the questions raised and the responses given, will be transmitted without delay to all the prospective bidders through the website cpa1.mahadiscom.in / www.mahadiscom.com. Any modification of the bidding documents listed which may become necessary as a result of the pre-bid meetings shall be made by the Employer exclusively through the issue of an Addendum pursuant to Clause and not through the minutes of the pre-bid meetings.

5) Non attendance at the pre-bid meeting will not be a cause for disqualification of a bidder. Nevertheless, senior representatives of the bidders are strongly encouraged to participate in the pre-bid meeting to help ensure that they fully understand the key concerns of the Employer and the Employer’s requirements.

XXXVII. CLARIFICATION ON DEVIATIONS:

The purchaser, if necessary, shall obtain clarifications on deviations by requesting for such information from any or all the tenderers in writing, as may be necessary.

The same should be submitted online on or before the due time and date of submission of Deviation Bid. The clarification shall be opened online on due time and date of opening of Deviation Bid.

The Schedule for submission and opening of Deviation Bid shall be communicated by auto generated e-mail of the e-tender website cpa1.mahadiscom.in.

XXXVIII. E-REVERSE AUCTION: (Where ever Applicable)

E-Reverse Auction shall be conducted for finalization of contract, order shall be placed on overall lowest tender basis. For the reverse auction, technically and commercially acceptable tenderers and whose price bids have been opened only shall be eligible to participate.

CERTIFICATE:

I/We agree to supply the materials at the rates herein tendered by me/us subject to the conditions of tender and supply in Annexure 'A' of this tender which I/We have carefully read and which I/we have thoroughly understood and to which I/we agree. I/we hereby agree to keep this offer open upto the date mentioned in tender details and shall be bound by communication of acceptance despatched within the validity period.

ANNEXURE 'A'

CONDITIONS OF TENDER AND SUPPLY (SECTION II)

1) EFFECT OF CONTRACT:

The contract shall be considered as having come in to force from the date of Notification of Award. The tenderer whose offer is accepted is hereinafter called "the supplier".

2) SECURITY DEPOSIT:

(a)The supplier shall pay within 15 days, security deposit @ 3 % of the value of the order.Supplier will have to pay additional security deposit for the extension of order if issued.If the contract is awarded to authorized dealer,the manufacturer has to submit security deposit otherwise it shall be furnished by that authorized dealer.

(b)Security deposit applicable will be 2% (Two percent) of the order value for the following categories of suppliers :

i) Units in Maharashtra registered with DGS & D, New Delhi and Controller, Printing and Stationary Kolkata,

ii) All Government and semi Government institutions under Govt. of Maharashtra and Zilla Parishad in Maharashtra and fully owned undertaking of any State Govt. and Govt. of India only for the items manufactured by such institutions.

(c) Units registered with Directorate of Industries, District Industries Center and Central Stores Purchase Organization,Mumbai and Mirco and Small Enterprieses registered with N.S.I.C. and Micro, Small and Medium Enterprises Development Institute (MSMEDI) shall be exempted from payment of security deposit for value of order upto Rs. 25,000/- and If the value of order is above Rs. 25,000 /- then security deposit @ 3% or Rs. 10,000/- whichever is lower will be payable against the contract excluding first amount of Rs. 25,000/-.

The benefits mentioned in (b) to (c) above shall be available only to those items approved during the registration process and subsequent updates in registration upto the date of submission of this tender.

The failure to make payment of security deposit within 15 days as above will be viewed seriously and the contract awarded shall be liable to be terminated at the risk and cost of the supplier and the supplier shall be solely responsible for the consequences arising out of such termination.

The security deposit shall be paid in favour of Purchaser by way of:

i) Cash or

ii) Cheque or demand draft on any Nationalized / scheduled bank in Mumbai or

iii) When the amount exceeds Rs. 5,000/-,Security deposit shall be paid by bank guarantee in the standard form of purchaser from any Nationalized/ scheduled bank valid for 90 (ninety) days from the date of expiry of the guarantee period of last consignment of materials as specified in guarantee clause given in conditions of Tender and supply .

This security deposit in cash/DD or in the form of bank guarantee or otherwise is for the due performance of the material/contract and the same shall be liable to apportion towards amount due or becoming due by the supplier on :

i. his failure to execute this order or

ii. any other contract and

iii. in the event of non fulfillment of the terms and conditions of the contract.

iv. Non completion of guarantee period of the supplied equipments /material.

The security deposit shall be refunded within 90(Ninety) days from the date of expiry of the guarantee period of last consignment of equipments /material supplied, specified in condition of guarantee stated herein below Sr. No.25 OR within 30 (thirty) days on furnishing of contract performance deposit in the form of cash or DD from any Nationalized /Scheduled bank or from acceptance of bank guarantee furnished by the supplier which is valid for completion of last consignment guarantee period. The PURCHASER shall not be liable to pay any interest or compensation to the contractor for retaining the deposit after the end of said period.

3) QUALITY OF SUPPLIES:

All materials supplied shall be strictly as per specification laid down and in accordance with the approved standard samples. In case of any materials for which there are no standard / approved samples, the supplies shall be of the best workmanship and good quality and this office shall be informed of the progress of manufacture of the material.

4) MATERIAL AND COMPONENTS:

The material and components not specifically stated in this specification but which are necessary for satisfactory operation of the equipment / items specified, shall be deemed to be included unless specifically excluded and shall be supplied without any extra cost.

5) SAMPLE BEFORE COMMENCING BULK SUPPLIES (Wherever necessary):

(A) Before taking up the manufacture of the bulk supply, the supplier shall get one number sample of each item approved and sealed from the Purchaser's Executive Engineer (IW) or its authorized representative, within 15 days from the receipt of the order. No bulk supply should be made unless the sample is approved by the inspecting officer. The supplier shall give advance intimation of 15 days from the date of receipt of order to the Executive Engineer (Inspection Wing), Maharashtra State Electricity Distribution Co. Ltd., Material Management Cell, 1st Floor, 'Prakashgad', Station Road, Bandra (EAST), Mumbai -400 051, for sample approval. The sample so approved, shall be a master sample retained for reference purposes, at supplier's works till the last consignment is despatched.

The time allowed for commencing delivery includes the time required for getting the sample approved as above. If, however, 15 days from date of receipt of the intimation for sample approval, the period for commencing / completing the supplies will be considered to have been extended by the excess time taken for intimating the approval. If the approval of the sample is not received from the inspecting officer within 15 days, the supplier shall remind this office for the same in writing.

(B) Consignee's Sample: At the time of inspection, the supplier shall get approved and sealed by the Purchaser's inspecting officer, as many samples as the number of consignees as stated above and each of the approved sample must be forwarded with the first lot being despatched to the respective consignee together with the copy of the relevant inspection report and the related test certificates.

6) ACCEPTANCE OF SUPPLIES/INSPECTION:

(a) 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.

(b) Materials shall be inspected by the Purchaser's Executive Engineer/or the representative authorized by the Purchaser before despatch. An intimation in the prescribed proforma about the date on which materials shall be ready for inspection, indicating approximate quantity, shall have to be given to the Executive Engineer (Inspection Wing), Maharashtra State Electricity Distribution Co. Ltd., 'Prakashgad'. 1st floor, Station Road, Bandra (East), Mumbai - 400 051, so as to reach him sufficiently 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 despatched 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.

Further the price variation shall be payable limited to the period of original call letter or the actual date of despatch whichever is lower and the liquidated damages for late delivery shall be levied on such delays.

The positive price variation and statutory variations for supplies beyond contractual delivery period will not be allowed.

In case of delay in delivery beyond contractual delivery period, the prices of items supplied will remain firm, where delay is not attributable to MSEDCL, however MSEDCL will recover the negative price variation amount applicable as on contractual due date or actual date of supply whichever is beneficial to MSEDCL.

(c) The supplier shall notify the names of the consignees to whom the inspected lot would be despatched. The Inspector shall intimate change in destination, if any, at the time of inspection approval and accordingly the material shall be despatched. 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.

(d) 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.

(e) 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.

(f) 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 despatch. The material shall not be despatched unless and until the test certificates are approved by the Purchaser.

(g) All the necessary help shall be extended by the supplier to the authorized representative of the Purchaser to carry out testing of equipment/materials.

7) RIGHT TO CARRY OUT INSPECTION DURING MANUFACTURING:

The Purchaser at its option, will inspect the material ordered during its process of manufacturing including the inspection of raw materials and will request the supplier to carry out such tests as may be necessary to ensure proper quality of the material. The samples of components of the material shall be subject to quality check by the inspecting officer during manufacturing.

8) RIGHT TO REVISE DESPATCH INSTRUCTIONS, DELIVERY SCHEDULE AND TO DEFER SUPPLIES:

i) The Purchaser reserves its right to revise the despatch instructions issued alongwith the order, at the time of giving final clearance for despatch after inspection of the material. If such change in destination is not intimated at the time of inspection approval or waival of inspection, the supplier

shall despatch the material as per the despatch instruction in accordance with A/T indicated by him in the inspection call letter.

ii) The Purchaser reserves its right to change the delivery schedule of the contract either by reducing the monthly lot upto 60% of the agreed lot or by increasing the same upto 120% of the agreed lot with prior two months notice and the Purchaser shall not be liable to pay any compensation/damages on account of such change in delivery schedule.

iii) The Purchaser reserves its right to defer the balance supply to be received against the order by giving two months notice for a maximum period of 6 months. In such an event, the delivery period for the deferred material shall be deemed to be extended proportionate to the period of deferment and the Purchaser shall not be liable to pay any compensation/ damages on account of such deferment of deliveries.

9) WAGON LOADS/TRUCK LOADS:

Quantity to be despatched to consignee may not necessarily be in full wagon load/truck load and may be part load as per the Purchaser's requirements.

10) ROAD TRANSPORT:

In case the supplier prefers to despatch the materials by road transport at his risk and cost and without any extra cost to the Purchaser, the materials shall be accepted only during office hours on working days. The supplier should ensure that the goods reach the stores sufficiently in advance so as to arrange their unloading during office hours, failing which, the Purchaser shall not be liable for unloading and for inconvenience caused to the transport contractor in the form of detention etc. Unloading at stores shall be arranged by the consignee.

11) PAYMENT OF FREIGHT CHARGES:

Railway Receipt should be prepaid. In case the freight is not prepaid, the freight charges paid plus applicable taxes, if any shall be recovered from the supplier with additional 'TWENTY PERCENT' amount of freight.

12) CLEAR RAILWAY RECEIPT:

Packing used shall be conforming to specifications/conditions laid down by the railways and clear railway receipt shall be obtained by the supplier without any ambiguity, so as to facilitate proper clearance of goods at destination.

13) DESPATCH INTIMATION:

The supplier shall inform telegraphically to the consignee details of despatch giving RR/ LR No., Wagon/Truck No., Type of wagon, craneable consignment or otherwise, total value of consignment, etc. to facilitate the consignee to arrange for clearance of goods.

14) BILL OF MATERIALS:

The supplier shall furnish bill of materials for each type of equipment/material offered which should be consistent with the drawing, sample, specification and guaranteed technical particulars. The copies of the bill of materials should always be enclosed alongwith the bill submitted by the supplier for payment wherein he should specifically mention the materials / components despatched out of the bill of materials, if the equipment is not sent in totality. Where the equipment/material to be supplied consist of more than one component, the supplier claiming payment for equipment/materials shall certify that all components of the equipment/ material have been supplied in full for the quantity indicated in the invoice. Part payment shall not be allowed.

15) PACKING LIST:

Each package shall contain, in waterproof cover, the detailed list indicating the order reference, date, list of content and reference to the approved bill of materials. Each item contained in the package shall be described sufficiently to enable identification of the quantity, weight etc. There should not be any alteration in the packing list incorporated in the order, copy of the packing list should be sent to all the consignees, Chief Engineer (M.M.Cell) as well as G.M. (F&A-SB) and should be enclosed with the bills along with other documents.

16) VERIFICATION OF MATERIAL SUPPLIED:

The Purchaser shall have the option to carryout various tests including type tests as per specification on the samples selected at random from the supplies effected, to ensure that the supplies conform in quality and workmanship to the relevant specification. The testing shall be done at independent laboratory at Purchaser's cost. Due notice shall be given to supplier for such sample selection and such testing thereof to enable him to be present for the same if so desired by him. If the supplier or his authorized representative fails to attend the sample selection and testing, the same shall be carried out unilaterally by the Purchaser and the result thereof shall be binding upon the supplier. In case the sample selected from the supplies fails to withstand the required tests, then

I. for the first time failure of sample,
   (a) supplier shall have to replace the full quantity of the respective inspected lot supplied to various Stores and lying unused at Stores.
   (b) 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 AND

II. in respect of further supplies made against the order, if failure of sample is noticed (i.e. second time failure against the order),
   (a) the quantity lying unused at various Stores shall be rejected.
   (b) 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,
   (c) balance quantity against the order including the rejected quantity shall be cancelled without any liability on either side,
   (d) the firm will be debarred from dealing with the Purchaser irrespective of grounds for debarring in MSEDCL debar policy as per Section-IV.

17) REPLACEMENT OF GOODS LOST, BROKEN OR DAMAGED:

Not withstanding anything herein contained, the supplier undertakes to be responsible for the safe arrival of the materials in good condition and without any loss or damage at the final destination and until the same be actually delivered to and received by the Purchaser at its stores or other place of final destination and for this purpose, materials carried by railways or other carrier shall be deemed to be so carried at the risk of the supplier. In case of transit damage/shortages, the payment shall be made only for the quantity received in good and working condition and the consignee shall lodge claims with carriers and transfer the same to the supplier with all necessary documents for settlement of the same with carriers at the supplier's end. The transit damages/shortages/losses reported by the consignee shall be repaired/replaced by the supplier duly inspected, free of cost, within one month from the date of such intimation of breakages/shortages/losses without waiting for settlement of the claims from carrier or insurance co. etc.

18) REPLACEMENT OF REJECTED MATERIALS:

If, on inspection at the final destination, the Purchaser discovers any loss in the materials supplied or that they are received in damaged condition or that in the opinion of the Purchaser, they are not of the contracted quality or specification, the Purchaser shall be entitled (notwithstanding that the property in the materials shall have passed on to the Purchaser) to refuse to accept or reject the materials altogether and claim damages or cancel the contract and buy its requirements from any of its suppliers stipulating earliest possible delivery and in accordance with its tender system against the supplier and recover the damages if any, from the supplier from any outstanding sums that may be due to the supplier from the Purchaser against this contract or against any of the contract entered into with the supplier, without prejudice to other

rights and remedies available to it in law and reserving always to itself the right to forfeit the security deposit placed by the supplier for the due fulfillment of the contract.

In case the stores/materials are found not in accordance with the prescribed specifications and/or the approved sample, the same will be rejected and the supplier shall replace the rejected stores/materials free of cost within one month from the date of intimation. The replacement of goods shall also have to be got inspected as per inspection clause. Further if the stores/ equipment supplied becomes incomplete on account of either rejection or short supply of its components, the complete cost of the stores/equipment shall be recovered from supplier's bills without notice.

19) TOLERANCE IN QUANTITY TO BE SUPPLIED:

Variation in quantity to be supplied against confirmed order shall be permissible upto FIVE PERCENT PER ITEM PER CONSIGNEE limited up to order quantity.

20) MATERIAL DESPATCHED AND PROGRAMME:

A statement as under indicating despatches effected during every month shall be furnished to this office along with the programme of manufacturing/despatches during the following two months. In the event of no despatch, the statement shall contain nil information. This statement should reach this office on or before 7th of succeeding month addressed to Chief Engineer(M.M.Cell),Mumbai-400051,[Attention :Supdt. Engineer (M.M.Cell)].

MONTHLY STATEMENT: I. Name of Supplier:
II. Reporting Month:

Sr No.	A/T No.	Material	Item No. As Per A/T	Consignee	RR/LR Delivery Challan No. With date	Date of Actual Receipt of Material	Qty. Despatched Between 26th of Preceding month and 25th of the Reporting month	Programme of supply during the next 2 months
1	2	3	4	5	6	7	8	9

Consolidated details of the above information shall be furnished to office of the Chief Engineer (M.M.Cell) after completing the supplies of a particular order. The copy of this consolidated information shall invariably be forwarded to the respective consignees, failing which, security deposit paid against the contract shall not be released.

21) SUBMISSION OF BILLS:

No payment shall be made for the supply of equipment/item in part components.

22) PAYMENT OF BILLS:

100% payment of the Contract price will be paid by A/c payee cheques within 120 days from the date of receipt of entire lot as scheduled in commencement period or in monthly delivery schedule of material at the stores in good condition. However, in respect of only those entities which qualify for 45 days payment period under the Micro, Small and Medium Enterprises Development Act, 2006, 100% payment of the Contract price will be paid by A/c payee cheques within 45 days from the date of receipt of entire lot as scheduled in commencement period or in monthly delivery schedule of material at the stores in good condition. The material is to be tested / measured by the field Officers / Consignees wherever provided for. Date of issue of cheques shall be the date of payment. Following documents will have to be forwarded to the G.M. (F&A-SB), Maharashtra State Electricity Distribution Co. Ltd., Prakashgad, Station Road, Bandra (East), Mumbai - 400 051 along with bills in triplicate with copy to the

consignees, to facilitate payment.

(i) Invoice issued in accordance with the provisions of GST Invoice Rules.
(ii) Certificate of proper despatch
(iii) Xerox copy of despatch document (i.e. RR/LR).
(iv) Inspection / TC Approval.
(v) E Way Bill, copy of acceptance letter of bank guarantee for security deposit, authority of exemption thereof.
(vi) Detailed packing list.
(vii) Bill of materials.
(viii) The relevant document in support of price variation claim.
(ix) Xerox copy of monthly despatch statement required as per clause 20 above.

