



**CENTRAL ELECTRICITY SUPPLY UTILITY
OF ORISSA**

Regd. Office: IDCO Towers, 2nd Floor, Bhubaneswar- 751022

TENDER SPECIFICATION NO :

CESU/ APDRP & CONTRACTS/171 / 2010-11

**FOR PROCUREMENT OF, 3PH,4W,0.2 CLASS, 1A(125 NOS),ABT
COMPLIANT HTTV METER, WITH RF MODEM, BOX & HHU(10 NOS) FOR
DATA DOWN LOADING.**

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CENTRAL ELECTRICITY SUPPLY UTILITY OF ORISSA
IDCO TOWERS (II nd Floor) , Janapath ,Bhubaneswar-751022
Phone:2545681,2542895,2541727, Fax:0674-2543125 Web Site:www.cescoorissa.com.
TENDER NOTICE

Tender Notice No. CESU.H.Qrs./ A&C / 3p4w,ABT,0.2C,1A HTTP Meters/376/30875 Dt-09.07.10

Sealed tenders are invited on two part basis in duplicate, super scribing the Tender Specification No. & date of opening as mentioned below from reputed manufacturers only for supply of the following materials.

Sl. No	Lot No & TS-No	Materials	Quantity in nos	EMD	Cost of tender paper (Rs)
1	171/10-11	3PH,4W,0.2 Class, 1A(125 Nos),ABT Compliant HTTP Meters, With RF Modem(Internal/external), Box & HHU (10nos) for data down loading.	125	30000/-	7000/- + 4% VAT
2	172/10-11	33kv CTPT Combined metering units, 3PH,4W,0.2 class,400/200/1A .	125	113000/-	8000/- + 4% VAT
Sale of Bid Documents			12.07.10, 11AM		
Last date of sale of Bid documents			(02.08.10,5PM for Sl-1),(03.08.10,5PM for Sl-2),		
Last Date of Submission of Tender			(03.08.10,1PM for Sl-1),(04.08.10,1PM for Sl-2),		
Date of Opening of Tender (Technical Bid)			(03.08.10,4PM for Sl-1),(04.08.10,4PM for Sl-2),		

For details of N.I.T. Please visit our website www.cescoorissa.com.

Sr. General Manager
(APDRP & CONTRACTS)

Memo No.

Dt.

Copy forwarded to

PA to COO,CEO,CCO, CFO /Sr.G.M. (Tech) /G.M.(AT&C)/DDO Hqrs / Cash Section for information & necessary action.

C.C. to

D.M. (P.R.) of this office for information. He is requested to arrange to publish this Tender Notice in one leading ORIYA and two leading English News Papers with all India Circulation at the earliest. It may also be published in India Times Tender Portal for wide circulation.

C.C. to

AGM (IT) of this office for information & necessary action. He is requested to post the tender notice, tender specification in our website early.

Notice Board for display

INVITATION FOR BID

- 1.0** CESU now invites sealed bids from eligible Manufacturers only for Supply of 3PH,4W,0.2s class, 1A , ABT Compliant, HTTV Meters, with RF Modem(Internal/external) & TP Box suitable for 33 Kv out door feeder metering to be **delivered at central store of CESU at Bhubaneswar. The firm has to supply HHU 10 nos with required software for data down loading.**
- 2.0 (a)** Requirement of 3PH,4W,0.2s class, 1A, ABT Compliant, HTTV Meters, with RF Modem & TP Box suitable for out door 33 Kv feeder metering.

Sl. No	Name of the materials	Units	Qty.
1	3PH,4W,0.2s class, 1A , ABT Compliant, HTTV Meters, with RF Modem(Internal/external), TP Box & HHU 10 nos for data down loading suitable for out door 33 Kv feeder metering.	nos	125

(b) Delivery Schedule

Description of Material	Unit	Total Qty.	To be delivered within 45 days from the date of PO	To be delivered within 45 to 90 days from the date of PO
			Consignment-I Delivery at Choudwar Store	Consignment-II Delivery at Bhubaneswar Store
3PH,4W,0.2s class, 1A , ABT Compliant, HTTV Meters, with RF Modem (Internal/external) & TP Box suitable for out door 33 Kv feeder metering.	Nos.	125	75	50
HHU for data downloading.	Nos	10	5	5

Interested eligible bidders may obtain further information from the office of Sr. General Manager, APDRP & CONTRACTS, CESU of Orissa, 2nd Floor, IDCO Tower, Janpath, Bhubaneswar - 751022.

- 3.0** A complete set of bidding documents (tender specification) may be purchased by any interested eligible bidder or their representative, on submission of a written application and upon payment of a non-refundable fee of Rs.7000.00 + 4% VAT either in cash or a demand draft payable to Central Electricity Supply Utility of Orissa on all working days between 11.00 hrs to 17.00 hrs in person OR can be down loaded from our website www.cescoorissa.com. However such intending bidders must submit the cost of the document in shape of DD at the time of bid submission.
- 4.0** Request for Bid Document through post will not be entertained, however Bid can be received through post but CESU will not be responsible for any postal delay.
- The Bids will be opened in the presence of Bidders /Bidder’s representatives as per guidelines vide Clause-6.
- 5.0** All bids must be accompanied by a bid security of Rs.30000/-.

The bid security may be submitted: -

In shape of D.D. / Pay Order from any Nationalised Bank of India only in favour of CESU of Orissa, payable at Bhubaneswar.

Bids without E.M. Deposit will be rejected outright. No adjustment of any previous deposit will be entertained. The E.M. Deposit shall be forfeited in case of non-execution of order.

6.0 General:

- (I) Earnest Money of Rs 30000/- in shape of DD/Pay order form any Nationalised Bank in favour of CESU of Orissa, payable at Bhubaneswar.
- (II) Cost of Bidding Document = Rs 7,000/- + 4% VAT
- (III) The tender papers (Commercial, Technical & Price bids) shall be submitted in duplicate in a envelope, sealed separately showing techno commercial in one envelope & price bid in one envelope.
- (IV) Date of beginning of sale of Bid Document = Dt.12.08.10, 11.00 Hrs.
- (V) Last date and time of sale of Bidding Documents = Dt.02.08.10 up to 17.00 Hrs.
- (VI) Last date and time of receipt of Bids = Dt.03.08.10 by 13.00 Hrs
Date and time of opening of bid(Tech. / Commercial only) =
in Conference Hall, CESU Headqrs, Bhubaneswar = Dt 03.08.10 at 16.00Hrs
- (VII) Date and time of opening of Financial bid will be after due evaluation of commercial / technical bid, the bidders who qualify in the same would be intimated in due course regarding the date and time of opening of financial bids .
- (VIII) In the event of any specified date for the sale, submission or opening of bids being declared a holiday for purchaser, the bids will be sold/received/opened up at the appointed time on the next working day.

INSTRUCTIONS TO BIDDERS

1.0 SCOPE:

3.0 This specification covers the design, manufacturing, testing, supply & delivery of static energy meters 3PH,4W,0.2s class, 1A , ABT Compliant, HTTV Meters, with RF Modem (Internal/external) & TP Box suitable for 33 Kv out door feeder metering to be **delivered at central store of CESU at Bhubaneswar. The firm has to supply HHU 10 nos with required software for data down loading.**

2.0 QUALITY STANDARDS:

Quality of product must adhere to our technical specification. The materials shall confirm in all respects to highest standards of engineering, design, workmanship, this specification and the latest revisions of relevant Indian standards, at the time offer and the Purchaser shall have the power to reject any work or material, which, in his judgment is not in full conformity to the standards specification.

3.0 COST OF BIDDING:

The bidder shall bear all costs associated with the preparation and submission of the bid and the Central Electricity Supply Utility of Orissa hereinafter referred to as the Purchaser will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

4.0 CONTENT OF BIDDING DOCUMENTS:

In addition to the notice inviting bids, the Bidding Documents include:

- a. Instruction to bidders.
- b. General Conditions of Contract
- c. Qualification requirements
- d. Technical specifications
- e. Price Schedules & Schedule of Bids
- f. Delivery Schedule
- g. Abstract of General terms & conditions.
- h. Contract Performance B.G. format.

The bidder is expected to examine all instructions, forms, terms and specification in the bidding documents. Failure to furnish all information required by the bidding documents, the so submitted shall come under non-responsive category & liable for rejection.

5.0 CLARIFICATION ON BIDDING DOCUMENTS:

A prospective Bidder requiring any clarification of the Bidding Documents may notify the Purchaser in writing or by fax at the Purchaser's mailing address given below . The Purchaser will respond in writing to any request for clarification of the Bidding Documents that it receives not later than 10 days prior to the date for submission of bids prescribed by the Purchaser. Written copies of the Purchaser's response (including an explanation of the query but without identifying the source of inquiry will be sent to all prospective Bidders if required, who have purchased the Bidding Documents.

Address:

Sr.General Manager (APDRP & CONTRACTS)
Central Electricity Supply Utility of Orissa.
2nd Floor, IDCO Tower, Janpath,
Bhubaneswar – 751022
Tel: 0674 – 2545681,2542895
Fax: 0674-2543125
E-mail: apdrp@cescoorissa.com

6.0 AMENDMENT TO BIDDING DOCUMENTS:

- 6.1 At any time not later than 10(ten) days prior to the deadline of submission of bids, the Purchaser may for any reason whether at his own initiative or in response to a clarification requested by a prospective Bidder modify the Bidding documents by amendment.
- 6.2 The amendment will be notified in writing or by fax to all prospective Bidders who have received the Bidding Documents and shall be binding on them.
- 6.3 In order to allow prospective Bidders reasonable time within which to take the amendments into account in preparing their bids, the Purchaser may, at his discretion, extend the deadline for the submission of bids.

7.0 MODE OF BIDDING AND DOCUMENTS COMPRISING BID:

The bidding shall be on two part basis. The first part shall pertain to techno-commercial aspects of the bid in a appropriate schedules, declaration sheets, Deviation schedules, detailed technical data/literature, Guaranteed Technical particulars besides EMD asked for.

The second part shall deal with bid price in appropriate schedules & format. Each of the parts shall be kept in separate sealed covers & these in turn shall be kept in large/sealed envelope for submission.

8.0 Prices:

The quoted ex works price shall be firm during the validity period.

The price shall be valid for 180 days from the date of opening of Technical Bid.

9.0 LATE BIDS:

Any bid &/or samples sought for received by the Purchaser after the deadline for submission of bids prescribed by the Purchaser, will be rejected and/or returned unopened by the Purchaser.

10.0 PRELIMINARY EXAMINATION:

- 10.1 The Purchaser will examine the bids to determine completeness, computational errors if any, whether required Bid bond/EMD have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.
- 10.2 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If the Bidder does not accept the correction of the errors, his bid will be rejected. If there is a discrepancy between words and figures, the amount in words shall prevail.
- 10.3 Prior to the detailed evaluation, the purchaser will determine the substantial responsiveness of each bid in line with the Bidding Documents. For purpose of these Clauses, a substantially responsive bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviations. The Purchaser's determination of a bid's responsiveness will be based on the contents of the bid itself without recourse to extrinsic evidence.
- 10.4 A bid determined as not substantially responsive will be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the non-conformities.
- 10.5 The purchaser may waive any minor informality or non-conformity or irregularity in a bid, which does not constitute a material deviation, provided such waiver, does not prejudice or affect the relative ranking of any Bidder.

11.0 CONTACTING THE PURCHASER:

No Bidder shall contact the Purchaser on any matter relating to its bid, from the time of the bid opening to the time the contract is awarded unless requested by the purchaser for any clarification, in writing.

Any effort by a Bidder to influence the Purchaser in the Purchaser's Bid evaluation, bid comparison or contract award decision may result in the rejection of the Bidder's bid.

