

Registered Office of NESCO, WESCO & SOUTHCO

North Eastern Electricity Supply Company of Orissa Limited (NESCO)
Western Electricity Supply Company of Orissa Limited (WESCO)
Southern Electricity Supply Company of Orissa Limited (SOUTHCO)
Registered Office
123, Sector-A, Zone-A, Mancheswar Industrial Estate, Bhubaneswar, Orissa-751010
Tel No. (0674) 2582728. Fax No. (0674) 2586343

Volume -I

**Tender Notification for
Three Phase Meter:CSO/12/TPH Meter
Date: 07.11.2008
Due Date for Submission of Bids: 27.11.2008**

Section – I

INVITATION FOR BIDS (IFB)

2008-09

Tender Notification: CSO/12/TPH Meter

Dated : 07.11.2008

Registered Office of NESCO, WESCO & SOUTHCO

SECTION – I: INVITATION FOR BIDS (IFB)

1.0 Event Information

1.01 The Registered Office of NESCO, WESCO & SOUTHCO (here in after referred as **CSO**) invites Sealed tenders for supply of LT CT Meter with 4 CTs and box and HT TV Meter (Accuracy class 0.5 and 0.2) from reputed manufacturers to NESCO, WESCO & SOUTHCO.

The bidder must qualify the technical requirements as specified in clause 2.0 stated below. The sealed envelopes shall be duly superscribed as **“TENDER NOTICE/CSO/12/TPH METER due for opening on dt. 27.11.08.**

QUANTITY AND DELIVERY REQUIREMENT

Sl. No.	Item Description	Specification	Requirement	Location
			Total Qty.	
NESCO, BALASORE, ORISSA				
1	LT 3 phase 4 Wire 200/5 Amps 4 CT operated static meters with TP box(Iron Double door) /Plastic box, 3x 240 Volts , Accuracy class:0.5 , as per enclosed GTP and drawing	SECTION IV	250 nos.	Central Store, NESCO, Balasore
2	HT 3 Phase 4 wire Static Trivector Meter -/5 Amp, -/110 volts (Accuracy class 0.5) with TP box as per enclosed GTP	SECTION V	250 nos	Central Store, NESCO, Balasore
3	HT 3 Phase 4 wire Static Trivector Meter -/5 Amp, -/110 volts (Accuracy class 0.2) with TP box as per enclosed GTP	SECTION VI	125 nos	Central Store, NESCO, Balasore
WESCO, BURLA, ORISSA				
1	LT 3 phase 4 Wire 200/5 Amps 4 CT operated static meters with TP box(Iron Double door) /Plastic box, 3x 240 Volts , Accuracy class:0.5 , as per enclosed GTP and drawing	SECTION IV	150 nos.	Central Stores WESCO, Burla
2	HT 3 Phase 4 wire Static Trivector Meter -/5 Amp, -/110 volts (Accuracy class 0.5) as per enclosed GTP	SECTION V	100 nos	Central Stores WESCO, Burla
3	HT 3 Phase 4 wire Static Trivector Meter -/5 Amp, -/110 volts (Accuracy class 0.2) with TP box as per enclosed GTP	SECTION VI	50 nos	Central Stores WESCO, Burla
SOUTHCO, BERHAMPUR, ORISSA				
1	LT 3 phase 4 Wire 200/5 Amps 4 CT operated static meters with TP box(Iron Double door) /Plastic box, 3x 240 Volts , Accuracy class:0.5 , as per enclosed GTP and drawing	SECTION IV	300 nos.	Central Stores SOUTHCO, Berhampur
2	HT 3 Phase 4 wire Static Trivector Meter -/5 Amp, -/110 volts (Accuracy class 0.5) as per enclosed GTP	SECTION V	250 nos	Central Stores SOUTHCO, Berhampur
3	HT 3 Phase 4 wire Static Trivector Meter -/5 Amp, -/110 volts (Accuracy class 0.2) with TP box as per enclosed GTP	SECTION VI	50 nos	Central Stores SOUTHCO, Berhampur

Note : Quantity may vary to any extent of above mentioned total quantity for all material.

Bidder should quote separate rate for meter and meter box. Purchaser reserves the right to take these Meters with or without Meter Box.

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1.02 The schedule of specifications with detail terms & conditions can be obtained from address given below against demand draft of Rs. 5000/- plus 4% VAT per Group, drawn in favour of NESCO Ltd., payable at Bhubaneswar. The tender papers will be issued on all working days upto 26.11.2008.

The tender documents can also be downloaded from the website “nescoorissa.com”, “wescoorissa.com”, “southcoorissa.com”.

In case tender papers are downloaded from the above website, then the bidder has to enclose a demand draft

covering the cost of bid documents as stated above in a separate envelope with suitable superscription “Cost of Bid Documents : Tender Notice Ref : CSO/12/TPH Meter”. This envelope should accompany the Bid Documents.

1.03 Offers will be received upto 2.00 PM. on dt. 27.11.08 as indicated earlier will be opened at the address given below at 3.00 PM. on same day in presence of the authorized representatives of the bidders. The schedule of specifications with detail terms & conditions are enclosed. It is the sole responsibility of the bidder to ensure that the bid documents reach this office on or before the cut off due date of tender opening.

1.04 CSO reserves the right to accept / reject any or all Tenders without assigning any reason thereof and alter the quantity of materials mentioned in the Tender documents at the time of placing purchase orders. Tender will be summarily rejected if:

- (i). Bid security @ 2% (Two percent) of the Tender value is not deposited in shape of Bank Draft in favor of NESCO Ltd., payable at Bhubaneswar or Bank Guarantee executed in favour of NESCO Ltd., Plot 123, Sector – A, Zone – A, Mancheswar Industrial Estate, Bhubaneswar – 751 010. Bid security against previous Tenders, if any, will not be adjusted towards Bid security against this Tender.
- (ii). The offer does not contain “FOR, Balasore/Burla/Berhampur price indicating break-up towards all taxes & duties”.
- (iii). Complete Technical details are not enclosed.
- (iv). Sample is not submitted along with the offer.
- (v). Tender is received after due time due to any reason.

2.0 Qualification Criteria :-

The prospective bidder must qualify all of the following requirements to be eligible to participate in the bidding. Bidders who meet following requirements will be considered as successful bidder and management has a right to disqualify those bidders who do not meet these requirements.

- a. The bidder must be a meter manufacturer
- b. The manufacturer should have experience of supplying to Electricity Distribution Utility/Undertaking in India a quantity of atleast 50,000 three phase energy meters with LCD, memory and optical port in any one year out of the last three years (i.e 05-06, 06-07 & 07-08).
- c. The bidder must possess valid ISO 9001:2000 certification for meter manufacturing.
- d. Firms who are debarred/blacklisted in other utilities in India will not be considered.
- e. Shall possess valid BIS licence.

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3.0 Project Completion Schedules:

S. No.	Steps	Activity description	Due date
1	Technical Queries	<ul style="list-style-type: none"> ▪ All Queries related to RFQ 	20 th November' 2008
2	Technical Offer	<ul style="list-style-type: none"> ▪ It include clause by clause commentary, GTP, Type test report, BIS report, Quality report <ul style="list-style-type: none"> ▪ Bidder qualification data (sec IIIB) 	27 th November' 2008, 14.00 Hrs.
3	Commercial Offer	<ul style="list-style-type: none"> • Price for Three Phase LT CT meter and box • Price for HT TV meter and box • Break up regarding basic price and taxes. • Delivery commitment 	27 th November' 2008, 14.00 Hrs.
4	Samples (2nos.)	<ul style="list-style-type: none"> • Sample with meter routine report as per bidder offer 	27 th November' 2008, 14.00 Hrs.
5	Submission of complete document in two part	<ul style="list-style-type: none"> • As per RFQ 	27 th November' 2008, 14.00 Hrs.
6	Opening of Technical Bid	<ul style="list-style-type: none"> • As per RFQ 	27 th November' 2008, 15.00 Hrs.

This is a two part bid process . Bidders are to submit the bids a) Technical Bid b) Price Bid.

Both these parts should be furnished in separate sealed covers super scribing specification no. validity etc, with particulars as Part –I Technical Particulars & Commercial Terms & Conditions and Part-II “ price bid” and these sealed envelopes should again be placed in another sealed cover which shall be submitted before the due date & time specified.

The Part – I Eligibility and Technical Bid should not contain any cost information whatsoever and this will be opened on the due date i.e. on 27th November' 2008, 15.00 Hrs.

In case of Bids where the qualification requirements, technical suitability and other requirements are found to be inadequate, Part – II ‘Price Bid’ will be returned unopened.

b). The date and time of opening of Part – II – “Price Bid” will be intimated to the qualified bidders after technical evaluation of all the bids is completed.

Notwithstanding anything stated above, the Purchaser reserves the right to assess bidders capability to perform the contract, should the circumstances warrant such assessment in the overall interest of the purchaser. In this regard the decision of the purchaser is final.

4.0 Award Decision

Purchaser intends to award the business on a lowest bid basis, so suppliers are encouraged to bid competitively. The decision to place purchase order / letter of acceptance solely depends on purchaser on the cost competitiveness across multiple lots,

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quality, delivery and bidder's capacity, in addition to other factors that Purchaser may deem relevant.

The purchaser reserves all the rights to award the contract to one or more bidders so as to meet the delivery requirement or nullify the award decision without any reason.

In the event of your bid being selected by purchaser (and / or its affiliates) and you subsequent DEFAULT on your bid; you will be required to pay purchaser (and / or its affiliates) an amount equal to the difference in your bid and the next lowest bid on the quantity declared in RFQ.

In case any supplier is found unsatisfactory during the delivery process, the award will be cancelled and NESCO/ WESCO/ SOUTHCO ORISSA (Discoms of Orissa) reserves the right to award other suppliers who are found fit.

5.0 Market Integrity

We have a fair and competitive marketplace. The rules for bidders are outlined in the Terms & Conditions. Bidders must agree to these rules prior to participating. In addition to other remedies available, we reserves the right to exclude a bidder from participating in future markets due to the bidder's violation of any of the rules or obligations contained in the Terms & Condition. Bidders who violate the marketplace rules or engage in behavior that disrupts the fair execution of the marketplace restricts a bidder to length of time, depending upon the seriousness of the violation. Examples of violations include, but are not limited to:

- Failure to honor prices submitted to the marketplace.
- Breach of the terms of the published in Request For Quotation.

6.0 Supplier Confidentiality

All information contained in this RFQ is confidential and may not be disclosed, published or advertised in any manner without written authorization from NESCO/ WESCO/ SOUTHCO ORISSA (Discoms of Orissa). This includes all bidding information submitted .

All RFQ documents remain the property of NESCO/ WESCO/ SOUTHCO ORISSA (Discoms of Orissa) and all suppliers are required to return these documents to NESCO/ WESCO/ SOUTHCO ORISSA (Discoms of Orissa) upon request.

Suppliers who do not honor these confidentiality provisions will be excluded from participating in future bidding events.

7.0 All correspondences with regard to the above shall be made to the following address:

Jasdev S Soni / S.K Sarangi
Central Services Office
(NESCO, WESCO & SOUTHCO)
Plot No. 123, Sector – A, Zone – A
Mancheswar Industrial Estate
Bhubaneswar – 751 010
FAX : (0674) 2586343
Email : jasdev.soni@gmail.com / suntasarangi@sify.com
Mobile : 9338465350 / 93376 46022

SECTION – II

**INSTRUCTION TO BIDDERS (ITB)
2008-2009**

Tender Notification : CSO/12/TPH Meter

Dated : 07.11.2008

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A. GENERAL

1.0 North Eastern Electricity Supply Company of Orissa Ltd. (NESCO), Western Electricity Supply Company of Orissa Ltd. (WESCO) and Southern Electricity Supply Company of Orissa Ltd. (SOUTHCO), hereinafter referred to as the "Purchaser" are desirous of implementing the various Systems Improvement / Repair & Maintenance works at their respective licensed area in the state of Orissa. The Purchaser has now floated this tender for procurement Three Phase meter as notified earlier in this bid document.

2.0 SCOPE OF WORK

The scope shall include Design, Manufacture, Shop Testing at works conforming to the Technical Specifications enclosed along with Packing, Forwarding, Freight and Insurance and Unloading and proper stacking at Purchaser's stores.

3.0 DISCLAIMER

3.01 This Document includes statements, which reflect various assumptions, which may or may not be correct. Each Bidder/Bidding Consortium should conduct its own estimation and analysis and should check the accuracy, reliability and completeness of the information in this Document and obtain independent advice from appropriate sources in their own interest.

3.02 Neither Purchaser nor its employees will have any liability whatsoever to any Bidder or any other person under the law or contract, the principles of restitution or unjust enrichment or otherwise for any loss, expense or damage whatsoever which may arise from or be incurred or suffered in connection with anything contained in this Document, any matter deemed to form part of this Document, provision of Services and any other information supplied by or on behalf of Purchaser or its employees, or otherwise arising in any way from the selection process for the Supply.

3.03 Though adequate care has been taken while issuing the Bid document, the Bidder should satisfy itself that documents are complete in all respects. Intimation of any discrepancy shall be given to this office immediately.

3.04 This Document and the information contained herein are Strictly Confidential and are for the use of only the person(s) to whom it is issued. It may not be copied or distributed by the recipient to third parties (other than in confidence to the recipient's professional advisors).

4.0 COST OF BIDDING

The Bidder shall bear all costs associated with the preparation and submission of its Bid and Purchaser will in no case be responsible or liable for those costs.