Where required by the Purchaser, the successful tenderer must send the operation and maintenance manuals, test certificates, drawings etc. for the material ordered. These should be sent immediately after despatch of material and a statement to that effect should be made in the invoice. Failure to comply with this provision will result in delay in payment of the bill.

The supplier shall forward the original R.R./ L.R. direct to the consignee along with various documents as stated below in this clause. The original bill shall be forwarded to the G.M. (F&A-SB), Prakashgad, Bandra (E) and marked ORIGINAL. The bill should indicate the GST registration no. and date held by him under the GST Law. The Purchaser shall not be responsible for delay in payment of bills if the supplier fails to comply with any of the above requirements.

Supplier's copy of S.R.Note will be forwarded by the consignees through their respective Major Stores for supplier's record towards acknowledgement of receipt of material. Accounts copy of S.R. Note will be forwarded by the respective Major Stores to G.M. (F&A-SB) for payment.

Wherever the payment is to be effected against Material Receipt Intimation (MRI) and if the supplier fails to forward the documents such as inspection report, bill of materials, approved drawings, etc. alongwith the invoice to the respective consignees, the MRI issued will be a qualified one and no payment shall be made against the said MRI.

The whole of the first lot as well as monthly lot when delivered in installments, the date of delivery and due date of payment will be counted after the receipt of the entire lot along with following documents complete in all respect by the consignee:

i) Copy of invoice/challan
ii) Packing list
iii) Approved sample(if applicable)
iii) Original copy of RR/LR
iv) Inspection approval letter signed by the Inspecting Officer in Blue ink along with copies of routine/acceptance test certificate or copy of letter of waival of inspection as the case may be.

The Purchaser at it's discretion, shall arrange for payments as above from its own sources or alternatively under ICICI line of credit / IDBI rediscounting scheme / D.D.S. of SIDBI as per terms of ICICI / IDBI / SIDBI as may be applicable, in which case, co-acceptance charges/stamp duty shall be to Purchaser's account.

Any amount more than Rs. One Lakh can be transferred to the bank Account of the supplier electronically. For this RTGS (Real Time Gross Settelement) provision, following information is to be furnished by the tenderer in the required documents of the online offer.

1. Name of the Company
2. Name of the Bank & Branch with address where the amount is to be transferred.
3. Current Account Number (15 digits)
4. RTGS No. / (IFSC Code) (Indian Finanacial Security Code)
5. MICR Code of the Bank
6. Company's email ID
7. Contact Name & Telephone No.

23) TAXES :

(A) Notwithstanding the fact that contract price is inclusive of GST :

(i) GST shall be paid at actuals on the basis of due date of delivery or actual date of supply whichever is lower against documentary evidence.

(ii) Variation in GST on bought out items shall not be entertained.

(B) Structural changes in and due to 'Input Tax Credit' Scheme : -

(i) In the event of any structural change occurred in the Input Tax Credit Scheme after the date of submission of the tender till the currency of the contract, the benefit out of such change shall be passed on to the purchaser.

(ii) In the event of 'Input Tax Credit' being extended by the GST Law which were otherwise ineligible for claiming Input tax credit therof, the seller should advise the purchaser about the additional benefits accrued or any variation thereof, through a letter containing such details and comptation within such time as may be agreed between both the parties i.e. Supplier & MSEDCL.

24) DEDUCTION:

Any amount or amounts which become payable by the supplier to the purchaser under a particular contract, shall be deducted by the purchaser from any amount/amounts due or becoming due to the supplier under the same or any other contract and shall be adjusted against dues to the Purchaser.

25) GUARANTEE:

Goods offered shall be guaranteed for a period of 24 months from the date of commissioning or 30 months from the date of dispatch whichever is earlier. The stores/ materials found defective within the above guarantee period shall be replaced/repaired by the supplier free of cost, within one month of receipt of intimation. If the defective store/materials are not replaced/repaired within the specified period as above, the Purchaser shall recover an equivalent amount plus 15 % supervision charges(Plus GST as may be applicable) from any of the bills of the supplier. Further, in case of repeated failures of equipments / material, the Purchaser reserves the right to debar / disqualify the supplier for future tenders / orders irrespective of grounds for debarring in MSEDCL debar policy as per Section-IV.

26) LIFTING OF REJECTED/DAMAGED MATERIALS:

a) On failure to replace or repair the transit damaged or rejected material within one month from the date of intimation as required under tender, it shall be deemed to have concluded that such material is finally rejected. The damaged/rejected material shall be lifted by the supplier within 30 days from the date of receipt of notice to that effect from the concerned consignee on reimbursement to the Purchaser of the cost of the material / equipment, if any, already paid in terms of payment clause in the contract and actual expenses incurred by the consignee towards octroi, handling, demurrage/wharfage/undercharges, freight, insurance premium etc. The Purchaser shall not be responsible in any case for the loss, destruction, damage, deterioration of the material after expiry of the said 30 days period.

b) If the supplier fails to lift the material within this period, the material will remain with the Purchaser at the cost and risk of the supplier. Supplier shall, therefore, be liable to pay ground rent @ 0.1% (Plus GST as may be applicable) per day of purchase cost of the material to be lifted from the date of intimation of rejection till the actual date of lifting.

c) The Purchaser will be also free to dispose of such material, after the period of said 30 days, by Public auction/Tender notice/Destruction as may be deemed fit and storage charges @ 0.1 % (Plus GST as may be applicable) per day of purchase cost will be recovered from the date of intimation of rejection of materials till the date of realization of the sale amount/physical removal of the material

besides the actual expenses incurred as referred to at (a) above.

d) Not withstanding what is contended in the foregoing clauses, the supplier shall be liable to pay the Purchaser the cost and expenses incurred by the Purchaser, if any, including ground rent and the same shall be appropriated and recovered from the sale proceeds.

27) LIQUIDATED DAMAGES FOR LATE DELIVERY:

In case the materials are not delivered within the period stipulated in the order, the supplier shall be liable to pay at the discretion of the competent authority of the Purchaser, the liquidated damages to the Purchaser upto half percent per week or part of week Plus applicable taxes, if any on the price subject to a maximum of cumulative ceiling of 10% reckoned on the contract value of such complete portion or section of the plant, equipment or material delayed and also the portion supplied which could not be brought into commission due to any part thereof not having been delivered in time. Due consideration may be given in the levy of liquidated damages for reasons absolutely beyond the control of the supplier, for which documentary evidence shall be produced to the satisfaction of the competent authority of the Purchaser.

The Purchaser shall be entitled to deduct/recover the amount of liquidated damages from the current bill payable to the supplier or any other amount due or payable to him against this or any other contract.

For computing the liquidated damages for delayed supplies, the date of railway receipt or the date of receipt of materials at stores in case of road transport, shall be the date of delivery.

In case the Purchaser does not arrange for inspection of material within 20 days from the date of receipt of inspection call in its office, the period of more than 20 days will not be considered for levy of liquidated damages. For computing the period taken for inspection in such cases, the relevant date mentioned in the inspection certificate issued by the inspecting officer would be considered.

27.1 ORDER PLACED ON TIME PREFERENCE BASIS (WHEREVER APPLICABLE):

In case of order on time preference basis (i.e. orders given at higher rate on delivery period considerations only) if order is given at higher rate of L-2 (or L-3 etc.), then the payment at higher rates will be made provided the firm makes supplies within the stipulated time period. In case of delay in supplies, the payment will be made at the rates offered by L-1. In addition, Clause No. 27 above for Liquidated Damages for late delivery will also be applicable.

27.2 FORCE MAJEURE CLAUSE:

If, at any time, during the continuance of this contract the performance in whole or in part by either party of any obligation under this contract shall be prevented of delayed by reason of any war, hostility, acts of the public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restriction, strikes, lock-outs or acts of God (hereinafter referred to as “events”), provided notice of happening of any such eventuality is given by either party to the other within 21 days from the date of occurrence thereof, neither party shall by reason of such event, be entitled to terminate this contract nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance; and deliveries under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist, and the decision of the purchasing officer as to whether the deliveries have been so resumed or not, shall be final and conclusive, provided further that if the performance in whole or part of any obligation under this contract is prevented or delayed by reason of any such event for a period exceeding 60 days, either party may at its option terminate the contract PROVIDED ALSO that it the contract is terminated under this clause, the purchaser shall be at liberty take over from the contract at a price to be fixed by the purchasing Officer which shall be final all unused, undamaged and acceptable materials, bought out components and stores in course of manufacture in the possession of the contractor at the time of such termination or such portion thereof as the purchaser may deem fit accepting such material, bought out components and stores as the contractor may with the concurrence of the purchaser elect to retain.

28) ACCEPTANCE OF LOWER FORD RATE OFFERED IN SUBSEQUENT TENDER :

During contractual delivery period of supply , the quoted rates with PV / without PV shall remain the same , however for same specification of material if the rates will receive lower in another subsequent tender in extended period of contract then it is binding on the supplier to supply the same material at lower rate for balance quantity of material i.e. in case if price bid of next subsequent tender of similar technical specification is opened and FORD rate found lower than the ongoing contracts this FORD rate shall be made applicable for the balance quantity beyond contractual delivery period. Further the purchaser reserves the right to allow the supplier to deliver the quantity or otherwise beyond the contractual delivery period.

However other stipulations of clause No. 27 of Section-II i.e. Annexure-A will remain unchanged.

29) PERFORMANCE OF CONTRACT:

The Purchaser will not be in any way liable for non-performance either in whole or in part of any contract or for any delay in performance thereof in consequence of strikes, shortage, non-availability of raw materials, combination of labour or workmen or lockout, breakdown or accident to machinery or accidents of whatever nature, failure on the part of the railways to supply sufficient wagons to carry essential raw materials etc. and finished products from the stores, subject to the provision and stipulation made in condition No. 27 as stated above i.e. Liquidated damages for late delivery.

30) PERFORMANCE DEPOSIT: (Wherever applicable)

30.1 After the first consignment is effected and when the 100% payment thereof becomes due to the contractor, he will have to furnish contract performance deposit as mentioned in Clause 30.2 below for proper fulfillment of the contract for balance period of contract upto expiry of guarantee period.

30.2 The contract performance deposit shall be of an amount equal to 10% of the contract value and shall be paid by all the types of contractors. The Security Deposit paid by the contractor shall be refunded on furnishing the contract performance deposit within 30 days. The contract performance deposit shall be furnished in the prescribed form.

30.3 The contract performance deposit shall be refunded within 90 days from the date of expiry of the guarantee period of the equipment supplied. The purchaser shall not be liable to pay any interest or compensation to the contractor for retaining the deposit after the end of the said period.

30.4 The contract performance deposit is intended to secure the performance of the contract for guarantee period of the equipment supplied. However, it is not to be construed as limiting the damages stipulated in other clauses of the contract.

31) POWER OF ATTORNEY:

It will be obligatory on the supplier to communicate the revocation of Power of Attorney, if any, after submission of offer till the execution of contract failing which the act/s & action done by the agent/representative shall be deemed to be the valid act/s & action of the tenderer/ supplier.

32) JURISDICTION:

Any disputes or difference arising under, out of or in connection with this tender or contract if concluded, shall be subject to the exclusive jurisdiction of the “Courts” in Mumbai.

33) TERMINATION OF CONTRACT :

1) The decision of the Purchaser shall be final as regards the acceptability of the stores supplied by the supplier and the Purchaser shall not be required to give any reason in writing or otherwise at any time for the rejection of the stores/materials.

2) In case the contractor/supplier fails to deliver the stores/material or any consignment thereof within the contracted period of delivery or in case the stores/materials are found not in accordance with the prescribed specification , approved samples and the performance of the supplied material is not found satisfactory, the Purchaser shall exercise in discretionary power either,

(a) to purchase from elsewhere, after giving due notice to the contractor, at the risk of contractor, such stores/material not so delivered or other of similar description, without canceling the contract in respect of consignment not yet due for delivery,

OR

(b) to cancel the contract reserving Purchaser's right to recover damages Plus GST as may be applicable.

(c) notwithstanding that the powers under (a) and (b) referred above are in addition to the rights and remedy available to the Purchaser under the General Law of India relating to contract.

(d) Purchaser reserves right to recover damages against risk purchase or 10 % value of non-supplied material plus applicable taxes, if any whichever is higher.

In the event of risk purchase of stores of similar description, the option of the Purchaser shall be final. In the event of action taken under (a) or (b) above, the supplier shall be liable for any loss which the Purchaser may sustain on that account but the supplier shall not be entitled to any saving on such purchases made against default.

3) Further contract can be terminated in case of sub-standard /poor quality material.

34) SUSPENSION OF THE SUPPLIER:

During the execution of the supply if the events as under happens then the supplier shall be suspended:-

a) If the enquiry conducted by CBI or any other investigating Agency and recommended for suspension.

b) If the Purchaser finds the offense of moral turpitude committed by the supplier.

c) If it is found that supplier has attempted some irregular/illegal activities to gain the order.

35) REMOVAL FROM LIST OF REGISTERED VENDORS:

In the event of disqualification, as the case may be, the bidder will be de-listed for that particular item/s from the list of registered vendors of MSEDCL's e-tendering system for the disqualified period. On expiry of disqualified period the bidder, if he desires, shall have to register again after following the prevailing registration process.

36) TAX DEDUCTED AT SOURCE:

The purchaser shall deduct tax at source in accordance with the provisions of the GST laws as and when the same is notified

NOTES:

(i) In respect of Micro, Small and Medium Enterprises, best efforts will be made for payment within 45 days from date of submission of invoice along with requisite documents after the delivery of entire lot. However, no claim for interest will be entertained in case of delay in payment beyond 45 days. The Micro, Small and Medium Enterprises who are ready to accept this payment term may only quote. No dispute in this regard will be entertained.

(ii) After completion of order, the claims of whatsoever nature lodged after 30 days from the last date of payment will not be entertained.

SECTION – III [SPECIAL TERMS AND CONDITIONS]

The following special terms and conditions shall be forming part of tender documents. In case following terms and conditions are deviating from the relevant clauses of Instructions to Tenderers (Section-I), Conditions of Tender and Supply (Section-II) the terms and conditions specified in this section and Technical Specification shall prevail. The offers not complying with the terms and conditions of this section shall be rejected.

1. SUBMISSION / SUPERSCRIBING OF THE TENDER DOCUMENTS

Clause XXII (C) of Invitation To Tender And Instructions To Tenderers (Section I) of the tender documents is modified to read as under:

XXII (C) Part III :

Documents like type test reports, accreditation certificates etc. including various Schedules of Technical Specification (other than GTP) shall be submitted by scanning these documents on CD media (2 copies) only and original Annexure U-I/ Annexure U-II is to be submitted to E.E.(NSC) in the sealed envelope.

2. QUALIFYING REQUIREMENT:-

I] Offers of only original manufacturers of LT AC Static Energy Meter shall be accepted against the Tender.

II] The following qualifying requirement shall be fulfilled by the bidders / manufacturers.

(a) The turnover in any one of the last three financial years shall be 60% of estimated cost of the tender or Rs. 100 Cr. whichever is higher.

(b) The bidder / manufacturer shall have supplied 12.5 Lakhs static meter during the last three financial years.

(c) The bidder / manufacturer shall have minimum experience of three years of supply or manufacturing for static meter upto the end of the last financial year.

III] The offers of Indian subsidiary company, whose parent company is located abroad fulfilling the qualifying requirements, shall be considered provided the Indian participant subsidiary company fulfils the minimum experience of three years of supply or manufacturing of static energy meters up to the end of the last financial year. Further, the conditions of turnover (i.e. Rs. 100.00 Crores or 60% of estimated cost of tender whichever is higher) during any one of the last three financial years and supply of minimum quantity of 12.50 Lakhs static energy

meter during last three financial years can be fulfilled by the parent company located in abroad on behalf of their Indian subsidiary company. The parent company shall furnish undertaking for accepting responsibility for supplying quality meter as per specifications and execution of the contract on behalf of its India based subsidiary unit who has participated in the tender in Annexure U-I.

IV] In case of offers of foreign bidders / manufacturers, they shall fulfill Qualifying Requirement as per Sr. No. 2.00 [I] and 2.00 [II] above.

V] The offer from any one of Indian Manufacturing Companies which are sister companies of the same group and with the same management having common Directors and majority share holders shall be considered provided they are jointly fulfilling the qualifying requirements as per Sr. No.(I) and (II).

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

a) The meter shall bear ISI mark.

b) ISO 9000.

c) ISO 14000.

VII] The participating firm should have 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.

VIII] The participating firms have to submit Capability Maturity Model Integration (CMMI Level – III) certificate along with offer.

IX] The participating firms have to submit R & D certification from Department of Science and Industrial Research (DSIR) along with offer. However, those firms which are not having R & D certification but have applied for R&D Certification to Department of Science and Industrial Research (DSIR), they shall submit this certificate before opening of Commercial Bid (Price Bid) of subject tender. Non submission of DSIR Certification before opening of Commercial Bid (Price Bid) from bidders, their offer shall not be considered for further evaluation.

3. DELIVERY REQUIREMENT:

Total order quantity shall be delivered within one month from the date of Letter of Award in one lot.

4. CONTRACT PERFORMANCE DEPOSIT:-

Clause 30 of Annexure `A' [Section-II] i.e. contract performance deposit is applicable.

5. PAYMENT OF BILL:

First paragraph of Clause No. 22 i.e. Payment of Bills of Annexure 'A' i.e. Conditions of Tender and Supply (Section II) is modified to the extent as under :

100% payment of the Contract price of supply items will be paid by RTGS/NEFT/A/c payee cheques within **60** days from the date of receipt of material in stores in good condition, against inspected lot quantity. However, in respect of only those entities which qualify for 45 days payment period under the Micro, Small, Medium Enterprises Development Act, 2006, **100%** payment of the Contract price of supply items will be paid by RTGS/NEFT/A/c payee cheques within **45** days.