12.0 PURCHASER'S RIGHT TO VARY QUANTITIES AT TIME OF AWARD:

The Purchaser reserves the right at the time of award of contract to increase or decrease by up to 20% of quantity of goods and services specified in the Schedule of Requirement without any change in price or other terms and conditions.

13.0 The Purchaser reserves the right to accept or reject any Bid, and to annul the Bidding process and reject all Bids at any time prior to award of contract, without thereby incurring liability to affected Bidders or any obligation to inform the affected Bidder on the grounds for the Purchaser's action.

14.0 ISSUE OF PURCHASE ORDER:

After bid evaluation, the purchaser will place the purchase order to the most competitive successful bidder. Within 15 days of receipt of purchase order bidder will furnish the performance BG as per requirement in the stipulated format, failing which the purchaser will cancel the purchase order without assigning any reason thereof & forfeiting the EMD.

14.1 The firm quoting with better specification may be preferred.

15. NOTIFICATION OF AWARD:

15.1 Prior to expiry of the bid validity, the Purchaser will notify the successful Bidder in writing by registered letter or by cable or telex or Fax, to be confirmed in writing by registered letter, that its bid has been accepted.

15.2 Upon the successful Bidder's furnishing of performance security, the purchaser will promptly notify each unsuccessful Bidder and will discharge its Earnest Money.

16. Award Criteria:

The Purchaser will award the contract to the successful Bidder / Bidders whose bid has / have been determined to be substantially responsive.

Negotiation if necessary would be held limiting to L4 only and specified quantities will be ordered on different firms to meet the requirements of the CESU.

Where negotiations are held, the following pattern of distribution of quantities will be adopted when orders are placed with more than one firm subject to their manufacturing capacities.

The following pattern of distribution of quantities will be adopted while placing orders and at the same price.

- | | | |
|------|--|---|
| I. | When the sources of supply are two | Percentage distribution between L1 & L2 |
| a. | When there are two identical L1 offers | 50 : 50 |
| b. | When negotiation with L1 and L2 | 70 : 30 |
| II. | In case of three sources | 50 : 30 : 20 |
| III. | In case of four sources | 50 : 25 : 15 : 10 |

However it is not binding on CESU to accept the lowest or any other Bid. It reserves the right to place orders on different Bidders.

17. EVALUATION OF BID

The bid Price of the technically & commercially qualified bidder shall be evaluated lot-1& lot-2 taking as one lot. The firms have to quote for full quantity. Bids will be cancelled if not offered for full quantity.

18.0 EXTENSION OF ORDER:-

The CESU reserves the right to place an extension order for any additional quantity to the extent of 20% quantity of the original order on the same rates terms and conditions within six months from the date of order after conforming the supply of the materials from the party received during the delivery period.

XXXXXX

GENERAL CONDITIONS OF CONTRACT

- 1.0 Sealed tenders in duplicate on prescribed forms are invited from reputed manufactures only for supply of static Energy 3PH,4W,0.2s Class,1A(125 nos) , ABT Compliant, HTTV Meters, with RF Modem (Internal/external) & TP Box suitable for out door 33 Kv feeder metering as per specification attached . **The firm has to supply HHU 10 nos with required software for data down loading.**
- 2.0 This work shall include but not be limited to the following work:
- Manufacturing, Testing, Supply, and Delivery of static Energy meters as required under the schedule.
- It is not the intent to specify completely herein all the details of the design and construction of material. The material shall, however, conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing for continuous operation in a manner acceptable to the purchaser, who shall interpret the meanings of drawings and specification and shall have the power to reject any work or material which in his judgment is not in accordance therewith.
- 3.0 Sealed tender in duplicate should be submitted in a sealed envelope. The name of the firm, tender Notice No., Due date & details of the Earnest Money should be clearly indicated on the cover of the envelope and addressed to the General Manager, (APDRP & CONTRACTS) Central Electricity Supply Utility of Orissa, 2nd Floor, IDCO Tower, Bhubaneswar Orissa-751022. All the packets shall be kept in a big envelope.
- 4.0 The tender will be opened in presence of such of those tenderers or their authorized representatives as may desire to be present on the due date and time. Tenders received after the due date and time will be rejected.
- 5.0 **Deposit of Earnest Money**
- a) Tender must be accompanied with an Earnest Money of Rs.30,000.00 failing which the tender will be rejected.
 - b) The Earnest Money should be deposited as per the clause no. 5.0 of IFB. (Invitation for Bid)
 - c) Cheque is not acceptable towards deposit of Earnest Money. Tender accompanied with cheque on account of Earnest Money will be considered without earnest money and will be rejected.
 - d) No earnest money will be accepted after opening of the tender.
 - e) Details of the earnest money should be indicated on the cover of the envelope; otherwise the tender will not be opened and returned to the party.
 - f) The earnest money shall be forfeited in case of non-execution of orders.
- 6.0 The authorities reserve the right to cancel the order contract in part or full for default or delayed supply or supply of sub-standard materials without assigning any reason. The authority reserves the right of verifying the tenderer's credentials, qualifying conditions, manufacturing capacities, past performance, testing facilities etc. to satisfy the tenderer's capacity in participating in the bid.
- 7.0 **Price:**
- Prices in figure and the words must be quoted in CESU's prescribed proforma of price schedule on the firm price basis only, indicating therein clearly and separately Ex-factory price, freight up to F.O.R. destination in Orissa, under the jurisdiction of CESU, as may be required indicating all taxes and duties. The responsibility of safe delivery will rest with the supplier .The prices must be quoted in INR.

8.0 Insurance:

The Insurance will have to be underwritten with the any subsidiary of GIC of India except National Insurance Company. As such Insurance premium should be included in the quoted price.

9.0 Import License:

Import License cannot be arranged by CESU for such of these materials which are under banned category of import. When import is desired to be effected by the tenderers under their own quota, license, the value of quota specifically available against the tender should be stated. In case of availability of suitable, indigenously available materials, the same will be preferred.

10.0 Tests:

Tests will have to be conducted on the materials in case an order is placed. The tests that will be conducted on the materials as per relevant BIS/ Tender specification stated in the tender. Each unit of the materials shall be subjected to the tests prescribed in the relevant standard (latest edition) before supply is affected. Untested materials will not be accepted. The certificates of type tests should also be submitted with the tender. The tenderer has to submit the Quality Assurance Plan (QAP) to be followed for the manufacturing and testing of 3PH,4W,0.2s Class, 1A,meters.

11.0 Guaranteed particulars:

The performance particulars as required in the specification should be sent along with the tender. Other details not specified but otherwise necessary may also be given.

12.0 Past Experience:

Past experiences and performance certificate received in respect of these types of materials supplied earlier shall have to be submitted with the tender, including their performance certificate. The Bidders must have supplied in any one year of this tendered quantity during last three years.

13.0 Deviation from specification:

Any Deviation from the specified specifications or improvement over the specification should be stated in the offer in the enclosed Non-Compliance Schedule format. Any specific provision on the meters, which improves its quality, should be indicated separately.

14.0 Income-Tax & Sales Tax:

An attested copy of Income Tax clearance certificates and sales tax clearance certificates of 2009-10 (AY) should accompany the tender. Central Sales Tax Registration no. of the tenderer should also be stated.

15.0 Technical particulars & drawing

- a) The detailed dimensioned drawing will have to be furnished with the tender in case it is applicable.
- b) Incomplete tenders which do not contain full details, technical particulars, dimensions, literatures, price of all items, delivery period QAP, delivery schedule-bar Chart etc, will be rejected.

16.0 Progress Report:

The supplier will have to submit fortnightly progress report in line with accepted delivery schedule to the Sr.General Manager (APDRP & CONTRACTS). Central Electricity Supply Utility of Orissa Ltd., every month following the month in which the order is placed , on the progress made by the supplier towards proper execution of this order.

17.0 Performance Bank Guarantee.

- 17.1 The successful bidder will have to submit Performance Bank Guarantee amounting to 10% of the contract value within 30 days from the date of issue of award of contract. This **performance Guarantee should remain valid for a period of 3 months over & above the guarantee obligation of 72 months from the date of last despatch.** This performance Bank Guarantee should be drawn from a Nationalised Bank in favour of CESU payable at Bhubaneswar in the prescribed format. In case of failure to furnish performance BG, as per CESU format, an amount equivalent to 10% (ten percent) of the total contract price shall be deducted from the firms bill & same shall be released after submission & approval of composite Bank Guarantee or expire of Guarantee period which ever is earlier.
- 17.2 No interest will be allowed for the Performance Bank guarantee submitted by the bidder.

18.0 Terms of payment.

- 18.1 100% payment will be released for each consignment along with taxes within thirty days after receipt/verification of materials in good condition at the store and due inspection/testing thereof, subject to approval of guarantee certificate, test certificate & submission of Composite Performance Bank Guarantee (amounting to 10% of the contract value) at this office and after due certification and replacement of defective materials if any. The total price of defective materials (if any) not replaced shall be deducted from the final payment.
- 18.2 When the supplier does not at any time, fulfill his obligations in replacing / rectifying etc. of the damaged / defective materials in part or whole promptly to the satisfaction of the CESU, the CESU reserves the right not to accept the bills against subsequent dispatches made by the supplier and only the supplier will be responsible for any demurrages, wharf ages or damage occurring to the consignments so dispatched.

19.0 Consignee / Paying Authority

SDO Electrical Store Sub Division Bhubaneswar/Choudwar is the consignee of the material for accounting purpose & Manager Electrical Store Division, Cuttack is the paying officer.

20.0. Guarantee:

In the event of any defect in the materials arising out of faulty design inferior quality of raw materials and bad workmanship within a period of 72 months of last supply, the Bidder shall guarantee to replace or repair to the satisfaction of the purchaser the defective parts at site free of any cost to CESU. Should however, the Bidder fails to do so within a reasonable time, the purchaser reserves the right to effect repair or replacement and recover charges for repair or replacement from the Bidder by encashment of performance Bank Guarantee.

21.0 Inspection

The purchaser's authorised representative may carry out the inspection at any stage of manufacture. The manufacturer shall grant free access to the purchaser's representative at a reasonable time when the work is in progress. Inspection and acceptance of any equipment under this specification by the purchaser shall not absolve the supplier of his obligation of furnishing the equipment in accordance with the specification and shall not prevent subsequent rejection if the equipment is found to be defective.

All acceptance test and inspection shall be made at the place of manufacturer. The bidder shall afford the inspector representing the purchaser all reasonable facilities without charge, to satisfy him that the equipment is being furnished in accordance with this specification.

The supplier shall keep the purchaser informed in advance, about the manufacturing program so that arrangement can be made for inspection.

The purchaser reserves the right to insist for witnessing the acceptance/ routine testing of the bought out items. The supplier shall give 15 days advance intimation to enable the purchaser to depute his representative for witnessing the acceptance and routine tests.

22.0 Random Sample test after delivered at store.

The consignment of meters received at area Stores shall be accepted only after testing of meters at any nationalized laboratory, at purchaser's laboratory or any other standard laboratory and the **testing charges will be borne by the supplier.** Samples of meters shall be selected randomly from a lot of meters supplied and sent to Purchasers Lab., CPRI or any other standard laboratory for acceptance test as per relevant ISS,CBIP Report and as per procedure Technical Specification. If the sample fails in the above tests, the entire lot will be rejected.

- 22.1 The CESU may at its option get the materials inspected by the third party if it feels necessary and all inspection charges in this connection will be borne by the supplier.
- 22.2 The dispatches will be affected only if the test results comply with the specification. The dispatches will be made only after the inspection by the CESU Officer is completed to the CESU satisfaction or such inspection is waived by the competent authority.
- 22.3 The acceptance of any quantity of materials will in no way relieve the supplier of its responsibility for meeting all the requirements of this specification and will not prevent subsequent rejection if such materials are later found to be defective or deviation from specification/IS.
- 22.4 Should any inspected or tested materials / equipment fail to conform to the specification, the Purchaser may reject the materials and supplier will either replace the rejected materials or make alterations necessary to meet specifications requirements free of costs to the Purchaser.

