



**North Eastern Electricity Supply Company of Orissa
Limited**

Western Electricity Supply Company of Orissa Limited

Southern Electricity Supply Company of Orissa Limited

**TENDER SPECIFICATION FOR PROCUREMENT
OF SINGLE PHASE METER (OPTICAL + RF) &
ONLY (OPTICAL) WITH METER BOX**

(FOR CAPEX PROGRAMME)

TENDER NOTICE No. CSO / CAPEX / SINGLE PHASE METER/ 11

Date: 09.12.2011

- 1. DATE OF OPENING OF TENDER: 03.01.2012**
- 2. TIME: 3.30 PM**
- 3. PLACE: Registered Office of NESCO, WESCO & SOUTHCO,
N 1/22, IRC Village, Nayapalli, Bhubaneswar – 751015**

**North Eastern Electricity Supply Company of Orissa Ltd. (NESCO)
 Western Electricity Supply Company of Orissa Ltd. (WESCO)
 Southern Electricity Supply Company of Orissa Ltd. (SOUTHCO)**

Registered Office:

N 1/22, IRC Village, Nayapalli, Bhubaneswar – 751015

Ph. No. 0674-2558737, Fax: 0674-2558343

TENDER NOTICE NO: CSO/CAPEX / SINGLE PHASE METER /11 Date: 09.12.2011

Material Name: SINGLE PHASE METER (OPTICAL+RF) & (OPTICAL)

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**North Eastern Electricity Supply Company of Orissa Ltd. (NESCO)
 Western Electricity Supply Company of Orissa Ltd. (WESCO)
 Southern Electricity Supply Company of Orissa Ltd. (SOUTHCO)
 Registered Office:**

**N 1/22, IRC Village, Nayapalli, Bhubaneswar – 751015
 Ph. No. 0674-2558737, Fax: 0674-2558343**

TENDER NOTICE

Tender Notice No. CSO/CAPEX / Single Phase Meter / 11 Date: 09.12.2011

For and on behalf of the North Eastern Electricity Supply Company of Orissa Ltd. (NESCO), Western Electricity Supply Company of Orissa Ltd. (WESCO) & Southern Electricity Supply Company of Orissa Ltd. (SOUTHCO), the undersigned invites sealed tenders in duplicate on two part bidding system from the eligible bidders, who comply to the terms and conditions for the supply of following materials superscribing the Tender Specification No., Name of the material & date of opening (as mentioned in the notice).

The tender papers can be had from the undersigned at the above address on payment of the cost of Tender Paper indicated below in shape of Account Payee Bank Draft drawn on any Scheduled bank in favour of the North Eastern Electricity Supply Company of Orissa Ltd. payable at Bhubaneswar. The cost of tender paper is non-refundable.

SCHEDULE OF MATERIALS TENDERED:

Sl. No.	Description of Material	Unit	NESCO	WESCO	SOUTHCO	Total Qty.	EMD (Rs. in lakhs)	Cost of Tender Paper (Rs.)
1	Single Phase Meter (Optical)	No	55,623	55,623	1,59,267	2,70,513	32.50	15,000 + VAT @ 4% =
2	Single Phase Meter (Optical +RF)	No	20,000	20,000	20,000	60,000	7.20	15,600.00

TIME SCHEDULES:-

1	Last Date & Time for selling of tender papers	02.01.2012
2	Last Date & Time for submission of Tender	03.01.2012 up to 2.00 PM
3	Last Date & Time for Opening of Tender	03.01.2012 at 3.30 PM

The intending bidders can also download the tender document from our website www.nescoorissa.com, www.wescoorissa.com & www.southcoorissa.com. However the bidder has to furnish a Account Payee Bank Draft drawn on any Scheduled Bank in favour of the North Eastern Electricity Supply Company of Orissa Ltd. payable at Bhubaneswar for the cost of the Tender Paper indicated above, along with his bid, failing of which the bid will be rejected outright. However, Cost of Tender shall be fully exempt for the local SSI Units located in the State of Odisha having valid registration in D.I.C/NSIC on the date of submission of the tender. It is also applicable for Consortium of SSI Units. In the event of any specified date for the sale, submission or opening of bids being declared as holiday for NESCO/WESCO/SOUTHCO, the bids will be sold / received / opened up at the appointed time on the next working day. NESCO/WESCO/SOUTHCO also reserves the right to accept or reject any or all tenders without assigning any reason thereof, if the situation so warrants.

For detail Tender Specification & Terms and Conditions, please visit our website www.nescoorissa.com, www.wescoorissa.com & www.southcoorissa.com

SECTION – I

INVITATION FOR BIDS (IFB)

North Eastern Electricity Supply Company of Orissa Ltd. (NESCO)
Western Electricity Supply Company of Orissa Ltd. (WESCO)
Southern Electricity Supply Company of Orissa Ltd. (SOUTHCO)
Registered Office:

N 1/22, IRC Village, Nayapalli, Bhubaneswar – 751015
Ph. No. 0674-2558737, Fax: 0674-2558343

INVITATION FOR BIDS (IFB)
FOR SUPPLY OF SINGLE PHASE METER
(COMPETITIVE BIDDING)

TENDER NOTICE NO: CSO/CAPEX / Single Phase Meter/11 Date: 09.12.2011

SECTION –I

- 1.0 For and on behalf of the NESCO/WESCO/SOUTHCO, the undersigned invites bids under two part bidding system in sealed cover in duplicate duly superscribed with tender Notice no. CSO/CAPEX/ Single Phase Meter /11 Dt. 09.12.2011 and date of opening from the reputed manufacturers only for **design, manufacture, supply, type testing, inspection, loading at factory, transportation to & unloading at site / stores including guaranteed obligation for supply of Single Phase Meters.**
- 2.0 **Submission of the Bids:**
- 2.1 The Bidders are required to submit a detailed and comprehensive bid, consisting of Technical and Commercial Proposal and conditions / schedule of non-compliance, if any. The submission of the Bids shall be in the manner specified in the instruction to Bidders. The due date of submission shall be **03.01.2012 up to 2.00 PM.**
- 3.0 NESCO/WESCO/SOUTHCO will not be responsible for any costs or expenses incurred by bidders in connection with the preparation and delivery of bids.
- 3.1 NESCO/WESCO/SOUTHCO reserves the right to cancel, postpone, withdraw the invitation for Bids without assigning any reason thereof and shall bear no liability whatsoever consequent upon such a decision if the situation so warrants.

4.0 E.M.D & TIME SCHEDULES:

Description	Date
Last date for sale of tender papers	02.01.2012
Pre-Bid meeting / issue of clarification raised during pre-bid meeting	19.12.2011
Submission of Tenders	03.01.2012 up to 2.00 PM
Opening of Tenders	03.01.2012 at 3.30 PM
Completion of the delivery	Within 180 days from the date of issue of Purchase Order as per delivery schedule.
Cost of Tender Paper (Non-Refundable)	Rs. 15,600.00 (Rupees Fifteen Thousand Six Hundred only) in shape of Cash/ Account Payee demand draft issued in favour of the North Eastern Electricity Supply Company of Orissa Ltd.

	payable at Bhubaneswar only. NB: Cost of Tender shall be fully exempt for the local SSI Units located in the State of Odisha having valid registration in D.I.C/NSIC on the date of submission of the tender. It is also applicable for Consortium of SSI Units.
Amount of E.M.D payable	In shape of account payee demand draft / Bank Guarantee in favour of the “North Eastern Electricity Supply Company of Orissa Ltd.”. For details, please refer clause no. 9.2 of ITB NOTE: Local SSI Units located in the state of Odisha having valid registration in D.I.C/NSIC on the date of submission the tender shall be allowed to deposit 25% of the EMD amount as prescribed above. It is also applicable for Consortium of SSI Units.
NB: Bidders are free to quote for single or multiple items. But EMD is to be furnished for each item separately.	

Sl. No.	Description of Material	Unit	NESCO	WESCO	SOUTHCO	Total Qty.	EMD (Rs. in lakhs)	Cost of Tender Paper (Rs.)
1	Single Phase Meter (Optical)	No	55,623	55,623	1,59,267	2,70,513	32.50	15,000 + VAT @ 4% = 15,600.00
2	Single Phase Meter (Optical +RF)	No	20,000	20,000	20,000	60,000	7.20	

5.0 SCHEDULE OF REQUIREMENTS & DELIVERY:

Name of Material	Total Quantity in Nos.	Delivery quantity from the date of placement of the Order		
		Within 60 days (Consignment-I) (20%)	Within 120 days (Consignment-II) (35%)	Within 180 days (Consignment-III) (45%)
Single Phase Meter (Optical)	2,70,513	55,000	95,000	1,20,513
Single Phase Meter (Optical +RF)	60,000	12,000	21,000	27,000

Note: NESCO/WESCO/SOUTHCO may re-schedule the due date of delivery as per their requirement.

6.0 QUALIFICATION OF BIDDERS:

6.1 Criteria for qualification :

6.1.1. Technical:

- a) The bidder should be a manufacturer of **Single Phase Meters** with optical and/or RF port for which he submits his offer.
- b) The bidder has to quote at least 50% of the total tendered quantity (**any one item or both under clause 5.0**) of the material covered under this notification. The bidder should have supplied **Single Phase Meters** minimum 50% of the quoted/offered quantity during any one of the financial year out of the immediate past three financial years. Bidders shall submit self attested copies of P.O.'s executed successfully for the relevant years and abstract thereof to prove the quantity as supplied.

- c) The bid shall be accompanied by user's certificate from any Distribution Utility/ Reputed Private Organization/ State Govt./ Central Govt. or their undertaking(s) in support of satisfactory performance of their above materials supplied earlier to them.
- d) The offered materials should have been type-tested at CPRI/ NABL accredited laboratory. The bid shall accompany with type-test reports conducted at Central Power Research Institute / NABL accredited laboratory for the offered materials conducted within **Five** years before the date of opening of the tender.
- e) The bidders who have earlier failed to execute the Purchase Order(s) of NESCO/WESCO/SOUTHCO and or blacklisted by the NESCO, WESCO & SOUTHCO/any of the distribution Utility shall not be eligible to participate in this tender.
- f) NESCO/WESCO/SOUTHCO reserves the right to waive minor deviation, if they do not materially effect the capacity of the bidder to perform the contract.

6.1.2 **Financial:**

The minimum average annual turnover of the intending bidder should not be less than two times of the estimated cost of the quantity offered by the bidder during best three financial years out of immediate past 5 financial years.

Sl. No.	Description of Materials	Minimum Qualifying requirement for 100% Tender quantity (Rs. in Cr.)
1	Single Phase Meter (Optical)	65.00
2	Single Phase Meter (Optical + RF)	14.40

NB: Bidders offering multiple items must meet the sum of minimum turn over requirements of above items as indicated above. Accordingly bidders must furnish self attested audited Annual Accounts of past 3 best financial year/5 years to establish their Turnover requirement.