B. BIDDING DOCUMENTS

5.0 BIDDING DOCUMENTS

5.01 The Scope of Work, Bidding Procedures and Contract Terms are described in the Bidding Documents. In addition to the covering letter accompanying Bidding Documents, the Bidding Documents include:

Volume - I

- | | | |
|-----|--------------------------------------|------------------------|
| (a) | Invitation for Bids (IFB) | - Section - I |
| (b) | Instructions to Bidders (ITB) | - Section - II |
| (c) | General Conditions of Contract (GCC) | - Section – III |
| (d) | Technical Specifications (TS) | - Section – IV , V, VI |

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Volume - II

- | | | |
|-----|--------------------|------------------|
| (a) | Bid Form | - Annexure – I |
| (b) | BG Formats | - Annexure – II |
| (c) | Price Schedule | - Annexure – III |
| (d) | Box Specifications | - Annexure - IV |

5.02 The Bidder is expected to examine the Bidding Documents, including all Instructions, Forms, Terms and Specifications. Failure to furnish all information required by the Bidding Documents or submission of a Bid not substantially responsive to the Bidding Documents in every respect will may result in the rejection of the Bid.

6.0 AMENDMENT OF BIDDING DOCUMENTS

- 6.01 At any time prior to the deadline for submission of Bids, the Purchaser may, for any reasons, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Documents by Amendment.
- 6.02 The Amendment shall be part of the Bidding Documents, pursuant to Clause 5.01, and it will be notified in writing by Fax/e-mail to all the Bidders who have received the Bidding Documents and confirmed their participation to Bid, and will be binding on them.
- 6.03 In order to afford prospective Bidders reasonable time in which to take the Amendment into account in preparing their Bids, the Purchaser may, at its discretion, extend the deadline for the submission of Bids.

C. PREPARATION OF BIDS

7.0 LANGUAGE OF BID

The Bid prepared by the Bidder, and all correspondence and documents relating to the Bid exchanged by the Bidder and the Purchaser, shall be written in the English Language. Any printed literature furnished by the Bidder may be written in another Language, provided that this literature is accompanied by an English translation, in which case, for purposes of interpretation of the Bid, the English translation shall govern.

8.0 DOCUMENTS COMPRISING THE BID

The Bid prepared and submitted by the Bidder shall comprise the following components:

- Bid Form, Price & other Schedules (STRICTLY AS PER FORMAT) and Technical Data Sheets completed in accordance with Clause 9.0, 10.0, 11.0 and Technical Specification;
- All the Bids must be accompanied with the required bid security as mentioned in the Section-I against each tender.
- Power of Attorney indicating that the person(s) signing the Bid have the authority to sign the Bid and thus that the Bid is binding upon the Bidder during the full period of its validity, in accordance with clause 12.0.

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9.0 BID FORM

9.01 The Bidder shall complete an 'Original' and another one 'Copy' of the Bid Form and the appropriate Price & Other Schedules and Technical Data Sheets furnished in the Volume-II of the Bidding Documents.

9.02 Bid Security

Pursuant to Clause 8.0 (b) above, the bidder shall furnish, as part of its bid, a bid security amounting to 2% of the total bid value (FOR Destination) as already specified in the Section-I. The bid security is required to protect the Purchaser against the risk of Bidder's conduct which would warrant the security's forfeiture.

The bid security shall be denominated in the currency of the bid, and shall be in the following form:

- (a) a bank guarantee issued by any scheduled bank strictly as per the format enclosed and shall be valid for a period of thirty (30) days beyond the validity of the bid.
- (b) Bank Draft in favour of NESCO, payable at Bhubaneswar.

Unsuccessful bidders' bid security will be discharged or returned as promptly as possible but not later than thirty (30) days after the expiration of the period of bid validity.

The successful bidder's bid security will be discharged upon furnishing the performance security.

The bid security may be forfeited :

- (a) if the Bidder:
 - i) withdraws its bid during the period of bid validity specified by the Bidder in the Bid Form; or
- (b) in the case of a successful Bidder, if the Bidder fails:
 - (i) to sign the Contract, or
 - (ii) to furnish the required performance security.

10.0 BID PRICES

10.01 Bidders shall quote for the entire Scope of Supply with a break-up of prices for individual items. The total Bid Price shall also cover all the Supplier's obligations mentioned in or reasonably to be inferred from the Bidding Documents in respect of Design, Supply, Transportation to site, all in accordance with the requirement of Bidding Documents. The Bidder shall complete the appropriate Price Schedules included herein, stating the Unit Price for each item & total Price.

10.02 The prices offered shall be inclusive of all costs as well as Duties, Taxes and Levies paid or payable during execution of the supply work, break up of price constituents, should be there.

10.03 Prices quoted by the Bidder shall be "Firm" and not subject to any price adjustment during the performance of the Contract. A Bid submitted with an adjustable price quotation will be treated as non-responsive and rejected.

11.0 BID CURRENCIES

Prices shall be quoted in Indian Rupees Only.

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12.0 PERIOD OF VALIDITY OF BIDS

- 12.01 Bids shall remain valid for 120 days from the date of opening of the Bid.
- 12.02 Notwithstanding Clause 12.01 above, the Purchaser may solicit the Bidder's consent to an extension of the Period of Bid Validity. The request and the responses thereto shall be made in writing by Fax/e-mail.

13.0 ALTERNATIVE BIDS

Bidders shall submit Bids, which comply with the Bidding Documents. Alternative Bids will not be considered. The attention of Bidders is drawn to the provisions of Clause 22.03 & 22.04 regarding the rejection of Bids, which are not substantially responsive to the requirements of the Bidding Documents.

14.0 FORMAT AND SIGNING OF BID

- 14.01 The original Bid Form and accompanying documents (as specified in Clause 9.0), clearly marked "Original Bid", plus one copy must be received by the Purchaser at the date, time and place specified pursuant to Clauses 15.0 and 16.0. In the event of any discrepancy between the original and the copies, the original shall govern.
- 14.02 The original and copy of the Bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to sign on behalf of the Bidder. Such authorization shall be indicated by written Power-of-Attorney accompanying the Bid.
- 14.03 The Bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such corrections shall be initialed by the person or persons signing the Bid.

D. SUBMISSION OF BIDS

15.0 SEALING AND MARKING OF BIDS

- 15.01 Bid submission: One original & one Copy (hard copies) of all the Bid Documents shall be sealed and submitted to the Purchaser before the closing time for submission of the bid.
- 15.02 The Technical Documents and the Bid Security shall be enclosed in a sealed envelope and the said envelope shall be superscribed with "Technical & Bid Security". The price bid shall be inside another sealed envelope with superscription "Price Bid". Both these envelopes shall be sealed inside another big envelope. All the envelopes should bear the Name and Address of the Bidder and marking for the Original and Copy. The envelopes should be super-scribed with "Tender Notice No. & Due date of opening".
- 15.03 The Bidder has the option of sending the Bids in person. Bids submitted by Telex/Telegram/Fax will not be accepted. No request from any Bidder to the Purchaser to collect the proposals from Airlines/Cargo Agents etc shall be entertained by the Purchaser.
- 15.04 **The Bidder, along with the bid documents has to submit two Samples along with detailed Drawings** The sample should clearly indicate (i) Name of the bidder (ii) Tender No., (iii) Group & Item Srl. No. etc. The samples shall not be returned back to the bidder. Samples submitted earlier against other tender notices shall not exempt the bidder to submit fresh samples under this tender.

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16.0 DEADLINE FOR SUBMISSION OF BIDS

- 16.01 The original Bid, together with the required copies, must be received by the Purchaser at the address specified no later than 2.00 PM. on 15.11.2008
- 16.02 The Purchaser may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Documents in accordance with Clause 9.0, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

17.0 ONE BID PER BIDDER

Each Bidder shall submit only one Bid either by itself, or as a partner in a Joint Venture. A Bidder who submits or participates in more than one Bid will cause all those Bids to be rejected.

18.0 LATE BIDS

Any Bid received by the Purchaser after the deadline for submission of Bids prescribed by the Purchaser, pursuant to Clause 16.0, will be declared "Late" and rejected and returned unopened to the Bidder.

19.0 MODIFICATIONS AND WITHDRAWAL OF BIDS

- 19.01 The Bidder is not allowed to modify or withdraw its Bid after the Bid's submission.

E. EVALUATION OF BID

20.0 PROCESS TO BE CONFIDENTIAL

Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process. Any effort by a Bidder to influence the Purchaser's processing of Bids or award decisions may result in the rejection of the Bidder's Bid.

21.0 CLARIFICATION OF BIDS

To assist in the examination, evaluation and comparison of Bids, the Purchaser may, at its discretion, ask the Bidder for a clarification of its Bid. All responses to requests for clarification shall be in writing and no change in the price or substance of the Bid shall be sought, offered or permitted.

22.0 PRELIMINARY EXAMINATION OF BIDS / RESPONSIVENESS

- 22.01 Purchaser will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order.
- 22.02 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price per item that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price per item will be corrected. If there is a discrepancy between the Total Amount and the sum of the total price per item, the sum of the total price per item shall prevail and the Total Amount will be corrected.

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- 22.03 Prior to the detailed evaluation, Purchaser will determine the substantial responsiveness of each Bid to the Bidding Documents including production capability and acceptable quality of the Goods offered. A substantially responsive Bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviation.
- 22.04 A Bid determined as not substantially responsive will be rejected by the Purchaser and / or the Purchaser and may not subsequently be made responsive by the Bidder by correction of the non-conformity.

23.0 EVALUATION AND COMPARISON OF BIDS

- 23.01 The evaluation of Bids shall be done based on the delivered cost competitiveness basis.
- 23.02 The evaluation of the Bids shall be a stage-wise procedure. The following stages are identified for evaluation purposes:
- In the first stage, the Bids would be subjected to a responsiveness check. The Technical Proposals and the Conditional ties of the Bidders would be evaluated.
- Subsequently, the Financial Proposals along with Supplementary Financial Proposals, if any, of Bidders with Techno-commercially Acceptable Bids shall be considered for final evaluation.
- 23.03 The Purchaser's evaluation of a Bid will take into account, in addition to the Bid price, the following factors, in the manner and to the extent indicated in this Clause:

- (a) Supply Schedule
- (b) Deviations from Bidding Documents

Bidders shall base their Bid price on the terms and conditions specified in the Bidding Documents.

The cost of all quantifiable deviations and omissions from the specification, terms and conditions specified in Bidding Documents shall be evaluated. The Purchaser will make its own assessment of the cost of any deviation for the purpose of ensuring fair comparison of Bids.

- 23.04 Any adjustments in price, which result from the above procedures, shall be added for the purposes of comparative evaluation only to arrive at an "Evaluated Bid Price". Bid Prices quoted by Bidders shall remain unaltered.

F. AWARD OF CONTRACT

24.0 CONTACTING THE PURCHASER

- 24.01 From the time of Bid opening to the time of contract award, if any Bidder wishes to contact the Purchaser on any matter related to the Bid, it should do so in writing.
- 24.02 Any effort by a Bidder to influence the Purchaser and / or in the Purchaser's decisions in respect of Bid evaluation, Bid comparison or Contract Award, will result in the rejection of the Bidder's Bid.

25.0 THE PURCHASER'S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS

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 any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Purchaser's action.

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26.0 AWARD OF CONTRACT

The Purchaser will award the Contract to the successful Bidder whose Bid has been determined to be the lowest - evaluated responsive Bid, provided further that the Bidder has been determined to be qualified to satisfactorily perform the Contract. Purchaser reserves the right to award order other bidders in the tender, provided it is required for progress of project & provided he agrees to come to the lowest rate.

27.0 THE PURCHASER'S RIGHT TO VARY QUANTITIES

The Purchaser reserves the right to vary the quantity i.e. increase or decrease the numbers/ quantities without any change in terms and conditions during the execution of the Order.

28.0 LETTER OF INTENT/ NOTIFICATION OF AWARD

The letter of intent / Notification of Award shall be issued to the successful Bidder whose bids have been considered responsive, techno-commercially acceptable and evaluated to be the lowest (L1). The successful Bidder shall be required to furnish a letter of acceptance within 7 days of issue of the letter of intent /Notification of Award by Purchaser.

29.0 PERFORMANCE SECURITY

Within 15 days of the receipt of Notification of Award/ Letter of Intent from the Purchaser, the successful Bidder shall furnish the Performance Security in the form of Bank Guarantee for an amount of 10% (Ten percent) of the Contract Price in accordance with the General Conditions of Contract in the Performance Security Form provided in Vol.-II, Annexure - II of the Bidding Documents. Upon submission of the performance security, the bid security shall be released.

30.0 CORRUPT OR FRAUDULENT PRACTICES

30.01 The Purchaser requires that the Bidders observe the highest standard of ethics during the procurement and execution of the Project. In pursuance of this policy, the Purchaser:

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

- (i) "Corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and/or those close to them, or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving, or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and
- (ii) "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Purchaser, and includes collusive practice among Bidders (prior to or after Bid submission) designed to establish Bid prices at artificial non-competitive levels and to deprive the Purchaser of the benefits of free and open competition.

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

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

30.02 Furthermore, Bidders shall be aware of the provision stated in the General Conditions of Contract.

SECTION - III

**(GENERAL CONDITION OF CONTRACT)
2008-2009**

Tender Notification : CSO/12/TPH Meter

Dated :07.11.2008

Registered Office of NESCO, WESCO & SOUTHCO

GENERAL CONDITION OF CONTRACT (GCC)

1.0 General Instructions

- 1.01 All the Bids shall be prepared and submitted in accordance with these instructions.
- 1.02 Bidder shall bear all costs associated with the preparation and delivery of its Bid, and the Purchaser will in no case shall be responsible or liable for these costs.
- 1.03 The Bid should be submitted by the Bidder in whose name the bid document has been issued and under no circumstances it shall be transferred/sold to any other party.
- 1.04 The Purchaser reserves the right to request for any additional information and also reserves the right to reject the proposal of any Bidder, if in the opinion of the Purchaser, the data in support of Tender requirement is incomplete.
- 1.05 The Bidder is expected to examine all instructions, forms, terms & conditions and specifications in the Bid Documents. Failure to furnish all information required in the Bid Documents or submission of a Bid not substantially responsive to the Bid Documents in every respect may result in rejection of the Bid. However, the Purchaser's decision in regard to the responsiveness and rejection of bids shall be final and binding without any obligation, financial or otherwise, on the Purchaser.