23.0 Dispatch:

- 23.1 The manufacture after receiving dispatch clearance from the respective inspection Authority/Purchaser should deliver the equipment/materials suitably packed to CESU designated Stores. The materials are to be suitable packed and fully insured against all risks and to be delivered as per dispatch instruction to be communicated in due course. Immediately after dispatch of materials/equipment., the Bidder should notify the purchaser and consignee officer about value of consignment, weight and dimension of consignment by fax and post copy by courier/registered Post, the relevant documents on the strength of which the consignment can be taken delivery at destination.
- 23.2 Materials/ equipment as per dispatch clearance should have to be dispatched within the stipulated period of the order and inspection of further lots against the said order will be arranged after receipt of confirmation regarding physical delivery to our stores by the inspection authority.
- 23.3 In case the inspected materials/ equipment are not delivered within one month after the stipulated physical delivery period, without any valid reasons, the dispatch clearance already issued against the said lot should be considered to be withdrawn and material/ equipment should have to re-offered for inspection and testing and re-testing charges will be livable such cases also.

24.0 Packing:

The materials shall have to be packed suitably in transportable lots as indicated in the technical specification. Due care shall have to be ensured during transportation to keep the packing and seal intact for acceptance by consignee stores.

25.0 Liquidated Damage for Delay in Delivery.

The time of delivery of the materials are to be treated as essence of the contract and CESU reserves the right to repudiate the contract if the materials are not delivered / physically dispatched within stipulated period from the date of issue of dispatch

clearance. Purchaser may at his discretion waive this conditions or imposition of liquidated damage@ ½ % of the value of the material of the particular lot offered/ delivered beyond the schedule delivery period for each week of delay or part thereof up to a maximum limit of 5 % of the value of materials of that particular lot and accept the goods beyond the stipulated delivery period. Any liquidated damage, if involved, will be recovered from the outstanding bills/Performance Bank Guarantee.

26.0 Prices:

The price schedule and the schedule of bids are indicated in Price schedule Format, which should be properly filled up and submitted along with the Bid failing which the tender is liable to be cancelled. The Price quoted should be firm.

27.0 Quantity:

The quantities mentioned in tender schedules are provisional. The purchaser reserves the right to vary the quantities.

28.0 Risk Purchase:

The time of delivery or physical dispatch stipulated in the purchase order shall deemed to be the essence of the contract and if the Bidder fails to deliver or dispatch any consignment within the period prescribed for such delivery or dispatch in the said purchase order/ letter of intent, the purchaser shall be entitled to purchase such consignment or if not available, the best and nearest available substitute elsewhere on the account and at the risk of the Bidder or to cancel the purchaser and Bidder shall be liable to compensate for any loss or damage which the purchaser may sustain by reason of such failure on the part of the Bidder.

29.0 Acceptance of Order

The purchaser will communicate acceptance of tender to the successful Bidder or his authorized agent by a formal order. The successful tenderer will communicate the acceptance of the order, so as to reach the purchaser within 15(fifteen) days from the date of issue of the said order. If the acceptance of order is not received within the above period, then the earnest money against the tender is liable to be forfeited.

30.0 Force Majeure:

The Supplier will not be liable for forfeiture of its performance security, penalty for late delivery, or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

30.1 For purposes of this clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not restricted to, wars or revolutions fires, floods, epidemics, quarantine restrictions, and freight embargoes.

30.2 If a Force Majeure situation arises, the supplier will promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier will continue to perform its obligations under the Contract as far as is reasonably practice, and will seek all reasonable alternative means for performance not prevented by the Force Majeure event.

No price variance will be allowed during the period of force measure.

31.0 Risk Purchase

Incase of supplier who has not adhered to the delivery schedule, the CESU reserves the right to purchase the balance quantity from the open market/floating another tender and recover the extra expenditure thus incurred from the supplier.

32.0 Termination for Default

32.1 The Purchaser, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Supplier, may terminate this Contract in whole or in part:

- i. If the Supplier fails to deliver any or all of the Materials / equipment within the period(s) specified in the Contract, or within any extension thereof granted by the Purchaser.
- ii. If the Supplier fails to perform any other obligation(s) under the Contract.
- iii. If the Supplier, in the judgment of the Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

32.2 In the event the Purchaser terminates the Contract in whole or in part, the Purchaser may procure, upon such terms and in such manner, as it deems appropriate, Materials / equipment or services similar to those undelivered, and the Supplier will be liable to the Purchaser for any excess costs for such similar Materials / equipment or Services. However, the Supplier will continue performance of the Contract to the extent not terminated.

32.0 Termination for Insolvency

The Purchaser may at any time terminate the Contract by giving written notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or not affect any right of action or remedy, which has accrued or will accrue thereafter to the Purchaser.

34.0 Termination for Convenience

34.1 The Purchaser, by written notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination will specify the termination is for the Purchaser's convenience, the extent to which performance of the supplier under the Contract is terminated, and date upon which termination becomes effective.

34.2 However the Materials / equipment that are complete and ready for shipment within thirty (30) days after the supplier's receipt of notice of termination will be accepted by the Purchaser at the Contract terms and prices.

35.0 Arbitration:

All the disputes arising in connection with the present contract shall be settled amicably by mutual consultation, failing which shall be finally settled as per the rules of Arbitration & Conciliation Act, 1996 at the discretion of Purchaser. The Jurisdiction of arbitration shall be at Bhubaneswar, Orissa, India Only.

36.0 Applicable Law

The applicable law shall be that of Union Govt. of India.

37.0 Governing Language

The Governing Language shall be only English.

38.0 Amendment to purchase order:

No variation in our modification of the Terms of purchase order shall be made except by written amendment signed by both the parties (Purchaser and supplier).

39.0 Contact Person

Before issue of purchase order, successful bidder must declare the name and telephone number of the authorized person to be contacted for execution of the purchase order.

39.1 The bidder should provide detailed information regarding any litigation or arbitration arising out of purchase order completed by them or under execution by them over last 5 years.

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QUALIFICATION REQUIREMENTS

- 1(a) Bidder should be a manufacture only who have designed, manufactured, tested and supplied such equipment. The Bidder should be financially sound and must have an annual turn over as indicated in the table below in any one year during the last three year period.

Lots	Description of materials	Qty. (in Nos)	Annual Turn Over (in Rs.)
1	3PH,4W,0.2s class, 1A , ABT Compliant, HTTV Meters, with RF Modem(Internal/external),TP Box & HHU 10 nos along with the software for data downloading suitable for out door 33 Kv feeder metering.	125	1 Crore

The net worth of the Bidder should be positive during last three consecutive years. The Bidder should have supplied similar or higher ratings(both in current capacity or in accuracy class) of minimum equal Qty. of items tendered.

- (b) Bidders who are subsidiaries and have recently established production line in India for the product for which bids are invited, can also be considered legible, provided their parent Company (principals) meets with the criteria mentioned above at item (a) in full and agree to furnish either jointly with the bidder (Subsidiary) or separately, a legally enforceable undertaking to guarantee quality, timely supply, performance and warranty obligations as specified in the Bid Specifications.
- (c) The Principals must furnish authorization in the prescribed form assuring full guarantee and warranty obligations as per the NIT to their Subsidiaries.
- (d) The Bidder must have supplied and provided after sales service for the quantity specified against each schedule in any one year (i.e. a continuous period of 12 months) during the last 3 years which must be in satisfactory operation for at least for the last 2 year on the date of bid opening.
2. The Bidder must have a modern production plant with adequate capacity to manufacture the tendered quantity of Static Energy Meters within the stipulated delivery period, besides meeting his current and future commitments. The Bidders are to furnish the details of supplies effected during last two year with quantity, order value, authority and completion time. Satisfactory completion certificate from the purchaser to be attached.
3. The Bidder must be a qualified ISO 9001 – 2000 certified company. The Bidder should have a full fledged testing laboratory and have to furnish the details of the facilities possessed by them for satisfactorily meeting the test requirement demanded under CEA Standards, Relevant IS and IEC specification. The Quality Assurance Plan (QAP) followed for manufacturing the tendered items should be submitted with the tender.
4. The Bidder should furnish photo copies of purchase orders of supplies made and satisfactory performance reports from the competent authorities in the last two years.
5. All bids submitted shall also include the following information.
- i) Copies of original documents defining the constitution or legal status, place of registration and principal place of business of the Company.
 - ii) The Bidder should furnish a brief write-up, backed with adequate data, explaining his available capacity and experience (both technical and

commercial) for the manufacture and supply of the required equipment within the specified time of completion after meeting all his current commitment.

- iii) Reports on financial status of the Bidder such as turnover, profit and loss statement, balance sheets and auditors' report for the past three years, bankers certificate etc.
 - iv) Certificate from Chartered Accountant on capacity/ supply in any one year i.e. a continuous period of 12 months (as a proof of meeting the requirements as above).
6. The Bidder shall furnish Type Test Reports. The type test must have been carried out in an independent National laboratory as per the relevant CBIP Report/IS/IEC not earlier than three years from the date of opening of bids. The Bids received without type test reports will be treated as Non-responsive.
7. **Two sample meters** conforming to this specification duly sealed along with the Type Test certificates shall be submitted with the bid. It will be compulsory to submit sample meters as above along with the bid, failing which the bid will be ignored.
8. Even though the Bidder meets the above qualifying criteria, he is subject to be disqualified if he has (i) made misleading or false representation in the statements and attachments submitted in proof of qualification requirements and/or (ii) record of poor performance such as not properly completing the contract, inordinate delays in supply completion, litigation history or financial failure etc.
9. Notwithstanding anything stated above, the purchaser reserves the right to assess bidder's capability and capacity to perform the purchase order should circumstances warrant such assessment in the overall interest of the Company (CESU).
10. CESU at its discretion may relax the minimum qualifying criteria for bidder(s), in consideration of certain items like outstanding performance of their meters supplied by him / them to various utilities in the past, timely delivery, trouble – free service, after sales service and proven integrity of the bidder (s) etc.

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(Technical Specification No. CESU/A&C/ 171 /10-11)

**3PH,4W,0.2s class, 1A , ABT Compliant, HTTV Meters,(Import, Export, Lag+Lead)
with RF Modem (Internal/external) & TP Box suitable for out door,33 Kv feeder
metering, compatible with ABT as well as TOD Tariff.**

1. OBJECTIVE & SCOPE: -

Lots	Description of materials	Qty. (in Nos)
1	3PH,4W,0.2s class, 1A , ABT Compliant, HTTV Meters, with RF Modem(Internal/external),TP Box & HHU 10 nos along with the software for data downloading suitable for out door 33 Kv feeder metering.	125

The scope of our offer covers design, engineering, manufacture, assembly, inspection, testing at manufacturer's works before dispatch, supply and delivery of 3P4W, HTTV Meters as detail below.

The meters should be suitable for measurement of energy and power, demand requirement in an A.C. balanced/ unbalanced system over a power factor range of zero lag

to unity to zero lead. The meters should have communication ports to interface standard modems for Remote meter reading on PSTN/GSM network.

The metering system should be flexible enough for changing requirements in future tariffs and designed for minimum maintenance. Meters should be having standard remote communication links for remote data collection. The meters should be having a galvanically isolated communication port as well as an additional RS232/RS 485 port for remote data collection. Related analysis soft wire suitable for operation in a base computer also forms a part of the offer.