6.1.3 **Participation of SSI Units by forming a CONSORTIUM:**

Two or more SSI Units having been manufacturer of tender items as per this tender specification, may form a Consortium among themselves and apply against this specification, provided they fulfill the following eligible criteria;

- a) They should have legally valid consortium agreement as per the prescribed format for the purpose of participation in the bidding process. The total no of a consortium shall be limited to four members.
- b) All members of the Consortium should be the eligible manufacturer(s) of the materials / equipments tendered.
- c) Each member should have valid statutory license to use ISI Mark /Type tested report from NABL accredited laboratory conducted within last five years for the tendered materials/equipments as applicable for the tender.
- d) Consortium as a whole shall meet the qualifying norms specified in the tender, they participate.
- e) The lead member of the Consortium should meet at least 50% of the qualifying norms in respect of the supply experience.
- f) Besides the lead member, other member (s) of the Consortium **should meet at least 15% of the** qualifying norms in respect of the supply experience.

- g) All the Consortium member(s) shall authorize the lead partner by submitting a power of Attorney as per the prescribed format duly signed by the authorized signatories. The lead partner shall be authorized to receive instructions for and on behalf of all partners of the Consortium and entire execution of the contract.
- h) The Consortium and its members shall be jointly and severally responsible and be held liable for the purpose of guaranteed obligation and any other matter as required under the contract.
- i) Any member of the Consortium member(s) shall not be eligible either in an individual capacity or part of any other consortium to participate in the tender, where the said consortium participates.
- j) Separate Purchase Orders will be placed to each members of the Consortium considering their offer quantity and ability to supply.
- k) The prescribed formats for Consortium Agreement (Annexure – VII) and Power of Attorney (Annexure – VIII) are provided in the tender specification as enclosures.

6.1.4. **Documentation :**

- 6.1.4.1. Bidder shall furnish copies of original documents defining the constitution or legal status, place of registration and principal place of business namely of Memorandum and Article of Association.
- 6.1.4.2. Written power of attorney / Board Resolution of the authorized signatory of the bid.
- 6.1.4.3. Bidders shall submit their audited financial reports for best three financial years out of last five years. In case the Bidder is in existence for less than 5 years the audited financial report/s from the date of its incorporation should be furnished.
- 6.1.4.4. Copies of Purchase order successfully executed, Users Performance Certificate, type Test Report if any.

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

CAPEX CELL

Registered Office: NESCO, WESCO & SOUTHCO

N 1/22, IRC Village, Nayapalli, Bhubaneswar – 751015

Ph. No. 0674-2558737, Fax: 0674-2558343

email: capex@orissadiscoms.com

SECTION –II

INSTRUCTION TO BIDDERS (ITB)

SECTION –II

INSTRUCTION TO BIDDERS (ITB)

1. SOURCE OF FUNDS:

- 1.1 NESCO/WESCO/SOUTHCO hereinafter referred to as the “**Purchaser**” is desirous of procurement of materials for strengthening and improvement of distribution network under NESCO/WESCO/SOUTHCO from the funds available under Capex Programme of Govt. of Odisha.

2. SCOPE OF WORK:

- 2.1 The scope of work in brief shall include design, manufacture, type testing, inspection, supply, loading at factory, transportation to site / stores, unloading at site/stores including guaranteed obligation of complete supply of materials in conformity to the technical specification enclosed herewith in **Section – IV**.

3. DISCLAIMER:

- 3.1 This Document includes statements, which reflect various assumptions, which may or may not be correct. Each Bidder 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.
- 3.2 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 / provision of Services for the Project.
- 3.3 Though adequate care has been taken while issuing the Bid document, the Bidder should satisfy himself that documents are complete in all respects. Intimation of any discrepancy/ doubt shall be sent to the Purchaser address for speedy response.
- 3.4 This document and the information contained herein are **Strictly Confidential** and are for use of only the person (s) to whom it is issued/ downloaded from the website. It may not be copied or distributed by the recipient to third parties (other than in confidence to the recipient’s professional advisors).

4. COST OF BIDDING:

- 4.1 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.

5. BIDDING DOCUMENTS:

- 5.1 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:

- | | | |
|---|---|--------------|
| (a) Invitation of Bids (IFB) | - | Section –I |
| (b) Instruction to Bidders (ITB) | - | Section –II |
| (c) General Terms and Conditions of Contract (GTCC) | - | Section –III |
| (d) Technical Specification | - | Section –IV |
| (e) List of Annexures | - | Section –V |

5.2 The Bidder is expected to examine the Bidding Documents, including all Instructions, Forms, Terms and Specifications. Failure to furnish all information required in 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. **AMENDMENT OF BIDDING DOCUMENTS:**

6.1 At any time prior to the deadline for submission of Bids, the **Purchaser** may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Documents by way of issuing an addendum.

6.2 The Amendment/ Addendum shall be part of the Bidding Documents, pursuant to Clause 6.1, and it will be binding on the bidders.

6.3 In order to afford prospective Bidders reasonable time in which to take the amendment into account in preparing of their Bids, the **Purchaser** may, at its discretion, extend the deadline for the submission of Bids.

7. **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 the literature is accompanied by an English translation, in which case, for purposes of interpretation of the Bid, the English translation shall govern.

8. **DOCUMENTS COMPRISING THE BID:**

8.1 **The Bid prepared and submitted by the Bidder shall comprise of two parts i.e. Part-I (Techno-Commercial Bid), & Part-II (Price Bid).**

(A) The Part-I (Techno-Commercial Bid) must contain the following documents:

(a) Bid Document signed by the bidder in every page, all other Schedules / Formats enclosed in the Bid-Document (i.e. Annexure-I, II, IV, V, VI (A), VI (B), VII, VIII, IX & X) duly filled in & signed by the bidder with seal in a separate envelop superscribed as Techno Commercial Bid. **Bids containing information in formats other than our prescribed formats shall not be acceptable and may make the bid non-responsive.**

(b) Requisite Earnest Money Deposit (E.M.D) as per clause No. 4 of Section –I, IFB in a separate envelop superscribed as “EMD” **failing which the bid may be treated non-responsive.**

(c) Following Documentary evidence establishing in accordance with Clause-29, ITB, that the Bidder is qualified to perform the Contract if the Bid is accepted;

(i) Self attested copies of Purchase Orders executed in last 3 Years.

(ii) Self attested copies of Performance Certificates / Successful contract completion Certificates from the buyers preferably from Electricity Distribution Utilities / Government Organizations.

(iii) Type Test Reports from CPRI or NABL Accredited Testing Laboratory for the offered equipments along with the copies of drawings duly approved by the Type Testing Agency for the tests conducted not before 5 years from the date of opening of Bids.

(iv) Copies of Profit & Loss Accounts & Audited Balance sheet indicating Turnover for best 3 financial years out of last 5 financial years.

(d) Power of Attorney / Board resolution indicating that the person(s) signing the Bid have the authority to sign the Bid and as such the Bid is binding upon the Bidder during the

full period of its validity, in accordance with clause 14.

- (e) Requisite **Cost of Tender Document as per clause 4 of Section –I, IFB** in shape of account payee Bank draft from a scheduled Bank in favour of “The North Eastern Electricity Supply Company of Orissa Ltd.” Payable at Bhubaneswar is to be enclosed along with the Bid, if the document is downloaded from our web-site.

Or else, the Original Copy of Money Receipt for the payment made towards the cost of Tender Document is to be enclosed along with Bid, if the document is directly purchased from our Cash Counter at our Regd. Office.

(B) Part-II (Price Bid) :

The Price Bid shall contain the price schedules as per the prescribed format enclosed as (Annexure-V) duly filled in & signed by the bidder with seal.

(This shall be submitted in a **double sealed envelope separately duly superscribed as “Price Bid”**)

9. SUBMISSION OF BID :

- 9.1 The Bidder shall complete and submit the Bid Document in duplicate enclosing all documents at clause “8” above in two sealed envelopes for Original & Duplicate separately, superscribing the Tender Notice No. CSO/CAPEX/ Single Phase Meters /11 **Date 08.12.2011**, Date of Opening **03.01.2012** & Description of Material.

9.2 E.M.D:

- 9.2.1 The bidder shall submit E.M.D as a part of the bid in the prescribed manner for the amount mentioned in Clause No.4 of Section –I.

- 9.2.2 The E.M.D is required to protect the Purchaser against the risk of bidder’s conduct, which would warrant the security’s forfeiture.

- 9.2.3 The E.M.D shall be in the following form:

A/C payee demand draft in favour of North Eastern Electricity Supply Company of Orissa Ltd. issued by a Scheduled bank payable at Bhubaneswar.

OR

Bank Guarantee in favour of “North Eastern Electricity Supply Company of Orissa Ltd.” issued by a Scheduled bank encashable at local branch at Bhubaneswar only. The BG shall be strictly as per the format enclosed at Section – V, Annexure – X.

NB: In case of any deficiency such as the ownership of the security bond (other than the issuing bank), deviation from the approved format, absence of signature of witness etc. found in the EMD Bank Guarantee, the same shall be liable for rejection upfront. The bidder will not be given any chance to rectify the same.

- 9.2.4 Unsuccessful bidder’s E.M.D shall be refunded back as promptly as possible, but not later than thirty (30) days after the expiry of the period of bid validity. The successful bidder’s E.M.D shall be discharged upon furnishing of the performance security.

- 9.2.5 The E.M.D may be forfeited due to following reasons:

- 1) If the bidder withdraws bid during the period of bid validity specified by the bidder in the

bid form.

- 2) In case the successful bidder fails to sign the contract in specified time and / or fails to submit the requisite performance Bank guarantee.
- 3) In case of failure to supply the materials / equipment during the contractual delivery period.

10. **BID PRICE:**

10.1 Bidders have to quote for the entire quantity of materials/equipment covered under this specification strictly as per the enclosed format in Section –V. 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, testing, inspection, Transportation to site/stores, all in accordance with the requirement of Tender Documents. **The Bidder shall complete the appropriate Price Schedules enclosed herein at Annexure – V, stating the Unit Price for each item, all other livable taxes & duties, freight & insurance separately and thereby arriving at the total amount.**

10.2 In case there is any increase in the number of units as compared to those mentioned in the IFB, the Contract Price shall be subject to increase proportionately on pro-rata basis.

10.3 The Price offered shall be inclusive of all costs as well as Duties, Taxes and Levies paid or payable during implementation of the contract. If the Bidder is exempted from Excise duties, Concession in the Sales tax, levy of entry tax, same should be clearly mentioned supported with documentary evidence.

10.4 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 variable Price or an adjustable price clause shall be treated as non-responsive and rejected out rightly.**

11. **CONTRACT PRICE:**

11.1 The Ex-Works Prices quoted for the Contract shall remain FIRM as per the above Parameters and Purchaser shall not compensate Bidder for any variations. However any variation in the taxes & duties within the schedule date of delivery shall be borne by the Purchaser, else the same shall be borne by the bidder.

11.2 In case the Purchaser, revise the scope of works, bidders shall be compensated based on the Unit Rate (Ex-Works) agreed upon before Order placement or as per mutually acceptable rates.

12. **BID CURRENCIES:**

12.1 Prices shall be quoted in Indian Rupees Only.

13. **DOCUMENTS ESTABLISHING CONFORMITY TO THE BIDDING DOCUMENTS:**

13.1 The bidder shall confirm by documentary evidence of the Good's conformity to the Bidding Documents by submitting materials/equipment data sheets.

14. **PERIOD OF VALIDITY OF BIDS:**

14.1 Bids shall remain valid for **180 days** from the date of opening of commercial Bids.

14.2 Notwithstanding Clause 14.1 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 or by Fax.

15. **ALTERNATIVE BIDS:**

15.1 Bidders shall submit Bids, which comply with the Tender Documents. Alternative bids shall not be considered for evaluation. However, if the bidder(s) prefer to submit the revised price bid before the due date of opening of the price bid, the revised price bid shall be considered for evaluation.