6. GUARANTEE:

First sentence of Clause 25 of Annexure `A' [Section-II] stands modified to as follows:

For Meter:

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

For HHU :

" The supplier shall have to give 5.5 years guarantee of the HHU from the date of supply to MSEDCL."

However, other stipulations of clause 25 of Annexure-A will remain unchanged.

7. ADDITIONAL TERMS AND CONDITIONS FOR FOREIGN BIDDERS/MANUFACTURERS

A) In case of foreign bidders/manufacturers, they shall fulfill Qualifying Criteria as per Clause 2[I] and 2[II] of Section-III i.e. (Special terms and conditions).

B) Other terms and conditions applicable to the foreign bidders/ manufacturers are as under:

i. Offer:

The offer shall be submitted by foreign bidder/manufacturer directly or through their authorized Assignee/Nominee. However the order shall be placed on the said

foreign bidder/manufacturer. In case offer is from Authorized Assignee/Nominee in India, the undertaking as per Annexure U-II for appointment of Authorized Assignee/Nominee shall be submitted by foreign bidder/manufacturer.

ii. Taxes and Duties:

The foreign supplier shall be solely responsible for payments of all expenses incurred outside India and payments of charges incurred in India up to the destination store of MSEDCL including any or all taxes, fees or other charges and related expenditure for Assessable Custom Duty, Transport cost from port of entry to Destination Stores, inland insurance, other incidental charges, service tax, wharfage, demurrages, warehousing charges and so on imposed by any statutory and/or Governmental Authority for importing meters.

iii. Custom Clearance:

The supplier shall be solely responsible for custom clearance either by its own or through its authorized Assignee/Nominee. The supplier shall ensure the availability of required documents for speedy custom clearance. If the cargo clearance gets delayed on account of non availability of required documents or any other reason the damages if any shall be borne by the supplier. MSEDCL will provide necessary documents for custom clearance in accordance with prevailing rules as and when requested by successful bidder.

iv. The quantity to be delivered to the consignee i.e. store destination may not be necessarily in full wagon load/ truck load/container load and it may be part load as per purchasers requirement.

v. Terms of Payment:

Standard payment clause no. 22 of Section-II modified as per Cl. No. 5 of Section-III shall be applicable. However cheques may be drawn in favour of Assignee/Nominee if desired by the foreign supplier.

vi. Pre dispatch inspections of the material at the Factory shall at the discretion of the Purchaser.

vii. Earnest Money Deposit (EMD):

Earnest Money Deposit as per Clause No. XX of invitation to tender and instruction to tender (Section-II) shall be paid by foreign bidders/ manufacturers or their authorized Assignee/Nominee.

viii. Security Deposit:

Security Deposit as per Clause No. 2 of Annexure-'A' i.e. conditions of tender and supply (Section-II) shall be paid by foreign bidders/ manufacturers or their authorized Assignee/Nominee.

ix. Contract Performance Deposit :

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

All other terms and conditions, technical specifications of tender document shall be applicable. Wherever above conditions overlap with conditions of tender document then conditions modified to the extent above shall prevail.

ANNEXURE U-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 (Stores),
Maharashtra State Electricity Distribution Co. Ltd.,
Prakashgad, Bandra (E),
Mumbai – 400 056.

Dear Sir:

Sub: - Undertaking against Tender _____ for procurement of _____

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 meter 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,

(Authorised Signatory)

FOR _____

ANNEXURE – U-II
FORM OF AUTHORISED NOMINEE/ASSIGNEE

(To be submitted on the letter head of the foreign Bidder/Manufacturer)

Date:

To,
Maharashtra State Electricity Distribution Co. Ltd.
Central Purchase Agency
1st Floor, Prakashgad, Plot No. G-9,
Bandra (East) Mumbai – 400 051.
India

Subject:- 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,

Your's Faithfully,

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

(Name)

(Designation)

Maharashtra State Electricity Distribution Company Limited

Plot No. 9 Prakashgad, First Floor, Station Road, Bandra (East), Mumbai - 400 051

(SECTION IV)

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

(...In addition to Tender and other conditions and relevant Law)

1. Scope:

1.1 MSEDCL reserves its right to debar any Agency from any business dealings with it, if such Agency is found to have committed deception, fraud or misconduct or any other act which is not in the interest of MSEDCL in the execution of contracts awarded or any of its action(s) fall into any such categories as laid down in this policy.

1.2 The provisions of this policy will be effective on investigations conducted or misconduct/irregularities noticed on the part of any Agency in all contracts awarded on or after the date of implementation of this policy.

2. Definitions:

In this policy, unless the context otherwise requires:

2.1 **Agency** shall mean Contractor / Supplier / Purchaser / Bidder/ Vendor/ MSEDCL approved sub-contractor of a Contractor to whom work has been awarded. It shall include, but not limited to, a public limited company or a private limited company, a firm whether registered or not, a proprietorship, any individual, a cooperative society or an association or a group of persons engaged in any commerce, trade, industry, or constituents of an unincorporated Joint Venture Company, etc.

2.2 **Bid/ Tender** shall mean an offer, proposal or quote for goods, services or works in response to solicitation issued for such goods, services or work by MSEDCL.

2.3 **'Competent Authority' and 'Appellate Authority'** shall mean the following :-

For Purchase Order (LOA) value up to & below 10 Cr., the Director Project / Director Operation shall be the 'Competent Authority'. The Chairman & Managing Director (CMD) shall be 'Appellate Authority' in respect of such cases.

For Purchase Order (LOA) value above 10 Cr., the Chairman & Managing Director (CMD) shall be the 'Competent Authority'. The Board of Directors shall be the 'Appellate Authority' in respect of such cases.

2.4 **'Enquiring Committee'** (EC) shall mean the following;-

The Committee comprising Chief Engineer (MM Cell), Chief General Manager (I/A) and Chief Legal Advisor shall be the Enquiring Committee

2.5 **Debarring; -** Business dealings with an agency may be debarred if it is considered not desirable to continue the business with the agency. It means action taken by the Competent Authority / Appellate Authority pursuant to this policy prohibiting agency from directly or indirectly performing any work for or otherwise participating in MSEDCL bid / tender including to prohibit agency from submitting a bid, having a bid considered, or entering into any work / contract during a specified period of time as set forth in debarment order.

2.6 '**Purchase Order Issuing Authority (LOA)' & 'Vender Approving Authority(VA)':** Shall mean the person(s) designated to act for and on behalf of MSEDCL for the discharge of his duties in execution of the Work / Project / Job / Role, and shall include but not limited to the Regional Director(s), Executive Director(s), Chief Engineer(s), Superintending Engineer(s), Executive Engineer(s), etc.

3. Grounds for Debarring:

3.1 Debarring from business dealings can be initiated against the Agency if involved or committed any of the following misconduct / irregularities:

a) The Directors, Proprietors, Partners, Employee(s) or owner of the agency have been either jointly or severally guilty of malpractices such as fraud including but not limited to submission of fake or forged documents / certificates / guarantees, substitution of tenders, etc. in relation to its business dealings with the Government or MSEDCL, during the last five years.

b) The business dealings with the agency have been debarred by any Ministry of GoI / GoM / State owned electricity distribution utility and still in force.

c) The agency is found to have been in default in paying any dues resulting in incurring financial loss to the MSEDCL by virtue of an order and/or direction of any Statutory Authority or Court or Arbitration, etc. for making such payment in respect of the agency concerned.

d) The agency is repeatedly found to be non performing in execution of 3 (three) or more contracts and / or in rectification of critical / major defects pointed out by MSEDCL or any person authorized by MSEDCL, in last 5 (five) years.

The grounds given above are only illustrative and not exhaustive. The Competent Authority may decide to debar an Agency according to the seriousness of the ground.

3.2 a) The Competent Authority shall decide depending upon the level of severity in defaults from the agency, the period of debarring. In case of major lapses and a criminal or fraudulent type of issues involved therein, the First Information Report (FIR) to Police Department shall be lodged.

b) If any one or more Partner / Directors of any debarred Agency firm promotes or forms a new contracting firm or a sister-concern firm of the said debarred Agency, then it shall also be considered as a debarred firm.

4. Competent Authority (CA) and Appellate Authority (AA) for Debarment:

Considering the above mentioned grounds for Debarring from business dealings can be initiated against the Agency, after due scrutiny by the Purchase Order issuing authority (LOA) or Vender Approving Authority (VA) and shall serve upon the 'Show Cause Notice' for Debarring of the Agency after termination of contract is effected. For the purpose of debarment, the powers delegated to the following designated officers of MSEDCL as Competent Authority (CA) and as Appellate Authority (AA) for debarring of business dealings with the accused Agency.

Sr. No.	Purchase Order Issuing Authority (LOA) & Vender Approving Authority (VA)	Enquiring Committee (EC)	Competent Authority for Debarring (CA)	Appellate Authority for Debarring (AA)
1	Orders from Corporate Office	For orders below Rs. 10 Cr.	Director(Project) / Director (Operation)	Chairman & Managing Director (CMD)
		For orders above 10 Cr.	Chairman & Managing Director (CMD)	BOARD OF DIRECTORS

5. Powers of Competent Authority and Appellate Authority:-

a) To investigate the matter in connection with the allegation of corrupt, fraudulent, coercive or collusive practices or illegal practice of agencies;

b) To ensure timely and expeditious disposal of proceedings of debarment;

c) Seek advice or opinion on specific issues.

6. Procedure:

The Purchase Order Issuing Authority (LOA) or Vendor Approving Authority (VA) of the concerned department on noticing any misconduct and / or irregularities as mentioned in clause 3.1 above, shall serve upon the 'Show Cause Notice for Debarring' after termination or closing of contract(s) stating therein the facts / reasons containing the allegation of misconduct or irregularities and the period of 14 days will be afforded to the agency to present their statement / submission in the form of reply in response to Show Cause Notice. In the event, non receipt of reply from the agency within the stipulated period, action as proposed will be proceeded with and no representation / submissions thereafter will be accepted. The copy of service return of notice will be kept and a confirmatory document through electronic mode is sine qua non.

a. The Purchase Order Issuing Authority (LOA) or Vendor Approving Authority (VA) shall submit the duly recommended detailed proposal of debarring of Agency to the Competent Authority (CA) along with Show cause notice and reply, if any and para-

wise justification to the reply to the Show Cause Notice submitted by the Agency, if any for consideration and order.

b. The Competent Authority (CA) shall scrutinize the proposal and depending on merit of the case and after examining the material on record shall decide to proceed for enquiry or to close the case. In the event of exoneration of the Agency from debarring, the decision shall be conveyed to LOA or VA issuing authority and subsequently it shall be informed to Agency.

c. If the Competent Authority (CA) arrives at the decision to proceed in the matter, then the complete case shall be handed over to the Enquiring Committee (EC). The Enquiring Committee shall in detail examine the materials on record, conduct the hearing and decide the case as per the principle of natural justice.

   During the process of hearing, only the authorized representative of Agency will be permitted to represent the Agency and no Legal practitioner / Advocate shall be allowed to plead the case on its behalf.

d. The Enquiring Committee shall submit its Report along with detailed findings within 30 days to the Competent Authority (CA).

   The Competent Authority (CA) shall pass an appropriate order after examining the material on record.

e. The decision of the Competent Authority (CA) shall be in the form of Reasoned Order, the period for which the debar would be operative shall be mentioned in the order and the same shall be communicated to the LOA or VA issuing authority.

f. The Purchase Order Issuing Authority (LOA) or Vendor Approving Authority (VA) shall then communicate the decision of debarring of business dealings along with the order of Competent Authority (CA) to the Agency.

g. The procedure for debarring shall be completed within a period of three months from initiation of case by concerned authority.

The Reasoned Order will be communicated to the agency at its recorded address available with MSEDCL within 15 days of order issued by Registered post. In addition to it, the copy shall preferably be sent on the registered Email address of the Agency.

7. Period of Debarment:

The period for which an agency is debarred shall be clearly mentioned in the order. Period of debarment of business dealings shall be decided by the Competent Authority in exercise of its power delegated and would depend upon the seriousness of the cause. Debarment shall be up to the maximum period of five (5) years.

Provided further that in case the information / documents submitted by the agency is found to be false / forged at any point of time, MSEDCL shall have a right to recover from the agency the cost incurred in carrying out physical assessment for establishing veracity of such information / document including a penalty decided by the Enquiring Committee. If the agency fails to reimburse such cost and penalty to MSEDCL, the debarment period of the agency may be extended by the Enquiring Committee which shall not in any case exceed more than two (2) years but in any cumulative period for

debarring the Agency shall not exceed five (5) years, in exceptional cases such period shall be up to five (5) years and the cumulative period for debarring of agency in such cases shall not exceed ten (10) years.

8. Consequences of Debarment:

Upon issuance of the order of debarment of an agency from future business dealings with MSEDCL, the debarred agency along with its Joint Venture Partner Firm shall not be allowed to participate in any future tender/s, during the debarred period. Further, in case the agency has already participated in the tender process and the price bid is not opened prior to issuance of the order of debarment of business dealings, its Techno Commercial Bid shall be rejected and Price Bid shall not be opened.

In the event the Price Bid of the participating agencies has been opened and the agency against whom the order of debarment of business dealings has been issued, the bid of the debarred agency shall be rejected even if he is found to be successful bidder, considering the agency as disqualified.

Provided the order of debarment of business dealings issued against any agency shall not override the rights of the debarred agency already engaged in executing any other contract(s) till its completion.

9. Withholding:

The Competent Authority (CA) may, depending on the severity of the case, withhold the business dealing with the agency till the report given by the Enquiring Committee from the date of initiation of proposal of debarring.

10. Appeal against the Debarment Order:

a. The Agency, aggrieved by the order of debarment, may prefer an appeal before the Appellate Authority (AA), against the order of the Competent Authority (CA) specifying the grounds of appeal along with necessary documents.

b. Such appeal shall be filed within one month from the date of receipt of the order of debarment of business dealing. The agency shall represent their case through authorized representative of its agency, and no service of legal practitioner shall be adopted.

c. Purchase Order Issuing Authority (LOA) or Vendor Approving Authority (VA) shall submit all the original papers of the debar case to Appellate Authority (AA), along with the justification on points raised in appeal by debarred Agency.

d. Appellate Authority shall admit the appeal and decide the appeal within 45 days from the filing of appeal. The agency may file any additional document/evidence before the Appellate Authority, if Appellate Authority permits.

e. Appellate Authority shall pass appropriate Reasoned Order on appeal and communicate decision to the Purchase Order Issuing Authority (LOA) or Vendor Approving Authority (VA) through the Competent Authority (CA). LOA or VA Issuing Authority will then communicate appeal order to the Debarred Agency.

No appeal will lie to the Appellate Authority against the final order of the competent authority pursuant to the written consent of the agency.

Awaiting the decision of the competent authority, the debarring order passed by the competent authority shall remain effective till Appellate Authority takes a final decision in the matter.

The order of the Appellate Authority is final and binding.

11. Revocation of Debarment Order :

The order for debarment passed for certain specified period shall be deemed to have been automatically revoked on expiry of the specified period and it will not be necessary to issue a specific formal order of revocation.

An order of debarment for the reasons mentioned above may be revoked if accused has been wholly exonerated by Court of Law.

12. Interpretation :

The competent authority shall be responsible for the administration, interpretation, application and revision of this policy. The policy will be reviewed as and when needed.

13. Post Debarment Action:

The Competent Authority (CA) will ensure the following;

a) Hosting at MSEDCL Website: The name of the Agencies with whom Business Dealings have been debarred shall be hosted at MSEDCL website by HO-IT Department, after confirmation of Debarment of the Agency.

b) The Competent Authority shall ensure that the names of the debarred agency along with the names of Director, JV Partner, Owner of the debarred Agency is displayed on the MSEDCL website.

c) The cancellation is activated for Online Login for e-Tendering website of MSEDCL for the debarred Agency Firm during the period of debarment.

d) Copy of the order of debarring of the Agency shall be conveyed to all Utilities in India and Financial Institutions viz. REC, PFC, etc. and Ministry of Power of both GOM and GOI.

14. AMENDMENTS :

MSEDCL may introduce modification thereto through the amendment of its specific provision as the need arises and the amendment to this policy shall be applicable to the ongoing contract as well future contract.

Annexure 'B'(Price Schedule)

Sr.No	Item Code	Material Description	Unit	Quantiy Required	Quantity Offered	Unit Ex-Works including packaging charges but excluding duties & taxes etc (In Rupees)	Freight Charges Per Unit (In Rupees)	Transit Insurance Charges Per Unit (In Rupees)	Integrated GST for outside State Transaction on (Ex-Works Price+Freight Charges + Transit Insurance Charges)(In Rupees)	Central GST for within State Transaction on (Ex-Works Price + Freight Charges + Transit Insurance Charges)(In Rupees)	State GST for within State Transaction on (Ex-Works Price + Freight Charges + Transit Insurance Charges)(In Rupees)	Free Door Delivery Price Per Unit by Road upto Destination/Stores/Sub Station (In Rupees)	Quoted
1	2	3	4	5	6	7	8	9	10	11	12	13=(7+8+9+10+11+12)	14
1	77001114794	THREE PHASE 4 WIRE CTPT OPERATED 1A OR 5A FULLY STATIC AMR COMPATIBLE 4 QUADRANT TOD TRIVECTOR ENERGY METER WITH AVAILABILITY BASED TARIFF (ABT) FEATURE .	NO	300.00									

Delivery Details

[Delivery must in the units specified for the items as per Price Schedule]

First lot of ___ in assorted sizes will be delivered within __ Months from the date of Letter of Award.After this period supply will be completed at the rate of ___ in assorted sized per month

Confirmation Details

We Confirm The Following :

I) Goods and Services Tax(GST) i.e Integrated GST / (Central GST+ State GST):

The GST is included in our prices quoted in price bid (Central GST+ State GST) for within Maharashtra State/Integrated GST for outside State and we shall not charge any additional amount towards Integrated GST / (Central GST+ State GST), during currency of contract except statutory variation by Central / State Government in normal (full) rate of Integrated GST / (Central GST+ State GST), in case of Integrated GST / (Central GST+ State GST) Rate is increased. In case the Integrated GST / (Central GST+ State GST) is decreased than the rate indicated in the price bid, the benefits of the reduction in the Integrated GST / (Central GST+ State GST) shall be passed on to the Purchaser.The increase in the Integrated GST / (Central GST+ State GST) rate due to increase in turnover during the contractual delivery period shall not be charged to the Purchaser .If the Integrated GST / (Central GST+ State GST) is not payable at present,we shall not charge the same, if it becomes applicable during the currency of contract due to expiry / withdrawal of tax concessions and incentives during the currency of contract except for statutory variation by Central / State Government.