2. SERVICE CONDITION: -

The meters supplied should be suitable for satisfactory continuous operation under the following service conditions: -

- a) Maximum ambient temperature : 50 °C
- b) Maximum ambient temperature in closed box : 60 ° C
- c) Maximum ambient temperature in shade : 45 °C
- d) Relative Humidity :10 to 95%
- e) Maximum annual rainfall :1450 mm'
- f) Maximum wind pressure :150 kg/m.sq.
- g) Maximum altitude above mean seal level :1000 meters
- h) Isoceraunic level : 50 days/year
- i) Seismic level (Horizontal acceleration) :0.3g
- j) Permitted noise level : 45 dB
- k) System of earthing :Solidly grounded
- l) Moderately hot and humid tropical climate

3. APPLICABLE STANDARDS: -

The HT CT/PT operated meters should be of 0.2s accuracy Class for active energy and conform to relevant clauses of following standards or report: -

1	IEC 62053-22	A.C. Static watthour meters for active energy (Class 0.2)
2	IS 14697:1999	AC static transformer operated Watthour and Var hour meters class 0.2 S and 0.5 S
3	IS 12063	Specification for degree of protection
4	IS 9000	Basic environmental testing procedure for electronic and electrical items
5	CBIP Tech report 88 (July 96) & latest amendments issued thereof.	Specification for AC static electrical energy of CBIP, New Delhi with its latest amendments.
6	IS 2705/1992 IS 4201	Current Transformers Application guide for current transformer
7	IS-2629	Hot dip galvanizing
8	IS: 5133 (Pt-II)	Specification for boxes for electrical accessories. (Part II boxes made of insulating material)

The static meters and boxes will conform to the latest available version of the standard as specified above.

Meters meeting with the requirements of other authoritative standards, which ensure equal or better quality than the standards mentioned above, shall also be considered. Where the meters offered by the supplier conforms to other standards, salient points of differences along with advantages to be gained between the standard adopted and the specified standards shall be clearly brought out in a schedule. Two copies of such standards in authentic English translation shall be furnished along with the offer.

In case of any dispute, the order of precedence will be 1) CBIP technical report –88 (read with all amendment) 2) IS 3) IEC 4) and other standards. In case of any difference, between provisions of these standards and provision of this specification, provisions contained in this specification will prevail.

4. GENERAL TECHNICAL REQUIREMENT: -

- 4.1. Application : 3 phase 4 wire
- 4.2. Rated Secondary Voltage : 110 Volts (P to P) & 110/ $\sqrt{3}$ Volts (P to N)
- 4.3. Rated secondary Current (I_{Basic}) : 1Amps, meters)balanced/ unbalanced load
- 4.4. Rated Frequency : 50 Hz.
- 4.5. Accuracy class : 0.2s
- 4.6. Power Factor : Unity to Zero (all power factor lag/or lead).
- 4.7. Type : Export & Import, Apparent Calculation (Lag+Lead)

The meter should start and continue to register on application of 0.1% of basic current at Unity P.F., as per relevant standards and should work satisfactorily up to rated maximum continuous current with the following supply system variation:

- Voltage : $V_{ref} + 20\%$ to -30%
Frequency : 50 Hz $\pm 5\%$

4.8 **Temperature:** The standard reference temperature for performance will be 27°C. The mean temperature co-efficient will not exceed 0.03%.

5.0 INFLUENCE QUANTITIES: -

The meter should be designed and protected in such a manner that all external effects and influences will not change its performance & the meter will work satisfactorily within guaranteed accuracy limits, as specified in IS 14697: 1999 / CBIP technical report – 88 with latest amendments , under the presence of influence quantities.

6.0 CONSTRUCTION: -

The meter should be of three-element construction to suit measurement in 3-phase 4-wire HT instrument CT PT operated system. The manufacturing process should be of most modern type and should ensure high reliability and long trouble free service.

6.1 GENERAL REQUIREMENTS: -

The construction of the meter should be rigid & suitable to withstand shock & vibration involved in transportation & handling, as specified in IS 14697: 1999/ CBIP technical report – 88 with latest amendments. The meter should be designed and constructed in such a way as to avoid introducing any danger in normal use and under normal conditions, so as to ensure especially personal safety against electric shock, safety against effect of excessive temperature, protection against spread of fire, protection against penetration of solid objects, dust and water. The design of meter should conform to IP51 of IS: 12063 / IEC: 529 class degree of protection against dust, moisture and vermin.

The meters should be designed and constructed in such a way as to avoid introducing any danger in use so as to ensure specially:

- a. Personnel safety against electric shock.
- b. Personnel safety against effects of excessive temperature.
- c. Protection against spread of fire.
- d. Protection against penetration of solid objects, dust and water.

6.2 TROPICAL TREATMENT: -

All parts, which are subject to corrosion under normal working conditions, should be protected effectively. Any protective coating should not be damaged by ordinary handling or damage due to exposure to air, under normal working conditions. The meters should withstand solar radiation. The meters should be suitably designed and treated for normal life & satisfactory operation under the hot and hazardous tropical climatic conditions as specified in clause no. 2. The meter should work from -10°C to +55°C and RH 95% non-condensing type.

6.3 METER CASE: -

The housing of the meter should be safe high-grade Engineering plastic / polycarbonate or any other high quality insulating material and should be very compact in design. All the insulation materials used in the construction of meter should be non-hygroscopic, non ageing & of tested quality, capable of withstanding at least 4 kV and resistant to heat & fire. The construction of the meter should be such that it can be sealed independently and the cover cannot be removed with the use of a tool, without breaking the seal. The case of meters should be so constructed that any non-permanent deformation should not prevent the satisfactory operation of the meter.

The meter case should be fixed into the meter base with specially designed unidirectional screws and the meter body cover would be ultrasonically welded with the meter base to make the system 'break-to-open' type. Any other suitable break to open arrangement will also be considered. The details of the 'break-to-open' arrangement to be provided shall be furnished in shape of descriptive literature with drawings, brochures etc.

6.4 TERMINALS -TERMINAL BLOCK: -

The base of the meter should have a common terminal block at the bottom made out of High grade Engineering plastic so as to facilitate bottom connection and should house solid brass terminals having capability to carry 150% of maximum value of current. The terminal block should be non hygroscopic, non ignitable and with material of good dielectric and mechanical strength.

The material of the terminal block will pass the tests specified in relevant clause of CBIP technical report – 88 with latest amendments and IS 14697.

The terminal holes in the insulating material should be of sufficient size to accommodate the insulation of the conductors. The terminal hole diameter shall not be less than 5.0 mm(approx.) & should be of adequate length in order to have proper grip of conductors / crimping pins with the help of two screws.

The terminal block should satisfy all the conditions such as clearance & creepage distance between terminals & surrounding part of the meter as specified in relevant clause of IS 14697:1999 and CBIP technical report – 88 with latest amendments.

The manner of fixing the conductors to the terminals should ensures adequate and durable contact such that there should be no risk of loosening or undue heating. Screw connections transmitting contact force and screw fixing which may be loosened and tightened several times during the life of the meter should be such that the risk of corrosion resulting from contact with any other metal part is minimised. Electrical connections should be so designed that contact pressure should not be transmitted through insulating material. For current circuits, the voltage should be considered to be at the same potential as for the related voltage circuit.

All connection screws and washers will be tinned/nickel-plated brass. The terminal screws should not have pointed end at the bottom. All terminals should have two screws.

Terminals with different potentials, which are grouped close together, should be protected against accidental short-circuiting.

Connection diagram: Every meter should be indelibly marked with a connection diagram showing the phase sequence for which it is intended and this diagram should be attached from inner side of the extended terminal block cover. It should be ensured that if special precautions need be taken at the time of testing the meter, the same may be indicated along with circuit diagram.

Terminal arrangement: Three phase: The terminal arrangement and connection diagram will be marked in accordance with the relevant clause of IEC 62053-22/IS14697:1999 Terminal arrangement shall be in single tier or in two tier(one for voltage and the other for current circuit) and shall be in sequence Ir(in), Vr, Ir(out), Iy(in),Vy,Iy(out), Ib(in), Vb, Ib(out), N.

6.5 TERMINAL BLOCK COVER: -

The terminals block cover of the energy meters should be extended transparent type, and should be fixed to the meter terminal block by two screws and can be sealed independently of the meter cover. The terminals, their fixing screws, external conductors, their insulation and the insulated compartment housing them should be enclosed by extended terminal cover in such a way that no part of meter or cable/ accessories will be accessible from the front of the meter. The terminal cover should be provided with suitable cut/holes to allow easy connection/termination of cable.

The terminals should not be accessible without removing the seal(s) of terminal cover when energy meter is mounted on the meter board.

The terminal block should have the provision with double screws for the meter for fixing to the meter board. It should not be possible to remove the meter from the hanging screws with out removing the screws from the terminal block.

Non-flammability: The terminal block, terminal cover and the case should ensure reasonable safety against spread of fire. They should not be ignited by thermic overload of live parts in contact with them. To comply with this, these parts should fulfil the conditions of the glow wire test as per the clause 5.2.4 of CBIP Technical report No. 88 with latest amendments.

6.6 WINDOW: -

The energy meter cover should be made of high-grade engineering plastic with one viewing window.

The window should be scratch and break resistant made of transparent silicon coated polycarbonate material, suitably fixed with the meter cover such that it will form an integral part and it cannot be removed undamaged without breaking the meter cover seals. It should not fade in course of time and become opaque causing inconvenience for reading.

The viewing window would be minimum 2 ± 0.2 mm thickness. The fixing of window should be tight with single complete frame all round and will permit clear view of the display. There should not be ingress of moisture and dust through window.

7.0 REAL TIME CLOCK: -

A real time quartz clock should be used in the meter for maintaining time and calendar and as such no time switches etc. will be provided. The uncertainty of setting initial time should not be more than ± 30 seconds from the Indian Standard Time (IST) as maintained by NPL, New Delhi. The Maximum drift should not be more than ± 2 min. / year or better as per CBIP technical report with latest amendments. Facility for adjustment of real time should be provided through Meter Reading Instrument with proper security.

8.0 LOAD SURVEY FACILITY:-

- 8.1 It should be possible to store previous at least 35 days every 15 minutes data of active energy, demand (KW and KVA), Reactive Energy (When voltage high and when voltage low), Average Frequency and average of RMS value of three line to neutral voltage. The demand to be recorded in the load survey shall match with the recorded in DISPLAY PARAMETERS. The demand and energy consumed as discussed shall be recorded separately under energy Import / energy Export within a 15 minutes time block.
- 8.2 It should be possible to down load and view parameters and load survey data on BCS using appropriate software and obtain full details of demand and consumption in statement form and also in graphic form.
- 8.3 Meters shall be four Quadrant meter shall be capable of recording active / reactive and apparent energy and also demand in four quadrant.
- 8.4 Meter to measure fundamental frequency energy only.
- 8.5 Necessary software for various programmable features required for the meter and also necessary window based software for the BCS to obtain various details as mentioned above and additional if any shall be provided by the supplier. The software shall include provision for load survey graphic presentation and other reports generation in BCS from the data collected from the meter through meter reading instruments and also through remote communication.

9.0 COMMUNICATION PORT: -

a) Local Communication Port:

The energy meter should have a galvanically isolated optical communication port located in front of the meter for data transfer to or from a DOS based hand held Data Collection Device (Common Meter Reading Instrument, CMRI-conforming to CBIP technical report-111 with latest amendments) with proper security and without error. Additionally it should have a **RF modem(Internal/external)** for taking meter reading as well as downloading the data from at least 100 mtrs. Distance.

b) Remote Communication Port: -

Meter should have an additional communication port (RS 232/RS 485) or any suitable port to interface standard dial up modems for remote data collection using PSTN/GSM modem or any other means. In all case the bidder must supply the customized software. The meter shall be suitable for transmitting the data to remote location using

appropriate communicating medium. The data required to be transmitted every 15 min i.e. Avg. frequency ,Avg. demand (KW),Avg KVARH of last block period & Instant frequency

The manufacturer may quote for any other type of communication port conforming to any international accepted standards. The manufacturer may adopt protocol of his choice but should load the meter software, protocol software, dial up software and any other required software into the base computer station of the purchaser. After loading the software in the purchaser's base computer station / central computer station, the manufacturer shall demonstrate the data transfer through CMRI and GSM or P&T lines and regenerations of appropriate reports to the purchaser. The data element size and its overhead speed of transmission shall be such that the entire billing data, load profile / survey, historical, tamper and all other data in the meter memory can be transferred within maximum time of 10 minutes in order to achieve faster reading of meters.