16. **FORMAT AND SIGNING OF BID:**

16.1 The original Bid Form and accompanying documents (as specified in Clause 9), clearly marked “**Original Bid**”, plus one copy of the Techno-Commercial Proposal must be received by the **Purchaser** at the date, time and place specified pursuant to Clauses 17 and 18.

The Price Bid in Original should be submitted in a separate sealed envelope marked as “**Price Bid**”.

In the event of any discrepancy between the original and the copies, the original shall govern.

16.2 The original and the duplicate copy of the Bid shall be typed or written legibly 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-Authority/ Board Resolution accompanying the Bid.

16.3 The Bid shall contain no interlineations, erasures, 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.

17. **SEALING AND MARKING OF BIDS:**

17.1 Bid submission: One Original, One Copy of all the Bid Documents shall be sealed and submitted to the Purchaser before the last date & time for submission of the bid.

17.2 The Bid proposal should be divided into two parts and should be submitted in two separate sealed envelopes, addressed to Purchaser. All the envelopes should bear the Name and Address of the Bidder and marking is made for the Original and the duplicate copy. The envelopes should be superscribed with the title of its contents, as follows:

i) **TECHNO-COMMERCIAL BID ENVELOPE:** Shall contain the Bid Security (EMD), Cost of Tender Document, all supporting documents for qualifying requirement of this tender, duly filled in formats Abstract of General Terms & Conditions, Declaration Form, Technical Data Schedule, Technical & Commercial Deviations formats, Un-quoted blank Price Schedule etc. enclosed at Annexure I, II, IV, V, VI (A), VI (B), VII, VIII, IX & X at Section-V of this document.

ii) **PRICE BID ENVELOPE:** Shall contain the Price schedule duly filled in & signed as per Annexure –V at Section-V of this document. (This shall be submitted in a double sealed envelope separately.)

17.3 The inner and outer envelopes shall be addressed to the **Purchaser** at the following address:

CAPEX CELL, Registered Office: N 1/22, IRC Village, Nayapalli, Bhubaneswar – 751015

Bear the Project name as: “**Design, Manufacture, Testing, Inspection and Supply of Single Phase Meter** as per **Schedule of Requirement in Section-I**) – Tender Notice No. CSO/CAPEX/ Single Phase Meters /11 Dt. 09.12.2011

In addition to the information required in sub clause (a) and (b) above, the outer envelope shall indicate the name and address of the Bidder to enable the Bid to be returned unopened in case it is declared “Late” pursuant to Clause 20.

- 17.4 The Bidders have the option of sending the Bids by Post/ Courier services or 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/Courier Agents etc. shall be entertained by the Purchaser.
18. **DEADLINE FOR SUBMISSION OF BIDS:**
- 18.1 The original Bid together with required copies, must be received by the **Purchaser** at the address specified in Clause 17.3 not later than **14.00 Hrs.** (IST) on/before the due date as indicated in the invitation for bids.
- 18.2 The **Purchaser** may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Documents, 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.
19. **ONE BID PER BIDDER:**
- 19.1 Each Bidder shall submit only one Bid either by himself, or as a partner in a Joint Venture/Consortium. A Bidder who submits or participates in more than one Bid for the same item, either individually or jointly, will cause all those Bids to be rejected out rightly.
20. **LATE BIDS:**
- 20.1 Any Bid received by the Purchaser after the deadline for submission of Bids prescribed by the Purchaser, pursuant to Clause 18, will be declared “Late” and will be rejected out rightly and will be returned unopened to the Bidder.
21. **MODIFICATION AND WITHDRAWAL OF BIDS:**
- 21.1 The Bidder may modify or withdraw his Bid after the Bid’s submission, provided that written notice of the modification or withdrawal is received by the **Purchaser** prior to the deadline prescribed for submission of Bids.
- 21.2 The Bidder’s modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions of Clause 17 & 18. A withdrawal notice may be sent by fax but must be followed by an original signed confirmation copy.
- 21.3 No Bid can be modified subsequent to the deadline for submission of Bids.
- 21.4 No Bid can be withdrawn in the interval between the deadline for submission of Bids and the expiry of the period of Bid validity specified by the Bidder on the Bid form as per clause 14.
- 22.0 **EVALUATION OF BID:**
- 22.1 **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.
23. **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.

24. **PRELIMINARY EXAMINATION OF BIDS / RESPONSIVENESS:**

- 24.1 Purchaser will examine the Bids to determine whether they are complete, whether any computational error have been made , whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order.
- 24.2 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.
- 24.3 Prior to the detailed evaluation, pursuant to Clause 25, the **Purchaser** will determine the substantial responsiveness of each Bid to the Bidding Documents including production capability and acceptable quality of the materials offered, pursuant to Clause 13. Substantially responsive Bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviation.
- 24.4 A Bid determined as not substantially responsive will be rejected by the Purchaser and will not subsequently allowed to be made responsive by the Bidder by correction of the non – conformity.

25 **EVALUATION AND COMPARISON OF BIDS:**

- 25.1 The evaluation of Bids shall be done basing on the delivered cost competitiveness basis for each item separately.
- 25.2 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 as detailed in the clause 24. The Technical Proposals and the Commercial terms & conditions of the Bidders would be evaluated and discussed as per clause 26 of this document.

Subsequently, the Financial Proposals along with Supplementary Financial Proposals, if any, of Bidders with Techno-commercially Acceptable Bids submitted prior to final evaluation shall be considered.

- 25.3 **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) **Delivery Schedule:**
- b) **Deviations from Bidding Documents as mentioned in Non-Compliance Schedule.**
- c) **Past performance and capability to execute the contract.**
- d) **Type test reports from CPRI/ NABL Accredited Laboratories.**

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 his own assessment of the cost of any deviation for the purpose of ensuring fair

comparison of Bids.

26.0 **AWARD OF CONTRACT:**

In normal circumstances the Purchaser will generally 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 perform the Contract satisfactorily. If the lowest evaluated price (L1) of more than one responsive bidder(s) is same, then in such event the tender quantity shall be awarded in equal proportion.

However, for timely completion of the project, the purchaser may distribute the order among the bidders (maximum three) at L1 rate. In case of distributing between two bidders, the ratio shall be 70% (L1): 30% (L2) or the quantity offered/quoted by the bidders whichever is less. Similarly in case of distributing among 3 bidders, the ratio shall be 50% (L1):30% (L2):20 (L3).

In case L2 & L3 bidders does not agree to match the L1 prices, negotiation can be held with other techno-commercially responsive L4, L5bidders in sequence to match L1 price (Landed cost).

26.1 **CONTACTING THE PURCHASER:**

26.1.1 From the time between Bid opening to award of contract, if any Bidder wishes to contact the Purchaser on any matter related to the Bid, he should do so in writing.

26.1.2 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 of Award, will result in the rejection of the Bidder's Bid.

26.2 **THE PURCHASER'S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS OR TO RELAX ANY TERMS AND CONDITIONS:**

26.2.1 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 regarding the grounds for the Purchaser's action.

26.2.2 In the interest of work, the Purchaser reserves the right to relax any terms and conditions without affecting the quality & price of the equipments.

26.3 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 perform the Contract satisfactorily. The Purchaser at its option/ discretion may split the total quantity to be supplied between two or more Techno-Commercially responsive Bidders in case of the bid prices are same and early delivery is required by the purchaser.

26.4 **THE PURCHASER'S RIGHT TO VARY QUANTITIES:**

The Purchaser reserves the right to vary the quantity i.e. increase or decrease the number of materials without any change in terms and conditions at the time of placing the orders or during the execution of the Contract.

26.5 **LETTER OF INTENT / NOTIFICATION OF AWARD:**

26.5.1 The letter of intent / Notification of Award shall be issued to the successful Bidder(s) whose bid(s) 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 to it **within 7 days** of issue of the letter of intent / Notification of Award by Purchaser.

27.0 **PERFORMANCE SECURITY:**

27.1 Within 10 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 executed on non-judicial stamp paper worth Rs.100/- (Rupees One hundred only) issued by a scheduled Bank in favour of the Purchaser encashable at Bhubaneswar only 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 Section –V of Bidding Documents. The Bank Guarantee shall be valid for a period not less than 90 days over and above the guarantee period.

28. **CORRUPT OR FRAUDULENT PRACTICE:**

28.1 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 amount 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) Purchaser will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practice in competing for the contract in question.

c) Purchaser will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded an contract if he at any time determines that the firm is engaged in corrupt or fraudulent practice in competing for, or in executing, the Contract.

28.2 Furthermore, Bidders shall be aware of the provision stated in the General Terms and Conditions of Contract.

30.0. **LITIGATION HISTORY:**

The Bidder should provide accurate information on any litigation or arbitration resulting on contracts completed or under execution by him over the last three (3) years. A consistent history of awards involving litigation against the Bidder or any Partner of the joint venture may result in disqualification of Bid.

SECTION –III

GENERAL TERMS AND CONDITIONS OF CONTRACT (GTCC)

SECTION – III
GENERAL TRMS AND CONDITIONS OF CONTRACT (GTCC)

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 the 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 NESCO/WESCO/SOUTHCO shall mean **the “Purchaser”** on whose behalf this bid enquiry is issued by its authorized representative / officers.
- 2.02 “Bidder” shall mean the firm who quotes against this bid document issued by the Purchaser. “Contractor / Seller” shall mean the successful Bidder(s) whose bid has been accepted by the Purchaser and shall include his heirs, legal representatives, successors and permitted assigns..
- 2.03 “Site” shall mean the Electricity Distribution Area of the **Purchaser**.
- 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 Section –V, 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 detailed Purchase Order shall be taken as the effective date of the commencement of contract.
- 2.06 “Month” shall mean the calendar month and “Day” shall mean the calendar day.
- 2.07 “Codes and Standards” shall mean all the applicable codes and standards as indicated in the Technical Specification.
- 2.08 “Offer Sheet” shall mean Bidder's firm offer submitted to Purchaser in accordance with the specification.
- 2.09 “Contract” shall mean the “Detailed Purchase Order” issued by the Purchaser.
- 2.10 “Contract Price” shall mean the Price referred to in the “Detailed Purchase Order”.
- 2.11 “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.

2.12 “Goods/Materials” shall mean all items to be supplied under Purchase Order whether raw materials, processes materials, equipment, fabricated Materials, drawings or other documents etc. as applicable.

2.13 “Store” shall mean the Purchaser’s Store as given in the tender document.

2.14 “Project / Unit” shall mean supply of Materials as per enclosed technical specification.

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 terms hereto and any term of the offer sheet, the terms of this 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, at the time of placing order or 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 seller shall supply, deliver best quality Goods/Materials/Equipments & conduct the testing at their works of highest standards.

6.0 The seller shall be responsible & shall comply with the provisions of all statutory acts i.e Electricity Act 2003, Indian Electricity Rules 1956, Income Tax Act-1961 etc.