As per the provision of GST Rules Harmonized System of Nomenclature(HSN) code _____ .For outside State- Normal (full) rate of Integrated GST applicable is ___ % / For within Maharashtra State- Normal (full) rate of (Central GST + State GST) applicable is (CGST _____% + SGST ____%) = _____%.

(i) Necessary documentary evidence for the GST claimed by us shall be submitted along with the bills.

(ii) We here by declare that while quoting the price in the Price Bid, we have taken into account the entire credit on inputs available under the GST Act.

Technical Specification
Item:THREE PHASE 4 WIRE CTPT OPERATED 1A OR 5A FULLY STATIC AMR COMPATIBLE 4 QUADRANT TOD TRIVECTOR ENERGY METER WITH AVAILABILITY BASED TARIFF (ABT) FEATURE . Version:4 (77001114794)

MATERIAL SPECIFICATIONS CELL

TECHNICAL SPECIFICATION

THREE PHASE FOUR WIRE CT / PT OPERATED 1 AMPS OR 5 AMPS FULLY STATIC AMR COMPATIBLE FOUR QUADRANT TOD TRI - VECTOR ENERGY METER AS PER CATEGORY "B" OF IS: 15959/2011 (WITH LATEST AMENDMENTS) WITH AVAILABILITY BASED TARIFF (ABT) FEATURE

MAHAVITARAN
Maharashtra State Electricity Distribution Co. Ltd.

TECHNICAL SPECIFICATION NO.

CE/QC-T/MSC-II, DATE: 09.01.2019 (REVISED 11.06.2019)

TECHNICAL SPECIFICATION OF 3 PHASE 4 WIRE CT / PT OPERATED 1 AMPS OR 5 AMPS FULLY STATIC AMR COMPATIBLE FOUR QUADRANT TOD TRI - VECTOR ENERGY METER AS PER CATEGORY B OF IS 15959/2011(WITH LATEST AMENDMENTS) WITH AVAILABILITY BASED TARIFF (ABT) FEATURE

INDEX

1.00 SCOPE:

This specification covers design; manufacture, testing, supply and delivery of ISI mark HT three phase four wire CT / PT operated 1 Amps or 5 Amps fully Static & AMR compatible Four Quadrant TOD Tri - vector Energy Meter as per Category B of IS: 15959 / 2011 and with latest amendments with ABT feature. The meters shall be suitable for measurement of import & export energies and demand as per Power and ABT tariff requirement for AC balanced / unbalanced loads.

The meter 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 purchaser, who will interpret the meaning of drawings and specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered material shall be complete with all components necessary for their effective and trouble free operation. Such components shall be deemed to be within the scope of Bidder's supply irrespective of whether those are specifically brought out in these specifications and / or the commercial order or not.

2.00 APPLICATION

HT Consumer's Installations (For open access consumer) / CPP / IPP / Co – Generation / Wind Mill/ Solar Generation or as an Interface Meter

SERVICE CONDITIONS

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

Environmental Conditions:

(a) Maximum ambient temperature	55^0 C
(b) Maximum ambient temperature in shade	50^0 C
(c) Minimum temperature of air in shade	5^0 C
(d) Maximum daily average temperature	40^0 C
(e) Maximum yearly weighted average temperature	32^0 C
(f) Relative Humidity	10 to 95 %
(g) Maximum Annual rainfall	1450 mm

(h) Maximum wind pressure	150 Kg/m^2
(i) Maximum altitude above mean sea level	1000 mtrs
(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.

3.00 STANDARD TO WHICH METER SHALL COMPLY:

IS: 15959 / 2011 (amended upto date) – Data Exchange for Electricity Meter Reading, Tariff and Load Control – Companion Specification for Category – "B" Meters;

IS: 14697 / 1999 (amended up to date) – AC Static Transformer operated Watt-hour and VAR-hour Meters, Class 0.2S – Specification;

Amended CBIP Tech Report 325 for AC Static Transformer operated Watt Hour & VAR-Hour Meters (class 0.2S);

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

CEA regulations and MERC guidelines with latest amendments.

The specifications given in this document supersedes the relevant clauses of IS: 14697 / 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 standards mentioned above, also shall be considered.

In case the bidder wishes to offer material conforming to the other authoritative standards, salient points of difference between the standards adopted and the specific standards shall be clearly brought out in relevant schedule.

Copy of such standards with authentic English Translations, shall be furnished along with the offer.

In case of conflict related with communication protocol, the IS: 15959 / 2011 – Data Exchange for Electricity Meter Reading, Tariff and Load Control – Companion Specification shall prevail upon.

For conflict related with other parts of the specification, the order of priority shall be – (i) this technical specification, (ii) IS: 14697 / 1999 (Amended up to date), (iii) IEC, (iv) other authoritative standards

In case of any difference between provisions of these standards, the provisions of this specification shall prevail.

4.00 GENERAL TECHNICAL REQUIREMENT:

1)	TYPE	Three Phase, Four wire CT / PT operated 1 Amps or 5 Amps fully Static & AMR compatible Four Quadrant TOD Tri - vector Energy Meter as per Category B of IS: 15959 / 2011 and with latest amendments with ABT feature
2)	FREQUENCY	50 Hz ±5%
3)	ACCURACY CLASS	0.2S (for Active Energy 0.2S and for Reactive Energy 0.2S)
4)	PT SECONDARY VOLTAGE	63.5 V Ph-N
5)	RATED VOLTAGE	110 V Ph-Ph or 63.5 V Ph-N
6)	VOLTAGE RANGE	+20% to – 40% of rated voltage.
7)	PT RATIO	$\frac{11}{\sqrt{3}}$ kV/$\frac{110}{\sqrt{3}}$ V
8)	CT RATIO	1 / 1 Amps; 5 / 5 Amps
9)	BASIC CURRENT (I_b)	1 Amp; 5 Amps.
10)	MAXIMUM CONTINUOUS CURRENT (I_{max})	2 times (200 %) of Ib.
11)	SHORT TIME CURRENT	As per IS: 14697 / 1999.
12)	STARTING CURRENT	0.1% of Ib.
13)	POWER CONSUMPTION	The active and apparent power consumption, in each voltage circuit, at reference voltage, reference temperature and reference frequency shall not exceed 1 W and 4 VA. The apparent power taken by each current circuit, at basic current Ib, reference frequency and reference temperature shall not exceed 2 VA.

14)	POWER FACTOR	Power Factor range: Zero Lag to unity to Zero Lead to unity Avg. P.F = $\frac{\text{Total(kWh)}}{\text{Total (kVAh)}}$ For both Import & Export mode, $kVAh = \sqrt{(Kwh)^2 + (RKVAhlag + RKVAhlead)^2}$ **PF shall be up to 3 decimal.**
15)	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 (0.02 class) software based test bench.
16)	POWER SUPPLY	SMPS
17)	ISI MARK	The meter shall bear ISI Mark
18)	TEMPERATURE	The standard reference temperature for performance shall be 27^0 C. The mean temperature co-efficient shall not exceed 0.03%.
19)	POWER SOURCE	Meter shall be auxiliary powered. The same shall be of range 60-240V AC/DC (± 20 %) or 88-260 V AC/DC (± 20 %).

5.00 CONSTRUCTION:

5.01 The meter shall be projection type suitable for mounting on plane vertical surface, dust and moisture proof.

The meter base shall be opaque & meter top cover shall be transparent. Meter base and cover shall be made out of unbreakable, high grade, fire resistant Polycarbonate material so as to give it tough and non-breakable qualities. The meter body shall be type tested for IP51 degree of protection as per IS: 12063 against ingress of dust,

moisture & vermin. The meter cover shall be secured to base by means of sealable unidirectional captive screws.

NOTE: The meter shall be strictly wall mounted type with front side connections. Panel type meters having rear side connections shall not be accepted.

5.02 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 PUB 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.

5.03 To meet the requirement of terminal connection arrangement, the moulded single terminal block for current & voltage connections shall be provided as per IS: 14697 / 1999 (amended up to date). The termination arrangement shall be provided with an extended type transparent terminal cover, sealable independently at the bottom of meter approachable from front side to prevent unauthorized tampering. Proper size of grooves shall be provided at bottom of this terminal cover for incoming & outgoing service wires.

5.04 All insulating materials used in the construction of the meter shall be substantially non-hygroscopic, non aging and of tested quality.

5.05 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.

5.06 Independent sealing provision shall be made against opening of the terminal cover and meter body cover. It is necessary to provide unidirectional screws for meter body cover and bidirectional screws for terminal cover with two holes for sealing purpose.

5.07 The opaque Poly-carbonate base and transparent front cover of meter shall be ultra-sonically welded (continuous welding) so that once the meter is manufactured and tested at factory; it shall not be possible to open the cover at site except the terminal cover. The thickness of material for meter cover and base shall be 2 mm (minimum).

5.08 The terminal block, the terminal cover and the meter case shall ensure reasonable safety against the spread of fire. They shall not be ignited by thermal over load of live parts in contact with them.

5.09 The meter shall be completely factory sealed by providing minimum two (stickers / polycarbonate) seals at diagonally opposite positions except the terminal block cover. The provision shall be made on the

meter for at least two (sticker / polycarbonate) seals to be provided diagonally by utility. The terminal cover shall be transparent with one side hinge & sealing arrangement on both sides.

5.10 The Push button facility shall be provided for following functions, as brought out elsewhere in this specification.

(a) For TEST MODE (high resolution reading of display)

(b) For ON DEMAND MODE (UP & DOWN Scrolling): Separate two buttons must be provided.

(c) For INTERNAL BATTERY BACKUP (to read meter in case of Power failure)

(d) For MD RESET (with sealing arrangement): Separate independent button to be provided.

(e) For DISPLAY HOLD / UNHOLD (to lock required display parameter)

5.11 The 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 front. The test output device shall be provided only 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. 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 programmed according to primary values of voltage & current & shall be indelibly provided on the nameplate.

5.12 The meter accuracy shall not be affected by AC / DC magnetic field up to 0.2 Tesla on all the sides of meter i.e. front, sides, top and bottom of the meter as per CBIP publication No. 325 with latest amendments. Under influence of any magnetic field (AC / DC / Permanent) above 0.2 Tesla, if the accuracy of the meter gets affected, then the same shall be recorded as magnetic tamper event with date & time stamping. The energy recorded during such tamper shall be registered in a separate register in addition to main register.

5.13 The meter shall also be capable to withstand and shall not get damaged if phase-to-phase voltage is applied between phases & neutral for five minutes without affecting the accuracy.

5.14 In meter, power supply unit shall be micro control type instead of providing transformer and then conversion to avoid magnetic influence.

5.15 Non specified display parameters in the meter shall be blocked and it shall not be accessible for reprogramming at site.

5.16 Complete metering system 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 publication No. 325 with latest amendments.

5.17 Internal CTs, (if provided) are to be provided with magnetic shielding and they shall be tested separately prior to assembly by the meter manufacturer.

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

5.19 **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.

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

a) Hand Held Unit (HHU), Laptop Computer or Meter Testing Work Bench and this shall need password enabling for meter;

b) From remote server (MDAS) 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.

5.21 The meter shall withstand any type of High Voltage upto 35 kV 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:

(i) On any of the phases or neutral terminals

(ii) On any connecting wires of the meter (Voltage discharge with 0-10 mm spark gap)

(iii) At any place in load circuit.

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

5.22 **SELF DIAGNOSTIC FEATURES:**

5.22.1 The meter shall keep log in its memory for unsatisfactory functioning or non-functioning of Real Time Clock battery, also it shall be recorded and indicated in reading file at base computer software.

5.22.2 All display segments: "LCD Test" display shall be provided for this purpose.

5.23 **METERING PROTOCOL:**

The meter protocol shall be as per Annex E - Category B meters of IS: 15959 / 2011.

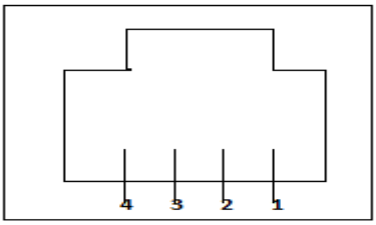
5.24 **COMMUNICATION CAPABILITY:**

The meter shall be provided with three ports for communication of the measured / collected data as per IS: 15959 / 2011, i.e. a hardware port compatible with RS-232 and 485 specifications of RJ - 11 type which shall be used for remote access through suitable Modem (GPRS / GSM / LPR and SCADA) and an Optical port complying with hardware specifications detailed in IEC – 62056 - 21. This shall be used for local data downloading through a DLMS compliant CMRI. RS-232 port or TCP / IP port as required on terminal block is also acceptable. Sealing arrangement for Optical & RS 232 port or TCP / IP port as required shall be provided.
All the ports shall be able to communicate simultaneously

The minimum requirements for RS-232 based systems are described below:

i. The interface shall meet all the requirements of RS-232 specifications in terms of Physical media, Network topologies, maximum devices, maximum distance, mode of operation, etc.

ii. RJ 11 type connectors have to be provided to easily terminate the twisted pair.



PIN DESCRIPTION

Pin No	Signal
1	RTS (Ready To Send)
2	Ground (GND)
3	Transmit Data (Tx)
4	Receive Data (Rx)

Sealing arrangement for Optical port, RS 232 port, RS 485 port or TCP / IP port as required shall be provided. All ports shall support the default and minimum baud rate of 9,600 bps. Necessary chord for Optical Port of minimum length of 2 metres per meter shall be provided free of cost.

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

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.

5.26 Wire / Cable less design:

The meter PCB shall be wireless to avoid improper and loose connections/ contacts.

5.27 The data stored in the meter 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.

5.28

i) The meter shall measure, record and display total kWh energy and fundamental energy separately in Import mode.
ii) The meter shall measure, record and display total kVAh energy and fundamental energy separately in Import mode.
iii) The meter shall measure, record and display total kWh energy and fundamental energy separately in Export mode.
iv) The meter shall measure, record and display total kVAh energy and fundamental energy separately in Export mode.

6.00 TOD TIMINGS:

There shall be provision for at least 8 (EIGHT) TOD time zones for energy and demand. The number and timings of these TOD time Zones shall be programmable by manufacturer only at site / factory.

At present the time zones shall be programmed as below:

TIME ZONE "A" … 00.00 to 06.00 hrs and 22.00 to 24.00 hrs.

TIME ZONE "B" … 06.00 to 09.0 0 hrs and 12.00 to 18.00 hrs.

TIME ZONE "C" … 09.00 to 12.00 hrs.

TIME ZONE "D" … 18.00 to 22.00 hrs.

7.00 DEMAND INTEGRATION PERIOD:

MD integration period shall be programmable upto 15 min with sub-inetegration period of 5 min with sliding window method.

8.00 MD RESET:

The meter shall have following MD resetting options.

i) Communication driven reset;

ii) Manual resetting arrangement with sealing facility;

iii) Automatic reset at the end of certain predefined period (say, start of the month (on first day at 00:00:00 Hrs) or end of the month (on last day at 24:00:00 Hrs)).

9.00 ANTI TAMPER FEATURES:

The meter shall detect and correctly register energy under following tamper conditions:

(a) 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.

(b) The meter shall continue to work even without neutral.

(c) The 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.

(d) If the accuracy of the meter gets affected under the influence of magnetic field more than 0.2 Tesla, then the same shall be recorded as magnetic tamper event with date & time stamping.

(e) The meter shall be capable of detecting and recording occurrences and restoration for reverse current of any one or two phases with date & time of occurrence and restoration

The meter shall be capable of detecting and recording occurrences and restoration for reverse current of any one phase w.r.t. two other forward phase or vice versa. The meter shall record energy

with current available in these phases and average voltage and unity power factor with date & time of occurrence and restoration**.**

The meter should have features to detect the occurrence and restoration of the following abnormal events:

Missing potential:

The meter shall be capable of detecting and recording occurrence and restoration with date and time the case of potential failure and low potential, which could happen due to disconnection of potential leads (one or two). If any of the three line to neutral voltages fall below 70% of reference voltage for continuous 5 minutes, the event shall be recorded with phase identification.

Potential Unbalance:

Meter shall also detect and log cases of voltage unbalance (10% or more for 5 Minutes.) with date & time. Higher of the 3 phase voltages shall be considered as reference for this purpose.

Current unbalance:

The meter shall be capable of detecting and recording occurrence and restoration with date and time of current unbalance. (30% or more for 15 minutes) Higher of the 3 phase currents shall be considered as reference for this purpose.

Current Reversal:

The meter shall be capable of detecting and recording occurrence and restoration with date and time of reversal of current in one or two phases with phase identification for persistence time of 5 minutes. It shall also possess a current reversal counter.

The meter shall be capable of detecting and recording occurrence and restoration with date and time of reversal of current in one phase **w.r.t. two other forward phase or vice versa. . The meter shall record energy with current available in reversed phase and average voltage and power factor of remaining two phases with phase identification with date and time of occurrence and restoration**. It shall also possess a current reversal counter.

Current Missing:

The meter shall be capable of detecting and recording occurrences and restoration of current below starting current value as a current missing event with phase identification for persistence time of 15 minutes. It shall also possess a current missing counter.