10.0 QUANTITIES TO BE MEASURED & FUNCTIONAL REQUIREMENT

- 1) The active energy measurement shall be carried out on 3 phase, 4 wire principle with an accuracy as per class 0.2s of IEC -62053-22 / IS 14697. The meters shall compute the active energy and load import / active energy and load export from the substation bus bars during each successive 15 minutes block, and store it in its memory. It shall also display on demand last 15 - minute energy (import / export). The meter will record in the export or import during 15 minutes time block
- 2) The M.D. integration period will be 15 minutes by default. However the same should be programmable to 15/30 minutes
- 3) Meters shall be suitable for working under balanced / unbalanced loads at all power factor as specified in the relevant IS.
- 4) The meter shall continuously compute the average of the RMS values of the three line-to-neutral VT secondary voltage and display the same on demand. Further, the average frequency of the previous 15 minute block shall also be displayed on demand in Hz.
- 5) The meter shall also compute the reactive power on 3-phase, 4-wire principle, with an accuracy as per relevant standards, and integrate the reactive energy algebraically into two separate registers, one for the period for which the average RMS voltage is 103% or higher, and the other for the period for which the average RMS voltage is below 97.0%. The current reactive power and cumulative reactive energy readings of the two registers shall be displayed on demand. The readings of the two registers at each midnight shall also be stored in the meter's memory.
- 6) The reactive energy shall also be stored in four different registers of meter memory as
 - Reactive import while active import
 - Reactive import while active export
 - Reactive export while active import
 - Reactive export while active export
 - Cumulative energy registers of the same shall be made available on display as well as base computer software (BCS)
 - The meter shall also store the apparent energy (import and export) and cumulative energy registers of the same shall be made available on display as well as BCS.
- 7) The meters shall be compatible with ABT as well as TOD tariff. For TOD tariff, meter shall have the provision to define maximum 6 TOD registers for different energies & maximum demands.
- 8) The meters shall be able to measure and display parameters like instantaneous phase wise voltages, instantaneous line currents, instantaneous average three phase power factor, average frequency and time.
- 9) Errors shall comply with CBIP recommendations for all power factor angles from 0 to 360 degrees.

- 10] However for reactive power and reactive energy measurement, limits of errors for both active as well as reactive energy in all the four quadrants shall be in accordance to IEC 687 / IEC –62053-22.
- 11] No rounding off to the next higher last decimal shall be done for voltage and frequency displays.

11.0 FUNCTIONAL REQUIRMENTS: -

The meter information should be shown by an electronic display device & backlit arrangement.. The electronic display of the meters should be bright enough and distinctly visible LCD with adequate contrast between letters / digits and the background for clarity and visibility so as to read one tenth of KWh. Various displayed parameters can be cycled through a push button. Displayed parameters, under present display should be identified with appropriate text and symbol. The height of display unit should be minimum 8 mm. Under normal condition, the meter will be in auto display mode, so that designated parameters will scroll cyclically in a continuous manner and the display 'ON TIME' will be at least 8 seconds for each measured value.

When the meter is not energized, the electronic display should not be visible. However, in absence of power, meter display should be activated for meter reading by means of an additional internal/external battery back up with push button arrangement . This should also enable for meter reading through LPR.

The principal unit for the measured values shall be the kWh for active energy, kVARh for reactive energy & kVAh for apparent energy. The backlight arrangement shall be provide on the meter.

The display resolution of the meters will depend on commissioning value (CT /PT ratio) However, The energy register will be able to record and display, starting from zero, for a minimum of 1500 hours, the energy corresponding to rated maximum current at reference voltage and unity power factor as per IS 14697. The register should not roll over in between this duration. The decimal digit should be clearly distinguished from the integral digit.

The meter should have the 'scroll-lock' facility, i.e. the facility for continuous display of desired parameters from 'push button display sequence', to facilitate meter reading for a particular parameter. Push button display sequence will have overriding effect over auto-scroll-display sequence.

12.0 MEMORY: -

The meter should have non-volatile memory (NVM) independent of battery back up & it should retain data in 'power-off' conditions for a period of minimum 12 years without power supply. Readings should be retained undisturbed in 'power-off' conditions and at the time of resumption of power supply, meter should start reading/displaying cumulative values recorded prior to power interruption.

The meter shall have adequate NVM capacity to keep records of meter reading, history of abnormalities, Load survey & other relevant information as mentioned in this specification.

13.0 ELECTROMAGNETIC COMPATIBILITY: -

The static energy meters should conform to requirements listed in CBIP technical report–88 with latest amendments and should also be protected against radiated interference from either magnetic or radio-frequency source.

The meter should also withstand DC Immunity test as per relevant standard so as to ensure that the meter does not saturate on passage of Direct Current.

14.0 IMMUNITY TO ELECTROMAGNETIC DISTURBANCE: -

The meter should be designed in such a way that conducted or radiated electromagnetic disturbance as well as electrostatic discharge do not damage or substantially influence the meter and meter should work satisfactorily under these conditions as per relevant standards.

NOTE: The disturbance to be considered are: -

1. Harmonics.
2. Voltage dips and short interruptions.
3. Conducted transients.
4. D.C. and A.C. magnetic fields.
5. Electromagnetic fields.
6. Electrostatic discharges.
7. High frequency devices.

15.0 RADIO INTERFERENCE SUPPRESSIONS: -

The meter should not generate noise which could interfere with other equipment and the meter should work satisfactorily as per relevant standards.

16.0 INFLUENCE OF HIGH MAGNETIC FIELD: -

The meters should be provided with appropriate magnetic shielding so that any external magnetic field (AC/DC electromagnet) as per CBIP Technical Report no. 88 with latest amendments, applied on meter would not affect the proper functioning of the meter and meter will work satisfactorily as per relevant standards.

17.0 STARTING CURRENT: -

The meter should start and continue to register at the current 0.1% of I_b . It should be fully functional within 5 seconds after rated voltage is applied.

18.0 RUNNING WITH NO LOAD: -

When the 115% of rated voltage is applied with no current flowing in the current circuit, the meters should not register any energy and test output of the meter should not be more than one pulse/count on "no load".

19.0 POWER SUPPLY: -

The energy meters should be self powered up type i.e. power for working of the meter's internal electronic circuit will be drawn from all the three phases. Further, the power supply for the meter's internal electronic circuits should be such that meter should function accurately, within the limits specified by the relevant standard & as per prevailing electrical conditions. The meter will continue to work in case of loss of any one phase.

20.0 POWER CONSUMPTION: -

20.1 The active and apparent power consumption in each voltage circuit of the HT Operated meters at reference voltage, temperature and frequency should not exceed 1 W without remote communication and 1.5 W with remote communication and 8 VA per phase respectively.

20.2 The apparent power consumption in each current circuit for the HT Operated meters at basic current, reference frequency and reference temperature should not exceed 1.0 VA per phase.

21.0 CALIBRATION & TEST OUTPUT: -

All the meters should be tested, calibrated and sealed at works before dispatch. Further, no modification of calibration should be possible at site by any means.

The meter shall have a test output accessible from the front and be capable of being monitored with suitable testing equipment. The operation indicator, if fitted, must be visible from the front. Test output device shall be provided in the form of one common LED for kWh, kVArh and kVAh with the provision of selecting the parameter being tested.

Resolution of the test output shall be sufficient to enable the starting current test in less than 10 minutes and accuracy test at the lowest load shall be completed with desired accuracy within 5 minutes (as per clause 4.2.2.10 of CBIP report no.88 with latest amendments).

The relation between test output and the indication on display shall comply with the marking on the name plate (imp per kWh/kVArh or kWh/kVArh per imp).

22.0 SEALING OF METER: -

Proper sealing arrangement should be provided on the meter to make it tamper proof and avoid mishandling by unauthorized person.

Two sealing stickers must be provided on the side of the meter body at the factory after calibration and testing. The meter cover will have provision for placing minimum two numbers additional seals by CESU. The terminal block cover should have provision for placing minimum two seals by the CESU. One separate sealing arrangement to the MD reset button cover and separate sealing arrangement for optical port to be used for communication should be provided.

All the sealing screws when they are in open condition (i.e. not fixed) would not be easily detachable from the respective cover. The meter should be designed and constructed in such manner to make it pilfer proof.

The holes for sealing wire shall be of 2mm diameter approximately, suitable for making satisfactory sealing of the meters.

All the above seals should be provided on front side only apart from two numbers of stickers seals on the side of the meter.

23.0. QUANTITIES TO BE MEASURED AND DISPLAY: -

Display parameters, under present display will be identified with appropriate text and symbol on the LCD display of the meter therefore no such legend plate for details of various parameters being displayed should be required.

The meter should be capable of recording and displaying following data in order:

Display Cycle in Push Button as follows

1. LCD TEST
2. METER SERIAL NO
3. REAL TIME
4. DATE (in dd/mm/yy)
5. RISING DEMAND WITH ET(KVA)
6. ACTIVE ENERGY (IMPORT) (Cumulative)
7. ACTIVE ENERGY (EXPORT) (Cumulative)
8. APPARENT ENERGY WHILE ACTIVE IMPORT(Cumulative)
- 9 APPARENT ENERGY WHILE ACTIVE EXPORT(Cumulative)
10. REACTIVE ENERGY (LAG) WITH ACTIVE IMPORT(Cumulative)
11. REACTIVE ENERGY (LAG) WITH ACTIVE EXPORT(Cumulative)
12. REACTIVE ENERGY (LEAD) WITH ACTIVE IMPORT(Cumulative)
13. REACTIVE ENERGY (LEAD) WITH ACTIVE EXPORT(Cumulative)
- 14 MAX. DEMAND IMPORT IN (KVA)
15. MAX. DEMAND EXPORT IN (KVA)
16. MD RESET COUNT
17. INST POWER FACTOR WITH SIGN FOR LAG / LEAD

18. INST FREQUENCY
19. INST VOLTAGE (PHASE WISE)
20. INST CURRENT (PHASE WISE)
21. INST ACTIVE LOAD (KW)
22. INST REACTIVE LOAD
23. PRESENT MONTH POWER ON HOURS SHOULD BE REST ON BILLING POINT
24. PRESENT TOD ENERGY (ACTIVE) – 1C, 2C, 3C, 4C
25. PRESENT TOD ENERGY (APPARENT ENERGY) – 1C, 2C, 3C, 4C
26. PRESENT TOD MAX. DEMAND (KVA) – 1C, 2C, 3C, 4C
27. PREVIOUS MONTH MAX DEMAND IMPORT (KVA)
28. PREVIOUS MONTH MAX DEMAND EXPORT (KVA)
29. CUMULATIVE MAXIMUM DEMAND (KVA) IMPORT
30. CUMULATIVE MAXIMUM DEMAND (KVA) EXPORT
31. TAMPER MAGNETIC INFLUENCE DISPLAY
32. PRESENT STATUS OF TAMPER
33. LAST OCCURANCE OF TAMPER WITH DATE & TIME
34. LAST RESTORATION OF TAMPER WITH DATE & TIME
35. TOTAL NUMBER OF TAMPER COUNT
36. CUMULATIVE REACTIVE ENERGY REGISTER WHEN RMS VOLTAGE IS ABOVE 103%.
37. CUMULATIVE REACTIVE ENERGY REGISTER WHEN RMS VOLTAGE IS BELOW 97%.
38. AVERAGE FREQUENCY OF PREVIOUS 15 MIN BLOCK WITH ONE PLACE OF DECIMAL.
39. NET TRANSMITTAL IN PREVIOUS 15 MIN BLOCK WITH +/- SIGN.
40. PREVIOUS DAY ACTIVE ENERGY (00 to 24 Hrs.)
41. PREVIOUS DAY REACTIVE ENERGY (00 to 24 Hrs.)