7.0 **INSPECTION & TESTING:**

i) The Purchaser’s representative shall be entitled at all reasonable times during manufacture to inspect examine and test on the Contractor’s premises the materials and workman-ship of all equipment to be supplied under this contract and if part of the said equipment is being manufactured else where in any Sub-Contractor’s premises, the Contractor shall obtain for the Purchaser’s representative, permission to inspect, examine and test as if the equipment were being manufactured on the Contractor’s premises. Such inspection, examination and testing shall not release the Contractor from his obligations under the contract.

ii) The Contractor shall give to the Purchaser adequate time/ notice (minimum of two weeks’ time) in writing for inspection of materials indicating the place at which the equipment is ready for testing and inspection and shall also furnish the Routine Test Certificates and Packing List along with offer for inspection to the Purchaser indicating the quantity which can be delivered in full truck load / Mini truck load to facilitate issue of dispatch instruction.

iii) Where the contract provides for test on the Premises of the Contractor or of any of his Sub-Contractors, the Contractor shall provide such assistance, labour, materials, electricity, fuel and instruments as may be required or as may be reasonably demanded by the Purchaser’s representative to carry out such tests efficiently. The

Contractor is required to produce Shop Routine Test Certificates before offering their materials for inspection.

- iv) After completion of the tests as indicated above, the Purchaser's representative shall forward the test results to the Purchaser. If the test results confirm to the specific standard, the Purchaser shall approve the test results and communicate the same to the Contractor in writing. The Contractor shall provide at least three copies of the test certificates to the Purchaser.
- v) The Purchaser has the right to have the test carried out at his own cost by an independent agency whenever there is a dispute regarding the quality of supply.
- vi) The Purchaser at its discretion may re-test the Materials/Equipment at its own laboratory or laboratory of his choice for reconfirmation of the test results, particularly no load losses, load losses and percentage impedance, etc.
- vii) Besides the above, the Third Party Independent Evaluation Agency (TPIEA) engaged by GRIDCO shall have right to conduct the pre & post dispatch inspection (as explained above) of the equipment/material procured by the Purchaser jointly along with the representative of purchaser/independently by the TPIEA as the case may be.

8.0 **TRAINING FACILITIES :**

The Contractor shall provide all possible facilities for training of Purchaser's Technical personnel, when deputed by the Purchaser for acquiring firsthand knowledge in assembly of the equipment and for its proper operation and maintenance in service.

9.0 **REJECTION OF MATERIALS:**

In the event, any of the materials / equipment supplied by the Contractor is found defective due to faulty design, bad workmanship, bad materials used or otherwise not in conformity with the requirements of the Specification, the Purchaser shall either reject the materials / equipment or ask the Contractor in writing to rectify the same. The Contractor on receipt of such notification shall either rectify or replace the defective materials/equipment free of cost to the Purchaser. If the Contractor fails to do so, the Purchaser may :-

- a) At its option replace or rectify such defective materials/equipment and recover the extra costs so involved from the Contractor plus (15%) fifteen percent and / or.
- b) Terminate the contract for balance work / supplies with enforcement of penalty Clause as per contract for the un-delivered materials and with forfeiture of Performance Guarantee/ Composite Bank Guarantee.
- c) Acquire the defective equipment / materials at reduced price considered equitable under the circumstances.

10.0 **EXPERIENCE OF BIDDERS :**

10.1 The bidder(s) should furnish information regarding experience particularly on the following points :

- i) Name of the manufacturer :
- ii) Standing of the firm for manufacture of equipment/material quoted :
- iii) Description of materials/equipment supplied during the last 3 (three) years with the name (s) of the party (s) to whom supplies were made.
- iv) Testing facilities at manufacturer's work with copies of calibrated certificates of the major testing equipment.
- v) If the manufacturer is having collaboration with other firm(s), details regarding the same:
- vi) A list of Purchase orders, executed during the last three years along with user's certificate and copies of Purchase orders.

10.2 Bids may not be considered if the past manufacturing experience is found to be unsatisfactory as mentioned under clause -6 of the IFB

11.0 **LANGUAGE AND MEASURES :**

All documents pertaining to the contract including Specifications, Schedule, Notice, Correspondence, Operating & Maintenance instructions, Drawings or any other writing shall be written in English language. The metric system of measurement shall be used exclusively in this contract.

12.0 **DEVIATION FROM SPECIFICATION :**

It is in the interest of the Bidders to study the Specification, drawing etc. specified in the tender document thoroughly before tendering so that, if any deviations are made by the Bidders, the same are prominently brought out on a separate sheet in the Technical & Commercial Deviation Formats enclosed at Annexure VI (A) & VI (B) in this document. Deviation mentioned in any other format or any other part of the offer document shall not be considered as a deviation & in such case it will be presumed that the bidder has accepted all the conditions, stipulated in the tender Specification, notwithstanding any exemptions mentioned therein.

13.0 **PRICE BASIS:**

13.01(a) Bidder shall quote "**FIRM**" price.

The breakup of prices shall indicate all types of Taxes, Duties and other Levies of whatsoever nature indicated separately and clearly, Packing & forwarding, transportation to site/store including transit insurances and entry tax etc. Exemption from any duties/taxes, if any, shall be supported with relevant documentary evidence.

- (b) The above Prices shall also include loading at factory site & unloading at Purchaser's site/stores. Price evaluation will be based on total landing cost, taking into account all taxes and duties.
- (c) CST / VAT clearance certificate, Copy of PAN card.

14.0 **TERMS OF PAYMENT:**

100 % value of each consignment will be paid within 30 days of receipt of materials in good conditions at stores/ desired destination and verification there of subject to approval of the Guarantee certificates & Test Certificates and submission & acceptance of Performance

Bank Guarantee equivalent to 10 % of Total Contract Price on non-judicial stamp paper worth Rs.100 in the prescribed format from a Scheduled Bank encashable at Bhubaneswar only.

Or else an equivalent amount of 10 % of the Total Contract Price shall be deducted from the invoice of the first consignment & the same shall be refunded after submission and approval of the required Performance Bank Guarantee or expiry of Guarantee Period whichever is earlier.

15.0 **PRICE VALIDITY:**

15.01 All bids submitted shall remain valid, firm and subject to unconditional acceptance by Purchaser for **180 days** post bid date. For award of Contract, the prices shall remain valid and firm till contract completion.

16.0 **GUARANTEE:**

16.01 **The bidder shall guarantee for satisfactory performance of the equipments/materials for a minimum period of 66 months from the date of Commissioning or 60 months from the date of receipt of last consignment whichever is earlier.** In the event of any defect in the equipment/ materials arising out of faulty design, inferior quality of raw material used or bad workmanship within the guarantee period, the Seller shall guarantee to replace/ repair to the satisfaction of the Purchaser the defective equipments free of cost. Should however, the manufacturer fails to do so within a reasonable time, the Purchaser reserves the right to recover the amount from the seller either from the bills pending or may recover from the Performance Guarantee submitted by the firm. **Seller shall give a Performance Bank Guarantee in favour of the Purchaser for 10% of the order value valid for 90 days over and above the guarantee obligation.**

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

17.0 **RELEASE:**

The seller's Performance Bank Guarantees / Assignable Bank Guarantee 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 16.01).

18.0 **TECHNICAL INFORMATION / DATA:**

The Purchaser 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 Purchaser and the Contractor agree to keep each other in confidence and to use the same degree of care as he uses with respect to his 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 nor misused in any other form. This technical information, drawing etc. shall be returned to the Purchaser with all approved copies and duplicates. In the event of any breach of this Contract, the Contractor shall indemnify the Purchaser against any loss, cost of damages of claim by any party in respect of such breach.

19.0 **EFFECTIVE DATE OF COMMENCEMENT OF CONTRACT :**

- 19.01 The date of the issue of the detailed Purchase Order shall be treated as the effective date of the commencement of Contract.
- 20.0 The bidder shall quote the basic price as well as all taxes & duties as per the enclosed format for bid prices.
- 21.0 **PENALTY:**
- 21.01 If supply of materials / equipments is delayed beyond the supply schedule as stipulated in Purchase order, then the seller shall be liable to pay to the Purchaser as penalty for delay, a sum of **0.5% (half percent)** of the contract price for every week delay or part thereof.
- 21.02 The total amount of penalty for delay under the contract will be subject to a maximum of **five percent (5%)** of the contract price.
- 21.03 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 seller or from the Performance Bank Guarantee or file a claim against the seller.
22. **VALIDITY OF THE ORDER:**
- The Order is valid for **10 weeks** beyond the schedule date of delivery, unless otherwise extended by the Competent Authority. The Order shall stand cancelled automatically beyond the validity period without any correspondences and liabilities to the purchaser.
23. **PACKING :**
- The materials / equipments shall be packed by the seller suitably as per the standard procedure for safe transport to the site / store. The cases shall be clearly marked showing distinctly the name and address of the consignee. In case of special instructions, such as “this end up”, “fragile”, “handles with care” etc., the same shall be clearly displayed on the cases.
- 24.0 **COMMISSIONING SPARES:**
- The seller shall replace, free of cost, any spares which may be found defective by the buyer during commissioning.
- 25.0 **DISPUTE RESOLUTION & JURISDICTION OF CONTRACT:**
- 25.1 Any dispute arising out of this contract shall be referred to the **MD/CMD, OPTCL** who shall decide the case as sole arbitrator
- 25.2 For the purpose of dispute resolution, this agreement shall be governed by the provision of Arbitration & Conciliation Act, 1996.
- 25.3 All disputes shall be subject to exclusive jurisdiction of the Court at Bhubaneswar and Writ jurisdiction of Hon’ble High Court of Odisha at Cuttack.
- 26.0 **EVENTS OF DEFAULT:**
- 26.1 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 amount due under the Contracts.
- (b) Seller fails or refuses to deliver Commodities conforming to his Bid document/

specifications, or fails to deliver Commodities and, or execute the works assigned to them 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.

27.0 **CONSEQUENCES OF DEFAULT:**

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

In the 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 Contract Performance Bank Guarantee;
- ii) Recover any losses and / or additional expenses, Purchaser may incur as a result of Seller's default.

28.0 **FORCE MAJEURE:**

28.01 The term "Force Majeure" as employed herein include, 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 :

1. Late delivery of materials caused by congestion of Seller's facilities or elsewhere, and oversold condition of the market, inefficiencies, or similar occurrences.
2. Late performance by Seller and / or Sub-Seller caused by unavailability of raw materials, supervisors or labour, inefficiencies of similar occurrences.
3. Mechanical breakdown of any item of Seller's or its Sub-Seller's equipment, plant or machinery.
4. Delays due to ordinary storm or inclement weather or
5. 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.

28.02 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 the cause lasts.

28.03 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 10(ten) days, the parties shall meet and determine the measures to be taken.

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

29 **EMBOSSING / PUNCHING / CASTING**

29.1 The all equipments and materials supplied under the CAPEX Programme shall bear distinct mark of “Name of the Purchaser, GoO, CAPEX Programme, PO Order No. & Date” by a way of embossing / punching / casting etc. This should be clearly visible to naked eye.

30 **INDEMNIFY**

30.1 The Vendor, its successor and assignee shall indemnify the Purchaser, its successor and assignee from all current & future liabilities that may arise out of purchase contract(s) entered into between the vendor & the Purchaser under this CAPEX Programme. The Purchaser in term shall indemnify the GoO & GRIDCO.