2.0 Definition of Terms

- 2.01 "Purchaser" shall mean NESCO / WESCO / SOUTHCO.
- 2.02 "Bidder" shall mean the firm who quotes against this bid document issued by the Purchaser. "Contractor" or "Seller" shall mean the successful Bidder and/or Bidders whose bid has been accepted by the Purchaser and on whom the "Letter of intent" is placed by the Purchaser and shall include his heirs, legal representatives, successors and permitted assigns wherever the context so admits.
- 2.03 "Site" shall mean the Electricity Distribution Area of the Company.
- 2.04 "Specification" shall mean collectively all the terms and stipulations contained in those portions of this bid document known as Instruction to Bidder, Bid form and other forms as per Volume - III, General Conditions of Contract, Specifications and the Amendments, Revisions, Deletions or Additions, as may be made by the Purchaser from time to time.
- 2.05 "Letter of Intent" shall mean the official notice issued by the Purchaser notifying the Contractor that his proposal has been accepted and it shall include amendments thereto, if any, issued by the Purchaser. The "Letter of Intent" issued by the Purchaser shall be binding on the "Contractor". The date of Letter of Intent shall be taken as the effective date of the commencement of contract.
- 2.06 "Purchase Order" shall mean the Purchase Order and amendments thereof and the drawings, specifications and other documents / papers referred to therein which shall constitute the "Contract".
- 2.07 "Month" shall mean the calendar month and "Day" shall mean the calendar day.
- 2.08 "Codes and Standards" shall mean all the applicable codes and standards as indicated in the Technical Specification.
- 2.09 "Offer Sheet" shall mean Bidder's firm offer submitted to Purchaser in accordance with the specification.
- 2.10 "Contract" shall mean THE "letter of Intent" issued by the Purchaser.
- 2.11 "Contract Price" shall mean the price referred to in the "Letter of intent".

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- 2.12 “Contract Period” shall mean the period during which the “Contract” shall be executed as agreed between the Contractor and the Purchaser in the Contract inclusive of extended contract period for reasons beyond the control of the Contractor and/or Purchaser due to force majeure.
- 2.13 “Goods” shall mean all items to be supplied under Purchase Order whether raw materials, processes materials, equipment, fabricated products, drawings or other documents as applicable.
- 2.14 “Store” shall mean the Purchaser store as defined elsewhere in this tender document.

3.0 Contract Documents & Priority

- 3.01 Contract Documents: The Specification, terms and conditions of the contract shall consist solely of these Tender conditions and offer sheet.
- 3.02 Priority: Should there be any discrepancy between any term hereof and any term of the Offer Sheet, the terms of these tender document shall prevail.

4.0 Scope of Work

- 4.01 The “Scope of Work” shall be on the basis of Bidder’s responsibility, completely covering the obligations, responsibility and workmanship, provided in this Bid Enquiry whether implicit or explicit.
- 4.02 The Purchaser reserves the right to vary the quantity i.e increase or decrease, which shall be communicated to successful bidder during project execution.
- 4.03 All relevant drawings, data and instruction manuals and other necessary inputs shall be under the scope of contract.

5.0 General Requirements

- 5.01 The contractor shall supply, deliver best quality goods.
- 5.02 The company also reserves the right to add from the scope of work or delete from the scope of work so assigned to the Supplier, if the circumstances so warrant.
- 5.03 The contractor shall be responsible for loading and unloading of all materials with proper material handling equipment.

6.0 Quality Assurance and Inspection

- 6.01 Immediately on award of contract, the bidder shall prepare detailed quality assurance plan / test procedure identifying the various stages of manufacture, quality checks performed at each stage, raw material inspection and the Customer hold points. The document shall also furnish details of method of checking, inspection and acceptance standards / values and get the approval of Purchaser before proceeding with manufacturing. However, Purchaser shall have the right to review the inspection reports, quality checks and results of contractors in house inspection department which are not Customer hold points and the contractor shall comply with the remarks made by purchaser or his representative on such reviews with regards to further testing, rectification or rejection, etc.
- 6.02 Witness and Hold points are critical steps in manufacturing, inspection and testing where the contractor is obliged to notify the Purchaser in advance so that it may be witnessed by the Purchaser. Final inspection is a mandatory hold point. The contractor has to proceed with the work past a hold point only after clearance by purchaser or a witness waiver letter from Purchaser.
- 6.03 The performance of waiver of QA activity by Purchaser at any stage of manufacturing does not relieve the contractor of any obligation to perform in accordance with and meet all the requirements of the procurement documents and also all the codes & reference documents mentioned in the procurement document nor shall it preclude subsequent rejection by the purchaser.

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- 6.04 On completion of manufacturing the items can be dispatched only after issue of shipping release by the Purchaser.
- 6.05 All testing and inspection shall be done without any extra cost.
- 6.06 **Purchaser reserves the right to send any material out of the supply to any recognized laboratory for testing at the cost of the seller. In case the material is found not in order with the technical requirement / specification, the goods in the lot shall be rejected along with any other penalty which may be levied is to be borne by the bidder. To avoid any conflict the Seller is advised to send his representative to the stores to see that the material sent for testing is being sealed in the presence of bidder's representative.**

7.0 Packing, Packing List & Marking

7.01 Packing:

Seller shall pack or shall cause to be packed all Commodities in such a manner as shall be reasonably suitable for shipment by road or rail to Orissa Distribution Companies without any risk of damage in transit. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. The packing cases may be marked to indicate the fragile nature of contents.

- 7.02 **Packing List:** One copy of the packing list shall be enclosed in each package delivered. There shall also be enclosed in one package a master packing list identifying each individual package, which is part of the shipment. On any packaging where it is not feasible to place the packing list inside the container, all pertinent information shall be stenciled on the outside and will thus constitute a packing list.

- 7.03 **Marking:** Seller shall mark each container, box or package for easy identification of his materials as follows:

Commodity Name:
Name of the Supplier:
Net Weight:
Size:
Sign showing upper/lower side of the crate
Meter Serial Nos starting and end

8.0 Price Basis

- 8.01 Bidders shall quote individual price breakup for the quoted items.

The price shall be inclusive of all taxes, Duties and other Levies of whatsoever nature, transportation to site and vice versa and in-transit Insurances.

The above Prices shall also include unloading and proper stacking at/ from Purchaser Stores to site / stores.

9.0 Terms of Payment

The Payment shall be made as under:

- a) 100% Payment with taxes & duties on Prorata basis within 30 days of receipt of goods in our specified stores in good condition subject to detailed verification thereof and approval of guarantee & test certificate.
- b) For claiming payment a Bank Guarantee of 10% value of the value of the contract/Purchase Order (asper clause 12.0) is to be provided which shall remain valid for a period beyond 90 days from the warranty period as per clause no. 11.0.

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- c) All Payments shall be made after certification from Purchaser's Engineer Incharge. All Payments are subject to receipt of correct Documents.

10.0 Price Validity

All bids submitted shall remain valid, firm and subject to unconditional acceptance by Purchaser for 120 days post bid opening date. For awarded Contract, the prices shall remain valid and firm till contract completion.

11.0 Warranty / Guarantee

11.01 The meter shall be guaranteed for the period of five years from the date of commissioning or five and half years from the date of receipt at stores whichever is earlier. The meters found defective within the above guarantee period should be replaced/repared by the supplier free of cost within one month of receipt of intimation. If the defective meters are not replaced/repared within specified period above, the Purchaser shall recoveran equivalent amount plus 15% supervision charges from any of the bills of the supplier

11.02 If during the defect liability period any services performed found to be defective, these shall be promptly rectified by contract its own cost (including the cost of dismantling and reinstallation) on the instruction of Purchaser.

12.0 Composite Performance Bank Guarantee

12.01 Within Fifteen (15) days from the date of the Award notice, Seller shall submit a composite Performance Bank Guarantee (PBG) in favour of Purchaser equivalent to Ten percent (10%) of the total price of the Contract (the "Performance Bank Guarantees").The PBG shall be valid for a period of 90 days beyond the warranty period as per clause no. 11.01.

12.02 The Performance Bank Guarantee established under Clause 12.01 shall be forfeited without recourse to the seller and payable against the presentation by Purchaser to the bank with a claim that the seller has failed to comply with any term or condition set forth in the Contract.

12.03 The Performance Bank Guarantee established under will be automatically and unconditionally forfeited without recourse if Purchaser in its sole discretion determines that Seller has failed to comply with any Terms or Condition set forth in the contract.

12.04 The Performance Bank Guarantees will be released without interest within thirty (30) days from the last date up to which the Performance Bank Guarantee has to be kept valid (as defined in Clause 12.01).

13.0 Technical information / data.

The company and the contractor, to the extent of their respective rights permitting to do so, shall exchange such technical information and data as is reasonably required by each party to perform its obligations and responsibilities. The company and the contractor agree to keep each other in confidence and to use the same degree of care as it uses with respect to its own proprietary data to prevent its disclosure to third parties of all technical and confidential information. The technical information, drawings, records and other document shall not be copied, transferred, traced or divulged and / or disclosed to third party in full / part not misused in any other form. This technical information, drawing etc. shall be returned to the company with all approved copies and duplicates. In the event of any breach of this contract, the contractor shall indemnify the company against any loss, cost of damages or claim by any party in respect of such breach.

14.0 Effective Date of Commencement of Contract:

The date of the issue of the Letter of Intent shall be treated as the effective date of the commencement of contract.

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15.0 Taxes & Duties :

All taxes, duties, levies of whatsoever nature, entry tax, octroi, turnover tax, service tax, income tax, work contract tax etc., levied by State or Central Governments or local bodies shall be to the contractor 's account including any taxes, duties and levies which may be levied fresh by the Governments during currency of the Contract. The contractor shall furnish their Excise/Sales Tax registration number, PAN No. etc. in the bid documents as well as Invoice/Challans etc.

16.0 Time – The Essence of Contract

The time and the date of completion of the “Supply” as stipulated in the Letter Of Intent / Purchase order issued to the Contractor shall be deemed to be the essence of the “Contract”. The Supply has to be completed not later than the aforesaid Schedule and date of completion of supply.

17.0 Liquidated Damages (LD)

17.01 If supply of items / equipments is delayed beyond the supply schedule as stipulated in purchase order/LOI, then the Contractor shall be liable to pay to the Purchaser as LD for such delay, a sum of 1% of the contract price for every week delay or part thereof. The LD shall be computed on the undelivered value of goods as per the delivery schedule.

17.02 The total amount of LD for delay under the contract will be subject to a maximum of ten percent (10%) of the contract price

17.03 The Purchaser may, without prejudice to any method of recovery, deduct the amount for such damages from any amount due or which may become due to the Contractor or from the Performance Bank Guarantee or file a claim against the contractor.

18.0 The Laws and Jurisdiction of Contract:

18.01 The laws applicable to this Contract shall be the Laws in force in India.

18.02 All 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 and Conciliation Act, 1996 at the discretion of Purchaser. The jurisdiction of arbitration shall be at Bhubaneswar, Orissa, India.

19.0 Events of Default

19.01 Events of Default. Each of the following events or occurrences shall constitute an event of default ("Event of Default") under the Contract:

- (a) Seller fails or refuses to pay any amounts due under the Contract;
- (b) Seller fails or refuses to deliver Commodities conforming to this Bid document / specifications, or fails to deliver Commodities within the period specified in P.O. or any extension thereof
- (c) Seller becomes insolvent or unable to pay its debts when due, or commits any act of bankruptcy, such as filing any petition in any bankruptcy, winding-up or reorganization proceeding, or acknowledges in writing its insolvency or inability to pay its debts; or the Seller's creditors file any petition relating to bankruptcy of Seller;
- (d) Seller otherwise fails or refuses to perform or observe any term or condition of the Contract and such failure is not remediable or, if remediable, continues for a period of 30 days after receipt by the Seller of notice of such failure from Purchaser.

20.0 Consequences of Default.

- (a) If an Event of Default shall occur and be continuing, Purchaser may forthwith terminate the Contract by written notice.

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- (b) In the event of an Event of Default, Purchaser may, without prejudice to any other right granted to it by law, or the Contract, take any or all of the following actions;
- (i) present for payment, to the relevant bank the Performance Bank Guarantee;
 - (ii) purchase the same or similar Commodities from any third party; and/or
 - (iii) recover any losses and/or additional expenses Purchaser may incur as a result of Seller's default.

21.0 Force Majeure

21.01 The term "Force Majeure" as employed herein include, but are not limited to, acts of God or force of nature, landslide, earthquake, flood, fire, lightning, explosion, major storm (hurricane, typhoon, cyclone etc.) or major storm warning, tidal wave, shipwreck and perils of navigation, act of war (declared or undeclared) or public enemy, strike (excluding employee strikes, lockouts or other industrial disputes or action solely among employee of Contractor or its subcontractors) act or omission of sovereign states or those purporting to represent sovereign states, blockade, embargo, quarantine, public disorder, sabotage, accident or similar events beyond the control of the parties or either of them.

Force Majeure shall not include occurrences as follows:

- (a) Late delivery of materials caused by congestion at Seller's facilities or elsewhere, an oversold condition of the market, inefficiencies, or similar occurrences.
- (b) Late performance by Seller and/or Sub-Seller caused by unavailability of raw materials, supervisors or labour, inefficiencies or similar occurrences.
- (c) Mechanical breakdown of any item of Seller's or its Sub-Seller's equipment, plant or machinery.
- (d) Delays due to ordinary storm or inclement weather or
- (e) Non-conformance by Sub-Seller.