Display Cycle in Auto mode is as follows

1. LCD TEST
2. METER SERIAL NO
3. REAL TIME
4. DATE (dd/mm/yy)
5. RISING DEMAND WITH ET(KVA)
6. ACTIVE ENERGY (IMPORT) (Cumulative)
7. ACTIVE ENERGY (EXPORT) (Cumulative)
8. APPARENT ENERGY WHILE ACTIVE IMPORT(Cumulative)
9. APPARENT ENERGY WHILE ACTIVE EXPORT(Cumulative)
10. REACTIVE ENERGY (LAG) WITH ACTIVE IMPORT(Cumulative)
11. REACTIVE ENERGY (LAG) WITH ACTIVE EXPORT(Cumulative)
12. REACTIVE ENERGY (LEAD) WITH ACTIVE IMPORT(Cumulative)
13. REACTIVE ENERGY (LEAD) WITH ACTIVE EXPORT(Cumulative)
14. MAX. DEMAND IMPORT IN (KVA)
15. MAX. DEMAND EXPORT IN (KVA)
16. MD RESET COUNT
17. INST POWER FACTOR WITH SIGN FOR LAG / LEAD
18. INST FREQUENCY
19. INST VOLTAGE (PHASE WISE)
20. INST CURRENT (PHASE WISE)
21. INST ACTIVE LOAD (KW)

22. INST APPARENT LOAD
23. INS REACTIVE LOAD
24. PRESENT MONTH POWER ON HOURS SHOULD BE REST ON BILLING POINT
25. PREVIOUS MONTH MAX DEMAND IMPORT (KVA)
26. PREVIOUS MONTH MAX DEMAND EXPORT (KVA)
27. CUMULATIVE MAXIMUM DEMAND (KVA) IMPORT
28. CUMULATIVE MAXIMUM DEMAND (KVA) EXPORT
29. AVERAGE FREQUENCY OF PREVIOUS 15 MIN BLOCK WITH ONE PLACE OF DECIMAL.
30. NET TRANSMITTAL IN PREVIOUS 15 MIN BLOCK WITH +/- SIGN.
31. PREVIOUS DAY ACTIVE ENERGY (00 to 24 Hrs.)
32. PREVIOUS DAY REACTIVE ENERGY (00 to 24 Hrs.)

LOAD SURVEY

35 DAYS, 15 MIN IP with parameter :-

- 1- KWH (Export & Import)
- 2- KVARH In Voltage high Condition & Voltage Low Condition.
- 3- KW & KVA (Export & Import)
- 4- Voltage (RMS Value of 3 line to Neutral voltages)
- 5- Frequency

APPARENT CALCULATION – (LAG +LEAD)

TOD TIMING (Both MD & ENERGY)

1C = 00: 00 Hrs to 06:00 Hrs

2C = 06:00 Hrs to 24:00 Hrs

MD RESET REQUIRED - **AUTO MODE ONLY , MANUAL RESET NOT REQUIRED**

History

TOD MD – 12 months

All Energy – 12 months.

Note: -

- (a) Apparent Energy is computed considering Reactive Energy to be lag + lead .
- (b) Demand Integration period should be programmable as a block of 15 minutes or 30 minutes and 15 minutes by default.
- (c) TOD Timings: There will be a provision of at least Four Time of Day Zones for Energy (Active Import/Export, Reactive Lag/Lead) and Demand (Apparent demand) registers. Maximum 8 TOD zones can be defined. Number and timing of these TOD Zones will be programmable.

TOD timings will be informed to the supplier by CESU at least four weeks before commencement of delivery.

- (d) Display sequence of the above mentioned parameter can be changed as desired at the time of placing order or Four (4) weeks before commencement of delivery. It shall be programmable through appropriate software & MRI.
- (e) Display through push bottom will have priority over the auto display.
- (f) Meter shall continue to function in case of failure of one or two phases PT Supply. In case of complete supply failure, the computation of average frequency shall be done only for the period during which VT supply was available.
- (g) All harmonics shall be filtered out while measuring active/reactive/apparent energy & only fundamental frequency shall be considered.

24.0 ABNORMALITY EVENTS DETECTION: -

The meter will function as given below under following common abnormal conditions:

1.Phase sequence reversal	The meter shall keep working accurately irrespective of the phase sequence of the supply.
2. Missing Neutral	The meter shall continue to record accurately according to electrical connections even if the Neutral of potential supply is accidentally or incidentally disconnected.
3.Current reversal / connection reversal	The meter shall be capable of detecting and recording occurrence and restoration with date and time of CT Short with phase identification.
4. External magnetic influence	The metering system shall be provided with adequate magnetic shielding so that any external magnetic field (AC Electro Magnet or DC Magnet) as per the values specified in CBIP Technical Report No.88 (with latest amendments) applied on the metering system shall not affect the proper functioning and recording of energy as per error limits prescribed by CBIP.
5. Diode circuit on outgoing neutral.	It should read accurately as per ISS with external diode ckt in the outgoing neutral ckt.
6. Tamper proof irreplaceable seals.	It should have Tamper proof seals with number matching with that with meter.
7. Spark discharge of approximately 35 KV	<p>a. The accuracy of the meter should 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: -</p> <ul style="list-style-type: none"> (i) One any of the phases or neural terminals. (ii) On any connecting wires of the meter. (iii) Voltage Discharge with 0-10 mm spark gap. (iv) At any place in load circuit. <p>The accuracy of meter shall be checked before and after the application of above device(s) with site conditions.</p>

Beside this the meter would have features to detect the occurrence and restoration of, at least, the following common abnormal events:

- a) **Missing Potential & Potential imbalance:** The meter should be capable of detecting and recording occurrence and restoration with date and time the cases of Potential failure which could happen due to disconnection of potential leads (one or two), failure of phase line fuse from the Transformer primary side & will work as per prevailing electrical conditions. The meter should also detect and log cases of voltage unbalance (from 5 % for more than 15 minutes or more - programmable) of voltages & will work as per prevailing electrical conditions.
- b) **Current imbalance:** The meter should be capable of detecting and recording occurrence and restoration with date and time of Current unbalance (30% or more for more than 15 minutes- programmable) & will work as per prevailing electrical conditions.
- c) **CT reversal:** The meter should be capable of detecting and recording occurrence and restoration with date and time of CT reversal with phase identification.
- d) **CT Open :** The meter should be capable of detecting and recording occurrence and restoration with date and time of CT open with phase identification.

- e) **CT Short** : The meter should be capable of detecting and recording occurrence and restoration with date and time of CT Short with phase identification.
- f) **Power on/off**: The meter should be capable to record power on /off events in the meter memory persisting beyond specified time. Persistence time should be programmable and 10 minutes by default. The report will be available through base computer software in a meaningful format indicating occurrence / restoration and total power outage.
- g) **Software Changing**: Any communication with the meter for any change in meter software or any attempt to write in meter software (software tamper) should be recorded in the meter memory with date and time stamping. However, any communication for reading the meter data should not be recorded in the meter memory. This data should also be available in the display as highlighted in this specification.
- h) **Magnetic Tamper**: Additionally, meter shall be capable to record the presence/ removal of magnet with date & time stamp in case the influence of magnet exceeds the limit as desired in the CBIP Report – 88 with latest amendments.
- i) The bidder may offer any other recordable abnormality event, which should be useful in consumer metering/feeder metering, along with the detailed descriptions, literatures, usefulness and every other implications.

The meter should record the total duration of the above abnormalities, time and date of their occurrences & restorations with a snap shot of electrical conditions viz. Voltage, current, PF etc at Base Computer System for the events a), b), c) as mentioned above, if abnormalities persist for a definite persistence time.

Logic for calculation of voltage imbalance, current imbalance, CT Short & CT Open shall be furnished by the bidder.

The meter will keep records for the minimum last 150 events (occurrence + restoration, occurrence and restoration will be treated as separate events) for above of abnormal conditions. The recording of events will be on FIFO basis. It will be possible to retrieve the abnormal event data along-with all related parameters through the meter's optical port with the help of a CMRI and through LPR as well as remote communication & download the same to the BCS where it will be available for viewing. All this information will be made available in simple and easily understandable format.

The selection of the abnormality events and manner of recording, retrieval etc. shall be decided during the technical evaluation of the offers and will be spelt out in the contract.

The Bidder has to provide Users Manual with each meter. The logic of tamper events such as current imbalance, CT short, CT Open, Low voltage, High Voltage & voltage unbalance etc. shall be provided either in the users manual or in separate booklet/sheet with each meter.

25.0 BILLING HISTORY & LOAD SURVEY: -

The meter will have sufficient non-volatile memory for recording history of energy parameters for last twelve billing cycles (Bill date will be 00 hrs of the 1st date of the calendar month by default – programmable)

The meter will be capable of recording active (import/export), apparent demand and reactive lag & lead, average frequency, average RMS voltage, Cumulative active energy transmittal, Cumulative reactive energy transmittal for voltage high condition as well as voltage low condition at each mid night in six digit including one decimal of 15 minutes integration period for at least last 35 days.

The logging interval for load survey will be 15 Minutes by default. Load survey data will be logged for last 35 days for interval of 15 minutes respectively. In case there are no power for

the complete day from 0000 hrs to 2400 hrs, the same shall not be recorded in Load survey days. These load survey data can be retrieved with the help of Meter Reading Instrument / LPR/Remote connectivity as and when desired & load profiles could be viewed graphically/analytically with the help of meter application software. The meter application software will be capable of exporting these data for analysis to other user software in spreadsheet format (Excel or any other advanced format).

26.0 MD REGISTRATION: -

The meter should continuously monitor and calculate maximum demand for each interval of time, which may be programmable as a block of 15 minutes or 30 minutes (30 minutes by default). At the end of every demand integration period the new calculated MD will be compared with the previous MD and meter will store whichever value is higher. The meter will be capable of storing at least 12 such MD including current month with date & time in billing history.

26.1 MD RESET: The meter will have the following MD resetting options:

- a) Automatic reset at the end of a certain predefined period. The predefined period will be at 24.00 Hrs of the last date of each calendar month for which minimum 30 years calendar should be programmed.
- b) All MD reset shall be recorded as an event.

27.0 SELF DIAGNOSTIC FEATURE: -

The meter shall keep log in its memory for unsatisfactory / non-functioning of the RTC battery, LCD, Memory etc. of meter. Further, the meter should have the capability to check the correctness of the wiring at the time of meter installation. A detailed write-up on self-diagnostic feature to be proved by the bidder.

28.0 TEST AND TEST CONDITIONS

Routine & Acceptance Tests for meters:

28.1 **Acceptance test:** All acceptance tests as stipulated in the relevant standard shall be carried out by the supplier in the presence of Purchaser's representative.

Also the following additional tests shall be carried out on meters from each lot for inspection as per CBIP technical report -88 with latest amendments on randomly selected samples-

- a) Magnetic induction of external origin (AC & DC)
- b) Tamper and fraud protection as per clause 8 of this Specification.
- c) Effect of high frequency devices.

28.2 **Routine test:** All routine tests as stipulated in the relevant standard shall be carried out and routine tests certificates shall be submitted for approval of purchaser.