SECTION –IV

TECHINICAL SPECIFICATIONS

FOR

SINGLE PHASE METER (OPTICAL + RF),

SINGLE PHASE METER (OPTICAL)

&

METER BOX

TECHINICAL SPECIFICATION OF SINGLE PHASE METER (OPTICAL+RF)

1.0 SCOPE

This specification covers the design, manufacture testing, supply and delivery of single phase 2 wire 10-40Amps Static Watt hour meters of class: 1.0 accuracy.

2.0 STANDARDS

IS: 13779, IEC 1036/ IEC 62053-21, & CBIP Technical report no.88 and its latest amendments .The meter shall be ISI marked (vendor shall be BIS certified) and conform to CEA metering regulation.

3.0 FUNCTIONAL SPECIFICATION

Sr. No.	Function /Feature	Technical Requirements
3.1	Voltage	Ref Voltage 240 volt (P-N), +20% to -40% Vref, however the meter should withstand the maximum system voltage.
	Current	10 to 40 Amps
	Accuracy	Class 1.0
3.2	Display	a) LCD (Six digits) b) Height: 8 mm X Width:5 mm min. c) Pin Type d) Viewing angle min. 160 degrees
3.3	Power factor range	0.25 lag to 0.5 lead
3.4	Display parameters	a) Auto Display parameters : LCD test, KWH, MD in KW, Date & Time, Voltage, Current, Instantaneous Load. b) Auto, Push button, Power outage Display order shall be as per cl 8.0 of this specification.
3.5	Power Consumption	Less than 1 Watt or 4VA in Voltage circuit and 1 VA for Current circuit
3.6	Starting current	0.2 % of Ib
3.7	Frequency	50 Hz with + / - 5% variation
3.8	Test Output Device	The test out put device should have constant pulse rate i.e. Impulse per KWH & its value should be indelibly printed on the rating plate.
3.9	Billing data	a) Meter serial number, Date and time, KWH, MD in KW, History of KWH, MD with occurrence detail for last 6 months along with TOD readings & meter shall log monthly ON/ Off hrs as history. b) All the above parameters (namely KWH, MD in KW) are meter readings. c) All these data shall be accessible for reading, recording and spot billing by downloading through optical and RF communication port through universal MRI & Laptop computers at site.
3.10	MD Registration (KW)	a) Meter shall store MD in every 30 min. period along with date & time. At the end of every 30 min, new MD shall be computed & compared with previous MD and store whichever is higher and the same shall be displayed.
3.11	Auto Reset of MD	Auto reset date for MD shall be indicated at the time of finalizing P.O. Default resetting date is 00:00 hrs, 1 st of every month.
3.12	TOD metering	Meter shall be capable doing TOD metering for KWH, and MD in KW with provision of 6 time zones (programmable on

Sr. No.	Function / Feature	Technical Requirements						
		<p>site through CMRI). Following are the default TOD time zone.</p> <table border="1" data-bbox="716 260 1440 457"> <thead> <tr> <th data-bbox="716 260 967 323">Tariff</th> <th data-bbox="967 260 1440 323">Timings</th> </tr> </thead> <tbody> <tr> <td data-bbox="716 323 967 386">1</td> <td data-bbox="967 323 1440 386">00:00 to 6:00</td> </tr> <tr> <td data-bbox="716 386 967 457">2</td> <td data-bbox="967 386 1440 457">06:00 to 24.00</td> </tr> </tbody> </table>	Tariff	Timings	1	00:00 to 6:00	2	06:00 to 24.00
Tariff	Timings							
1	00:00 to 6:00							
2	06:00 to 24.00							
3.13	Security feature	Programmable facility to restrict the access to the information recorded at different security level such as read communication, communication write etc						
3.14	Memory	Non volatile memory independent of battery backup, memory should be retained up to 10 year in case of power failure						
3.15	Software communication compatibility &	<p>a) The meter should have an Optical Port compatible to transfer the data locally through CMRI and remote through PSTN / Optical fiber / GSM / CDMA. The meter shall have additional RF Communication facility for spot billing and data downloading through suitable device. For LPR communication the meter shall be read through mesh network formation i.e. each meter should communicate with all the meters within its range. (For details of RF communication facility kindly refer to clause nos. 16 and 17).</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. The software should have polling feature with optional selection of parameters to be downloaded for AMR application. The supplier should supply preferably a single device with meter reading, spot billing and bill printing facility free for every 500 Meters.</p> <p>This device should be capable of being compatible to different make of meters having RF facility. Details are given in the section 17.4.</p> <p>c) The data transfer (from meter to CMRI / AMR equipment) rate should be minimum 1200 bps.</p> <p>d) The vendor shall provide meter reading protocol as per IEC: 62056 for use of CMRI having interoperability facilities of different manufacturers. How ever any additional protocol provided by the manufacturer with out any additional cost is acceptable. Meter Communication APIs should be compatible with all the CMRI devices available in the market currently or during the Warranty and support period. Meter manufactures shall provide necessary API requirements and support during the Warranty and Support period without any additional cost to DISCOM.</p>						

Sr. No.	Function /Feature	Technical Requirements
		Meter manufactures must support the changes due to Regulatory or legal requirements. e) Communication protocol IEC 62056 shall be used for development of software.
3.16	Climatic conditions	a) Refer IS: 13779 for climatic conditions. b) The meter should function satisfactorily in India with high end temperature as 60°C and humidity up to 96%.
3.17	Battery	In case battery removal or total discharge same should not affect the working & memory of the meter. It must be rust & fungus proof.

4.0 CONSTRUCTIONAL SPECIFICATIONS

Sr. No.	Parameters	Technical Requirements
4.1	Body of Meter	a) Top transparent and base opaque material polycarbonate of LEXAN 143A/943AA or equivalent grade having properties of V0 inflammability level and UV stabilized. Meter should have IP51 class protection. b) Front cover & base should be ultrasonically welded and break to open type. c) Top cover Open: - The meter shall have top cover opening detection mechanism. The top cover opening event shall be indicated display continuously in auto scroll mode with kWh or through additional LED and shall be logged in memory. The detection and logging mechanism shall work even when meter is not energized. In case of indication of display, meter display shall get reset in 150 days. Logic shall be defined.
4.2	Terminal Block	Made of polycarbonate of grade 500 R or equivalent, brass or copper 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 & DISCOMS specifications. Prior approval of name plate design to be taken before product supply.
4.6	Meter Sealing	As per IS 13779 and CEA Metering Regulation 2006 with amendment regulations 2010 , Supplier will fix its seal on meter. In addition, supplier shall affix buyer seal(s) on side of Meter body as advised by buyer and record should be forwarded to Buyer. However in all such events the seal number should be same as that of the meter serial number with utility logo. A tracking & recording software for all new seals shall be provided by the manufacturer of the meter so as to track total movement of seals starting from manufacturing, procurement, storage, record keeping, installation, series of inspections, removal & disposal.
4.7	Guarantee / Warranty	6 Years.
4.8	Insulation	A meter shall withstand an insulation test of 4 KV and impulse test at 8 KV. The Meter should withstand phase to phase voltage for 5 Minutes when accidentally connected between phase and Neutral.

Sr. No.	Parameters	Technical Requirements
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 13779.
4-10	Measuring Element	The meter should be fitted with CT/SHUNT for measuring current in the phase element. The neutral/ differential element may have either CT or SHUNT. The SHUNT used in the current circuit must be of high quality having high thermal stability and temperature coefficient. The SHUNT should be E beam / spot welded.

5.0 TAMPER & ANTI-FRAUD DETECTION/EVIDENCE FEATURES

5.1 Tamper Conditions:

The meter shall not get affected by any remote control device & shall continue recording energy under any one or combinations of the following conditions:

Sr. No.	Tamper condition	Meter behavior
5.1.1	I/C & O/G Interchanged	Meter should record forward energy
5.1.2	Phase & Neutral Interchanged	Meter should record forward energy
5.1.3	I/C Neutral Disconnected, O/G Neutral & Load Connected To Earth.	Meter should record forward energy
5.1.4	I/C Neutral Disconnected, O/G Neutral Connected To Earth Through Resistor & Load Connected To Earth.	Meter should record forward energy
5.1.5	I/C Neutral connected, O/G Neutral Connected To Earth Through Resistor & Load Connected To Earth.	Meter should record forward energy
5.1.6	I/C (Phase & Neutral) Interchanged, Load Connected To Earth.	Meter should record forward energy
5.1.7	I/C & O/G (Phase or Neutral) Disconnected, Load Connected To Earth.	Meter should record forward energy

During Neutral missing mode starting test will be done at 1A and accuracy shall be within 2% at Ib and above .

Single Wire Metering: Meters shall record Energy when only phase or neutral current passing through the Meter 1Amp or more. Meter recording shall be within (+) (-) 2% accuracy.

5.2 Influence Parameters

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:

- a) External magnetic field *
- b) Electromagnetic field induction,
- c) Radio frequency interference,
- d) Vibration etc,
- e) Waveform 10% of 3rd harmonics,
- f) Voltage variation,
- g) Electromagnetic H.F. Field,
- h) D.C. immunity test,

External magnetic field * Test will be done as per IS and CBIP report 88 for AC abnormal field and at 0.5Tesla for DC magnetic field.

5.3 Tamper logging:-

5.3.1 Protection against HV spark: Meter shall continue to record energy or log the event, incase it is disturbed externally using a spark gun/ ignition coil. Up to 35 KV meter should be immuned.

5.3.2 Recording of Neutral disturbance: - Meter shall log all events when AC/DC/ Pulsating voltage is injected in neutral circuit especially when same can disturb the recording of energy.

5.3.3 External Magnetic tampers: Meter should log on the events of attempt of tampering by external magnetic field as mentioned in the relevant IS.

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.

Event Logging:- The meter should log all the following events:-

1. Selection of 'Neutral CT' :- 20 events
2. Selection of 'one wire power' :- 20 events
3. Events Top cover opening :- 20 events including 1st occurrence
4. Magnetic event :- 20 events
5. Abnormal external field/ ESD :- 20 events
6. Low voltage (Below 180V) :- 20 events

* The events count mentioned is minimum

The vendor will provide s/w to download all these data. The CMRI s/w shall work for down loading data from meter, up loading to computer generating bills etc. The event shall be logged with Voltage , current and cumulative kwh energy register value.

6.0 COMPONENT SPECIFICATIONS

Sr 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	Any make or origin conforming to IS 2705 or relevant standards
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.	Analog Devices, Cyrus Logic, Atmel, Phillips SAMES ,NEC,TEXAS
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,TDK,TI <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).	Truly semiconductor, Tianma / Haijing Electronics, China TEK,Vetronics,Xiamen instruments/RCL display, Hong kong-Genda,Singapore-Bonafied Technologies, Korea-Adnantek, Japan-Hitachi, Sony

Sr No	Component Function	Requirement	Makes and Origin
		<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 min 70 °C.</p>	
6.5	Optical communication Port	Optical communication 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.	Everlight, Osram, Agilent, NFC,USA-National Semiconductor, Korea-Philips, Japan-hitachi, Taiwan-ligitek.
6.6	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.	It should take care of clause 3.1 and 3.5
6.7	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 <u>Japan:</u> Hitachi, Oki, AVX or Ricoh <u>Korea:</u> Samsung EPCOS, Vishay, Taiwan-Yaged, Samxon
6.8	LED		Everlight, Agilent
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 10 years	Texcell, SAFT, Varta, MAXWELL,SANYO,PANASONIC
6.11	RTC & Micro controller	The accuracy of RTC shall be as per relevant IEC / IS standards/CBIP report 88	<u>USA:</u> Philips, Dallas Atmel, Motorola, Microchip , TEXAS <u>Japan:</u> NEC or Oki
6.12	P.C.B.	Glass Epoxy, fire resistance grade FR4, with minimum thickness 1.6 mm	(BBT test is must)

Note: The components used by manufacturer shall have "Minimum Life" more than the 10 years.