Unless the delay arises out of a Force Majeure occurrence and is beyond both Seller's and Sub-Seller's or Seller's control and an alternate acceptable source of services, equipment or material is unavailable. Additionally, Force Majeure shall not include financial distress of Seller or any Sub-Seller.

21.02 In the event of either party being rendered unable by Force Majeure to perform any obligation required to be performed by them under the Contract, the relative obligation of the party affected by such Force Majeure shall be suspended for the period during which such cause lasts. Time for performance of the relative obligation suspended by Force Majeure shall then stand extended by the period for which cause lasts.

21.03 Upon the occurrence of any Force Majeure event, the party so affected in the discharge of its obligation shall promptly, but no later than seven (7) days give written notice of such event to the other party. The affected party shall make every reasonable effort to remove or remedy the cause of such Force Majeure or mitigate its effect as quickly as possible. If such occurrence results in the suspension of all or part of the Work for a continuous period of more than, the parties shall meet and determine the measures to be taken.

21.04 Any delay or failure in performance by either party hereto shall not give rise to any claims for damages or loss of anticipated profits it, and to the extent, such delay or failure is caused by Force Majeure.

22.0 Transfer and Sub-Letting

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The Contractor shall not sublet, transfer, assign or otherwise part with the Contract or any part thereof, either directly or indirectly, without prior written permission of the Purchaser.

23.0 Third party insurance

Contractor shall take the Insurance of Equipment during Transit. Any Claim pertaining to this shall be the responsibility of the Contractor.

24.0 Recoveries

When ever under this contract any money is recoverable from and payable by the bidder, the purchaser shall be entitled to recover such sum by appropriating in part or in whole by deducting any sum due to which any time thereafter may become due from the Seller in this or any other contract. Should the sum be not sufficient to cover the full amount recoverable the bidder shall pay to the purchaser on demand the remaining balance.

25.0 Waiver

Failure to enforce any condition herein contained shall not operate as a waiver of the condition itself or any subsequent breach thereof.

26.0 Indemnification

- 26.01 Notwithstanding contrary to anything contained in this Tender, Contractor shall at his costs and risks make good any loss or damage to the property of the Purchaser and/or the other Contractor engaged by the Purchaser and/or the employees of the Purchaser and/or employees of the other Contractor engaged by the Purchaser whatsoever arising out of the negligence of the Contractor while performing the obligations under this contract.
- 26.02 Subject to this Clause 22.0 Purchaser shall, at its sole cost and expense, defend, indemnify and hold harmless Contractor and his assignees /or the employees of the Contractor whatsoever arising out of the negligence or willful act or omission or from the default of the Purchaser in the performance of the Contractor.

SECTION – IV

**Technical Specifications(TS)
Three Phase LT.CT. Meter , CTs and box**

2008-2009

Tender Notification : CSO/12/TPH Meter

Dated : 07.11.2008

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1.0 SCOPE

This Specification covers the design, engineering, manufacture, assembly, inspection and testing before dispatch and supply of 3 phase 4 wire, Class 0.5 accuracy, 3 X 240V and -/5 Amps static meter for outdoor use.

2.0 APPLICABLE STANDARDS

IS: 14697 for Class 0.5, IEC: 687 and CBIP Technical report no.88 and its latest amendments along-with CSO specifications.

3.0 TECHNICAL SPECIFICATIONS

Sr. No.	Parameters	Technical Requirements
3.1	Voltage	240 volt (P-N), 415 volt (P-P)+20% to -40% Vref.
3.2	Current	-/5 Amps, Max. continuous current 10 Amps
3.3	Power Factor Range	Zero lag – Unity – Zero lead
3.4	Display	a) LCD (Seven digits) b) Height: 10 mm X 6 mm min. c) Pin Type d) Viewing angle min. 160 degrees
3.5	Display Parameters	Display order shall be as per Annexure-1
3.6	Power Consumption	As per Relevant IS
3.7	Starting Current	0.1% Ib
3.8	Running with no load	Meter shall not record any energy under no-load condition.
3.9	Frequency	50 Hz with +/- 5% variation
3.10	Process Technology	Surface Mounting Technology or better.
3.11	Test Output Device	Separate KWH & KVAh Flashing LED visible from the front
3.12	Billing Data	a) Display parameters: LCD test, date & time, cumulative KWH, cumulative KVAH & RKVAH, MD in KW & KVA, PF, V, I (cumulative KWH continuous and other parameter with pushbutton. b) Display order shall be as per Annexure-1
3.13	MD Registration	a) Meter shall store MD in every 30 min. period along with date & time with sliding window (5-15 min interval) programmable. At the end of every 30 min, new MD shall be previous MD and store whichever is higher and the same shall be displayed. b) It should be possible to reset MD automatically at the defined date (or period) or through MRI
3.14	Auto Reset of MD	Default auto reset date : 00:00 hrs on 1 st day of the month however provision shall be made to change MD reset date through MRI even after installation of meter on site.
3.15	TOD metering	Meter shall be capable of doing TOD metering for KWH, KVARH, KVAH and MD in KW and KVA with 8 time zones. Initially following time zone may be programmed Time of the day Zone 4 time zones per day will be available for Demand. 06:00 – 10:00 10:00 – 18:00 18:00 – 22:00

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Sr. No.	Parameters	Technical Requirements
		22:00 – 06:00 2 time zones per day will be available for all Energy 06:00 – 22:00 22:00 – 06:00 as per requirement from time to time programmable on site through CMRI
3.16	Load Survey	30 min integration period, load profile of phase voltage (R,Y,B) and line current(R,Y,B), and all three phase active and reactive power of 90 days (MD integration should be 30 min.)
3.17	Time required for data reading from meter and downloading on desktop PC	a) Meter data consisting of all parameters and 90 days load survey for above parameters shall be read by CMRI and downloaded on desktop PC in minimum possible time and it shall be indicated at the time of finalizing GTP. (The meter reading time should not be more than 3 minutes for complete set of data). b) The software should have capability to transfer data from single CMRI to PC and the multiple CMRI data download to PC with a loader charger.
3.18	Diagnostic Feature	Self-diagnostic for time, calendar, RTC battery all display segments and NVM.
3.19	Security Feature	Programmable facility to restrict the access to the information recorded at different security level such as read communication, communication write etc.
3.20	Software & communication compatibility	a) Optical port with RS 232 compatible to transfer the data locally through CMRI & remote through PSTN / Optical fiber / GSM / CDMA / RF / any other technology to the main computer. The optical communication should not be affected by the normal day light or any other light source surrounding the installed meter. b) The Supplier shall supply Software required for CMRI & for the connectivity to AMR modules. The supplier shall also provide training for the use of software. The software should be compatible to Microsoft Windows systems (Windows 98 system). The software should have polling feature with optional selection of parameters to be downloaded for AMR application. c) Necessary provision shall be made in the software for converting all the parameters available for new and old meters if supplied earlier. Copy of operation manual shall be supplied. The software should have selection of meters by date, serial number, data file name or groups of files for data conversion to text file process. d) The Supplier shall provide meter reading protocols. * Same need to be confirmed and mutually agreed before supply *
3.21	Additional communication port	An additional RS 232 hardwired port to be provided in sealable area for AMR PSTN/Optical fiber/GSM/CDMA to the main computer.
3.22	Memory	Non-volatile memory independent of battery backup, memory should be retained upto 10 years in case of power failure.
3.23	Climatic Conditions	The meter should function satisfactorily in India with temperature ranging from -10 °C - 60°C and humidity upto 96%.
3.24	Calibration	Meters shall be software calibrated at factory and modification in calibration shall not be possible at site by any means. .

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Sr. No.	Parameters	Technical Requirements
3.25	Additional requirements of extended communication port	For certain portion of (where the meters are to be Plinth / Pole mounted) an extension cord of suitable length for extending communication port shall be provided with each meter. The extended port is to be housed in a box.

4.0 CONSTRUCTIONAL FEATURES

Sr. No.	Parameters	Technical Requirements
4.1	Meter Body	a) Top transparent and base opaque material polycarbonate of LEXAN 143A/943AA or equivalent grade. b) Front cover & base should be ultrasonically welded. c) Top cover should be designed so as the internal components should not be visible.
4.2	Terminal Block	Made of polycarbonate of grade 500 R or equivalent grade and shall form Integral part of the meter base, brass or copper duly plated current terminals with flat-head brass screws.
4.3	Terminal Cover	Transparent terminal cover with provision of sealing through sealing screw.
4.4	Diagram of connections	Diagram of external connections to be shown on terminal cover
4.5	Marking on name plates	Meter should have clearly visible, indelible and distinctly name plate marked in accordance with IS & CSO specifications. (CI No 7.0)
4.6	Meter Sealing	Supplier shall affix one Buyer seal on side of Meter body as advised and record should be forwarded to Buyer.
4.7	Warrantee	10 years.
4.8	Insulation	A meter shall withstand an insulation test of 4 KV and impulse test at 8 KV
4.9	Resistance of heat and fire	The terminal block and Meter case shall have safety against the spread of fire. They shall not be ignited by thermal overload of live parts in contact with them as per the relevant IS 14697.

5.0 TAMPER AND ANTI-FRAUD DETECTION/EVIDENCE FEATURES

Total no of tamper events logged by meter shall be at least 200 nos., compartment wise division of each event and their persistence time shall be indicated at the time of finalizing GTP.

The meter shall not get affected by any remote control devices and shall continue recording energy under any one or combinations of the following conditions. Meter shall log all three-phase voltage, current, power factor etc. at the time of tamper attempt for all such occurrences:

- 1.1 **Phase sequence reversal:** The meters shall work accurately irrespective of the phase sequence of the supply.
- 1.2 **Detection of missing potential:** In case someone intentionally takes out a potential lead, the meter shall record the date and time of such occurrence. The last restoration of normal supply shall also be similarly recorded. The threshold value of voltage should be programmable.
- 1.3 **Reversal of C.C. Polarity:** Meter shall record the reversal of C.C. polarity with time and date, and also the time of restoration. Meter shall, however, register the energy consumed correctly with any one, two or all three-phase C.C. reversal.
- 1.4 **C.C. Shorting:** Meter shall record C.C. terminal shorting with time and date and time of restoration. The threshold value of currents should be programmable.

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- 1.5 **CT BYPASS** Meter shall record C.C. terminal Bypass with time and date and time of restoration. The threshold value of currents should be programmable.
- 1.6 **Power On/Off:** Meter shall detect power OFF (minimum power off period 5 mins) if any of phase voltages are not present. This event shall be recorded at the time of each power OFF. At the same time power ON event shall be recorded. This logging shall be available in Tamper details along with cumulative time of failure. Meter shall log Voltage unbalance up to 60 % of Vmax.
- 1.7 **Snap Shots:** Meter shall log all three-phase voltage, current, power factor etc. at the time of tamper attempt for all such occurrences.
- 1.8 **Neutral Disturbance:** Meter shall record correctly in case of any AC, DC high frequency signal injected in the neutral circuit of meter. Meter should log the event. Meter shall record correctly in case of missing neutral connection.
- 1.9 **External Magnetic tamper:** Meter should log on the events of attempt of tampering by external magnetic field & should function as mentioned in the CBIP Technical report no. 88 with latest amendments.

The Meter shall record at maximum current (Imax) under the influence of abnormal external magnetic field irrespective of actual load, energy recorded in such case shall also be recorded in separate register. The Meter shall record as per actual load once the external abnormal magnetic field is removed. In such conditions the Meter shall log the event for presence of abnormal external magnetic field and its restoration.

- 1.10 **Over Load/Low Load:** Meter shall record Over Load/Low load as an event, in terms of defined % threshold value of load(Programmable at factory)
- 1.11 **Voltage High/Voltage Low:** Meter shall record case of High Voltage/Low Voltage in terms of defined value Voltage Threshold(Vref.)

* Vendor has to define Tamper Logic, Occurrence and restoration time before supply.

5.2 Influence Quantities

The meter shall work satisfactorily with guaranteed accuracy limit under the presence of the following influence quantities as per IEC-1036 and CBIP Technical Report no.88 with latest amendment.