28.3 **For meters:** The Energy Meters shall be fully type tested at independent laboratories by the bidder as per relevant standards but test reports shall not be more than three years old from the date of opening of bid. The bidder shall furnish two sets of type test reports along with the bid. Bid without type test reports shall be treated as non responsive.

29.0 PACKING & FORWARDING: -

29.1 The equipments will be packed in crates suitable for vertical / horizontal transport as the case may be and suitable to withstand handling during transport and outdoor storage during transit. The Supplier will be responsible for any damage during transport and out door storage during transit due to improper and adequate packing. The easily damageable material will be carefully packed and marked with appropriate caution symbol. Wherever necessary, proper arrangement for lifting such as lifting hooks etc. will be provided. Any material found short inside the packing cases will be supplied immediately without extra cost.

29.2 Each consignment will be accompanied with detailed packing list containing the following instructions:

- a. Name of the consignee
 - b. Details of consignment
 - c. Destination
 - d. Total weight of consignment
 - e. Handling and packing instructions
 - f. Bill of material indicating contents of each package
- 29.3 The packing will be done as per the standard practice. However bidder will ensure that the packing is such that the material should not get damaged during transit by rail/road.
- 29.4 The marking on each package will be as per relevant standard and will contain "CESU" imprint.

30.0 MARKING OF METER: -

The meter terminal marking and mounting arrangement should be as per Indian installation practices.

The marking on every meter will be in accordance with IEC. 62053-22/IS 14697:1999

Every meter should have nameplate beneath the meter cover such that the nameplate cannot be accessed without opening the meter cover and without breaking the seals of the meter cover and the nameplate will be marked indelibly. The nameplate marking would not fade with lapse of time. The basic markings on the meter name-plate will be as follows: -

- i. Owner's Name : CESU of Orissa
- ii. Manufacturer's name and trade mark.
- iii. Type Designation.
- iv. Number of phases and wires.
- v. Serial number.
- vi. Year of Manufacture.
- vii. Reference voltage
- viii. Rated secondary current of CT (-/1A).
- ix. Principal unit(s) of measurement.
- x. Meter constant (imp/kWh, kVArh, kVAh).
- xi. Class index of meter.
- xii. Purchase Order Number & Date.
- xiii. Guarantee for -----Years.

31.0 SAMPLES: -

Two sample meters with boxes conforming to this specification duly sealed along with the Type Test certificates shall be submitted with the bid. The above sample meters shall be tested in purchaser's meter testing lab and/or any independent test lab and **the testing charges will be born by the supplier.** The samples shall be complete in all respects and no deviations shall be allowed thereafter. In case sample meters does not conform to the prescribed specifications, **the financial bid of offer shall not be opened.** No amendments shall be allowed in the samples during the supply. It will be compulsory to submit sample meters as above along with the bid, failing which the bid will be ignored.

32.0. MANDATORY ACCESSORIES:

If any mandatory spare parts recommended for successful performance of the equipment during its entire guaranteed life, bidders are requested to quote separately.

(Bidders are requested to ensure clearly that mandatory accessories are the part of price schedule)

Bidders should undertake to maintain sufficient inventory of spares and critical components of the meters at their local office at Bhubaneswar or at their manufacture works, which are likely to become obsolete due to rapid technological changes in electronics and IT sectors. In the event of placement of order, they must also ensure availability of required components and spares, indigenous or imported, even if the same components and spares become obsolete, till completion of guarantee period. Inability to supply

required spares during the guarantee period will be considered as a breach of contract and may warrant penal action. An undertaking to this effect must be enclosed by the bidder along with his offer

The supplier is abide for supply of required copies of meter Software in CDs except Meter Security Software. Any further modification required for the meter Software after purchase of meter should be done free of cost by the supplier.

33.0 GENERAL: -

a) Technical deviations: All deviations to the technical specifications and commercial terms and conditions should be specifically and clearly brought out in the Deviation form.

b) Guaranteed Technical Particulars:

The Guaranteed technical particular, duly filled in must be submitted along with the offer.

Bid without above information will be treated as non-responsive.

34.0 METER READING PROTOCOL :

The Supplier has to provide Meter Reading Protocols, for billing parameters, tamper data etc. The firm has also to provide required software in the supplied HHU to change TOD Zone as & when required by CESU within guarantee period.

34-A The supplier has to provide the required software to CESU (duly incorporated in the supplied HHU) to effect any change in TOD Zones of the meters, in the event of any change in the Tariff notification from time to time. In such event, the supplier has to train the MRT personnel & personnel of the ABT cell & Energy audit cell to effect such change in TOD Zone.

OR

The supplier has to up load the required software in the HHU supplied by him in the event of any change in the TOD Zone from time to time within the guarantee period. Upon being intimated for such change The supplier has to provide the software to CESU within 15 days of intimation.

TECHNICAL SPECIFICATION OF PILFER PROOF METER BOX TO HOUSE THE THREE PHASE HT METER FOR OUT DOOR USE

The offered meter box is to house one number three-phase four-wire HT energy meter along with TTB Modem. The meter box will comply with the relevant IS i.e. IS: 5133 (Part-II) / IS 14772 .

MATERIAL

The meter box will be made of high grade Engineering Plastic with following properties

- a. UV Stabilized
- b. Flame Retardant
- c. It will be capable of withstanding temperatures of boiling water for 5 minutes continuously without distortion or softening.
- d. Capable of withstanding Glow wire test at 650°C as per IS : 11000 (Part 2 Sec 1).
- e. Environment friendly and easily recyclable.

CONSTRUCTION:

The offered meter box will have a roof tapering down to both sides for easy flow of rainwater. The thickness of the box will be not less than 3 mm from the load bearing side (i.e. back side of the box) and other sides, doors and the roof will not be less than 2.5 mm.

The over all dimensions of the box will be such that a minimum 50 mm clearance on all four sides, minimum 20 mm clearance on front side and minimum 10 mm clearance on the back side is maintained between meter and box surface.

Box cover would have rubber gasket for protection from ingress of dust and water will be provided on all around the base of box. It will comply with IP -54.

The front cover of meter box should be made of transparent polycarbonate material and base of meter box shall be of Gray colour.

For holding and sealing the door, U-shaped latches will be provided. Minimum two such clamps will be provided on meter box. These metallic clamps will also hold the box cover with base. All metallic parts will be protected against corrosion.

Meter Box shall be suitable to mount one energy meter along with GSM Modem for transmission of data. The design of the box should be such that there should be no hindrance for communicating the meter from remote.

Earthing: For Earthing of all the metal parts minimum M8 Earthing bolt and nut with washer will be provided.

Box Mounting arrangement : Box will be provided with 4 nos. holes suitable for 6 mm diameter at all four corners of meter box.

Cable Entry: For cable entry, suitable circular holes fitted with glands will be provided at the bottom of the box for cable inlet and outlet. The internal diameter of the gland will be such as to accommodate the 25 -27 mm outer diameter cable.

Name plate:

Purchase order No. & Date will be provided on name plate in such a manner that it will not be removed easily. Printed Name plate will be provided duly fixed with rivets.

TESTS:

Type Tests:

The type tests have been conducted on the offered box at NABL accredited laboratory and a copy of the same is enclosed with the offer.

- a) Test of material identification i.e., (as specified in per Clause No.1 of this specification.)
- b) Test for mechanical strength
- c) Test for water absorption
- d) Test for stability at high temperature
- e) Test for withstanding temperature of boiling water for 5 minutes continuously for non-distortion or softening of material.
- f) Glow wire test at 650°C

Acceptance & Routine Tests:

Acceptance Tests:

The following will constitute acceptance test for box:

- i. Physical verification of dimensions of the box.
- ii. Compatibility of the box for housing the meter and GSM Modem for ensuring ease of connections and reading the meter.

Routine Tests:

Following Routine test certificates will be furnished for approval.

- i. Physical verification of the box.
- ii. Mounting of meter inside the box & display reading through display window.

**Guaranteed Technical Particulars For 3PH,4W, ABT Compliant, 0.2s class, 1A ,
HTTV Meters, with TP Box suitable for out door 33 Kv feeder metering.**

Sl. No.	Item	Purchaser's Requirement	Bidders Data
1.	Make		
2	Type	3PH 4 Wire, ABT Compliant	
3	Country of origin	India	
4	Application	3 phase 4 wire, CT PT operated	
5	Rated Voltage	110V/ $\sqrt{3}$ V (Phase to Neutral) & 110V(P-P) with +20% & -30% variation.	
6	Rated Current (Basic current)	1A for -/1A	
7	Frequency	50 Hz \pm 5 %	
8	Overload capacity	120% of Ib	
9	Minimum starting current in % of base current	0.1% of Ib	
10	Loss in potential circuit	Less than 1 Watt & 4VA per phase	
11	Loss in current circuit	Less than 1 VA	
12	Change in error due to		
	a. Variation in frequency	As per IS 14697: 1999	
	b. Variation in temperature	As per IS 14697: 1999	
	c. Variation in voltage	As per IS 14697: 1999	
13	Accuracy Class	0.2s	
14	Details of case	Ultrasonically welded break to open type.	
15	H.V. withstand	As per IS -14697 voltage in KV (RMS) (Mention the KV for conducting & Insulating portions, separately)	
16	Insulation Resistance	As per IS 14697: 1999	
17	Standard to which the meter confirm	As per IS 14697: 1999 along with CBIP report-88 with latest amendment.	
18	Type of Energy Registration Mechanism.	Electronic 7 digit LCD Display.	
19	MD Reset Mechanism	Automatic on 24.00 hrs of last day of month & with CMRI on authentic command.	
20	Temperature co-efficient from 10% of rated load to 100 % rated load (5°C to 45°C)	As per IEC 62053-22/IS 14697 & CBIP technical report -88.	
21	Working range		
	Voltage	-30% to +20% of rated voltage	
	Current	0.1 % to 120% of Ib	
22	Type of load (linear, non linear, balanced /unbalanced at any P.F.)	All type of load.	
23	Display details		
	i. Display Cycle (descriptive In order of display)	As per enclosed display cycle format.	

	ii. Process of display (Automatic in cyclic manner / through push button.	Both options would be available as per enclosed display cycle format.	
	iii. Digits	Seven	
	iv. Segments for display of one digit	7 (Seven)	
	v. Period of display of each parameter	Would be sufficient to read & note (around 10 sec.)	
	vi. Display scroll-lock facility	Yes	
	vii. Backlit LCD	Yes	
24	Memory	Non-volatile memory without battery backs up at least 12 years.	
25	Non volatile memory	Would be sufficient to store data of consecutive twelve billing periods with billing data & TOD Zones.	
26	Meter can be powered up by means of internal/external battery in absence of supply voltage, with push button.	Internal/External .	
27	Tamper data preservation capacity	Would be able to store at least 150 (occurrences and restoration as separate events)	
28	Downloading time for all meter data including Billing data, Load survey data and tamper data.	5 min (Max)	
29	Multiplying factor (If meter is used for Different voltage / current ratio)	To be specified in the meter test result.	
30	Load Survey capability		
a.	Parameter Logged	1- KWH (Export & Import) 2- KVARH In Voltage high Condition & Voltage Low Condition. 2- KW & KVA (Export & Import 3- Voltage (RMS Value of 3 line to Neutral voltages) 4- Frequency	
b.	Logging interval	(PROGRAMMABLE, 15 Minuets by default)	
c.	No. of days of Load Survey	35 days for 0.2s with 15 MIN IP.	
31	Earthing Terminal	As per CBIP Technical Report.No. -88 with latest amendments	
32	Time of the day Zone	Mentioned in display list.	
33	Capability for fraud Prevention & detection		
i	Phase Sequence reversal	Meter should record actual energy.	
ii	Missing Potential & Potential imbalance	Meter shall log the event with date & time.	
iii	CT Open & CT Short	Meter shall log the event with	

		date & time.	
iv	Reversal of CC Polarity.	The meter shall be capable of detecting and recording occurrence and restoration with date and time of CT Short with phase identification.	
v	Power on off	Meter shall log the event with date & time.	
vi	Current Imbalance	Meter shall log the event with date & time.(30% or more for more than 15 minuets-programmable) & will work as per prevailing electrical condition.	
vii	Magnetic tamper	As per CBIP report-88 with latest amendment.	
34	Sealing and Locking Arrangement	Adequate sealing & Locking arrangements will be provided, to avoid tampering .	
35	Type of communication i) Local – Optical port ii) RS232/RS485	Both	
36	Real Time Clock	Time Drift and adjustment facility through CMRI and PC / Laptop with hardware and software lock -Specify	
37	Mandatory Spare parts		
	a. Interfacing cords	As per CBIP Technical Report - 111 with latest amendments (Din Type & RJ11 communication between MRI & Meter)	
	b. CMRI (DCD Software)	As per CBIP Technical Report - 111 with latest amendments. One set cord with each meter.	
	c. Others (if any)	----	
38	Auto Display Parameters Push button display parameters	As per enclosed sheet.	
39	Meter Reading Protocol	The Supplier has to provide Meter Reading Protocols, for billing data, tamper data, Instantaneous parameters, Load Survey etc. The farm has also to provide software to change TOD Zone by using CMRI as when required by CESU within guarantee period.	