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

7.3 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.

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

7.5 The supplier should seal the meter cover. The Buyer shall approve the method of sealing.

a) The internal potential links should be in closed position or link less Meters will be preferred. There shall not be any external link.

7.6 Deliverable with Meters.

1. Individual meter accuracy test report.

2. Extended Terminal cover (refer 4.3)

3. Consolidated report of routine test report & seal & initial reading record.

7.7 Box number, Meter serial number, type, rating should be mentioned on cases / cartons. **The meter should packed serially as per serial nos. Ensure continuity of serial nos during packing without any gap in the serial nos while consigning the lot.**

7.8 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.

7.9 Meter shall have manufacturing month and year in the memory and should be downloadable.

8.0 AUTO/ MANUAL DISPLAY SEQUENCE FOR THE PARAMETERS

Auto Display Sequence:

LCD test, Date & Time, Cum KWH, Present MD in KW, Voltage, Current, Instantaneous Load.

Auto Display Sequence with ON time

Sl No.	Parameter	Display ON time
1	LCD Display	2 sec
2	Date and time	10 sec
3	Cumulative kWh	10Sec
4	Current month MD (IP 30 min)	10 Sec
5	Instantaneous Voltage	10 Sec
6	Instantaneous Current	10 Sec
7	Instantaneous Load KW	10 Sec

Push Button Display Sequence

Sl No.	Parameter
1	LCD Display
2	Meter SI No.
3	Date and time
4	Cumulative kWh and six month history

5	Current month MD and six month history
6	Instantaneous Voltage
7	Instantaneous Current
8	Instantaneous Load KW
9	Power factor with sign of lag or lead

Display during Power Outage

SI No.	Parameter	Display ON time
1	Cum KWH	10 sec
2	Present MD	10 sec

The meter should have provision to read the meter in No Power condition of the above parameters only using the Push Button for at least 24 hrs. In any case RTC battery power should not be used for display under No Power condition.

Display with Push button should be auto OFF type. It will revert back to the auto scroll mode after approximately 10 seconds if push button is not pushed to see next display. Push button mode will prevail upon auto scroll.

- On occurrence of any abnormality, it should appear on the display like top cover open, battery low or NVM failed.

9.0 TEST AND TEST CONDITIONS (As per IS-13779/IEC-62052-11)

9.1 Routine & Acceptance Tests for meters:

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

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

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

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

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

9.1.4 Additional Tests

A- Aging Test

During inspection at factory random sample (one from each 2000 nos.) meters shall be subjected to accelerated ageing test to eliminate infant mortality, i.e., meters are to be kept in ovens for 72 hours at 55 deg. Centigrade temperature & atmospheric humid condition. After 72 hours meters should work correctly. Facilities / arrangement for conducting ageing test should be available with the manufacturer.

B- Full load test for 12 hours

During inspection at factory random sample (one from each 2000 nos.) meters should also be subjected to a full load operation continuously for a minimum period of 12 hours to test its durability at high loads.

10 Inspection

10.1 The supplier will keep the Purchaser informed in advance of the time of the starting and the progress of manufacture of equipment in its various stages so that arrangement could be made for inspection. The customer hold points will be defined at the time of issue of final order. The accredited representative of the PURCHASER will have access to the supplier's or his subcontractor's work at any time during working hours for the purpose of inspecting the materials during manufacturing of the materials / equipment and testing and may select test samples from the materials going into plant and equipment. The supplier will provide the facilities for testing such samples at any time including access to drawings and production data at no charge to Purchaser. As soon as the materials are ready the supplier will duly send intimation to PURCHASER by Regd. Post and carry out the tests in the presence of representative of the PURCHASER. If PURCHASER feels necessary may select one sample from the lot at factory to send for testing at CPRI/ any other NABL Accredited laboratory.

10.2 The PURCHASER may at its option get the materials inspected by the third party if it feels necessary.

10.3 The dispatches will be effected only if the test results comply with the specification. The dispatches will be made only after the inspection by the PURCHASER Officer is completed to the PURCHASER satisfaction or such inspection is waived by the competent authority.

10.4 The acceptance of any quantity of materials will in no way relieve the supplier of its responsibility for meeting all the requirements of this specification and will not prevent subsequent rejection if such materials are later found to be defective or deviation from specification/IS.

10.5 The supplier will give 15 days advance intimation to enable the Purchaser depute his representative for witnessing the acceptance and routine tests.

10.6 Should any inspected or tested materials / equipment fail to conform to the specification, the Purchaser may reject the materials and supplier will either replace the rejected materials or make alterations necessary to meet specifications requirements free of costs to the Purchaser.

10.7 After delivery of materials at Purchaser's Store the materials may be verified/retested in full or taking random samples before acceptance. In case of any deviation to the specification, GTP,IS found during the tests the lot will be rejected or will be replaced by supplier.

11.0. SAMPLES: -

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

12.0 QUALITY ASSURANCE PLAN :

The design life of the meter shall be minimum 20 years and to prove the design life the firm shall have at least the following quality Assurance Plan: -

- The factory shall be completely dust proof.
- The testing rooms shall be temp. and humidity controlled as per relevant standards.
- The testing and calibrating equipments should be automatic and all test equipment shall have their valid calibration certificates.
- Power supplies used in testing equipment shall be distortion free with sinusoidal wave- forms and maintaining constant voltage, current and frequency as per the relevant standards.

During the manufacturing of the meters the following checks shall be carried out.

- i) Meter frame dimensions tolerances shall be minimum.
- ii) The assembly of parts shall be done with the help of jigs and fixtures so that human errors are eliminated.
- iii) The meters shall be batch tested on automatic, computerized test bench and the results shall be printed directly without any human errors.

The Bidder shall invariably furnish the following information along with his bid, failing which his bid shall be liable for rejection. Information shall be separately given for individual type of material offered.

- Statement giving list of important raw materials, names of sub-suppliers for the raw materials, list of standards according to which the raw materials are tested, list of tests normally carried out on raw materials.
- Information and copies of test certificates in respect of bought out accessories.
- List of manufacturing facilities available.
- Level of automation achieved and lists of areas where manual processing exists.
- List of areas in manufacturing process, where stage inspections are normally carried out of quality control and details of such tests and inspections.
- List of testing equipment available with the bidder for final testing of equipment specified and test-plant limitations, if any, vis-à-vis type, special acceptance and routine tests specified in the relevant standards and this specification. These limitations shall be very clearly brought out in schedule of deviations.

The manufacturer laboratory must be well equipped for testing of the meters. They must have computerized standard power source and standard equipment calibrated not later than a year (or as per standard practice). The details of testing facilities available for conducting

- a) The routine tests.
- b) Acceptance tests shall be furnished with the bid.

13.0 Random Sample test after delivery at store.

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

The following tests will be carried out at the Purchaser's laboratory.

- 1-Test of Starting Condition.
- 2-Test of no load condition.
- 3-Test of Limits of error.

4-Test of Repeatability of error.

5-Test of meter constant.

Other tests

6-Software, tamper test, test for influence quantities (voltage variation) & display parameters.

14.0 SOFTWARES

The firm has to provide required base computer & MRI software for data down loading & analysis during the guarantee period with free of cost.

15.0 METER READING PROTOCOL :

The vendor shall provide meter reading protocol as per IEC: 62056 for use of CMRI having interoperability facilities of different manufacturers. However any additional protocol provided by the manufacturer without any additional cost is acceptable.

16.0 Communication Facility:

The meter shall have wireless communication facility for remote reading through LPR (low power radio) communication Port. The meter shall have facility for communicating with a hand held terminal (HHT) i.e. Common Meter Reading Instrument (CMRI) through this port to facilitate for auto-reading and downloading the data for billing and historical data to base computer. The interface for communication between MRI & Base computer shall be supplied free of cost. The software required for CMRI and Base Computer System with necessary security provisions shall also be supplied free of cost with the following features:

- a. It shall be possible to read the meter via RF up to minimum 100 meters in any spherical direction from the meter. Longer communication range is preferred.
- b. In case of LPR communication the meters shall be read through mesh network formation i.e. each meter should communicate with all the meters within its range. However, no pre-installation programming or post installation programming shall be required for this purpose. In such case, time of reading for the next layer of meters may vary and the additional time of +3 sec for each added meter layer i.e. for each hop shall be allowed.
- c. It should not be possible to reset the energy reading in the meter or make any change in the data stored in the meters either current or historical, with the MRI.
- d. The LPR module of the meter shall have no physical access from outside the meter.
- e. The Frequency band for LPR equipment shall be of approved frequency range from Govt. of India and should be license free.
- f. The compatibility of transferring data from the meter to MRI, MRI to ISBM and then to the base computer system (BC) should be easily established; any change in language or any other reasons, the supplier shall modify it at his own cost within the guarantee period.
- g. For the purpose of data security, the data transfer from the meter to CMRI and further to Base computer should be fully secured and any unauthorized attempt/change in data should be indicated on computer system. There should be multi level password on the base computer system and in the meter to prevent any unauthorized change of billing parameters, resetting of demand and tamper in formation.
- h. FSK (Frequency Shift keying)/GFSK (Gaussian Frequency Shift Keying) modulation shall be used.
- i. The minimum range of these meters should be 100 Meter measured in open area.
- j. The meter manufacturer has to demonstrate the spot billing generation both through optical port as well as RF to the purchaser, which will be taken for technical evaluation.

It shall be the responsibility of meter supplier to reprogram and upgrade MRIs supplied by them with other suppliers' protocol free of cost for a minimum period of 5 years and keep enough spare code memory and RAM in the supplied MRIs for this purpose.

17.0 Base Computer Application Software

For efficient and speedy recovery of data read through CMRI/HHU, Base computer software shall be supplied having the following specifications stated as under:

The BCS software shall be user friendly Windows based. The Base Computer software shall give all details adequate for analysis. The software shall have the facility to convert all the consolidated information / data of selectable parameters into ASCII format. It should be possible for the Purchaser to generate its own DBF (data base files) to download all the required information into it. Any data base modifications required for customized reports are to be done without any extra cost.

Meter manufacturers shall provide API with documentation for downloading the data from the meter along with the sample meter.

Check sum logic shall also be provided for the downloaded data along with the sample meter.

Check sum checking API shall also be given for validating downloaded meter data as well as generated XML file with sample meter.

Whenever the meter manufacturer releases new or latest or advanced versions of meter firmware/software, the same shall be made available to purchaser immediately on the release date free of cost. The latest version shall support all existing hardware/meters in the field.

The meter manufacturer shall have to depute hardware and Software Engineers on call basis who shall have thorough knowledge of meter hardware /software used for downloading and converting so as to discuss the problems, if any, or new development in the hardware/software without any extra cost.

17.1 Platform:

The BCS shall be executable on all WINDOWS system including Linux & Solaris. The BCS shall be hardware platform independent.