The influence quantities are:

- a) External Magnetic field – 0.2 tesla (with log on feature)
- b) Electromagnetic field induction,
- c) Radio frequency interference,
- d) Unbalanced load,
- e) Vibration etc,
- f) Wave form 10% of 3rd harmonics,
- g) Phase sequence,
- h) Voltage unbalance,
- i) Electro Magnetic H.F. Field, and

6.0 COMPONENT SPECIFICATIONS

Ser No	Component Function	Requirement	Makes and Origin
6.1	Current Transformers	The Meters should be with the current transformers as measuring elements. The current transformer should withstand for the clauses under 5.2.h	The current transformer should withstand for the clauses under 5.2.h
6.2	Measurement or	The Measurement or computing chips used in	USA: Analog Devices,

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Ser No	Component Function	Requirement	Makes and Origin
	computing chips	the Meter should be with the Surface mount type along with the ASICs.	Cyrus Logic, Atmel, Phillips, Texas Instruments. <u>South Africa:</u> SAMES <u>Japan:</u> NEC
6.3	Memory chips	The memory chips should not be affected by the external parameters like sparking, high voltage spikes or electrostatic discharges.	<u>USA:</u> Atmel, National Semiconductors, Texas Instruments, Phillips, ST, Microchip <u>Japan:</u> Hitachi or Oki
6.4	Display modules	a) The display modules should be well protected from the external UV radiations. b) The display visibility should be sufficient to read the Meter mounted at height of 0.5 meter as well as at the height of 2 meters (refer 3.2.d for Viewing angle). c) The construction of the modules should be such that the displayed quantity should not be disturbed with the life of display (PIN Type). d) It should be trans-reflective HTN or STN type industrial grade with extended temperature range.	<u>Hongkong:</u> Genda <u>Singapore:</u> Bonafied Technologies <u>Korea:</u> Advantek <u>China:</u> Success <u>Japan:</u> Hitachi, Sony <u>Holland / Korea:</u> Phillips
6.5	Communication modules	Communication modules should be compatible for the two RS 232 ports (one for optical port for communication with Meter reading instruments & the other - for the hardwired RS 232 port to communicate with various modems for AMR)	<u>USA:</u> National Semiconductors, HP, Optonica, ST, <u>Holland / Korea:</u> Phillips <u>Japan:</u> Hitachi <u>Taiwan:</u> Ligitek <u>Germany:</u> Siemens
6.6	Optical port	Optical port should be used to transfer the meter data to meter reading instrument. The mechanical construction of the port should be such to facilitate the data transfer easily.	<u>USA:</u> National Semiconductors, HP <u>Holland / Korea:</u> Phillips <u>Japan:</u> Hitachi, <u>Taiwan:</u> Ligitek
6.7	Power Supply	The power supply should be with the capabilities as per the relevant standards. The power supply unit of the meter should not be affected in case the maximum voltage of the system appears to the terminals due to faults or due to wrong connections. Should work upto -50% vref with only one phase	SMPS Type (It should take care of clause 3.1 and 3.5)
6.8	Electronic components	The active & passive components should be of the surface mount type & are to be handled & soldered by the state of art assembly processes.	<u>USA:</u> National Semiconductors, Atmel, Phillips, Texas Instruments, ST, Onsemi <u>Japan:</u> Hitachi, Oki, AVX or Ricoh <u>Korea:</u> Samsung
6.9	Mechanical parts	a) The internal electrical components should be of electrolytic copper & should be protected from	

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Ser No	Component Function	Requirement	Makes and Origin
		corrosion, rust etc. b) The other mechanical components should be protected from rust, corrosion etc. by suitable plating/painting methods.	
6.10	Battery	Lithium with guaranteed life of 15 years (manufacture guarantee card)	Varta, Tedirun, Sanyo or National
6.11	RTC & Micro controller	The accuracy of RTC shall be as per relevant CBIP -88 standards	USA: Philips, Dallas Atmel, Motorola, Microchip Japan: NEC or Oki
6.12	P.C.B.	Glass Epoxy, fire resistance grade FR4, with minimum thickness 1.6 mm	

7.0 GENERAL REQUIREMENTS

7.1 On the meter name-plate:

7.2

- a) meter serial number should be of 8 digits (As given by buyer provision for 8 digits)
- b) Size of the digit of the meter serial number should be minimum 5mm X 3mm.
- c) Bar code should be printed next to / below / above the meter serial number.
- d) BIS registration mark (ISI mark)

7.3 Supplier shall supply software suitable for energy measurement & energy spot billing through CMRI.

7.4 Buyer's Serial Number sticker should be fixed on window glass from inside or on Meter front cover of minimum digit size 6 mm X 3 mm.

7.5 The supplier should seal meters on both sides. The Buyer shall approve the method of sealing.

7.6 Terminal cover should be fixed on Meter before dispatch.

7.7 Meter Sr. Nos. to be printed in black on the name plate, instead of embossing.

7.8 Box number, Meter serial number, type, rating should be mentioned on cases / cartons.

7.9 Meters shall be suitably packed with environmental friendly material in order to avoid damage or disturbance during transit or handling and to prevent in grace of moisture and dust.

8.0 ANNEXURE 1: DISPLAY SEQUENCE FOR THE PARAMETERS

8.1 Default Display: (Auto scroll mode, Scroll time 6 Sec.)

- a. LCD test
- b. Date
- c. Time
- d. Cumulative KWH (Absolute)
- e. Cumulative KVAH (Absolute)
- f. MD in KW (Absolute)
- g. Cumulative KVARH (LAG - Imp.)
- h. Instantaneous Power Factor
- i. MD in KVA.(Absolute)

8.2 On-demand Display:

After using pushbutton the following parameters should be displayed.

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- j. R phase voltage
- k. Y phase voltage
- l. B phase voltage
- m. R phase current (line)
- n. Y phase current (line)
- o. B phase current (line)
- p. Last month billing Date
- q. Last month billing KWH reading
- r. Last month billing RKVAH reading
- s. Last month billing KVAH reading
- t. Last month billing Maximum Demand in KW
- u. Last month billing Maximum Demand in KW occurrence Date
- v. Last month billing Maximum Demand in KW occurrence Time
- w. Last month billing Maximum Demand in KVA
- x. Last month billing Maximum Demand in KVA occurrence Date
- y. Last month billing Maximum Demand in KVA occurrence Time
- z. Present Tamper Data
- aa. Connection check (Phase sequence)

Note: The meter display should return to Default Display mode (mentioned above) if the 'push button' is not operated for more than 6 seconds. .
Provision for scroll lock by pressing for 15 sec and sent to normal after 5 min.

**TECHNICAL SPECIFICATION FOR RESIN CAST
LT CURRENT TRANSFORMER**

GENERAL TECHNICAL REQUIREMENT:

Rated Voltage	: 240 V (Phase to Neutral), 415 V (ph-ph)
Rated Current (I Basic)	: 5 Amps balanced & unbalanced load
Rated Frequency	: 50Hz.
Accuracy class	: 0.5
Power Factor	: Unity to zero (all power factor lag/or lead)
Temperature	: The standard reference temperature for performance will be 27 °c.
Supply system voltage	: Voltage Vref + 20% to -30 % Frequency 50Hz ±5%
Highest system voltage	: 660 V
Current Transformer Ratio	: 200/5A or 100/5 Amps

Construction:

CORE MATERIAL:

Material	: Low loss, CRGO M4 or better grade (Core Losses will not exceed 0.8 Watts / kg at 1.15 tesla)
Thickness	: Less than or equal to 0.27 mm

COPPER WIRE:

Material	: Enameled wire as per IS 4800 Part IX / IEC 317
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INSULATION:

Coil will be insulated with Electrical grade polyester tape.
Outer insulation will be with vacuum mixed, homogenous Resin casting.
Minimum 2 mm thickness of resin above the coil of the CT will be provided.

SECONDARY TERMINAL:

A three core (2.5mm) PVC insulated flexible multi strand copper wire lead will come out directly from CT as secondary terminal. Two wires will be used for CT incoming & outgoing. Proper colour coding / identification will be used to identify the CT leads.

Alternatively secondary terminals are as per enclosed drawings. Two nos of male terminals are provided with check nuts and washers.

Secondary lead / terminal will be secured during casting against loosening while connection.

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MOUNTING CLAMP:

M.S (1.6 mm thick) uniformly hot dip galvanized
It will be properly to secure CT against Vibration.
It will have suitable insulation distance from primary.

RATING PLATE:

Self-adhesive, laminated, printed label will be having following details:

Ratio, Burden & Accuracy class
Applicable Standard
I.L
STC Rating
Continuous thermal current
Caution against open secondary
Batch no.
Manufacturer's name
Manufacturing month and year.

**TECHNICAL SPECIFICATION FOR PILFER PROOF BOX TO HOUSE THE METER & LT
CTs :**

TECHNICAL DETAILS:

Meter box shall be weather proof made up of fire retardant Engineering plastic material. Meter box shall be suitable to install one energy meter along with 4 Nos. of resin cast Ring type LT CTs. Up to 200/5A.

Meter box shall be capable of withstanding temperatures of boiling water for 5 minutes continuously without distortion or softening. The thickness of box shall not be less than 3mm on the load bearing side (i.e. back side of the box) and other sides, and roof shall not be less than 2.5mm. The meter box shall have its roof tapering down to both sides for easy flow of rainwater.

Meter box shall have two separate compartment one (upper) to house energy Meter other (lower) chamber to house 4 Nos. of LT CTs . Lower chamber shall be provided with 4 Nos. hole of suitable dia with HDPE/ Engineering plastic cable glands on either side for incoming and outgoing cables. The base support of the meter mounting shall be raised by about 10 mm in the box for ease of wiring.

Both of the chambers shall have provision for sealing independently with a minimum of two seals each.

The box shall generally comply with provision of IS 5133 / IS 14772. Meter box shall be suitable for indoor / outdoor installation. The design of the roof of the meter box suitable to easy flow of rain water .The metering Box shall have good workmanship.

The inner dimension of the Meter chamber shall be such that there shall be a minimum 60 mm clearance on both side of Meter minimum 30 mm from top & front side and 10 mm on the back side of the meter.

Soft rubber gasket shall be provided all around, wherever required for protecting against entry of dust and water. It shall comply with IP-54

a) **Colour:** Dark admiralty gray.

b) **The contents of the box are as follows:**

i.) **Viewing Window:**

Viewing window on meter chamber shall be made of scratch and break resistant transparent clear high grade engineering plastic material and shall be provided on the door for reading meter. The minimum thickness of the window shall be 2 ± 0.2 mm. The viewing window shall be covered with (hinged at top) a flap.

The window shall be ultrasonically welded / fixed through suitable clamps with box cover from inside.

There shall not be any ingress of moisture through this window into the box.

ii) **Internal hinges:** A minimum of 2 nos. internal hinges of each compartment well protected against corrosion shall be provided. The hinges of the door shall be concealed and they shall be fixed to the flanges provided to the base and cover of the box in such a manner that the door opens by a minimum of 120 degrees.

iii) **Handle:** Suitable handle or knob shall be provided for opening the box door(s).

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- iv) **Earthing Bolt:** A 8mm dia Zinc plated bolt with two numbers washers for earthing in each compartment, all metal parts used for fixing meter and CTs shall be provided.
- v) **Fixing Arrangement:** The meter base supports inside the box are raised by about 10 mm in the box for ease of wiring. While fixing the meter screws shall not protrude outside. For fixing the box to wall or wooden board 4 nos. key holes of minimum 6 mm dia shall be provided at the four corners of the meter box. The meter is to be installed in the box and the box shall be supply in assembled condition. Metering box shall be suitable to fix on a pole or on wall.
- vi) **Latch:** Each door shall be provided with 2 nos. zinc plated latches.
- vii) **Sealing arrangement:** Both of compartments shall have provision of minimum 2 Nos. sealing arrangement to make the meter box fully tamper evident.
- viii) **Printing:** Purchase order No. & Date shall be embossed/ marked on Metallic plate on the top cover of the meter Box. The name of the manufacture shall be embossed/ marked on the bottom half of the Box.
- ix) The fixing arrangement shall not be complex and it shall be easily approachable for connections when the door is open and completely tamper evident once it is sealed.
- x) The dimensional drawing of metering Box shall be enclosed with bid
- xi) Internal wiring from CT to meters shall be carried out by 2.5 Sq. mm PVC insulated copper wire.

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GUARANTEED TECHNICAL PARTICULARS OF BOX

Sl. No.	Characteristics	Bidders Data
1.	Manufacturer's name	
2.	Material used for box body	
3.	Material withstanding temperature	
4.	Dimensions of box (L x W x H)	
5.	Thickness (mm)	
6.	Color	
7.	Viewing window Material Dimensions	
8.	No. of Hinges (each compartment)	
9	Handle provision	
10.	Earthing provision	
11.	Sealing Arrangements	
12.	Inlet & Outlets	
13.	Gasket Whether gasket is provided for (each) door and window. Material of the gasket	
14.	Suitable for outdoor installation	

**TECHNICAL SPECIFICATION FOR PILFER BOX FOR LTTV
METER**

TECHNICAL DETAILS:

The box will be suitable to house one number three-phase four wire LT energy meter, 1 no.TTB and 4 no CTs.

The specification of metallic box is as follows:

The offered meter box will be made of minimum 1.6 mm CRCA sheet. The offered meter box will have two portions, the upper portion will be to house the three phase energy meter & TTB and the lower portion of the box is intended for housing four nos.LT CTs.Both the portion will be independent from each other and if one portion is closed, it will not be possible to approach the same by opening of the other portion and vice versa. Meter box will have roof tapering down to both sides for easy flow of rainwater.

The upper portion of the meter box will contain a door, which will be provided with a window for taking the reading of the meter. The window will be made of toughened glass minimum 3mm thickness. The viewing window will have a proper shade / arrangement to protect meter display from direct sunlight.

A general arrangement for fixing the meter will be made inside the box. The arrangement of fixing the meter will not be specific to only one type of meter. It will be possible to fix other meters also which are slightly bigger or smaller than the meter offered by us. To fix the other type of meter, the meter mounting plate has to be replaced accordingly.CT will be mounted on the lower portion of the box on MS channel.

Each box cover will be fixed on minimum two hinges with screws from inside not visible from outside. Each box cover will be able to open by minimum of 120 degree. Soft rubber gasket for protection from ingress of dust and moisture will be provided on all around the both of doors. Suitable handles will be provided on both the doors for opening of doors.

The doors of the box will be provided with two nos.knobs & sealing studs to make it tamper proof.

The offered meter box will be Light gray colour.For earthing of all metal parts, earthing bolt and nut with washer of min.M6 dia will be provided with 4 nos.fixing clamps having minimum 6mm dia for mounting purpose clamps are provided at all four corner of metering box.

The over all dimensions of the offered meter box will be suitable for housing energy meter TTb and 4 nos LT CT respectively. The clearance of sufficient sizes are desired by CSO in Tender specification from all sides and front of the meter

For cable entry and exit 4nos.holes of internal dia for entry PVC LT cable of requisite primary current rating will be provided. For incoming and outgoing cable, gland of suitable inner dia will be provided.