Power ON/OFF:

The meter shall be capable to record power ON/OFF events in the meter memory. All potential failure shall record as power off event. All power OFF events shall be recorded separately. This event shall not have any persistence time for occurrence, recovery & event persistence.

Low Power Factor:

The meter shall be capable of detecting and recording occurrences and restoration of LOW PF of 0.5 & below for lag / lead in import as well as export mode.

Neutral Injection:

Under influence due to injection of High frequency, High Voltage or High DC Voltage through neutral, if the accuracy of meter gets affected, then the meter shall record the same as tamper event with date & time.

Cover opening:

In the event the meter is forcibly opened, even by 2 to 4 mm variation of the meter cover, same shall be recorded as tamper event with date & time stamping and the meter shall continuously display that the cover has been tampered.

For above abnormal conditions, the recording of events shall be on FIFO basis. It shall be possible to retrieve the abnormal event data along with all related snap shots data by authorized personnel through the meter optical port with the help of CMRI or remote access through suitable communication network & downloaded the same to the base computer. All the information shall be made available in simple & easy to understand format.

9.01 TAMPER EVENTS

9.01.1 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

9.01.2 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

9.01.3 In the event the meter is forcibly opened, even by 2 to 4 mm variation of the meter cover, same shall be recorded as tamper event with date & time stamping as per table 37 of IS: 15959 / 2011 and the meter shall continuously display that the cover has been tampered

9.01.4 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

9.01.5 Tamper details shall be retrieved by authorized personnel through either of the following

i) CMRI
ii) Remote access through suitable communication network

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 un-restored events shall be recorded separately and shall not be deleted till they get recovered (permissible upto 3 months)

All the information of data shall be made available in simple & easy to understand format.

9.02 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)	< 70% of Vref and current in that phase is > 5% Ib	> 70 % 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
5.	CT Open.	Zero Amps in one or two phases and current in at least 1 phase is > 5% Ib for 15 minutes.	> 5 % Ib for 15 min in the tampered phase for 15 min.
6.	Current Unbalance. (Diff. of phase currents)	> 30 % Iref* for 15 min	< 30 % Iref* for 15 min
7.	Current Bypass	Bypass Current > 50 % Iref* for 15 min	Bypass Current < 30 % Iref* for 15 min
8.	Current Reversal	Immediate in case of reverse of any one phase w.r.t. two phases	Direction of all the currents are same.
9.	Over Current in any Phase	> 120 % I_b	< 120 % I_b
10.	Influence of permanent magnet or AC / DC electromagnet / permanent magnet	Immediate	1 minute after removal
11.	Neutral Disturbance	--	--
12.	Power failure	Immediate	Immediate
13.	Very Low PF	--	--
14.	Meter Cover Opening	(2 to 4 mm) Immediate	

		(Occurrence only)
* Higher of 3 phase currents shall be taken as reference for this purpose.		

*The energy meter shall capable to record & display all tamper with date and time stamping.

10.00 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:

a) Instantaneous Parameters such as phase and line voltages, currents, power factors, overall kVA, kW, kVAr, frequency etc as per details given in the table below and IS: 15959 / 2011 [AMENDED UP TO DATE].

b) Block Load Profile Parameters such as kVAh / kWh / kVArh (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 [AMENDED UP TO DATE].

c) Billing Profile Parameters such as cumulative energy kWh / cumulative kVAh / cumulative energy kVArh, etc. as per details given in the table below and IS: 15959 / 2011 [AMENDED UP TO DATE].

In addition to above the meter shall also record the Name plate details, programmable parameters (readable as profile), occurrence and restoration of tamper events along with the parameters (Table 30, 31 32, 33, 34, 35, 36, 37 & 39 respectively) of IS: 15959 / 2011 [AMENDED UP TO DATE].
Detail of category wise parameters requirement suitable for HT (CT / PT) boundary energy metering is given in following tables of IS: 15959 / 2011[AMENDED UP TO DATE].

Category B	Parameter group	Annexure Table No.
HT (CT / PT) ABT Energy Meters	Instantaneous parameters	24
	Block Load Profile parameters	25
	Billing Profile Parameters	26

	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

11.00 DISPLAY OF MEASURED VALUES:

11.01 DISPLAY INDICATORS

The supply indication shall be displayed permanently by LCD as a minimum and shall be visible from the front of the meter. In case of non available of voltage to any phase(s), the LCDs of that particular phase shall stop glowing or those particular indicator(s) shall start blinking on the LCD display of meter

11.02 Permanently backlit LCD panel shall show the relevant information about the parameters to be displayed. The corresponding non-volatile memory shall have a minimum retention time of 10 years.

In the case of multiple values presented by a single display it shall be possible to display the content of all relevant memories. When displaying the memory, the identification of each parameter applied shall be possible.

The principal unit for the measured values shall be the kilowatt-hour kWh for active energy, kVARh for reactive energy and kVAh for apparent energy

11.03 The meter shall have minimum 6 digits (with +/- indication), parameter identifier, permanently backlit LCD with wide viewing angle. The size of digit shall be minimum 8x5 mm. The decimal units shall not be displayed in auto scroll mode. However it shall be displayed in push button mode or alternate mode for high resolution display for testing. Auto display cycling push button is required with persistence time of 10 Seconds. LCD shall be suitable for temperature withstand of 70^0 C; adequate back up arrangement for storing of energy registered at the time of power interruption shall be provided.

11.04 INSTANTANEOUS PARAMETERS & DISPLAY OF MEASURED VALUES:

11.05 INSTANTANEOUS PARAMETERS

SR. NO.	PARAMETERS
1.	Real Time Clock – Date & 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.	Signed Power Factor – R Phase
9.	Signed Power Factor – Y Phase
10.	Signed Power Factor – B Phase
11.	Three phase power factor, PF
12.	Frequency
13.	Apparent Power, kVA-R Phase
14.	Apparent Power, kVA-Y Phase
15.	Apparent Power, kVA-B Phase
16.	Signed active power, kW (+ import; – export)- R Phase
17.	Signed active power, kW (+ import; – export)- Y Phase
18.	Signed active power, kW (+ import; – export)- B Phase
19.	Signed reactive power, kVAr (+ Lag; – Lead)- R Phase
20.	Signed reactive power, kVAr (+ Lag; – Lead)- Y Phase
21.	Signed reactive power, kVAr (+ Lag; – Lead)- B Phase
22.	Cumulative Energy, kWh (Import)
23.	Cumulative Energy, kWh (Export)

24.	Cumulative Energy, kVAh (Import)
25.	Cumulative Energy, kVAh (Export)
26.	Number of power failures.
27.	Cumulative power failure duration.
28.	Cumulative Tamper Count.
29.	Cumulative billing count.
30.	Cumulative programming count.
31.	Billing date

In addition to above parameters, phasor diagram shall be plotted invariably at the time of data retrieval.

11.06 DISPLAY PARAMETERS

S.N.	Default Display Mode
A	NORMAL DISPLAY (DEFAULT DISPLAY)
1.	LCD Test
2.	Meter Sr. No.
3.	Real Time Clock – Date & Time
4.	Cumulative Energy – kWh (Import)
5.	Cumulative Energy – kWh - TOD Zone A (TZ1) (Import)
6.	Cumulative Energy – kWh - TOD Zone B (TZ2) (Import)
7.	Cumulative Energy – kWh - TOD Zone C (TZ3) (Import)
8.	Cumulative Energy – kWh - TOD Zone D (TZ4) (Import)
9.	Cumulative Energy – kVArh - Lag (Import)
10.	Cumulative Energy – kVArh – Lag TOD Zone A (TZ1) (Import)
11.	Cumulative Energy – kVArh – Lag TOD Zone B (TZ2) (Import)
12.	Cumulative Energy – kVArh - Lag TOD Zone C (TZ3) (Import)
13.	Cumulative Energy – kVArh - Lag TOD Zone D (TZ4) (Import)
14.	Cumulative Energy –kVArh - Lead (Import)
15.	Cumulative Energy – kVArh – Lead TOD Zone A (TZ1) (Import)
16.	Cumulative Energy – kVArh – Lead TOD Zone B (TZ2) (Import)
17.	Cumulative Energy – kVArh - Lead TOD Zone C (TZ3) (Import)
18.	Cumulative Energy – kVArh - Lead TOD Zone D (TZ4) (Import)
19.	Cumulative Energy – kVAh (Import)
20.	Cumulative Energy – kVAh - TOD Zone A (TZ1) (Import)
21.	Cumulative Energy – kVAh - TOD Zone B (TZ2) (Import)
22.	Cumulative Energy – kVAh - TOD Zone C (TZ3) (Import)
23.	Cumulative Energy – kVAh – TOD Zone D (TZ4) (Import)

24.	Fundamental Cumulative Energy – kWh (Import)
25.	Fundamental Cumulative Energy kWh TOD Zone A (TZ1) (Import)
26.	Fundamental Cumulative Energy kWh TOD Zone B (TZ2) (Import)
27.	Fundamental Cumulative Energy kWh TOD Zone C (TZ3) (Import)
28.	Fundamental Cumulative Energy kWh TOD Zone D (TZ4) (Import)
29.	Fundamental Cumulative Energy – kVAh (Import)
30.	Fundamental Cumulative Energy kVAh TOD Zone A (TZ1) (Import)
31.	Fundamental Cumulative Energy kVAh TOD Zone B (TZ2) (Import)
32.	Fundamental Cumulative Energy kVAh TOD Zone C (TZ3) (Import)
33.	Fundamental Cumulative Energy kVAh TOD Zone D (TZ4) (Import)
34.	MD – kVA with occurrence date & time (Import)
35.	MD - kVA – TOD Zone A (TZ1) with occurrence date & time (Import)
36.	MD - kVA – TOD Zone B (TZ2) with occurrence date & time (Import)
37.	MD - kVA – TOD Zone C (TZ3) with occurrence date & time (Import)
38.	MD - kVA – TOD Zone D (TZ4) with occurrence date & time (Import)
39.	Cumulative Energy – kWh (Export)
40.	Cumulative Energy – kWh - TOD Zone A (TZ1) (Export)
41.	Cumulative Energy – kWh - TOD Zone B (TZ2) (Export)
42.	Cumulative Energy – kWh - TOD Zone C (TZ3) (Export)
43.	Cumulative Energy – kWh - TOD Zone D (TZ4) (Export)
44.	Cumulative Energy – kVArh - Lag (Export)
45.	Cumulative Energy – kVArh – Lag TOD Zone A (TZ1) (Export)
46.	Cumulative Energy – kVArh – Lag TOD Zone B (TZ2) (Export)
47.	Cumulative Energy – kVArh - Lag TOD Zone C (TZ3) (Export)
48.	Cumulative Energy – kVArh - Lag TOD Zone D (TZ4) (Export)
49.	Cumulative Energy –kVArh - Lead (Export)
50.	Cumulative Energy – kVArh – Lead TOD Zone A (TZ1) (Export)
51.	Cumulative Energy – kVArh – Lead TOD Zone B (TZ2) (Export)
52.	Cumulative Energy – kVArh - Lead TOD Zone C (TZ3) (Export)
53.	Cumulative Energy – kVArh - Lead TOD Zone D (TZ4) (Export)
54.	Cumulative Energy – kVAh (Export)
55.	Cumulative Energy – kVAh - TOD Zone A (TZ1) (Export)
56.	Cumulative Energy – kVAh - TOD Zone B (TZ2) (Export)
57.	Cumulative Energy – kVAh - TOD Zone C (TZ3) (Export)
58.	Cumulative Energy – kVAh – TOD Zone D (TZ4) (Export)
59.	Fundamental Cumulative Energy – kWh (Export)
60.	Fundamental Cumulative Energy kWh TOD Zone A (TZ1) (Export)
61.	Fundamental Cumulative Energy kWh TOD Zone B (TZ2) (Export)
62.	Fundamental Cumulative Energy kWh TOD Zone C (TZ3) (Export)
63.	Fundamental Cumulative Energy kWh TOD Zone D (TZ4) (Export)
64.	Fundamental Cumulative Energy – kVAh (Export)
65.	Fundamental Cumulative Energy kVAh TOD Zone A (TZ1) (Export)
66.	Fundamental Cumulative Energy kVAh TOD Zone B (TZ2) (Export)
67.	Fundamental Cumulative Energy kVAh TOD Zone C (TZ3) (Export)
68.	Fundamental Cumulative Energy kVAh TOD Zone D (TZ4) (Export)

69.	MD – kVA with occurrence date & time (Export)
70.	MD - kVA – TOD Zone A (TZ1) with occurrence date & time (Export)
71.	MD - kVA – TOD Zone B (TZ2) with occurrence date & time (Export)
72.	MD - kVA – TOD Zone C (TZ3) with occurrence date & time (Export)
73.	MD - kVA – TOD Zone D (TZ4) with occurrence date & time (Export)
74.	Number of MD – kVA reset
75.	Voltage – V_R
76.	Voltage – V_Y
77.	Voltage – V_B
78.	Current – I_R
79.	Current – I_Y
80.	Current – I_B
81.	Instantaneous Signed Power Factor – R Phase (Import/Export)
82.	Instantaneous Signed Power Factor – Y Phase (Import/Export)
83.	Instantaneous Signed Power Factor – B Phase (Import/Export)
84.	Three Phase Power Factor (Instantaneous)
85.	Frequency
86.	Cumulative Billing Count- MD Reset count
87.	Billing Date
88.	Cumulative Programming Count
89.	Cumulative Tamper Count
90.	Meter Cover Opening – Occurrence with date and time.
91.	Rising MD with elapsed time
B	**ON DEMAND DISPLAY (ALTERNATE MODE)**
1.	LCD Test
2.	Meter Sr. No.
3.	Real Time Clock – Date & Time
4.	The % THD for Import shall have +ve sign and for Export –ve sign. a. Voltage % THD (Instantaneous) b. Current % THD (Instantaneous)
5.	MD – kVA reset count
6.	Last date & time of MD - kVA reset
7.	Current – I_R
8.	Current – I_Y
9.	Current – I_B
10.	Voltage – V_R
11.	Voltage – V_Y
12.	Voltage – V_B
13.	Instantaneous Signed Power Factor – R Phase (Import/Export)
14.	Instantaneous Signed Power Factor – Y Phase (Import/Export)
15.	Instantaneous Signed Power Factor – B Phase (Import/Export)
16.	Three Phase Power Factor (Instantaneous)
17.	Frequency
18.	Average frequency for each successive 15 min block (00 to 99 for frequency form 49.5 to 50.2 Hz)

19.	Net kWh and kVAh transmittal during each successive 15 min block up to second decimal with plus / minus sign (PLUS sign when there is net kWh and kVAh IMPORT to the beneficiary and NEGATIVE sign when there is net kWh and kVAh EXPORT from the beneficiary)
20.	Cumulative kVArh transmitted for Voltage HIGH condition at each midnight in eight digits including one decimal
21.	Cumulative kVArh transmitted for Voltage LOW condition at each midnight in eight digits including one decimal
22.	Cumulative Billing Count-MD Reset count
23.	Last date and time of MD-kVA reset
24.	Cumulative Programming Count
25.	Cumulative Tamper Count
26.	Meter Cover Opening – Occurrence with date and time.
27.	Apparent Power kVA
28.	Signed Active Power kW (with sign " Import" for Import and " Export" for Export)
29.	Signed Reactive Power kVAr (with sign " Import" for Import and " Export" for Export)
30.	Last Tamper Event with date and time.
C) Test mode display:	
31.	High Resolution total kWh Import (For calibration)
32.	High Resolution total kVAh Import (For calibration)
33.	High Resolution total kVArh Import Lag (For calibration)
34.	High Resolution total kVArh Import Lead (For calibration)
35.	Rising Demand Import kVA with remaining time up to EOI
36.	High Resolution total kWh Export (For calibration)
37.	High Resolution total kVAh Export (For calibration)
38.	High Resolution total kVArh Export Lag (For calibration)
39.	High Resolution total kVArh Export Lead (For calibration)
40.	Rising Demand Export kVA with remaining time up to EOI
41.	Last Block Net kWH and kVAh Energy = (Imp – Exp)
42.	Last Block Average frequency
43.	Last Block Reactive Energy High kVARh (V> 103%)
44.	Last Block Reactive Energy Low kVARh (V< 97%)

NOTE:

(1) It shall be possible to scroll through the parameters (up & down) manually in on demand display mode and test display mode.

(2) In addition to above parameters, phasor diagram shall be plotted invariably at the time of data retrieval

11.07 The meters shall be pre-programmed for following details.

i) PT Ratio: 11000/√3 /110/√3 V,

ii) CT Ratio: 5/5 Amps or 1/1 Amp as the case may be.

iii) Scale MF shall be One (1) invariably.

iv) MD RESET:

MD resetting shall be auto as per clause no. 8.00 (iii). However for testing purpose manual resetting arrangement with resetting facility shall be provided as per clause no. 8.00 (ii) .

v) MD integration period shall be programmable upto 15 min with sub-inetegration period of 5 min with sliding window method.

vi) The display of various parameters in Normal Mode & Alternate mode shall be as per table 24 (except 2) & 26 (except 4 & 5) of Annex D of IS: 15959 / 2011 AMENDED UP TO DATE in the sequence as below. Display other than specified below shall be blocked. The scroll period for auto scroll shall be 10 seconds

vii) Average power factor for current billing period (since last reset) shall be calculated as ratio of kWh & kVAh since last reset for respective mode. It shall be displayed with 3 decimal digits.

Instantaneous PF shall be calculated as ratio of instantaneous kW and kVA.

12.00 BILLING DATA, BILLING HISTORY DATA, ABT BILLING DATA & BLOCK LOAD SURVEY

12.01 BILLING DATA

The billing data parameters shall be as per table 26 (except 4 & 5) of Annex D of IS: 15959 / 2011 AMENDED UP TO DATE for category B and is summarized as below.