17.2 Meter Data Display:

The software shall show electrical condition existing at the time of reading the meter in tabular forms as well as graphical format (Phase diagram)

All the information about energy, maximum demand and their respective billing register readings shall be shown in a manner which user can easily understand. The software shall be capable of preparing CMRI to read the meter information or time setting of the meter.

17.3 Support Display:

There shall be "user friendly" approach for viewing meter data for the reading collected now or for threading collected in the past. All information about a particular consumer will be sorted out and available at one place so that locating any consumer's past data is easy.

17.4 Device Requirements for Meter reading spot billing & Printing.

Devices shall support the communications with all meter Makes and Models available in the market.

The devices should also support the future standards during the Warranty and support duration of the device.

The devices should also support any changes to the existing meter APIs during the Warranty and support duration.

The device should have access control for the following functions with multiple user access based on configuration by the user

1. To change software
2. To upload / download consumer data
3. For meter reading and billing

Data must be stored in the CMRI device in the encrypted mode based on library / logic provided by the DISCOMs.

Base computer system Software for device should be platform independent i.e. it should function on any version of Windows (XP and higher versions), Linux and Solaris.

TECHINICAL SPECIFICATION OF SINGLE PHASE METER (OPTICAL)

1.0 SCOPE

This specification covers the design, manufacture testing, supply and delivery of single phase 2 wire 10-40Amps Static Watt hour meters of class: 1.0 accuracy.

2.0 STANDARDS

IS: 13779, IEC 1036/ IEC62053-21, & CBIP Technical report no.88 and its latest amendments .The meter shall be ISI marked (vendor shall be BIS certified) and conform to CEA metering regulation.

3.0 FUNCTIONAL SPECIFICATION

Sr. No.	Function / Feature	Technical Requirements
3.1	Voltage	Ref Voltage 240 volt (P-N), +20% to -40% Vref, however the meter should withstand the maximum system voltage.
	Current	10 to 40 Amps
	Accuracy	Class 1.0
3.2	Display	a) LCD (Six digits) b) Height: 8 mm X Width:5 mm min. c) Pin Type d) Viewing angle min. 160 degrees
3.3	Power factor range	0.25 lag to 0.5 lead
3.4	Display parameters	a) Auto Display parameters : LCD test, KWH, MD in KW, Date & Time, Voltage, Current, Instantaneous Load. b) Auto, Push button, Power outage Display order shall be as per cl 8.0 of this specification.
3.5	Power Consumption	Less than 1 Watt or 4VA in Voltage circuit and 1 VA for Current circuit
3.6	Starting current	0.2 % of Ib
3.7	Frequency	50 Hz with + / - 5% variation
3.8	Test Output Device	The test out put device should have constant pulse rate i.e. Impulse per KWH & its value should be indelibly printed on the rating plate.
3.9	Billing data	a) Meter serial number, Date and time, KWH, MD in KW, History of KWH, MD with occurrence detail for last 6 months along with TOD readings & meter shall log monthly ON/ Off hrs as history. b) All the above parameters (namely KWH, MD in KW) are meter readings. c) All these data shall be accessible for reading, recording and spot billing by downloading through optical communication port through universal MRI & Laptop computers at site.
3.10	MD Registration (KW)	a) Meter shall store MD in every 30 min. period along with date & time. At the end of every 30 min, new MD shall be computed & compared with previous MD and store whichever is higher and the same shall be displayed.
3.11	Auto Reset of MD	Auto reset date for MD shall be indicated at the time of finalizing P.O. Default resetting date is 00:00 hrs, 1 st of every month.

Sr. No.	Function / Feature	Technical Requirements						
3.12	TOD metering	<p>Meter shall be capable doing TOD metering for KWH, and MD in KW with provision of 6 time zones (programmable on site through CMRI). Following are the default TOD time zone.</p> <table border="0" data-bbox="808 260 1302 424"> <tr> <td style="text-align: center;">Tariff</td> <td style="text-align: center;">Timings</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">00:00 to 6:00</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">06:00 to 24.00</td> </tr> </table>	Tariff	Timings	1	00:00 to 6:00	2	06:00 to 24.00
Tariff	Timings							
1	00:00 to 6:00							
2	06:00 to 24.00							
3.13	Security feature	Programmable facility to restrict the access to the information recorded at different security level such as read communication, communication write etc						
3.14	Memory	Non volatile memory independent of battery backup, memory should be retained up to 10 year in case of power failure						
3.15	Software communication compatibility &	<p>a) The meter should have an Optical Port compatible to transfer the data locally through CMRI and remote through PSTN / Optical fiber / GSM / CDMA.</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. The software should have polling feature with optional selection of parameters to be downloaded for AMR application.</p> <p>c) The data transfer (from meter to CMRI / AMR equipment) rate should be minimum 1200 bps.</p> <p>d) The vendor shall provide meter reading protocol as per IEC: 62056 for use of CMRI having interoperability facilities of different manufacturers. However any additional protocol provided by the manufacturer without any additional cost is acceptable. Meter Communication APIs should be compatible with all the CMRI devices available in the market currently or during the Warranty and support period. Meter manufactures shall provide necessary API requirements and support during the Warranty and Support period without any additional cost to DISCOMs. Meter manufactures must support the changes due to Regulatory or legal requirements.</p> <p>e) Communication protocol IEC 62056 shall be used for development of software.</p>						
3.16	Climatic conditions	<p>a) Refer IS: 13779 for climatic conditions.</p> <p>b) The meter should function satisfactorily in India with high end temperature as 60°C and humidity up to 96%.</p>						
3.17	Battery	In case battery removal or total discharge same should not affect the working & memory of the meter. It must be rust & fungus proof.						

4.0 CONSTRUCTIONAL SPECIFICATIONS

Sr. No.	Parameters	Technical Requirements
4.1	Body of Meter	<p>a) Top transparent and base opaque material polycarbonate of LEXAN 143A/943AA or equivalent grade having properties of V0 inflammability level and UV stabilized. Meter should have IP51 class protection.</p> <p>b) Front cover & base should be ultrasonically welded and break to open type.</p> <p>c) Top cover Open: - The meter shall have top cover opening detection mechanism. The top cover opening event shall be indicated display continuously in auto scroll mode with kWh or through additional LED and shall be logged in memory. The detection and logging mechanism shall work even when meter is not energized. In case of indication of display, meter display shall get reset in 150 days. Logic shall be defined.</p>
4.2	Terminal Block	Made of polycarbonate of grade 500 R or equivalent, brass or copper 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 & DISCOMS specifications. Prior approval of name plate design to be taken before product supply.
4.6	Meter Sealing	<p>As per IS 13779 and CEA Metering Regulation 2006 with amendment regulations 2010 , Supplier will fix its seal on meter. In addition, supplier shall affix buyer seal(s) on side of Meter body as advised by buyer and record should be forwarded to Buyer. However in all such events the seal number should be same as that of the meter serial number with utility logo.</p> <p>A tracking & recording software for all new seals shall be provided by the manufacturer of the meter so as to track total movement of seals starting from manufacturing, procurement, storage, record keeping, installation, series of inspections, removal & disposal.</p>
4.7	Guarantee / Warranty	6 Years.
4.8	Insulation	A meter shall withstand an insulation test of 4 KV and impulse test at 8 KV. The Meter should withstand phase to phase voltage for 5 Minutes when accidentally connected between phase and Neutral.
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 13779.
4-10	Measuring Element	The meter should be fitted with CT/SHUNT for measuring current in the phase element. The neutral/ differential element may have either CT or SHUNT. The SHUNT used in the current circuit must be of high quality having high thermal stability and temperature coefficient. The SHUNT should be E beam / spot welded.

5.0 TAMPER & ANTI-FRAUD DETECTION/EVIDENCE FEATURES

5.1 Tamper Conditions:

The meter shall not get affected by any remote control device & shall continue recording energy under any one or combinations of the following conditions:

Sr. No.	Tamper condition	Meter behavior
5.1.1	I/C & O/G Interchanged	Meter should record forward energy

5.1.2	Phase & Neutral Interchanged	Meter should record forward energy
5.1.3	I/C Neutral Disconnected, O/G Neutral & Load Connected To Earth.	Meter should record forward energy
5.1.4	I/C Neutral Disconnected, O/G Neutral Connected To Earth Through Resistor & Load Connected To Earth.	Meter should record forward energy
5.1.5	I/C Neutral connected, O/G Neutral Connected To Earth Through Resistor & Load Connected To Earth.	Meter should record forward energy
5.1.6	I/C (Phase & Neutral) Interchanged, Load Connected To Earth.	Meter should record forward energy
5.1.7	I/C & O/G (Phase or Neutral) Disconnected, Load Connected To Earth.	Meter should record forward energy

During Neutral missing mode starting test will be done at 1A and accuracy shall be within 2% at Ib and above .

Single Wire Metering: Meters shall record Energy when only phase or neutral current passing through the Meter 1Amp or more. Meter recording shall be within (+) (-) 2% accuracy.

5.2.1 Influence Parameters

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:

- i) External magnetic field *
- j) Electromagnetic field induction,
- k) Radio frequency interference,
- l) Vibration etc,
- m) Waveform 10% of 3rd harmonics,
- n) Voltage variation,
- o) Electromagnetic H.F. Field,
- p) D.C. immunity test,

External magnetic field * Test will be done as per IS and CBIP report 88 for AC abnormal field and at 0.5Tesla for DC magnetic field.

5.3 Tamper logging:-

5.3.1 Protection against HV spark: Meter shall continue to record energy or log the event, incase it is disturbed externally using a spark gun/ ignition coil. Up to 35 KV meter should be immuned.

5.3.2 Recording of Neutral disturbance: - Meter shall log all events when AC/DC/ Pulsating voltage is injected in neutral circuit especially when same can disturb the recording of energy.

5.3.3 External Magnetic tampers: Meter should log on the events of attempt of tampering by external magnetic field as mentioned in the relevant IS.

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.

Event Logging:- The meter should log all the following events:-

1. Selection of 'Neutral CT' :- 20 events
2. Selection of 'one wire power' :- 20 events
3. Events Top cover opening :- 20 events including 1st occurrence

4. Magnetic event :- 20 events
 5. Abnormal external field/ ESD :- 20 events
 6. Low voltage (Below 180V) :- 20 events

* The events count mentioned is minimum

The vendor will provide s/w to download all these data. The CMRI s/w shall work for down loading data from meter, up loading to computer generating bills etc. The event shall be logged with Voltage , current and cumulative kwh energy register value.

7.0 COMPONENT SPECIFICATIONS

Sr 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	Any make or origin conforming to IS 2705 or relevant standards
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.	Analog Devices, Cyrus Logic, Atmel, Phillips SAMES ,NEC,TEXAS
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,TDK,TI <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 disturbed with the life of display (PIN Type). d) It should be trans-reflective HTN or STN type industrial grade with extended temperature range min 70 °C.	Truly semiconductor, Tianma / Haijing Electronics, China TEK,Vetronics,Xiamen instruments/RCL display, Hong kong-Genda,Singapore-Bonafied Technologies, Korea-Adnantek, Japan-Hitachi, Sony
6.5	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.	Everlight, Osram, Agillent, NFC,USA-National Semiconductor, Korea-Philips, Japan-hitachi, Taiwan-ligitek.
6.6	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	It should take care of clause 3.1 and 3.5

Sr No	Component Function	Requirement	Makes and Origin
		to faults or due to wrong connections.	
6.7	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 <u>Japan</u> : Hitachi, Oki, AVX or Ricoh <u>Korea</u> : Samsung EPCOS, Vishay, Taiwan-Yaged, Samxon
6.8	LED		Everlight, Agillent
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 10 years	Texcell, SAFT, Varta, MAXWELL,SANYO,PANASONIC
6.11	RTC & Micro controller	The accuracy of RTC shall be as per relevant IEC / IS standards/CBIP report 88	<u>USA</u> : Philips, Dallas Atmel, Motorola, Microchip , TEXAS <u>Japan</u> : NEC or Oki
6.12	P.C.B.	Glass Epoxy, fire resistance grade FR4, with minimum thickness 1.6 mm	(BBT test is must)

Note: The components used by manufacturer shall have "Minimum Life" more than the 10 years.