Name Plate: The purchase order No. & Date, Month and year of manufacture will be printed or marked on the top cover of the box. The manufacture's name will be printed or marked on the bottom half of the box such that it will not be removed easily. Name plate will be made of Aluminum sheet & fixed through 2 nos of rivert

The typical arrangement of Meter, TTb and CT are as shown in drawing no GEN-M-2163.However the exact dimensions and other details may be furnished at the time of submission of drawing..

SECTION – V

**Technical Specifications(TS)
Three Phase Four Wire HT.CT. Meter**

2008-2009

Tender Notification : CSO/12/TPH Meter

Dated : 07.11.2008

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1.0 SCOPE

This Specification covers the design, engineering, manufacture, assembly, inspection and testing before dispatch and supply of 3 phase 4 wire , Class 0.2 accuracy, 3 X 110V and -/1A or -/5A static meter for outdoor use.

2.0 APPLICABLE STANDARDS

IS:14697 , IEC: 687 and CBIP Technical report no.88 and its latest amendments along-with CSO specifications.

3.0 TECHNICAL SPECIFICATIONS

Sr. No.	Parameters	Technical Requirements
3.1	Voltage	-/110 volt (P-P) , -/63.5V(P-N)
3.2	Current	-/1A or -/5A
3.3	Power Factor Range	Zero lag – Unity – Zero lead
3.4	Display	a) LCD (Eight digits) b) Height: 10 mm X 6 mm min. c) Pin Type d) Viewing angle min. 160 degrees
3.5	Display Parameters	Display order shall be as per Annexure-1
3.6	Power Consumption	Less than 1 watt & 4 VA per phase in voltage and 2 VA in current circuit.
3.7	Starting Current	0.1% I _b
3.8	Running with no load	Meter shall not record any energy under no-load condition.
3.9	Frequency	50 Hz with +/- 5% variation
3.10	Process Technology	Surface Mounting Technology or better.
3.11	Test Output Device	Flashing LED visible from the front for KWH,kVAh & kVAH .
3.12	Billing Data	Display order shall be as per Annexure-1
3.13	MD Registration	a) Meter shall store MD in every 15/30 min. period along with date & time with sliding window (5-15/30 min interval) programmable. At the end of every 15/30 min, new MD shall be previous MD and store whichever is higher and the same shall be displayed. (Note: Presently the integration period should be 15 min.) b) It should be possible to reset MD automatically at the defined date (or period) .
3.14	Auto Reset of MD	Default auto reset date should be 00:00Hrs 1 st day of month .Provision shall be made to change MD reset date through MRI even after installation of meter on site.

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3.15	TOD metering	<p>Meter shall be capable of doing TOD metering for KWH, KVARH, KVAH and MD in KW and KVA with 6 time zones. Initially following time zone may be programmed Time of the day Zone 4 time zones per day will be available for Demand. 06:00 – 10:00 10:00 – 18:00 18:00 – 22:00 22:00 – 06:00 2 time zones per day will be available for all Energy 06:00 – 22:00 22:00 – 06:00</p> <p>as per requirement from time to time programmable on site through CMRI</p>
3.16	Load Survey	<p>15 min integration period, load profile of phase voltage and current, KW, RKVA and KVA for min. 60 days (MD integration should be 15 min.) Sliding window of 5 Min will be preferred for MD recording.</p>
3.17	Time required for data reading from meter and downloading on desktop PC	<p>a) Meter data consisting of all parameters and 60 days load survey for above parameters shall be read by CMRI and downloaded on desktop PC in minimum possible time and it shall be indicated at the time of finalizing GTP. (The meter reading time should not be more than 3 minutes for complete set of data). b) The software should have capability to transfer data from single CMRI to PC and the multiple CMRI data download to PC with a loader charger.</p>
3.18	Diagnostic Feature	<p>Self-diagnostic for time, calendar, RTC battery all display segments and NVM.</p>
3.19	Security Feature	<p>Programmable facility to restrict the access to the information recorded at different security level such as read communication, communication write etc.</p>
3.20	Software & communication compatibility	<p>a) Optical port with RS 232 compatible to transfer the data locally through CMRI & remote through PSTN / Optical fiber / GSM / CDMA / RF / any other technology to the main computer. The optical communication should not be affected by the normal day light or any other light source surrounding the installed meter.</p> <p>b) The Supplier shall supply Software required for CMRI & for the connectivity to AMR modules. The supplier shall also provide training for the use of software. The software should be compatible to Microsoft Windows systems (Windows 98 system). The software should have polling feature with optional selection of parameters to be downloaded for AMR application.</p> <p>c) Necessary provision shall be made in the software for converting all the parameters available for new and old meters if supplied earlier. Copy of operation manual shall be supplied. The software should have selection of meters by date, serial number, data file name or groups of files for data conversion to text file process.</p> <p>d) The Supplier shall provide meter reading protocols. * Same need to be confirmed and mutually agreed before supply *</p>
3.21	Additional communication port	<p>An additional RS 232 hardwired port to be provided in terminal block/sealable area for AMR PSTN/Optical fibre/GSM/CDMA to the main computer.</p>

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3.22	Memory	Non-volatile memory independent of battery backup, memory should be retained upto 10 years in case of power failure.
3.23	Climatic Conditions	The meter should function satisfactorily in India with temperature ranging from 0 - 60°C and humidity upto 96%.
3.24	Calibration	Meters shall be software calibrated at factory and modification in calibration shall not be possible at site by any means.
3.25	Additional requirements of extended communication port	An extension cord of suitable length for extending communication port shall be provided with each meter. A communication cable of suitable length shall be provided for downloading of optical port data.

4.0 CONSTRUCTIONAL FEATURES

Sr. No.	Parameters	Technical Requirements
4.1	Meter Body	a) Top transparent and base opaque of material polycarbonate. The grade of material should be LEXAN 143A/943AA or equivalent . b) Front cover & base should be ultrasonically welded. c) Top cover should be designed so as the internal components should not be visible.
4.2	Terminal Block	Made of polycarbonate of grade 500 R or equivalent grade and shall form Integral part of the meter base, brass or copper current terminals (duly plated) with flat-head brass screws.
4.3	Terminal Cover	Terminal cover with provision of sealing through sealing screw.
4.4	Diagram of connections	Diagram of external connections to be shown on terminal cover
4.5	Marking on name plates	Meter should have clearly visible, indelible and distinctly name plate marked in accordance with IS & CSO specifications.
4.6	Meter Sealing	Supplier shall affix one Buyer seal on side of Meter body as advised and record should be forwarded to Buyer.
4.7	Warranty	5 years.
4.8	Insulation	A meter shall withstand an insulation test of 4 KV and impulse test at 8 KV
4.9	Resistance of heat and fire	The terminal block and Meter case shall have safety against the spread of fire. They shall not be ignited by thermal overload of live parts in contact with them as per the relevant IS 14697.

5.0 TAMPER AND ANTI-FRAUD DETECTION/EVIDENCE FEATURES

Total no of tamper events logged by meter shall be at least 200 nos.(1 event = occurrence and restore) , compartment wise division of each event and their persistence time shall be indicated at the time of finalizing GTP.

The meter shall not get affected by any remote control devices and shall continue recording energy under any one or combinations of the following conditions.Meter shall log all three-phase voltage, current, power factor etc. at the time of tamper attempt for all such occurrences:

1.1 Phase sequence reversal: The meters shall work accurately irrespective of the phase sequence of the supply.

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- 1.2 Detection of missing potential:** In case someone intentionally takes out a potential lead, the meter shall record the date and time of such occurrence. The last restoration of normal supply shall also be similarly recorded. The threshold value of voltage should be programmable at factory end.
- 1.3 Reversal of C.C. Polarity:** Meter shall record the reversal of C.C. polarity with time and date, and also the time of restoration. Meter shall, however, register the energy consumed correctly with any one, two or all three-phase C.C. reversal.
- 1.4 C.C. Shorting:** Meter shall record C.C. terminal shorting with time and date and time of restoration. The threshold value of currents should be programmable at factory end.
- 1.5 Power On/Off:** Meter shall detect power OFF (minimum power off period 5 mins) if any of phase voltages are not present. This event shall be recorded at the time of each power OFF. At the same time power ON event shall be recorded. This logging shall be available in Tamper details along with cumulative time of failure.
- 1.6 Neutral Disturbance:** Meter shall record correctly in case of any AC, DC high frequency signal injected in the neutral circuit of meter. Meter should log the event. Meter shall record correctly in case of missing neutral connection.
- 1.7 External Magnetic tamper:** Meter should log on the events of attempt of tampering by external magnetic field & should function as mentioned in the CBIP Technical report no. 88 with latest amendments.

In such conditions the Meter shall log the event for presence of abnormal external magnetic field and its restoration.

Vendor has to define tamper logic , occurrence & restoration time before supply.

5.2 Influence Quantities

The meter shall work satisfactorily with guaranteed accuracy limit under the presence of the following influence quantities as per IEC-1036 and CBIP Technical Report no.88 with latest amendment.

The influence quantities are:

- a) External Magnetic field – 0.5 tesla DC(with log on feature)
- b) Electromagnetic field induction,
- c) Radio frequency interference,
- d) Unbalanced load,
- e) Vibration etc,
- f) Wave form 10% of 3rd harmonics,
- g) Phase sequence,
- h) Voltage unbalance,
- i) Electro Magnetic H.F. Field, and

6.0 COMPONENT SPECIFICATIONS

Ser No	Component Function	Requirement	Makes and Origin
6.1	Current Transformers	The Meters should be with the current transformers as measuring elements. The current transformer should withstand for the clauses under 5.2	The current transformer should withstand for the clauses under 5.2
6.2	Measurement or computing chips	The Measurement or computing chips used in the Meter should be with the Surface mount type along with the ASICs.	USA: Anolog Devices, Cyrus Logic, Atmel, Phillips South Africa: SAMES Japan: NEC
6.3	Memory chips	The memory chips should not be affected by the external parameters like sparking, high voltage spikes or electrostatic discharges.	USA: Atmel, National Semiconductors, Texas Instruments, Phillips, ST, Japan: Hitachi or Oki

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6.4	Display modules	<p>a) The display modules should be well protected from the external UV radiations.</p> <p>b) The display visibility should be sufficient to read the Meter mounted at height of 0.5 meter as well as at the height of 2 meters (refer 3.2.d for Viewing angle).</p> <p>c) The construction of the modules should be such that the displayed quantity should not disturbed with the life of display (PIN Type).</p> <p>d) It should be trans-reflective HTN or STN type industrial grade with extended temperature range.</p>	<p><u>Hongkong:</u> Genda <u>Singapore:</u> Bonafied Technologies <u>Korea:</u> Advantek <u>China:</u> Success <u>Japan:</u> Hitachi, Sony</p>
6.5	Communication modules	Communication modules should be compatible for the two RS 232 ports (one for optical port for communication with Meter reading instruments & the other - for the hardwired RS 232 port to communicate with various modems for AMR)	<p><u>USA:</u> National Semiconductors, HP, Optonica <u>Holland / Korea:</u> Phillips <u>Japan:</u> Hitachi <u>Taiwan:</u> Ligitek</p>
6.6	Optical port	Optical port should be used to transfer the meter data to meter reading instrument. The mechanical construction of the port should be such to facilitate the data transfer easily.	<p><u>USA:</u> National Semiconductors ,HP <u>Holland / Korea:</u> Phillips <u>Japan:</u> Hitachi, <u>Taiwan:</u> Ligitek</p>
6.7	Power Supply	The power supply should be with the capabilities as per the relevant standards. The power supply unit of the meter should not be affected in case the maximum voltage of the system appears to the terminals due to faults or due to wrong connections.	<p>SMPS Type</p> <p>(It should take care of clause 3.1 and 3.5)</p>
6.8	Electronic components	The active & passive components should be of the surface mount type & are to be handled & soldered by the state of art assembly processes.	<p><u>USA:</u> National Semiconductors, Atmel, Phillips, Texas Instruments <u>Japan:</u> Hitachi, Oki, AVX or Ricoh <u>Korea:</u> Samsung</p>
6.9	Mechanical parts	<p>a) The internal electrical components should be of electrolytic copper & should be protected from corrosion, rust etc.</p> <p>b) The other mechanical components should be protected from rust, corrosion etc. by suitable plating/painting methods.</p>	
6.10	Battery	Lithium with guaranteed life of 15 years. (Guarantee from manufacturer to be submitted.)	Varta, Tedirun, Sanyo or National
6.11	RTC & Micro controller	The accuracy of RTC shall be as per relevant IEC / IS standards or CBIP-88 whichever is stringent.	<p><u>USA:</u> Philips, Dallas Atmel, Motorola, Microchip <u>Japan:</u> NEC or Oki</p>
6.12	P.C.B.	Glass Epoxy, fire resistance grade FR4, with minimum thickness 1.6 mm	

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7.0 GENERAL REQUIREMENTS

7.1 On the meter name-plate:

- a) meter serial number should be of 8 digits
- b) size of the digit of the meter serial number should be minimum 5mm X 3mm.
- c) bar code should be printed next to / below / above the meter serial number .
- d) BIS registration mark (ISI mark)

7.2 Supplier shall supply software suitable for energy measurement & energy spot billing through CMRI.

7.3 The supplier should seal meters on both sides. The Buyer shall approve the method of sealing.

7.4 Terminal cover should be fixed on Meter before dispatch.

7.5 Meter Sr. Nos. to be printed in black on the name plate, instead of embossing.

7.6 Box number, Meter serial number, type, rating should be mentioned on cases / cartons.

7.7 Meters shall be suitably packed with environmental friendly material in order to avoid damage or disturbance during transit or handling and to prevent in grace of moisture and dust.