**Signature of Bidder
with Name and Seal of Company**

GUARNATEED TECHNICAL PARTICULARS OF HT METER BOX FOR OUT DOOR USE

Sr. No.	Particulars	Bidder's data
1.	Manufacture's name	
2.	Material of the meter box	
3.	Color Base & cover : Dark Admiralty grey	
4.	Material withstanding temperature Glow wire test up to 650 deg	
5.	Dimension of the box (in mm)	
6.	Clearance between meter and meter box between the following: a Top b Both side c Bottom side d Front side e Back side	
7.	Thickness (mm) a At load bearing side i.e back side b At rest of the wall and door	
8.	No. of Hinges	
9.	Handle provision	
10.	Earthing provision	
11.	Sealing arrangement (2 Nos.)	
12.	Inlet for cable	
13.	Gasket a Whether gasket is provided for door b Material of the gasket	
15.	Suitable for outdoor installation	
16	IP : Class (IP : 54)	

**Signature of Bidder
with Name and Seal of Company**

ANNEXTURE - A

(Tender Specification No. CESU/A&C/ 171/10-11)

SCHEDULE OF BIDS

**For 3PH,4W, ABT Compliant, 0.2s class, 1A , HTTV Meters, with TP Box
suitable for out door 33 Kv feeder metering.**

1. Name of tenderer with Office and factory address :
Tel. No./Telex No./Fax No.
2. Specification No. :
3. Address of Local Office and Tel. No./Telex/Fax No. :
4. Tenderer's Reference No.
5. Sales Tax Regn. No. and Pan No. :
6. Last date and time for submission of Tender :
7. Date and time for opening of Tender
8. Testing Facilities available :
9. Category of organization :
10. Whether qualifying certificates submitted :
11. Particulars of Earnest Money submitted :
12. Excise Duty rate, if applicable :
13. Sales Tax Rate, if applicable :
14. Whether the material/equipment offered conforms to the relevant ISS specification and drawing (Quote Rep.) :
15. Whether executed orders previously for the items tendered now. Please give full details of supplies made. :
16. Similar details in respect of supplies made to other SEBs. :
17. Whether Sales Tax clearance Certificate enclosed :
18. Whether Income Tax Clearance Certificate enclosed. :
19. Whether the product bears ISI Mark :
20. Offer valid up to :
21. Delivery Schedule :

- a) Commence with minimum quantity :
- b) Rate of delivery per month/quarter and completion time. :
- 22. If any deviation, please mention in deviation sheet enclosed. :
- 23. Technical literature/catalogue of the materials offered enclosed or not. :
- 24. Manufacturer's supply experience including user's certificate furnished or not. :
- 25. ISO Certificate Submitted :
- 26. Type Test Certificate from any National Testing Laboratory. Govt. of India :
- 27. Whether Guaranteed Technical Data Sheet Particulars submitted. :
- 28. Turnover Certificate furnished from Chartered Accountant along with balance sheet for last three years to judge the financial soundness. In case of a bidder is a loss making organization, their bid will not be considered. :
- 29- Sample Meter Submitted or not
- 28. Name & Designation of contacting Person
- 29. Address for correspondence.

**Signature of Bidder
with Name and Seal of Company**

[This form is to be duly filled up by the Bidder & submitted along with the tender.]

ANNEXTURE - B

(Tender Specification No. CESU/A&C/ 171/10-11)

ABSTRACT OF GENERAL TERMS AND CONDITIONS

1. Earnest Money Furnished :
2. Manufacturer's supply experience including user's certificate furnished or not. :
3. Deviation to the specification, if any (list enclosed or not). :
4. Type Test Certificate from any National Testing Laboratory. Govt. of India submitted or not. :
5. Guaranteed Technical Particulars submitted or not. :
6. Delivery
 - a) Date of commencement :
 - b) Rate of delivery per month :
7. Whether agreed to CESU
 - a) Terms of payment :
 - b) Guarantee Clause :
 - c) Security deposit clause :
 - d) Liquidated damage clause :
 - e) Risk Purchase Clause :
 - f) Inspection Clause :
 - g) Packing Clause :
 - h) Retesting Clause
 - i) Delivery Clause
8. Whether agreeable to furnish security deposit in shape of Bank Guarantee in case his tender is successful. :
9. Manufacturer/Authorized representative :
10. Turnover Certificate furnished or not. :
11. Valid ITCC & STCC submitted :

**Signature of the Bidder
With Seal of Company**

[This form is to be duly filled up by the Bidder & submitted along with the tender.]

ANNEXTURE – D

(Tender Specification No. CESU/A&C/ 171/10 -11)

NON COMPLIANCE SCHEDULE :-

On this schedule the bidder shall provide a list of non compliance with this specification, documenting the effects that such non compliance is likely to have on the equipment's life and operating characteristics. Each non-compliance shall be referred to the relevant specification clause.

Clause No	Non Compliance

**Signature of the Bidder
With Seal of Company**

ANNEXTURE - E

(Tender Specification No. CESU/A&C/ 171 /10 -11)

TEST CERTIFICATES SCHEDULE

On this schedule a list of the test certificates included with the bid shall be provided. This list should include type test certificates and samples routine test reports. Each certificate listed shall be referred to the relevant specification clause and item of equipment to which the test applied.

Clause No.	Type Test Certificate or Routine Test Report

**Signature of the Bidder
With Seal of Company**

ANNEXTURE - F

(Tender Specification No. CESU/A&C/ 171 /10 -11)

DELIVERY SCHEDULE

Description of Material	Total Qty. in Nos.	To be delivered within 45days from the date of issue of orders	To be delivered within 45days to 90 days from the date of issue of orders
3PH,4W,0.2s class, 1A ,ABT Compliant, HTTV Meters, with RF Modem & TP Box suitable for out door, 33 Kv feeder metering.	125	75	50
HHU for data downloading.	Nos	5	5

**Signature of the Bidder
With Seal of Company**

ANNEXTURE - G

PROFORMA FOR COMPOSITE BANK GUARANTEE FOR SECURITY DEPOSIT, PAYMENT AND PERFORMANCE

This Guarantee Bond is executed this ____ day of _____ 2010 by us the _____ Bank at _____
P.O. _____ P.S. _____ Dist _____ State _____

Whereas the (indicate designation of purchaser)CENTRAL ELECTRICITY SUPPLY UTILITY OF ORISSA , Head Office - IDCO Towers (2nd Floor) , Bhubaneswar – 751 022 a Body corporate , constituted under the Electricity Act, 2003 (herein after called “ CESU”) has placed Purchase Order No. _____ Dt. _____ (hereinafter called “the Agreement”) with M/s _____ (hereinafter called “the Contractor”) for supply of _____ (name of the material) and whereas CESU has agreed (1) to exempt the Contractor from making payment of security deposit, (2) to release 100% payment of the cost of materials as per the said agreement and (3) to exempt from performance guarantee on furnishing by the Contractor to CESU a composite Bank Guarantee of the value of 10% (ten percent) of the Contract price of the said Agreement.

1. Now, therefore, in consideration of CESU having agreed (1) to exempt the Contractor for making payment of security deposit, (2) to release 100% payment to the Contractor and (3) to exempt from furnishing performance guarantee in terms of the said Agreement as aforesaid, we the _____ Bank, Address _____ (code No. _____) (hereinafter referred to as “the Bank”) do hereby undertake to pay to CESU an amount not exceeding Rs. _____ (Rupees _____) only against any loss or damage caused to or suffered by CESU by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement.

2. We, the _____ Bank do hereby undertake to pay the amounts due and payable under the guarantee without any demur, merely on a demand from CESU stating that the amount claimed is due by way of loss or damage caused to or suffered by CESU by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement or by the reason of any breach by the said Contractor’s failure to perform the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____ (Rupees _____) only.

3. We, the _____ Bank also undertake to pay to CESU any money so demanded notwithstanding any dispute or dispute raised by the Contractor(s) in any suit or proceeding instituted/ pending before any court or Tribunal relating thereto our liability under this Agreement being absolute and irrevocable.

The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the Contractor(s) shall have no claim against us for making such payment.

4. We, the _____ Bank further agree that the guarantee herein contain shall remain in full force and affect during the period that would be taken for the performance of the said Agreement and it shall continue to remain in force endorsable till all the dues of CESU under by virtue of the said Agreement have been fully paid and its claim satisfied or discharged or till CENTRAL ELECTRICITY SUPPLY UTILITY OF ORISSA certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharge this guarantee and will not be revoked by us during the validity of the guarantee period.

Unless a demand or claim under this guarantee is made on us or with _____
_____ (Local Bank Name, address and code No.)
_____, Bhubaneswar / Cuttack in writing on or before
_____ (date) we shall be discharged from all liability under this guarantee thereafter.

5. We, the _____ Bank further agree that CESU shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said Contractor(s) and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said Contractor(s) or for any forbearance act or omission on part of CESU or any indulgence by CESU to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would but for this provisions have effect of so relieving us.

6. The Guarantee will not be discharged due to change in the name, style and constitution of the Bank and or Contractor(s).

7. We, the _____ Bank lastly undertake not to revoke this Guarantee during its currency except with the previous consent of CESU in writing.

Dated _____ the _____ day of Two thousand _____ .

Notwithstanding anything contained hereinabove.

Our liability under this Bank Guarantee shall not exceed Rs. _____ (Rupees _____) only.

The Bank Guarantee shall be valid up to _____ only.

We or our Bank at Bhubaneswar / Cuttack (Name & Address of the Local Bank) are liable to pay the guaranteed amount depending on the filing of claim and any part thereof under this Bank Guarantee only and only if you serve upon us or our local Bank at Bhubaneswar / Cuttack a written claim or demand and received by us or by Local Branch at Bhubaneswar / Cuttack on or before Dt. _____ otherwise bank shall be discharged of all liabilities under this guarantee thereafter.

For _____
(indicate the name of the Bank)

N.B.:

- (1) Name of the Contractor:
- (2) No. & date of the purchase order / agreement:
- (3) Amount of P.O.:
- (4) Name of Materials:
- (5) Name of the Bank:
- (6) Amount of the Bank Guarantee:
- (7) Name, Address and Code No. of the Local Branch:
- (8) Validity period or date up to which the agreement is valid:
- (9) Signature of the Constituent Authority of the Bank with seal:
- (10) Name & addresses of the Witnesses with signature:
- (11) The Bank Guarantee shall be accepted only after getting confirmation from the respective Banks.