Sr. No.	Parameters
1.	Real Time Clock – Date & Time
2.	Cumulative kWh Energy (Import)
3.	Cumulative Energy – kWh - TOD Zone A (TZ1) (Import)
4.	Cumulative Energy – kWh - TOD Zone B (TZ2) (Import)
5.	Cumulative Energy – kWh - TOD Zone C (TZ3) (Import)

6.	Cumulative Energy – kWh - TOD Zone D (TZ4) (Import)
7.	Fundamental Cumulative Energy – kWh (Import)
8.	Fundamental Cumulative Energy kWh TOD Zone A (TZ1) (Import)
9.	Fundamental Cumulative Energy kWh TOD Zone B (TZ2) (Import)
10.	Fundamental Cumulative Energy kWh TOD Zone C (TZ3) (Import)
11.	Fundamental Cumulative Energy kWh TOD Zone D (TZ4) (Import)
12.	Cumulative kWh Energy (Export)
13.	Cumulative Energy – kWh - TOD Zone A (TZ1) (Export)
14.	Cumulative Energy – kWh - TOD Zone B (TZ2) (Export)
15.	Cumulative Energy – kWh - TOD Zone C (TZ3) (Export)
16.	Cumulative Energy – kWh - TOD Zone D (TZ4) (Export)
17.	Fundamental Cumulative Energy – kWh (Export)
18.	Fundamental Cumulative Energy kWh TOD Zone A (TZ1) (Export)
19.	Fundamental Cumulative Energy kWh TOD Zone B (TZ2) (Export)
20.	Fundamental Cumulative Energy kWh TOD Zone C (TZ3) (Export)
21.	Fundamental Cumulative Energy kWh TOD Zone D (TZ4) (Export)
22.	Cumulative Energy – kVArh – Lag (Import)
23.	Cumulative Energy – kVArh – Lag TOD Zone A (TZ1) (Import)
24.	Cumulative Energy – kVArh – Lag TOD Zone B (TZ2) (Import)
25.	Cumulative Energy – kVArh – Lag TOD Zone C (TZ3) (Import)
26.	Cumulative Energy – kVArh – Lag TOD Zone D (TZ4) (Import)
27.	Cumulative Energy – kVArh – Lead (Import)
28.	Cumulative Energy – kVArh – Lead TOD Zone A (TZ1) (Import)
29.	Cumulative Energy – kVArh – Lead TOD Zone B (TZ2) (Import)

30.	Cumulative Energy – kVArh – Lead TOD Zone C (TZ3) (Import)
31.	Cumulative Energy – kVArh – Lead TOD Zone D (TZ4) (Import)
32.	Cumulative Energy – kVArh – Lag (Export)
33.	Cumulative Energy – kVArh – Lag TOD Zone A (TZ1) (Export)
34.	Cumulative Energy – kVArh – Lag TOD Zone B (TZ2) (Export)
35.	Cumulative Energy – kVArh – Lag TOD Zone C (TZ3) (Export)
36.	Cumulative Energy – kVArh – Lag TOD Zone D (TZ4) (Export)
37.	Cumulative Energy – kVArh – Lead (Export)
38.	Cumulative Energy – kVArh – Lead TOD Zone A (TZ1) (Export)
39.	Cumulative Energy – kVArh – Lead TOD Zone B (TZ2) (Export)
40.	Cumulative Energy – kVArh – Lead TOD Zone C (TZ3) (Export)
41.	Cumulative Energy – kVArh – Lead TOD Zone D (TZ4) (Export)
42.	Cumulative Energy – kVAh (Import)
43.	Cumulative Energy – kVAh - TOD Zone A (TZ1) (Import)
44.	Cumulative Energy – kVAh – TOD Zone B (TZ2) (Import)
45.	Cumulative Energy – kVAh – TOD Zone C (TZ3) (Import)
46.	Cumulative Energy – kVAh – TOD Zone D (TZ4) (Import)
47.	Fundamental Cumulative Energy – kVAh (Import)
48.	Fundamental Cumulative Energy kVAh TOD Zone A (TZ1) (Import)
49.	Fundamental Cumulative Energy kVAh TOD Zone B (TZ2) (Import)
50.	Fundamental Cumulative Energy kVAh TOD Zone C (TZ3) (Import)
51.	Fundamental Cumulative Energy kVAh TOD Zone D (TZ4) (Import)
52.	Cumulative Energy – kVAh (Export)
53.	Cumulative Energy – kVAh - TOD Zone A (TZ1) (Export)

54.	Cumulative Energy – kVAh – TOD Zone B (TZ2) (Export)
55.	Cumulative Energy – kVAh – TOD Zone C (TZ3) (Export)
56.	Cumulative Energy – kVAh – TOD Zone D (TZ4) (Export)
57.	Fundamental Cumulative Energy – kVAh (Export)
58.	Fundamental Cumulative Energy kVAh TOD Zone A (TZ1) (Export)
59.	Fundamental Cumulative Energy kVAh TOD Zone B (TZ2) (Export)
60.	Fundamental Cumulative Energy kVAh TOD Zone C (TZ3) (Export)
61.	Fundamental Cumulative Energy kVAh TOD Zone D (TZ4) (Export)
62.	MD – kVA with occurrence date & time (Import)
63.	MD – kVA – TOD Zone A (TZ1) with occurrence date & time (Import)
64.	MD – kVA – TOD Zone B (TZ2) with occurrence date & time (Import)
65.	MD – kVA – TOD Zone C (TZ3) with occurrence date & time (Import)
66.	MD – kVA – TOD Zone D (TZ4) with occurrence date & time (Import)
67.	MD – kVA with occurrence date & time (Export)
68.	MD – kVA – TOD Zone A (TZ1) with occurrence date & time (Export)
69.	MD – kVA – TOD Zone B (TZ2) with occurrence date & time (Export)
70.	MD – kVA – TOD Zone C (TZ3) with occurrence date & time (Export)
71.	MD – kVA – TOD Zone D (TZ4) with occurrence date & time (Export)
72.	Cumulative kVA MD (Import)
73.	Cumulative kVA MD (Import)
74.	Reactive Energy high (V>103 per cent)
75.	Reactive Energy low (V< 97 per cent)
76.	Cumulative Energy, kvarh, Quadrant I
77.	Cumulative Energy, kvarh, Quadrant II

78.	Cumulative Energy, kvarh, Quadrant III
79.	Cumulative Energy, kvarh, Quadrant IV

12.02 **BILLING HISTORY:**

The meter shall have sufficient non-volatile memory for recording history of billing parameters for last 13 months.

12.03 **ABT BILLING DATA:**

Following parameters shall be stored in non volatile memory automatically as ABT DATA.

1. Average frequency for each successive 15 min block (00 to 99 for frequency form 49.5 to 50.2 Hz).

2. Net kWh and kVAh transmittal during each successive 15 min block up to second decimal with plus / minus sign.

(PLUS sign when there is net kWh IMPORT by the beneficiary and NEGATIVE sign when there is net kWh EXPORT from the beneficiary.)

3. Cumulative kWh and kVAh transmitted at each midnight in eight digits

including one decimal.

4. Cumulative kVArh transmitted for Voltage HIGH condition at each midnight in eight digits including one decimal.

5. Cumulative kVArh transmitted for Voltage LOW condition at each midnight in eight digits including one decimal.

6. Cumulative kVArh transmitted for Voltage below 70 % condition at each midnight in eight digits including one decimal.

7. Cumulative kVArh transmitted for Voltage between 97% and 103 % Condition at each midnight in eight digits including one decimal.

8. The date time blocks of failure of VT supply on any phase as a (*) (Star) mark.

The meter shall store all these (1 to 8 above) data in their memory for a period of 10 days. The data older than 10 days shall get erased automatically on FIFO basis.

NOTE:

- Net Reactive Energy HIGH =

  = [(Export Lag + Import Lead) - (Import Lag + Export Lead)]

- Net Reactive Energy LOW

  = [(Import Lag + Export Lead) - (Export Lag +Import Lead)]

12.04 **LOAD SURVEY DATA:**

The meter shall have sufficient non-volatile memory for logging load survey data. Interval for load survey shall be 15 minutes or configurable for 5 minutes if required in future. Load survey data shall be logged for last 60 days or more 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. This 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 data shall be on first in first out basis (FIFO).

The Block Load survey data shall be for specified parameters as per table 25 (except 5 & 6) for 3Φ/4W system of measurement with NEUTRAL as reference point of Annex D of IS: 15959 / 2011 AMENDED UP TO DATE. The specified parameters are as below.

Load survey parameters: (for 15 min block or 5 min block if required in future) (As per recent CEA & SAMAST guidelines)

Sr. No.	**Parameters**
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 Import mode
9.	Block Energy – kVArh – Lag Import mode
10.	Block Energy – kVArh – Lead Import mode

11.	Block Energy – kVAh Import mode
12.	Block Energy – kWh Export mode
13.	Block Energy – kVArh – Lag Export mode
14.	Block Energy – kVArh – Lead Export mode
15.	Block Energy – kVAh Export mode
16.	kVA demand (Import).
17.	kVA demand (Export).
18.	kW demand (Import).
19.	kW demand (Export).
20.	kVAr demand (Import).
21.	kVAr demand (Export).
22.	PF (Import)
23.	PF (Export)
24.	Frequency

12.05 **METER DATA AVAILABLE AT BCS END:**

The programme data shall store & display the programming details of the meter such as four quadrants, programmed CT Ratio & PT Ratio, TOD zone timings, demand reset type & integration and sub-integration period, Load survey parameters with integration period, etc.

12.06 **TAMPER DATA:**

It shall be possible to retrieve the abnormal event data along with all related snap shots data (mentioned at Cl. No. 10.00) through the meter optical port with the help of CMRI/Laptop computer/ remote access through suitable communication network & download the same to the base computer. All the information shall be made available event wise (occurrence & restoration) in simple & easy to understand format.

It shall be possible to retrieve the abnormal event data along with all related snap shots data (mentioned at Cl. No. 10.00) through the meter optical port with the help of CMRI and Laptop computer and remote access through suitable communication network & download the same to the base computer. For downloading abnormal data at site in laptop, communication cord having optical reader & USB port with supporting tools & software should be provided with a lot of 100 meters each. All the information shall be made available event wise (occurrence & restoration) in simple & easy to understand format.

The meter shall keep records for the minimum 200 events excluding power off events (Occurrence + Restoration). For above abnormal conditions the recording of events shall be on FIFO basis; however the

unrestored events stored separately shall not be erased till restoration.

13.00 DEMONSTRATION:

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

14.00 COMMON METER READING INSTRUMENT (CMRI)

14.01 To enable local reading of meters data, a DLMS compliant CMRI shall be provided.

14.02 The CMRI shall be as per specification given in Annex J of IS: 15959 / 2011 AMENDED UP TO DATE.

14.03 It shall be compatible to the DLMS compliant energy meters that are to be procured / supplied on the basis of this specification.

14.04 The CMRI shall be supplied by the meter manufacturer along with the meter free of cost in the ratio of one for each 50 Nos. meters supplied including user manual and a set of direct communication cords for data downloading to the Laptop or PC for each CMRI.

14.05 There shall be a provision for auto power save on CMRI, 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 CMRI.

14.06 The CMRI shall have a memory capacity of 8 GB with USB SRAM (Static RAM) with battery backup & upgradeable and BIOS / OS on FLASH / EEPROM Memory of 512 MB.

14.07 The manufacturer / supplier shall modify the compatibility of CMRI 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.

14.08 The CMRI 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.

14.09 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.

15.00 COMPUTER SOFTWARE:

15.01 For efficient and speedy recovery of data downloaded through CMRI 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 free of cost even after upgradation of software.

15.02 The meter shall be capable to communicate directly with laptop computer. Base Computer Software shall be suitable for all types of printers such as dot matrix, inkjet, deskjet and laser printers.

15.03 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 CMRI by any means). The software shall have capability to convert all the data into ASCII format/XML format as per MIOS. The BCS shall function properly and support Windows 10 new version.

15.04 The Base Computer Software should be password protected.

15.05 The total time taken for downloading Billing, Tamper and Load Survey Data for 60 days shall be less than or equal to 15 minutes.

15.06 Downloading time of only Billing data shall be less than or equal to 60 secs.

15.07 The BCS software shall create one single file for the uploaded data, e.g. if CMRI contains the meter readings of, say, 2,000 consumer meters including with meter reading of boundary energy 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 and boundary energy meter reading in ASCII format or XML file as per MIOS for individual meter reading.

15.08 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.

15.09 Also there shall be a provision to give filenames while creating the file. Alternatively, the file to be downloaded shall be automatically saved with a file number comprising of Real date, time & downloading activity for respective date. For ex., 170817120501 where, 170817 will denote the date, 1205 will denote the time & 01 will indicate the first downloading activity on that date. this will completely overrule the possibility of file to be overwritten.

15.10 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 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.

15.11 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.

15.12 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 CMRI.

15.13 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.

15.14 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 & Quality Control / Chief General Manager (IT), MSEDCL, Prakashgad, Bandra (E), Mumbai – 400051 without any additional charge.

16.00 CONNECTION DIAGRAM AND TERMINAL MARKINGS:

The connection diagram of the meter shall be clearly shown on inside portion of the terminal cover and shall be of permanent nature. Meter terminals shall also be marked and this marking shall appear in the above diagram. The diagram and terminal marking on sticker will not be allowed.

17.00 NAME PLATE AND MARKING:

Meter shall have a name plate clearly visible, effectively secured 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 size of bar code number shall not be less than 35x5 mm. The manufacturer's meter constant shall be marked on the name plate. Meter serial number & bar code on sticker will not be allowed.

The meter shall also store name plate details as given in the table 30 of Annex F of IS: 15959 / 2011 AMENDED UP TO DATE. These shall be readable as a profile as and when required.

In addition to the requirement as per IS, following shall be marked on the name plate.

(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 B – HT (PT / CT) ABT Energy Meter**. The lettering shall be bold in 3 mm font.

A sticker label containing warning notice in Marathi language which is to be stick up on meters front cover or printed on meter name plate with easily readable font size not less than 10 in red colour, which reads as " **सावधान !"मीटरला फेरफार करण्याचा प्रयत्न केल्यास अधिकतम वेगाने वीज नोंदणी होणार "**

18.00 TESTS:

18.01 TYPE TESTS:

The meter offered shall have successfully passed all the type tests described in IS: 14697 / 1999 (amended upto date), external AC / DC / permanent magnetic influence tests as per CBIP Tech Report 325 with latest amendments and this specification and the meter Data Transfer and Communication capability as per IS: 15959 / 2011 AMENDED UP TO DATE.

The type test reports shall clearly indicate the constructional features of the type tested meter. Separate type test reports for each offered type of meter shall be submitted.

The type test certificates as per IS: 14697 / 1999 (amended upto date) shall be submitted along with the offer. The type test certificate

carried out during last three years from the date of opening the tender shall be valid. The Type test certificate of metering protocol as per IS: 15959 / 2011 AMENDED UP TO DATE shall be submitted along with the offer, and the same shall not be more than 36 months old at the time of submission.

The Type test certificate of metering protocol as per - Data Exchange for Electricity Meter Reading, Tariff and Load Control – Companion Specification may also be acceptable along with offer for evaluation purpose only.

All the type test including Additional acceptance test as per cl. no. 20.04 & Metering protocol report as per IS 15959 : 2011 shall be got approved from the Chief Engineer, MSEDCL, Testing & Quality Control, Prakashgad, Mumbai before commencement of supply.

All the Type Tests specified in the technical specifications shall be carried out at laboratories which are accredited by the National Board of Testing and Calibration Laboratories (NABL) of Govt. of India such as ERDA, ERTL, CPRI, etc. Type Test Reports conducted in manufacturers own laboratory and certified by testing institute shall not be acceptable.

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 at the purchaser's cost. The supplier shall have 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. For this purpose, the tenderer shall quote unit rates for carrying out each type test. However, such unit rates will not be considered for evaluation of the offer.

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

18.02 **ACCEPTANCE TESTS:**

Criteria for selection for such tests and performance requirements shall be as per IS: 14697 / 1999 (reaffirmed 2004.

ALL acceptance tests as per IS: 14697 / 1999 shall be carried out on the meter.

All acceptance tests as per IS: 11731 (Part-2)/ 1986 shall be carried out on

the meter body, heat deflection test as per ISO:75, glow wire test as per the IS:11000 (part 2/SEC-1) 1984 OR IEC PUB 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

18.03 **ROUTINE TESTS:**

All routine tests as per IS: 14697/1999 shall be carried out on all the meters.

18.04 **ADDITIONAL ACCEPTANCE TESTS:**

The following additional tests shall be carried out in addition to the acceptance tests specified in IS: 14697 / 1999 (amended up to date)

(a) **TRANSPORTATION TEST:**

At least 50% of the samples of the meters 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 meters 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 and 1.5% at loads below I_b.

(b) **OTHER ACCEPTANCE TESTS:**

(i) Meters shall be tested for tamper conditions as stated in this specification.

(ii) Glow wire testing for poly-carbonate body.

(iii) Power consumption tests shall be carried out.

(iv) The meter shall comply all the tests for external AC / DC magnetic field as per CBIP publication No. 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. The energy recorded during such tamper shall be registered in a separate register in addition to main register.

After removal of magnet, meter shall be subjected to accuracy test as per IS: 14697 / 1999 (amended up to date). No deviation in error is allowed in the accuracy as per specification.

(v) The meter shall withstand impulse voltage at 10 kV.

Jammer test for sample meters shall be carried out for immunity at MSEDCL's Testing Division.

The tests 17.04 (b), (i) to (iii) shall be carried out at factory for each inspected lot at the time of pre-dispatch inspections.

The tests 17.04 (b) (iv) & (v) shall be carried out on one sample from first lot as per procedure laid down in IS: 14697 / 1999 (amended up to date) and CBIP publication No. 325 (with latest amendments) in NABL LAB. The test report shall be got approved from Chief Engineer, MSEDCL, Testing & Quality Control, 5th Floor, Prakashgad, Bandra (E), Mumbai - 400051 before commencement of supply.