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8.0 ANNEXURE 1: DISPLAY SEQUENCE FOR THE PARAMETERS

8.1 Default Display: (Auto scroll mode, Scroll time 6 Sec.)

- a. LCD test
- b. Date
- c. Time
- d. Cumulative KWH (Absolute)
- e. Cumulative KVAH (Absolute)
- f. MD in KW (Absolute)
- g. Cumulative KVARH (LAG - Imp.)
- h. Instantaneous Power Factor
- i. MD in KVA.(Absolute)

8.2 On-demand Display:

After using pushbutton the following parameters should be displayed.

- j. R phase voltage
- k. Y phase voltage
- l. B phase voltage
- m. R phase current (line)
- n. Y phase current (line)
- o. B phase current (line)
- p. Last month billing Date
- q. Last month billing KWH reading
- r. Last month billing RKVAH reading
- s. Last month billing KVAH reading
- t. Last month billing Maximum Demand in KW
- u. Last month billing Maximum Demand in KW occurrence Date
- v. Last month billing Maximum Demand in KW occurrence Time
- w. Last month billing Maximum Demand in KVA
- x. Last month billing Maximum Demand in KVA occurrence Date
- y. Last month billing Maximum Demand in KVA occurrence Time

Note: The meter display should return to Default Display mode (mentioned above) if the 'push button' is not operated for more than 6 seconds.

Provision for scroll lock by pressing scroll push button for long duration (10-15 sec.) and the lock can be released by repeat action.

SECTION – VI

**Technical Specifications(TS)
Three Phase Four Wire HT.CT. Meter**

2008-2009

Tender Notification : CSO/12/TPH Meter

Dated : 07.11.2008

Registered Office of NESCO, WESCO & SOUTHCO

1.0 Scope

This specification shall cover design, engineering, manufacture, assembly, inspection, testing at manufactures' works before dispatch, supply of 3 phase 4 wire, Class 0.5 accuracy HT CT-PT operated energy meter. The meter shall 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 zero lead. These meters should have communication ports to interface standard modems for remote meter reading on PSTN lines/optic fiber/CDMA/GSM.

The purchaser desires that the metering system should be flexible enough to the changing requirements of future tariffs and designed for minimum maintenance. Meters shall be having standard remote communication links for remote data collection. A related base computer & analysis software (BCS), as per the details given in this specification, shall also be supplied along with the meters.

2.0 Applicable standards

IS 14697:1999 for Class 0.5 and IS: 13779:1999 for class 1.0, IS 9000, IEC 687 for Class 0.5 and IEC 61036 for Class 1.0 with latest amendments and CBIP technical Report No.88 with latest amendments.

3.0 Technical Specification

Sr.No.	Parameters	Technical Requirements
3.1	Voltage	110V(P-P) with +20% to -30% Vref.
3.2	Rated secondary Current	-/5 Amps. Balanced & Unbalanced load
3.3	Display	LCD, Scrolling 5 sec for each parameter
3.4	Display parameters	(a)LCD (Seven digits) (b)Height: 10mmX6mm min. (c)Pin type (d)Viewing angle min 120 degrees
3.5	Power Consumption	As per relevant IS
3.6	Starting Current	0.1% of For Class). 5 and 0.2% Ib for Class 1.0
3.7	Frequency	50 Hz with + /-5% variation
3.8	Process technology	SMT or better
3.9	Test Outp[ut Device	Flashing LED visible from the front for KWh, KVAH, RKVAH
3.10	Billing	(a)Display parameters: LCD test, date & time cumulative KWH, cumulative KVAH & RKVAH, MD INKW & KVA, PF, V, I (cumulative KWH continuous and other parameter with pushbutton. Display parameters in Normal Display as well as on demand Display mode shall be finalized at the time of actual order. (b)Display order shall be as perAnnexure-1
3.11	MD Registration	(a)Meter shall store MD in every 15/30 min, period along with date & time with sliding window (5-15/30 min interval) programmable. At the end of every 15/30 min, new MD shall be previous MD and store which ever is higher and the same shall be displayed. (b) It should be possible to reset MD automatically at the defined date (or period)or through MRI or through manual MD resetting push button. © MD reset knob should be sealable.
3.12	Auto Reset of MD	Auto reset date for MD shallbe ndicated at the time of finalizing GTP and provision shallbe made to change MD reset date throughMRI even after installation of meter on site.
3.13	TOD metering	Meter shall be capable of doing TOD metering for KWH, KVRH, KVAH and MD in KW and KVA with 6 time zones

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		(programmable on site through CMR)
3.14	Load survey	15/30 min integration period, load profile of average voltage and current, KW, RKVA and KVA forming. 60 days (with 30 minutes integration period).
3.15	Time required for data reading from meter and downloading on desktop PC	Meter data consisting of all parameters and 60 days load survey for 3 parameters shall be read by CMRI and downloaded on desktop PC in minimum possible time and it shall be indicated at the time of finalizing GTP, (reading time with the help of CMRI should not exceed three minutes and that for load profile data should not exceed 7 minutes.)
3.16	Diagnostic feature	Self-diagnostic for time, calendar, RTC battery all display segments and NVM.
3.17	Security feature	Programmable facility to restrict the access to the information recorded at different security level such as read communication, communication write etc.
3.18	Additional communication port	An additional RS 232 hardwired port to be provided port to be provided in terminal block for AMR PSTN/Optical fibre/GSM/CDMA to the main computer.
3.19	Software & communication compatibility	<p>(a) Optical port with RS 232 compatible to transfer the data locally through CMRI & remote through PSTN/Optical fiber/GSM/CDMA/RF/ any other technology to the main computer.</p> <p>(b) The Supplier shall supply Software required for CMRI & for the connectivity to AMR modules. The supplier shall also provide training for the use of software. The software should be compatible to Microsoft Windows systems (Windows 98 system).The software should have polling feature with optional selection of parameters to be downloaded for AMR application.</p> <p>© Necessary provision shall be made in the software for converting all the parameters available for new and old meters if supplied earlier. Copy of operation manual shall be supplied.</p> <p>(d) The data transfer (from meter to CMRI.AMR equipment) rate should be minimum 2400 bps.</p> <p>(e) The Supplier shall provide meter-reading protocols. Meters with open protocols will be preferred.</p>
3.20	Memory	Nonvolatile memory independent of battery backup, memory should be retained up-to 10years in case of owner failure

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3.21	Climatic Conditions	<p>(a) The meter should function satisfactorily in India with temperature ranging from 0-60°C and humidity up to 96%.</p> <p>(b) Also refer IS: 13779 for climatic conditions.</p>
3.22	Calibration	Meters shall be software calibrated at factory and modification incalibration shall not be possible at site by any means.

4.0 Constructional Features

Sr.No.	Parameters	Technical Requirements
4.1	Body of Meter	<p>(a) Top transparent and base opaque material polycarbonate of LEXAN 143A/943AA orequivalent grade.</p> <p>(b) Front cover & base should be ultrasonically welded.</p> <p>© Top cover should be designed so as the internal components should not be visible.</p>
4.2	Terminal Block	Made of polycarbonate of grade 500R or equivalent grade and shall form Integral part of the meter base, brass or copper current terminals with flat-head brasss crews.
4.3	Terminal cover	Transparent terminal cover with provision of sealing through sealing screw.
4.4	Diagram of connections	Diagram of external connections to be shown on terminal cover from inside.

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4.5	Marking on name plates	Meter should have clearly visible, indelible and distinctly Name plate marked in accordance with IS & Discom specifications.
4.6	Meter Sealing	Supplier shall affix one Buyer seal on side of Meter body as advised and record should be forwarded to Buyer.
4.7	Warrantee	66 months
4.8	Insulation	A meter shall with stand an insulation test of 4 KV and impulse test at 6 KV
4.9	Resistancetoheat and fire	The terminalblock and Meter case shallhave safety against thespread offire. They shall not be ignited by terminal over load of live parts in contact with them as per the relevant IS 13779.

5.0 Tamper& ANTI-Fraud detection/evidence features

Total no of temper events logged by meter shall be at least 200 nos, compartment wise division of each event and their persistence time shall be indicated at the time of finalizing GTP The meter shall not get affected by any remote control devices and shall continue recording energy under anyone or combinations of the following conditions:

- 5.1 Phase sequence reversal : The meters shall work accurately irrespective of the phase sequence of the supply.
- 5.2 Detection of missing potential: In case someone intentionally takes out as potential lead, the date and time of such occurrence shall be recorded by the meter, The last restoration of normal supply shall also be similarly recorded. The threshold of the voltages should be programmable.
- 5.3 Reversal of C.C. Polarity: Meter shall record the reversal of C.C. polarity with time and date, and also the time of restoration. Meter shall however register the energy consumed correctly with any one, or all two phase c.c. reversal.
- 5.4 Power on/Off :- Meter shall detect power OFF (minimum power off period 5 minutes) if any of phase voltages are not present. This event shall be recorded at the time of each power OFF. At the same time power ON event shall recorded. This logging shall be available in Tamper details along with cumulative time of failure.
- 5.5 Snap shots: Meter shall log all three phase voltage, current, power factor etc. At the time of tamper attempt for all such occurrences.
- 5.6 External Magnetic tamper :Meter should log on the events of attempt of tampering by external magnetic field & should function as mentioned in the CBIP Technical report no. 88 with latest amendments.
- 5.7 Influence Quantities: The meter shall work satisfactorily with guaranteed accuracy limit under the presence of the following influence quantities as per IEC-1036, and CBIP Technical Report No.88 with latest amendment.

The influence quantities are:

- (a) External Magnetic field -0.2 tesla (with log on feature)
- (b) Electromagnetic filed induction
- (c) Radio frequency interference
- (d) Unbalanced load
- (e) Vibration etc.
- (f) Wave form 10% of 3rd harmonics

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- (g) Phase sequence
- (h) Voltage unbalance
- (i) Electro Magnetic H.F. Field

5.9 RTC Drift:

In case of TOD tariff the proper RTC functioning will be of prime importance. In view of this a software to adjust the RTC drift to be provided along with.

6.0 COMPONENT SPECIFICATIONS

Ser No.	Component Function	Requirement	Makes and Origin
6.1	Current Transformers	The Meters should be with the current transformers as measuring elements. The current transformer should withstand for the clauses under 5.2 h.	The current transformer should withstand for the clauses under 5.3h.
6.2	Measurement or computing chips	The Measurement or computing chips used in the Meter should be with the Surface mount type along with the ASICs.	USA: Analog Devices, Cyrus Logic, Atmel, Phillips, Texas Instruments. South Africa: SAMES Japan: NEC
6.3	Memory chips	The memory chips should not be affected by the external parameters like sparking, high voltage spikes or electrostatic discharges.	USA: Atmel, National Semiconductors, Texas Instruments, Phillips, ST, Microchip. Japan: Hitachi or Oki
6.4	Display modules	(a) The display modules should be well protected from the external UV radiations. (b) The display visibility should be sufficient to read the Meter mounted at height of 0.5 meter as well as at the height of 2 meters (refer 3.2.d for Viewing angle). © The construction of the modules should be such that the displayed quantity should not disturbed with the life of display (PIN Type) (d) It should be trans-reflective HTN or STN type industrial grade with extended temperature range.	Hongkong: Genda Singapore: Bonafied Technologies Korea : Advantek China : Success Japan: Hitachi, Sony Holland/Korea: Phillips
6.5	Communication modules	Communication modules should be compatible for the two RS 232 ports (one for optical port for communication with Meter reading instruments & the other – for the hardwired RS 232 port to communicate with various modems for AMR)	USA: National Semiconductors, HP, Optonica, ST, Holland/Korea : Phillips Japan: Hitachi Taiwan: Ligitek Germany : Siemens
6.6	Optical Port	Optical port should be used to transfer the meter data to meter reading instrument. The mechanical construction of the port should be such to facilitate the data transfer easily.	USA : National Semiconductors, HP Holland/Korea: Phillips Japan: Hitachi Taiwan: Ligitek
6.7	Power Supply	The power supply should be with the capabilities as per the relevant standards. The power supply unit of the meter should not be affected in case the maximum voltage of the system appears to the terminals due to faults or due to wrong connections.	SMPS Type (It should take care of clause 3.1 and 3.5)

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6.8	Electronic components	The active & passive components should be of the surface mount type & are to be handled & soldered by the state of art assembly processes.	USA: National Semiconductors, Atmel, Phillips, Texas Instruments, ST, Onsemi Japan: Hitachi, Lki, AVX or Ricoh Korea : Samsung
6.9	Mechanical parts	(a) The internal electrical components should be of electrolytic copper & should be protected from corrosion, rust etc. (b) The other mechanical components should be protected from rust, corrosion etc. by suitable plating/painting methods.	
6.10	Battery	Lithium with guaranteed life of 15 years.	Varta, Tedirun, Sanyo or National
6.11	RTC & Micro controller	The accuracy of RTC shall be as per relevant IEC/IS standards	USA: Phillips, Dallas Atmel, Motorola, Microchip Japan: NEC or Oki
6.12	P.C.B.	Glass Epoxy, fire resistance grade FR4, with minimum thickness 1.6mm.	

7.0 GENERAL REQUIREMENTS

7.1 On the meter nameplate:

- (a) meter serial number should be of 7 digits
- (b) size of the digit of the meter serial number should be minimum 5mm x 3mm
- (c) bar code should be printed next to/below/above the meter serial number.
- (d) BIS registration mark (ISI mark)

- 7.2 Supplier shall supply software suitable for energy measurement & energy spot billing through CMRI.
- 7.3 Buyer's Serial Number sticker should be fixed on window glass from inside or on Meter front cover of minimum digit size 6mm x 3mm.
- 7.4 The supplier should seal meters on both sides. The buyer shall approve the method of sealing.
- 7.5 The internal potential links should be in closed position or link less Meters will be preferred and there shall not be any external link.
- 7.6 Terminal cover should be fixed on Meter before dispatch.
- 7.7 Meter Sr.Nos. to be printed in black on the name plate, instead of embossing.
- 7.8 Box number, meter serial number, type, rating should be mentioned on cases/cartons.
- 7.9 Meters shall be suitably packed with environmental friendly material in order to avoid damage or disturbance during transit or handling and to prevent in grace of moisture and dust.

8.0 ANNEXURE 1: DISPLAY SEQUENCE FOR THE PARAMETERS

Process of display
(Automatic in cyclic manner / through push button)Both options should be available.

8.1 Display on meter (Descriptive in order of display)-

LCD TEST
REAL TIME
DATE
ACTIVE ENERGY
REACTIVE ENERGY
APPARENT ENERGY
RISING DEMAND WITH ET (KVA)
MAX. DEMAND (KVA)

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MD RESET COUNT
INST POWER FACTOR
INST FREQUENCY
INST VOLTAGE(R, Y, B PHASE)
INST CURRENT (R, Y, B PHASE)
INST ENERGY (KW, KVA, KVAR)
TOD MAX. DEMAND
TOD MD OF PREVIOUS BILLING PERIOD
TOD ENERGY
CUMULATIVE MAXIMUM DEMAND
PRESENT STATUS OF TAMPER
LAST OCCURANCE OF TAMPER WITH DATE
& TIME
LAST RESTORATION OF TAMPER WITH
DATE & TIME
TOTAL NO OF ABONORMAL

8.3 TOD timings:

Time of the day Zone 4 time zones per day will be available for Demand.

06:00 – 10:00

10:00 – 18:00

18:00 – 22:00

22:00 – 06:00

2 time zones per day will be available for all

Energy

06:00 – 22:00

22:00 – 06:00

Note: the meter display should return to Default Display mode (mentioned above) if the 'push button' is not operated for more than 6 seconds.

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TECHNICAL SPECIFICATION FOR PILFER PROOF BOX TO HOUSE HT METER

TECHNICAL DETAILS:

The offered meter box will be weather proof made up of fire retardant Engineering plastic material.

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

Meter box will have provision for sealing with a minimum of two seals.

The box will generally comply with provision of IS 5133 / 14772. Meter box will be suitable for indoor/outdoor installation. The design of the roof of the meter box suitable to easy flow of rain water. The meter Box will have good workmanship.

The inner dimension of the Meter box will be such that there will be a minimum 50 mm clearance from both sides, 25mm clearance at the front and top of the box, 10 mm on the back side of the meter.

Soft rubber gasket will be provided all around the meter box wherever required for protecting against entry of dust and water. It will comply with IP-54.

c) **Colour:** Dark admiralty gray.

d) **The contents of the box are as follows:**

ii.) **Viewing Window:**

Viewing window on meter chamber will be made of scratch and break resistant transparent clear high grade engineering plastic material and will be provided on the door for reading meter. The minimum thickness of the window will be 2 ± 0.2 mm. The viewing window will be covered with (hinged at top) a flap.

The window will be ultrasonically welded with box from inside.

There will not be any ingress of moisture through this window into the box.

xii) **Internal hinges:** A minimum of 2 nos. internal hinges well protected against corrosion will be provided. The hinges of the door will be concealed and they will be fixed to the flanges provided to the base and cover of the box in such a manner that the door opens by a minimum of 120 degrees.

xiii) **Handle:** Suitable handle or knob will be provided for opening the box door.

xiv) **Earthing Bolt:** A 8mm dia Zinc plated bolt with two numbers washers for earthing all metal parts used for fixing meter will be provided.

xv) **Fixing Arrangement:** The meter base supports inside the box are raised by about 10 mm in the box for ease of wiring. While fixing the meter screws will not protrude outside. For fixing the box to wall or wooden board 4 nos. key holes of minimum 6 mm dia will be provided at the four corners of the meter box. The meter is to be installed in the box and the box in the assembled condition will have provision to fix it to a pole or on wall.

xvi) **Latch:** Meter Box door will be provided with 2 nos. zinc plated latches.

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- xvii) Sealing arrangement:** Box will have provision of minimum 2 Nos. sealing arrangement to make the meter box fully tamper evident.
- xviii) Printing:** Purchase order No. & Date will be printed on Metallic plate on the top cover of the meter Box. The name of the manufacture will be embossed/ marked on the bottom half of the Box.
- xix)** The fixing arrangement will not be complex and it will be easily approachable for connections when the door is open and completely tamper evident once it is sealed.
- xx)** The dimensional drawing of metering Box to be enclosed with your offer.

GUARANTEED TECHNICAL PARTICULARS OF HT METER BOX

Sl. No.	Characteristics	Bidders Data
1.	Manufacturer's name	
2.	Material used for box body	
3.	Material withstanding temperature	
4.	Dimensions of box (L x W x H)	
5.	Thickness (mm)	
6.	Color	
7.	Viewing window a) Material b) Whether shade arrangement to window provided or not.	
8.	No. of Hinges	
9	Handle provision	
10.	Earthing provision	
11.	Sealing Arrangements	
12.	Inlet & Outlets	
13.	Gasket a) Whether gasket is provided for (each) door and window. b) Material of the gasket	
14.	Suitable for outdoor installation	

VOLUME- II

(Sample Forms)

2008-2009

Tender Notification : CSO/12/TPH Meter

Date: 07.11.2008

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Annexure - I

BID FORM
SUPPLY OF METERS AND BOX TO NESCO

To

**Central Services Office
(NESCO, WESCO & SOUTHCO)
Plot No. 123, Sector – A, Zone – A
Mancheswar Industrial Estate
Bhubaneswar – 751 010**

Sir,

1. We understand that NESCO is desirous of procuring 'Three Phase Meter with Box' in it's licensed distribution network area in the sate of Orissa.
2. Having examined the Bidding Documents for the above named works, we the undersigned, offer to deliver the goods in full conformity with the Drawings, Conditions of Contract and specifications for the sum of..... (figures.....) or such other sums as may be determined in accordance with the terms and conditions of the contract. The above amounts are in accordance with the Price Schedules attached herewith and are made part of this bid.
3. If our Bid is accepted, we undertake to deliver the entire goods within 180 days (6 months) from the date of award of purchase order/letter of intent.
4. If our Bid is accepted, we will furnish a composite performance bank guarantee for an amount of 10% (Ten) percent of the total contract value for due performance of the Contract in accordance with the General Conditions of Contract.
5. We agree to abide by this Bid for a period of 120 days from the date fixed for bid opening under clause 9.0 of GCC, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
6. We declare that we have studied the provision of Indian Income Tax Law and other Indian Laws for supply of equipments/materials and the prices have been quoted accordingly.
7. Unless and until Letter of Intent is issued, this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.
8. We understand that you are not bound to accept the lowest, or any bid you may receive.
9. There is provision for Resolution of Disputes under this Contract, in accordance with the Laws and Jurisdiction of Contract, Clause 19 of GCC.

Dated this..... day of..... 20

Signature..... In the capacity of

Registered Office of NESCO, WESCO & SOUTHCO

.....duly authorized to sign for and on behalf of

(IN BLOCK CAPITALS)

Annexure - II

FORMAT FOR BID SECURITY BANK GUARANTEE

(To be issued in a Non Judicial Stamp Paper of Rs. 50/- purchased in the name of the bank)

Whereas [name of the Bidder] (hereinafter called “the Bidder”) has submitted its bid dated [date of submission of bid] for the supply of [name and/or description of the goods] (hereafter called “the Bid”).

KNOW ALL PEOPLE by these presents that WE [name of bank] at [Branch name and address], having our registered office at [address of the registered office of the bank] (hereinafter called “the Bank”), are bound unto North Eastern Electricity Company of Orissa Ltd., with it’s Registered Office at Plot 123, Sector A, Zone A, Mancheswar Industrial Estate, Bhubaneswar – 751 010, (hereinafter called “the Purchaser”) in the sum of Rsfor which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this ____ day of _____ 20____.

THE CONDITIONS of this obligation are:

- 1. If the Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form; or
- 2. If the Bidder, having been notified of the acceptance of its Bid by the Purchaser during the period of bid validity:
 - (a) fails or refuses to execute the Contract Form, if required; or
 - (b) fails or refuses to furnish the performance security, in accordance with the Instructions to Bidders/ GENERAL CONDITIONS.;

We undertake to pay to the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that is its demand the purchaser will note that amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including thirty (30) days after the period of bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

(signature of the bank)

Signature of the witness

Registered Office of NESCO, WESCO & SOUTHCO

PROFORMA FOR BANK GUARANTEE FOR PERFORMANCE

(To be issued in a Non Judicial Stamp Paper of Rs. 50/- purchased in the name of the bank)

Bank Guarantee No.....
Date.....
Ref.

To

NESCO Ltd.
Registered Office at :
Plot No. 123, Sector – A, Zone – A
Mancheswar Industrial Estate
Bhubaneswar – 751 010

Dear Sirs,

In consideration of the NESCO, here in after termed as “Purchaser” having awarded to M/s. with its Registered Office/Head Office at..... (hereinafter referred to as the ‘Contractor’ which expression shall unless repugnant to the context meaning thereof, include its successors administrators, executors and assigns), a Contract by issue of Letter of Award No.dated.....and the same having been acknowledged by the Contractor, resulting in a Contract bearing No. dated.....valued at.....for.....and the Contractor having agreed to provide a composite Performance Guarantee for the faithful performance of the entire Contract equivalent to *.....10.....% (.....percent) of the said value of the Contract to the Purchaser.

We.....(Name & Address) having its Registered Office at..... hereinafter referred to as the ‘Bank’, which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby Guarantee and undertake to pay the Purchaser, on demand any and all monies payable by the Contractor to the extent of.....**.....as aforesaid at any time upto(days/month/year) without any demur, reservation, contest, recourse or protest and/or without any reference to the Supplier. Any such demand made by the Purchaser on the Bank shall be conclusive and binding notwithstanding any difference between the Purchaser and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Bank undertakes not to revoke this Guarantee during its currency without previous consent of the Purchaser and further agrees that the Guarantee herein contained shall continue to be enforceable till the Purchaser discharges this Guarantee.

The Purchaser shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee, from time to time to extend the time for performance of the Contract by the Contractor. The Purchaser shall have the fullest liberty, without affecting this Guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Contractor, and to exercise the same at any time in any manner, and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract between the Purchaser and the Contractor or any other course or remedy or security available to the Purchaser. The Bank shall not to be released of its obligations under these presents by any exercise by the Purchaser of its liberty with reference to the matters aforesaid or any of them or by reason of any other act of forbearance or other acts of omission or commission on the part of the

Registered Office of NESCO, WESCO & SOUTHCO

Purchaser or any other indulgences shown by the Purchaser or by any other matter or thing whatsoever which under law would, but for this provision have the effect of relieving the Bank.

The Bank also agrees that the Purchaser at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against Supplier and notwithstanding any security or other Guarantee the Purchaser may have in relation to the Contractor's liabilities.

Notwithstanding anything contained hereinabove our liability under this Guarantee is restricted toand it shall remain in force upto and including and shall be extended from time to time for such period (not exceeding one year),as may be desired by M/s..... on whose behalf this Guarantee has been given.

Dated this..... day of 20..... at.....

WITNESS

(Signature)..... (Signature).....

(Name)..... (Name).....

..... (Official Address)

(Designation with Bank Stamp)

Attorney as per Power of Attorney No.....

Dated.....

NOTE:

- 1. *This sum shall be Ten percent (10%) of the Contract price.
**The date will be ninety (90) days after the end of Warranty Period as specified in the Contract.
- 2. The stamp papers of appropriate value shall be purchased in the name of issuing bank.
- 3. Performance security is to be provided by the successful bidder in the form of a bank guarantee, which should be issued by any Scheduled Bank.

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ANNEXURE-III

SPECIFICATION NO. CSO/12/TPH Meter
SCHEDULE OF QUANTITY AND PRICES

Sl. No.	Description of Materials detailed in Section – III & Section-IV	Qty. As per RFQ in No's	Purchaser's Delivery Schedule	Qty. Offered by the Tenderer	Whether Firm or Variable	Free at Destination Stores		Excise Duty	Cess on E.D	Sales Tax/ VAT	Other Taxes if any	Entry Tax	Total value per unit	Discount if Any	Remarks
						Ex-Works prices per unit including packing	Forwarding freight and insurance								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.	LT 3 phase 4 Wire 200/5 Amps 4 CT operated static meters with TP box(Iron Double door) /Plastic box, 3x 240 Volts , Accuracy class:0.5	NESCO-250 nos. WESCO -150 nos. SOUTH CO-300 nos.	Shall commence within One month from the date of receipt of Purchase Order and complete within 2 months from the date of receipt LOA/ Confirmed PO												
2.	HT 3 Phase 4 wire Static Trivector Meter -/5 Amp, -/110 volts	NESCO-250 nos. WESCO -100 nos.	Shall commence within One month from the date of												

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	(Accuracy class 0.5) as per enclosed GTP	SOUTH CO-250 nos.	receipt of Purchase Order and complete within 2 months from the date of receipt LOA/ Confirmed PO												
3.	HT 3 Phase 4 wire Static Trivector Meter -/5 Amp, -/110 volts (Accuracy class 0.2) as per enclosed GTP	NESCO-125 nos. WESCO -50 nos. SOUTH CO-50 nos.	Shall commence within One month from the date of receipt of Purchase Order and complete within 2 months from the date of receipt LOA/ Confirmed PO												

- Note:**
1. The Prices shall be **Firm**.
 2. Columns 5 to 16 are to be filled in by the tenderer.
 3. The tenders received without breakup of Ex-works, F&I, E.D, Education Cess and CST/VAT are liable for rejection.
 4. Indicate exact percentage of taxes in figures and words.

SIGNATURE OF THE TENDERER

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