(c) For influence quantities like voltage variation, frequency variation, voltage unbalance etc. the limits of variation in percentage error will be as per IS: 14697/1999. (amended up to date)

(d) **ACCEPTANCE TESTS FOR CONFIRMATION OF ABT FEATURE:**

(i) 15 minutes block average frequency registration.

(ii) 15 minutes block net active power registration.

(iii) Net kVArh High registration in all four quadrants when voltage is above 103% of V_{REF}.

(iv) Net kVARh High registration in all four quadrants when voltage is more than 103% of $V_{REF.}$

(v) Net kVArh registration in all four quadrants when voltage is at V_{REF}.

(vi) Net kVARh Low registration in all four quadrants when voltage is less than 97% of V_{REF}.

(vii) Net kVArh Low registration in all four quadrants when voltage is below 97% of V_{REF}.

(viii) Test for confirmation of midnight energy banking in power ON & power OFF conditions.

19.00 GUARANTEED TECHNICAL PARTICULARS:

The tenderer shall furnish the particulars giving specific required details of Meters in schedule `A' attached. The offers without the

details in Schedule `A' stand rejected.

20.00 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 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. The Company's representative / Engineer attending the above testing will carry out testing as per IS: 14697/1999 (amended upto date) & this specification and issue test certificate approval to the manufacturer and give clearance for dispatch. The first lot of meter may be jointly inspected by the Executive Engineer, Testing Division and the Executive Engineer Inspection Wing.

21.00 JOINT INSPECTION AFTER RECEIPT AT STORES (Random Sample Testing):

From each lot (lot means the total number of meters received in a Store out of inspected and approved lot by Executive Engineer, Inspection Wing or purchaser's representative under one approval letter) of meters received at Stores, 5 sample meters shall be drawn and these meters will be tested by our Testing Engineer in presence of Supplier's representative jointly for (i) no load condition,(ii) limits of error test (iii) starting & (iv) repeatability of error test and (v) tamper conditions as per this specification. The 5 days advance intimation will be given to the supplier and if the suppliers fail to attend the joint inspection on the date informed, the Testing will be carried out by our Testing Engineer in absence of supplier’s representative. If the meters failed in above random sample testing, the lot will be rejected.

22.00 GUARANTEE:

The meter & CMRI supplied shall be guaranteed for a period of 66 months from the date of supply or 60 months from the date of commissioning, whichever is earlier. Bidders shall guarantee to replace free of cost the meters which are found defective / inoperative at the time of installation, or become inoperative / defective during guarantee period. Replacements shall be effected within one month from the date of intimation. If the defective meters are not replaced within the specified period above, MSEDCL shall recover an equivalent

amount plus 15% supervision charges from any of the bills of the supplier.

23.00 PACKING:

23.01 The meters & CMRIs shall be suitably packed in order to avoid damage or disturbance during transit or handling. Each meter & CMRI 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 accidental opening in transit. The packing cases may be marked to indicate the fragile nature of the contents.

23.02 The following information shall be furnished with the consignment:

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

24.00 QUALITY CONTROL:

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. The tenderer has to give all facilities for carrying out the testing of samples.

25.00 MINIMUM TESTING FACILITIES:

25.01 Manufacturer shall posses fully computerized Meter Test Bench System for carrying out routine and acceptance Tests as per IS: 14697 / 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. The manufacturer shall have the necessary minimum testing facilities for carrying out the following tests:

Sr. No.	Name of Test
(1)	A.C. Voltage test
(2)	Insulation Resistance Test
(3)	Test of Accuracy Requirement
(4)	Test on limits of errors
(5)	Test on meter constant
(6)	Test of starting condition
(7)	Test of no-load condition
(8)	Repeatability of error test
(9)	Test of power Consumption
(10)	Vibration test
(11)	Shock Test
(12)	Transportation Test - as per MSEDCL specification
(13)	Tamper conditions - as per MSEDCL specification
(14)	Glow Wire Test
(15)	Long duration test
(16)	Flammability Test
(17)	The manufacturer shall have duly calibrated RSS meter of class 0.01 accuracy

25.02 **METER SOFTWARE:**

The Bidders will have to get appraised & obtain CMMI – Level III within one year from date of letter of award

25.03 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

26.00 MANUFACTURING PROCESS, ASSEMBLY, TESTING:

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 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.

27.00 MANUFACTURING ACTIVITIES:

a) Quality shall be ensured at the following stages:

(i) At PCB manufacturing stage each board shall be subjected to computerized bare board testing.

(ii) At insertion stage all components should under go computerized testing for conforming to design parameters and orientation.

(iii) Complete assembled and soldered PCB should under go functional testing using Automatic Test Equipments (ATEs)

(iv) Prior to final testing and calibration, all meters shall be subjected to aging test (i.e. Meters shall be kept in ovens for 72 hours at 55^0 C temperature and atmospheric humidity under real life condition at it's full load current. After 72 hours meters shall work satisfactory to eliminate infant mortality.

(v) The calibration of meters shall be done in-house.

(vi) The bidders shall submit the list of all imported & indigenous components separately used in meter along with the offer.

(vii) Bought out items:

A detailed list of bought out items which are used in the manufacture 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.

(viii) List of Plant and Machinery:

Sr. No.	List of Plant and Machinery used for Energy meter Production	
1	Fully automatic testing Bench with ICT for testing link less meters	Routine Testing and Calibration of Meters
2	Semi automatic testing Bench with MSVT	Routine Testing and Calibration of Meters
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 Meters Class 0.02 accuracy	Error calculation
8	Ultrasonic welding Machines	Welding of meters
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	Programmers 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 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	Tool fabrication and Die

	Fabrication machine	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 Meters
28	Glow Wire Test machine	Testing of Plastic Material
29	Fast transient burst testing setup	Type testing of Meters
30	Short term over Current testing setup	Type testing of Meters
31	Magnetic and other tamper testing setups	Tamper Testing
32	Impulse Voltage Testing Setup	Type testing of Meters
33	Composite Environmental testing chambers	Type testing of Meters

28.00 QUALITY ASSURANCE PLAN:

28.01 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.

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

29.00 COMPONENT SPECIFICATION:

As per Annexure II enclosed.

30.00 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. (As per GTP uploaded on e -tendering site)

Schedule - 'C' ... Tenderer Experience

The discrepancies if any between the specification and the catalogs and / or literatures submitted as part of the offer by the bidders, the same shall not be considered and representations in this regard shall not be entertained. If it is observed that there are deviations in the offer in Guaranteed Technical Particulars, then, such deviations shall be treated as deviations.

SCHEDULE 'C'

TENDERER'S EXPERIENCE

Tenderer shall furnish here a list of similar orders executed / under execution for supply of Static TOD Energy Meters by them to whom a reference may be made by purchaser in case he consider such a reference necessary.

Sr. No.	Name of client	Order No. & Date	Qty. Ordered	Qty. Supplied

NAME OF FIRM _____

NAME & SIGNATURE OF TENDERER _____

DESIGNATION _____

DATE _____

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 test 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 equipment available with the bidder for final testing of equipment specified and test plan limitation. If any, vis-a-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.

iv) The quality assurance plan 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 written approval is required to authorise 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 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 arrangements for contractor's internal auditing.

A list of administration and work procedures required to achieve and verify contract'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 the contractor's work procedures appropriate to each activity.
- Inspection during fabrication/ construction.
- Final inspection and test

ANNEXURE II

COMPONENT SPECIFICATION

Sr. No.	Component function	Requirement	Makes and Origin
1	Current Transformers	The Meters shall be with the current transformers as measuring elements.	The current transformer shall withstand for the clauses under 5 & 9 of IS: 14697 / 1999
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.	**USA:** Analog Devices, Cyrus Logic, Atmel, Philips, Teridian. Dallas, ST, Texas Instruments, Motorola, Maxim, National Semiconductors, Freescale, Onsemiconductors **Germany:** Siemens. **South Africa:** SAMES. **Japan:** NEC, Toshiba, Renasas, Hitachi. **Austria:** AMS **Holland:** Philips (N X P) **Taiwan:** Prolific
3	Memory chips	The memory chips shall not be affected by external parameters like sparking, high voltage spikes or electrostatic discharges. There shall be security isolation between metering circuit, communication circuit, and power circuit.	**USA:** Atmel, Teridian, Philips ST, National Semiconductors, Texas Instruments, Microchip, Spanson (Fujitsu), Ramtron. **Japan:** Hitachi, Renasas. **Germany:** Siemens
4	Display modules	a) The display modules shall be well protected from the external UV radiations. b) The display visibility shall be sufficient to read the Meter mounted at height of 0.5 meter as well as at the	Display TEK/KCE/RCL Display /Suzhou heng Xiamen instruments/ Veritronics **Singapore:** E-smart, Bonafied Technologies, Display Tech, **Korea:** Advantek, Jebon, Union Display Inc.,

		height of 2 meters. c) The construction of the modules shall be such that the displayed quantity shall not disturbed with the life of display (PIN Type). d) It shall be trans-reflective HTN (Hyper Twisted Nematic (120°)) or STN (Super Twisted Nematic (160°)) type industrial grade with extended temperature range.	**Japan:** Hitachi, Tianma, Sony, L&G, Holtek, Haijing. **Malaysia:** Crystal Clear Technology. **Hong kong:** Genda **China:** Success, Tianma
5	Communication Modules	Communication modules shall be compatible for the two ports (one optical port for communication with meter reading instruments & the other hardwired RS 232 port to communicate with various modems for AMR)	**USA:** HP, Optonica, National Semiconductors, **Holland/Korea:** Phillips **Japan:** Hitachi **Taiwan:** Ligitek
6	Optical port	Optical port shall be used to transfer the meter data to meter reading instrument. The mechanical construction of the port shall be such to facilitate the data transfer easily.	**USA:** HP, National Semiconductors, Maxim **Holland/Korea:** Phillips **Japan:** Hitachi **Taiwan:** Ligitek
7	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	SMPS Type
8	Electronic components	The active & passive components shall be of the surface mount type & are to	**USA:** National Semiconductors, Atmel, Philips, Texas

		be handled & soldered by the state of art assembly processes.	Instruments, BC Component Analog devices, ST, Maxim, Siemens, PHYCOMP, YAGEO, DRALORIC, KOA, WELWYN, OSRAM, Kemet Onsemiconductors, Freescale, Intersil, Raltron, Fairchild, Muruta, Agilent, AVX, Abracon, Sipex, Diode Inc., Honeywell, Power Integration, Fox, Roham **Japan:** Hitachi, Oki, AVZ or Ricon, Toshiba, Epson, Kemet, Alps, Muruta, TDK, Sanyo, Samsung, Panasonic **India:** Keltron, Incap, VEPL, PEC, RMC, Gujarat Polyavx, Prismatic, MFR Electronic components Pvt. Ltd., Cermet, CTR. **Korea:** Samsung **Germany:** Vishay, Epcos, Diotech, Kemet, Infineon **Taiwan:** Yageo.
9	Mechanical parts	(i) The internal electrical components shall be of electrolytic copper & shall be protected from corrosion, rust etc. (ii) The other mechanical components shall be protected from rust, corrosion etc. by suitable plating / painting methods.	
10	Battery	Chargeable maintenance free guaranteed life of 10 years.	**USA:** Maxell, Renata **Japan:** Panasonic, Sony, Mitsubishi, Sanyo

			Germany: Varta, Tedirum **France:** Saft **Korea:** Tekcell, Vitzrocell
11	RTC & Micro controller.	The accuracy of RTC shall be as per relevant IEC / IS standards.	**USA:** Philips, Dallas Atmel, Motorola, Microchip, Epson, ST, Teridian **Japan:** NEC or Oki.
12	P.C.B.	Glass Epoxy, fire resistance grade FR4, with minimum thickness 1.6 mm.	

Guaranteed Technical Particulars (To Be Filled Online)

ItemCode	77001114794
ItemName	THREE PHASE 4 WIRE CTPT OPERATED 1A OR 5A FULLY STATIC AMR COMPATIBLE 4 QUADRANT TOD TRIVECTOR ENERGY METER WITH AVAILABILITY BASED TARIFF (ABT) FEATURE .
Sr.NO	GTP Parameters
1	MANUFACTURERS / SUPPLIERS NAME AND ADDRESS WITH WORKS ADDRESS
2	MAKE AND TYPE OF METER
3	APPLICABLE STANDARD IS AS PER IS: 14697 /1999 (AMENDED UPTO DATE), IS: 15959 / 2011 AMENDED UP TO DATE, CBIP TECH REPORT 88 AMENDED UP TO DATE, IS: 15707 / 2006 (YES/NO)
4	METER BEARS ISI MARK
5	ACCURACY CLASS OF METER
6	RATED VOLTAGE
7	VOLTAGE RANGE
8	BASIC CURRENT (IB) OF METER
9	MAXIMUM CONTINUOUS CURRENT (IMAX)
10	STARTING CURRENT OF METER
11	SHORT TIME OVER CURRENT
12	CT RATIO OF METER
13	PT RATIO OF METER
14	STANDARD REFERENCE TEMPERATURE OF METER
15	MEAN TEMPERATURE CO-EFFICIENT
16	FREQUENCY
17	POWER FACTOR
18	AVERAGE POWER FACTOR & INSTANTANEOUS POWER FACTOR IS CALCULATED AS PER CLAUSE NO. 4.00 (14) OF THE SPECIFICATION.
19	KVAH CALCULATIONS AS PER SPECIFICATION.
20	POWER CONSUMPTION IN EACH VOLTAGE CIRCUIT
21	POWER CONSUMPTION IN EACH CURRENT CIRCUIT
22	POWER SUPPLY IS SMPS & MICRO CONTROL TYPE
23	KVA MD PROVIDED
24	METER IS PROJECTION TYPE, DUST AND MOISTURE PROOF & SUITABLE FOR MOUNTING ON PLANE VERTICAL SURFACE.
25	METER BODY IS MADE OF OPAQUE POLYCARBONATE
26	POLY CARBONATE BODY MEETS CONFORMS TO IS:11731/1986 (PART-2) (FV-2 CATEGORY)
27	POLYCARBONATE BODY MEETS TEST REQUIREMENT OF (a) HEAT DEFLECTION TEST AS PER ISO 75>1500DEG C
28	(b)GLOW WIRE TEST AS PER IS: 11000 (PART 2/SEC-1) 1984 OR IEC PUB 60695-2-12 AT 900 ° C
29	(c)BALL PRESSURE TEST AS PER IEC--60695-10-2
30	d) BALL PRESSURE TEST AS PER IEC--60695-10-2
31	(e)FLAMMABILITY TEST AS PER UL 94 OR IS 11731 (PART-2) 1986
32	METER BODY TYPE TESTED FOR IP51 DEGREE OF PROTECTION AS PER IS: 12063 AGAINST INGRESS OF DUST, MOISTURE & VERMIN.
33	WHETHER TYPE TEST REPORT FOR IP 51 DEGREE OF PROTECTION IS ENCLOSED
34	TYPE TEST REPORT NO. OF IP51 & DATE
35	METER COVER SECURED TO BASE BY SEALABLE UNIDIRECTIONAL CAPTIVE SCREWS.
36	PHYSICAL WATER ABSORPTION VALUE OF METER BODY
37	THERMAL HDDT VALUE OF METER BODY
38	TENSILE STRENGTH OF METER BODY
39	FLEXURE STRENGTH OF METER BODY
40	MODULUS OF ELASTICITY OF METER BODY
41	IZOD IMPACT STRENGTH OF METER BODY NOTCHED AT 23°C

42	MOULDED SINGLE TERMINAL BLOCK FOR CURRENT & VOLTAGE CONNECTIONS IS PROVIDED AS PER IS: 14697 / 1999 (AMENDED UP TO DATE)
43	TERMINAL COVER OF METER IS EXTENDED TYPE & PROVIDED WITH HINGES AND SEALABLE INDEPENDENTLY
44	PROPER SIZE OF GROOVES PROVIDED AT BOTTOM OF TERMINAL COVER FOR INCOMING & OUTGOING SERVICE WIRES
45	INDEPENDENT SEALING PROVISION IS MADE AGAINST OPENING OF TERMINAL COVER AND FRONT COVER
46	UNIDIRECTIONAL SCREWS WITH TWO HOLES FOR SEALING PURPOSE ARE PROVIDED ON METER BODY
47	POLY-CARBONATE BASE AND COVER IS ULTRA-SONICALLY WELDED (CONTINUOUS WELDING)
48	THICKNESS OF MATERIAL FOR METER COVER & BASE IS 2 MM MINIMUM
49	PROVISION TO PUT AT LEAST TWO SEALS BY UTILITY
50	PUSH BUTTONS ARE PROVIDED AS PER SPECIFICATION
51	OUTPUT DEVICE FOR TESTING OF METER IS BLINKING LED OR OTHER SIMILAR DEVICE WITH CONSTANT PULSE RATE
52	METER CONSTANT IS INDELIBLY PRINTED ON THE NAME PLATE OF THE METER
53	METER ACCURACY NOT AFFECTED BY AC / DC MAGNETIC FIELD UPTO 0.2 TESLA
54	UNDER INFLUENCE OF ANY MAG FIELD ABOVE 0.2 T, IF ACCURACY OF METER GETS AFFECTED, SAME IS RECORDED AS MAG TAMPER EVENT WITH DT & TIME STAMPING & ENERGY RECORDED DURING SUCH TAMPER ISREGISTERED IN A SEPARATE REGISTER IN ADDITION TO MAIN REGISTER.
55	THE METER IS CAPABLE TO WITHSTAND AND DOES NOT GET DAMAGED IF PHASE-TO-PHASE VOLTAGE IS APPLIED BETWEEN PHASES & NEUTRAL FOR FIVE MINUTES WITHOUT AFFECTING THE ACCURACY.
56	POWER SUPPLY UNIT IS MICRO CONTROL TYPE
57	NON SPECIFIED DISPLAY PARAMETERS ARE BLOCKED AND SHALL NOT BE ACCESSIBLE FOR REPROGRAMMING AT SITE.
58	COMPLETE METERING SYSTEM DOES NOT AFFECTED BY EXTERNAL ELECTROMAFNETIC INTERFERRENCE
59	CTS ARE PROVIDED WITH MAGNETIC SHIELDING AND ARE TESTED SEPARATELY PRIOR TO ASSEMBLY
60	PCB USED IN METER IS MADE BY SURFACE MOUNTING TECHNOLOGY & IS WIRELESS
61	NON - RECHARGEABLE & PRE-PROGRAMMED FOR 30 YEARS DAY / DATE WITHOUT ANY NECE SSITY FOR CORRECTION REAL TIME QUARTZ CLOCK (RTC) IS USED IN THE METER FOR MAINTAINING TIME (IST) AND CALENDAR.
62	MAXIMUM DRIFT OF RTC
63	CLOCK DAY / DT SETTING & SYNCHRONIZATION IN RTC ARE POSSIBLE THROUGH PASSWORD/KEY CODE COMMAND FROM HHU, LAPTOP COMPUTER OR METER TESTING WORK BENCH OR FROM REMOTE SERVER THROUGH SUITABLE COMM. NETWORK OR SUB-STN. DATA LOGGER PC.
64	RTC BATTERY & THE BATTERY FOR DISPLAY IN CASE OF POWER FAILURE IS SEPARATE.
65	METER WITHSTANDS HIGH VOLTAGE & HIGH FREQUENCY SURGES WHICH ARE SIMILAR TO THE SURGES PRODUCED BY INDUCTION COIL TYPE INSTRUMENTS WITHOUT AFFECTING THE ACCURACY OF THE METER
66	ACCURACY OF METER IS NOT AFFECTED WITH APPLICATION OF ABNORMAL VOLTAGE / FREQUENCY GENERATING DEVICE SUCH AS SPARK DISCHARGE OF APPROXIMATELY 35 KV
67	SPARK DISCHARGE OF APPROXIMATELY 35 KV CARRIED OUT AS PER SPECIFICATION
68	METER LOGS UNSATISFACTORY OR NON FUNCTIONING OF RTC BATTERY
69	METERING PROTOCOL AS PER ANNEX E - CATEGORY B METERS OF IS: 15959 / 2011 AMENDED UP TO DATE (YES/NO)
70	DEFAULT & MINIMUM BAUD RATE OF RS 232 & OPTICAL PORTS IS 9600 BPS (YES/NO)
71	SEALING ARRANGEMENT IS PROVIDED TO COMMUNICATION PORTS
72	METER PROVIDED WITH 3 THREE PORTS FOR COMMUNICATION
73	NECESSARY CHORD FOR OPTICAL PORT OF MINIMUM LENGTH OF 2 METRES PER METER IS PROVIDED.

74	INTERNAL NI-MH OR LI-ION OR NI CD MAINT.FREE BATTERY OF 10 YRS WITH PUSH BUTTON ARRANGEMENT FOR ACTIVATION OF BATTERY OR EXTERNAL BATTERY WITH INDUCT. COUPLING ARRANGEMENT WITH INBUILT CHARGER IN THE RATIO OF 1 BATTERY PACK PER METER IS PROVIDED.
75	NON VOLATILE MEMORY (NVM) WITH MINIMUM RETENTION PERIOD OF 10 YEARS IS PROVIDED
76	8 (EIGHT) TOD TIME ZONES FOR ENERGY AND DEMAND ARE PROVIDED
77	PROVISION OF MAXIMUM DEMAND INTEGRATION PERIOD SHALL BE PROGRAMMABLE UPTO 15 MINUTES
78	PROVISION FOR AUTO RESET OF MD AT CERTAIN PREDEFINED PERIOD IS PROVIDED
79	METER STORES NAME PLATE DETAILS AS GIVEN IN THE TABLE 30 OF ANNEX F OF IS: 15959 / 2011 AMENDED UP TO DATE & ARE READABLE AS A PROFILE AS AND WHEN REQUIRED (YES/NO)
80	A DLMS COMPLIANT CMRI AS PER ANNEX J OF IS: 15959 / 2011 AMENDED UP TO DATE IS PROVIDED (YES/NO)
81	PROVISION FOR AUTO POWER SAVE IS MADE ON CMRI (YES/NO)
82	CMRI HAS A MEMORY CAPACITY OF 8 MB SRAM (STATIC RAM) WITH BATTERY BACKUP & UPGRADEABLE AND BIOS / OS ON FLASH / EEPROM MEMORY OF 256 KB (YES/NO)
83	CMRI 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/NO)
84	(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/NO)
85	(c)TESTS FOR ELECTROMAGNETIC COMPATIBILITY (EMC) (YES/NO)
86	(d)TEST OF IMMUNITY TO ELECTROMAGNETIC HF FIELDS (YES/NO)
87	(e)RADIO INTERFERENCE MEASUREMENT (YES/NO)
88	TYPE TEST REPORT NOS. & DATE OF CMRI
89	BASE COMPUTER SOFTWARE IS "WINDOWS BASED & USER FRIENDLY (YES/NO)
90	LICENSED COPIES OF BASE COMPUTER SOFTWARE ARE SUPPLIED FREE OF COST.
91	NO EDITING IN TRANSFERRED DATA IS POSSIBLE ON BASE COMPUTER AS WELL AS CMRI BY ANY MEANS (YES/NO).
92	DOWNLOADING SOFTWARE IS SUBMITTED TO INSTALL ON OUR LAPTOP / PC FOR DIRECTLY DOWNLOADING DATA FROM METER WITHOUT THE USE OF CMRI (YES/NO)
93	SOFTWARE PROVIDED ON LAPTOP/PC IS COMPATIBLE TO READ DATA FROM USB DRIVE (YES/NO)
94	PROVISION TO RESET MD THROUGH HAND HELD TERMINAL (CMRI) CAPABLE OF COMMUNICATING WITH THE METER OR COMMUNICATION DRIVEN RESET IS PROVIDED
95	PROVISION TO RESET MD THROUGH LOCAL PUSH BUTTON IS PROVIDED
96	ALL ANTI TAMPER FEATURES ARE INCORPORATED IN METER AS PER SPECIFICATION
97	METER LOGS TAMPER EVENTS AS PER SPECIFICATION
98	TAMPER DETAILS ARE STORED IN INTERNAL MEMORY & REGISTERED IN TAMPER EVENT REGISTER
99	PERMANENT BACKLIT LIQUID CRYSTAL DISPLAY (LCD) OF 8 DIGITS (WITH +/- INDICATION) AND MINIMUM 8 MM HEIGHT AND WIDE VIEWING ANGLE IS PROVIDED
100	AUTO DISPLAY CYCLING PUSH BUTTON WITH PERSISTENCE TIME OF 10 SECONDS IS PROVIDED
101	BACKLIT LIQUID CRYSTAL DISPLAY (LCD) IS SUITABLE FOR TEMPERATURE WITHSTAND OF 70 o C
102	DISPLAY PARAMETERS AS PER SPECIFICATIONS
103	IT IS POSSIBLE TO SCROLL THROUGH PARAMETERS (UP & DOWN) MANUALLY ON DEMAND DISPLAY MODE AND TEST DISPLAY MODE
104	METER SHALL BE AUXILIRY POWERED
105	HARMONICS ARE FILTERED OUT AND ENERGIES FOR FUNDAMENTAL FREQUENCY ARE ONLY MEASURED AND COMPUTED.
106	SCALE MF IS ONE (1)
107	MD INTEGRATION PERIOD SHALL BE PROGRAMMABLE UPTO 15 MINUTES WITH SUB INTEGRATION PERIOD OF 5 MINUTES WITH SLIDING WINDOW METHOD

108	AVERAGE POWER FACTOR WITH 3 DECIMAL DIGITS FOR CURRENT BILLING PERIOD (SINCE LAST RESET) IS CALCULATED AS RATIO OF KWH & KVAH SINCE LAST RESET FOR RESPECTIVE MODE.
109	INSTANTANEOUS PF IS CALCULATED AS RATIO OF INSTANTANEOUS KW AND KVA.
110	BILLING PARAMETERS AS PER SPECIFICATION
111	BILLING HISTORY DATA IS STORED IN METER MEMORY FOR LATEST 12 NO. OF RESETS AS WELL AS FOR THE INSTANT OF DATA RETRIEVAL.
112	RESET TO RESET CONSUMPTION OF ENERGIES & MAXIMUM DEMANDS IS MADE AVAILABLE
113	ABT BILLING DATA PARAMETERS ARE STORED IN NON VOLATILE MEMORY AUTOMATICALLY AS ABT DATA FOR A PERIOD OF 10 DAYS ON FIFO BASIS
114	PROVISION FOR LOAD SURVEY DATA FOR EVERY 15 MINUTES (OR CONFIGURABLE FOR 5 MINUTES IF REQUIRED IN FUTURE) AND FOR PREVIOUS 60 DAYS OR MORE FOR SPECIFIED PARAMETERS ON NON-TIME BASED BASIS ON FIRST IN FIRST OUT BASIS (FIFO)
115	IT IS POSSIBLE TO RETRIEVE ABNORMAL EVENT DATA ALONG WITH ALL RELATED SNAP SHOTS DATA THROUGH METER OPTICAL PORT WITH CMRI AND LAPTOP COMPUTER AND REMOTE ACCESS THROUGH SUITABLE COMMUNICATION NETWORK & DOWNLOAD THE SAME TO THE BASE COMPUTER ON FIFO BASIS.
116	METER KEEPS RECORDS FOR THE MINIMUM 200 (OCCURRENCE + RESTORATION) EVENTS EXCLUDING POWER OFF EVENTS ON FIFO BASIS.
117	ALL THE COMPUTER SOFTWARE IS PROVIDED
118	MAXIMUM DOWNLOADING TIME FOR COMPLETE DATA FROM CMRI TO PC IS NOT MORE THAN 5 MIN
119	SEPARATE COMMUNICATION CABLE OF 2 METER LENGTH EACH FOR DATA COMMUNICATION BETWEEN METER & CMRI, METER & LAPTOP COMPUTER AND BETWEEN METER & PC IS PROVIDED.
120	1 CABLE OF 2 MTR LONG IS PROVIDED WITH USB TERMINATION
121	METER IS CAPABLE TO COMMUNICATE DIRECTLY WITH LAPTOP COMPUTER.
122	BASE COMPUTER SOFTWARE IS SUITABLE FOR ALL TYPES OF DOT MATRIX, INKJET & LASERJET PRINTERS
123	MANUFACTURER AGREES TO PROVIDE API (BASED UPON MIOS STANDARD) WITH PROPER DOCUMENTATION & DEMONSTRATION FOR EXISTING METERS AS WELL AS TO BE SUPPLIED WITH THIS SPECIFICATION.
124	METER STORES NAME PLATE DETAILS AS GIVEN IN THE TABLE 30 OF ANNEX F OF IS: 15959 / 2011 AMENDED UP TO DATE & ARE READABLE AS A PROFILE AS AND WHEN REQUIRED (YES/NO)
125	OF METER AS CATEGORY B HT (PT / CT) BOUNDARY METER IN 3 MM BOLD FONT IS MARKED ON NAME PLATE (YES/NO)
126	PERMANENT NATURE METER CONNECTION DIAGRAM IS CLEARLY SHOWN ON INSIDE PORTION OF TERMINAL COVER WITH MARKING ON METER TERMINALS IN THE ABOVE DIAGRAM.
127	METER HAS CLEARLY VISIBLE, EFFECTIVELY SECURED AGAINST REMOVAL & INDELIBLY & DISTINCTLY MARKED WITH ALL PARTICULARS AS PER STANDARDS NAME PLATE WITH SIZE OF BAR CODED METER SR NO NOT LESS THAN 35X5 MM ALONG NUMERIC NO & REQUIREMENT AS PER SPEC.
128	NAME PLATE WITH SIZE OF BAR CODED METER SERIAL NUMBER NOT LESS THAN35X5 MM ALONGWITH NUMERIC NUMBER & ADDITIONAL REQUIREMENT AS PER SPECIFICATION
129	WHETHER METER IS TYPE TESTED
130	TYPE TEST REPORT NOS. & DATES
131	ALL ACCEPTANCE & ROUTINE TESTS, AS PER IS: 14697 / 1999 AMENDED UPTO DATE & THIS SPECIFICATION ARE CARRIED OUT ON METER
132	TRANSPORTATION TEST IS CARRIED OUT
133	METER & CMRI ARE GUARANTEED FOR A PERIOD OF 66 MONTHS FROM THE DATE OF SUPPLY OR 60 MONTHS FROM THE DATE OF COMMISSIONING, WHICHEVER IS EARLIER (YES/NO)
134	GUARANTEE TO REPLACE METERS / CMRI FREE OF COST WHICH ARE FOUND DEFECTIVE / INOPERATIVE AT THE TIME OF INSTALLATION OR BECOME INOPERATIVE / DEFECTIVE DURING GUARANTEE PERIOD (YES/NO)
135	FURNISH PRINCIPLE OF OPERATION OF METER OUTLINING THE METHODS AND STAGES OF COMPUTATIONS OF VARIOUS PARAMETERS STARTING FROM INPUT VOLTAGE AND CURRENT SIGNALS INCLUDING SAMPLING RATE IF APPLICABLE
136	ALL ACCEPTANCE TESTS FOR CONFIRMATION OF ABT FEATURE ARE CARRIED OUT.

137	METER IS GUARANTEED FOR A PERIOD OF FIVE YEARS FROM THE DATE OF COMMISSIONING OR FIVE AND HALF YEAR FROM THE DATE OF DISPATCH WHICHEVER IS EARLIER.
138	IN HOUSE TESTING FACILITY IS AVAILABLE FOR (A) A.C. VOLTAGE TEST
139	(b)INSULATION RESISTANCE TEST
140	(c)ACCURACY REQUIREMENT
141	(d)TEST ON LIMITS OF ERRORS
142	(e)TEST ON METER CONSTANT
143	(f)TEST OF STARTING CONDITION
144	(g)TEST OF NO-LOAD CONDITION
145	(h)REPEATABILITY OF ERROR TEST
146	(i)TEST OF POWER CONSUMPTION
147	(j)VIBRATION TEST
148	(k)SHOCK TEST
149	(l)TAMPER CONDITIONS AS PER MSEDCL SPECIFICATION
150	(m)FACILITY FOR ACCEPTANCE TESTS OF ABT FEATURES AS PER CLAUSE NO. 17.04 (d).
151	(n)TRANSPORTATION TEST
152	(o)GLOW WIRE TEST
153	(p)LONG DURATION TEST
154	(q)FLAMMABILITY TEST
155	(r)MANUFACTURER HAS DULY CALIBRATED RSM OF CLASS 0.02 ACCURACY
156	MANUFACTURING PROCESS, ASSEMBLY, TESTING & MANUFACTURING ACTIVITIES AS PER TECHNICAL SPECIFICATION
157	MANUFACTURING ACTIVITIES AS PER TECHNICAL SPECIFICATION
158	FURNISH PRINCIPLE OF OPERATION OF METER OUTLINING THE METHODS AND STAGES OF COMPUTATIONS OF VARIOUS PARAMETERS STARTING FROM INPUT VOLTAGE AND CURRENT SIGNALS INCLUDING SAMPLING RATE IF APPLICABLE
159	QUALITY ASSURANCE PLAN AS PER SPECIFICATIONS IS ENCLOSED
160	COMPONENT SPECIFICATION AS PER SPECIFICATION

Required Documents (To Be Uploaded Online)

Sr No	Document Name
1	List of year wise, item wise (Single Phase Static Meters, Three Phase Static Meters) orders executed and under execution duly certified by C.A.
2	Copy of latest balance sheet and profit and loss accounts of last 3 Years.
3	Documentary evidence as per cl. III of section-I in case IGST/ (CGST+SGST) is concessional/exempted or Exemption Certificate under GST if any to be provided.
4	Copy of latest turnover certificate for the product offered for last 3 years duly certified by Chartered engineer/accountant.
5	Notarized power of attorney in favor of appointed agent/representative.
6	Upload Copy of Money Receipt/D.D. for EMD paid.
7	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)
8	Doc. Evid. in respect of classification of your unit as per Micro, Small and Medium Enterprises Development Act 2006.
9	Real Time Gross Settlement [RTGS] details as per cl.no.23 of Annexure-'A'.
10	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.
11	The bidder shall submit the declaration as per Clause No.XXXII(a) and (b) of Section-I
12	The bidder shall submit the undertaking certifying that you have not approached any one for undue influence.
13	Doc. Evid. in respect of registered under the GST Law.
14	Doc. Evidence as per Cl. 2 of Section III i.e. Q.R. , annual turnover & year wise qty. of static energy meters supplied for last 3 financial years, list of orders duly certified by C.A.
15	ISO Certificates as per Cl.-2 of Section-III i.e. Q.R.
16	Documentary evidence towards issue of BIS License along with relevant pages indicating rating, class of accuracy and latest validity.
17	Documentary evidence as per Cl. A of Annexure-I i.e. QAP of Technical Specification i.e. Annexure-D
18	Undertaking U-I to be submitted by the parent company situated abroad in case of the participant bidder who is an India based subsidiary on General Stamp Paper of Rs. 200
19	Annexure U-II Form of Authorized Nominee / Assignee to be submitted on the letter head of the foreign bidder / manufacturer.
20	Submit valid NABL Accreditation certification that firm have in house NABL Lab for testing of energy meters.
21	Submit R&D Certification from DSIR (Dept. of Sci.& Ind. Research) & Capability Maturity Mode Integration (CMMI level-III) certificate.