7.0 GENERAL REQUIREMENTS

7.10 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)

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

7.12 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.

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

7.14 The supplier should seal the meter cover. The Buyer shall approve the method of sealing.

- a) The internal potential links should be in closed position or link less Meters will be preferred. There shall not be any external link.

7.15 Deliverable with Meters.

1. Individual meter accuracy test report.
2. Extended Terminal cover (refer 4.3)

3. Consolidated report of routine test report & seal & initial reading record.

7.16 Box number, Meter serial number, type, rating should be mentioned on cases / cartons. **The meter should be packed serially as per serial nos. Ensure continuity of serial nos during packing without any gap in the serial nos while consigning the lot.**

7.17 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.

7.18 Meter shall have manufacturing month and year in the memory and should be downloadable.

8.0 AUTO/ MANUAL DISPLAY SEQUENCE FOR THE PARAMETERS

Auto Display Sequence:

LCD test, Date & Time, Cum KWH, Present MD in KW, Voltage, Current, Instantaneous Load.

Auto Display Sequence with ON time

Sl No.	Parameter	Display ON time
1	LCD Display	2 sec
2	Date and time	10 sec
3	Cumulative kWh	10Sec
4	Current month MD (IP 30 min)	10 Sec
5	Instantaneous Voltage	10 Sec
6	Instantaneous Current	10 Sec
7	Instantaneous Load KW	10 Sec

Push Button Display Sequence

Sl No.	Parameter
1	LCD Display
2	Meter SI No.
3	Date and time
4	Cumulative kWh and six month history
5	Current month MD and six month history
6	Instantaneous Voltage
7	Instantaneous Current
8	Instantaneous Load KW
9	Power factor with sign of lag or lead

Display during Power Outage

SI No.	Parameter	Display ON time
1	Cum KWH	10 sec
2	Present MD	10 sec

The meter should have provision to read the meter in No Power condition of the above parameters only using the Push Button for at least 24 hrs. In any case RTC battery power should not be used for display under No Power condition.

Display with Push button should be auto OFF type. It will revert back to the auto scroll mode after approximately 10 seconds if push button is not pushed to see next display. Push button mode will prevail upon auto scroll.

- On occurrence of any abnormality, it should appear on the display like top cover open, battery low or NVM failed.

9.0 TEST AND TEST CONDITIONS (As per IS-13779/IEC-62052-11)

9.1 Routine & Acceptance Tests for meters:

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

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

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

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

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

9.1.4 Additional Tests

A- Aging Test

During inspection at factory random sample (one from each 2000 nos.) meters shall be subjected to accelerated ageing test to eliminate infant mortality, i.e., meters are to be kept in ovens for 72 hours at 55 deg. Centigrade temperature & atmospheric humid condition. After 72 hours meters should work correctly. Facilities / arrangement for conducting ageing test should be available with the manufacturer.

B- Full load test for 12 hours

During inspection at factory random sample (one from each 2000 nos.) meters should also be subjected to a full load operation continuously for a minimum period of 12 hours to test its durability at high loads.

10 Inspection

10.1 The supplier will keep the Purchaser informed in advance of the time of the starting and the progress of manufacture of equipment in its various stages so that arrangement could be made for inspection. The customer hold points will be defined at the time of issue of final order. The accredited representative of the PURCHASER will have access to the supplier's or his subcontractor's work at any time during working hours for the purpose of inspecting the materials during manufacturing of the materials / equipment and testing and may select test samples from the materials going into plant and equipment. The supplier will provide the facilities for testing such samples at any time including access to drawings and production data at no charge to Purchaser. As soon as the materials are ready the supplier will duly send intimation to PURCHASER by Regd. Post and carry out the tests in the presence of representative of the PURCHASER. If PURCHASER feels necessary may select one sample from the lot at factory to send for testing at CPRI/ any other NABL Accredited laboratory.

10.2 The PURCHASER may at its option get the materials inspected by the third party if it feels necessary.

10.3 The dispatches will be affected only if the test results comply with the specification. The dispatches will be made only after the inspection by the PURCHASER Officer is completed to the PURCHASER satisfaction or such inspection is waived by the competent authority.

10.4 The acceptance of any quantity of materials will in no way relieve the supplier of its responsibility for meeting all the requirements of this specification and will not prevent subsequent rejection if such materials are later found to be defective or deviation from specification/IS.

10.5 The supplier will give 15 days advance intimation to enable the Purchaser depute his representative for witnessing the acceptance and routine tests.

10.6 Should any inspected or tested materials / equipment fail to conform to the specification, the Purchaser may reject the materials and supplier will either replace the rejected materials or make alterations necessary to meet specifications requirements free of costs to the Purchaser.

10.7 After delivery of materials at Purchaser's Store the materials may be verified/retested in full or taking random samples before acceptance. In case of any deviation to the specification, GTP,IS found during the tests the lot will be rejected or will be replaced by supplier.

11.0. SAMPLES: -

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

12.0 QUALITY ASSURANCE PLAN :

The design life of the meter shall be minimum 20 years and to prove the design life the firm shall have at least the following quality Assurance Plan: -

- The factory shall be completely dust proof.
- The testing rooms shall be temp. and humidity controlled as per relevant standards.
- The testing and calibrating equipments should be automatic and all test equipment shall have their valid calibration certificates.
- Power supplies used in testing equipment shall be distortion free with sinusoidal wave- forms and maintaining constant voltage, current and frequency as per the relevant standards.

During the manufacturing of the meters the following checks shall be carried out.

- i) Meter frame dimensions tolerances shall be minimum.
- ii) The assembly of parts shall be done with the help of jigs and fixtures so that human errors are eliminated.
- iii) The meters shall be batch tested on automatic, computerized test bench and the results shall be printed directly without any human errors.

The Bidder shall invariably furnish the following information along with his bid, failing which his bid shall be liable for rejection. Information shall be separately given for individual type of material offered.

- Statement giving list of important raw materials, names of sub-suppliers for the raw materials, list of standards according to which the raw materials are tested, list of tests normally carried out on raw materials.
- Information and copies of test certificates in respect of bought out accessories.
- List of manufacturing facilities available.
- Level of automation achieved and lists of areas where manual processing exists.
- List of areas in manufacturing process, where stage inspections are normally carried out of quality control and details of such tests and inspections.
- List of testing equipment available with the bidder for final testing of equipment specified and test-plant limitations, if any, vis-à-vis type, special acceptance and routine tests specified in the relevant standards and this specification. These limitations shall be very clearly brought out in schedule of deviations.

The manufacturer laboratory must be well equipped for testing of the meters. They must have computerized standard power source and standard equipment calibrated not later than a year (or as per standard practice). The details of testing facilities available for conducting

- a) The routine tests.
- b) Acceptance tests shall be furnished with the bid.

13.0 Random Sample test after delivery at store.

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

The following tests will be carried out at the Purchaser's laboratory.

- 1- Test of Starting Condition.
- 2- Test of no load condition.
- 3- Test of Limits of error.
- 4- Test of Repeatability of error.
- 5- Test of meter constant.

Other tests

- 6-Software, tamper test, test for influence quantities (voltage variation) & display parameters.

14.0 SOFTWARES

The firm has to provide required base computer & MRI software for data down loading & analysis during the guarantee period with free of cost.

15.0 METER READING PROTOCOL:

The vendor shall provide meter reading protocol as per IEC: 62056 for use of CMRI having interoperability facilities of different manufacturers. However any additional protocol provided by the manufacturer without any additional cost is acceptable.

16.0 Base Computer Application Software

For efficient and speedy recovery of data read through CMRI/HHU, Base computer software shall be supplied having the following specifications stated as under:

The BCS software shall be user friendly Windows based. The Base Computer software shall give all details adequate for analysis. The software shall have the facility to convert all the consolidated information / data of selectable parameters into ASCII format. It should be possible for the Purchaser to generate its own DBF (data base files) to down load all the required information into it. Any data base modifications required for customized reports are to be done with out any extra cost.

Meter manufacturers shall provide API with documentation for down loading the data from the meter along with the sample meter.

Check sum logic shall also be provided for the down loaded data along with the sample meter.

Check sum checking API shall also be given for validating downloaded meter data as well as generated XML file with sample meter.

Whenever the meter manufacturer releases new or latest or advanced versions of meter firmware/software, the same shall be made available to purchaser immediately on the release date free of cost. The latest version shall support all existing hard ware/meters in the field.

The meter manufacturer shall have to depute hardware and Software Engineers on call basis who shall have thorough knowledge of meter hardware /software used for downloading and converting so as to discuss the problems, if any, or new development in the hardware/software without any extra cost.

16.1 Platform:

The BCS shall be executable on all WINDOWS system including Linux & Solaris. The BCS shall be hardware platform independent.

16.2 Meter Data Display:

The software shall show electrical condition existing at the time of reading the meter in tabular forms as well as graphical format (Phase diagram)

All the information about energy, maximum demand and their respective billing register readings shall be shown in a manner which user can easily understand. The software shall be capable of preparing CMRI to read the meter information or time setting of the meter.

16.3 Support Display:

There shall be "user friendly" approach for viewing meter data for the reading collected now or for threading collected in the past. All information about a particular consumer will be sorted out and available at one place so that locating any consumer's past data is easy.

TECHNICAL SPECIFICATION FOR SINGLE PHASE METER BOX FOR CAPEX PROGRAMME

1.0 **SCOPE:**

This specification covers design manufacturing, testing and supply of Meter Box having Base made out of Sheet Molding Compound (SMC confirming to IS: 13410) and Cover made out of Fully Transparent Polycarbonate Material confirming to IS: 14772 / 2000 (amended upto date). The Meter Box shall be suitable for housing Single Phase Energy Meters on wall mounting in indoor as well as outdoor applications.

2.0 **SERVICE CONDITIONS:**

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

Maximum & ambient air temperature	60° C
Maximum relative humidity	100%
Maximum annual rainfall	1450 mm
Maximum wind pressure	150 Kg/mtr ²
Maximum altitude above mean sea level	1000 mtrs.
Seismic level (Horizontal acceleration)	0.3 g
Climatic condition	Moderately hot and humid Tropical climate conducive to rust and fungus growth
Ref. Ambient temperature for temperature rise	60° C

3.0 **APPLICABLE STANDARDS:**

Unless otherwise modified in this specification the meter box shall generally confirm to IS: 14772 / 2000 (Amended upto date) and material of construction i.e. SMC and Polycarbonate shall confirm to IS: 13410 / 1992 & IS: 14434 respectively and requirement of this specification.

4.0 **DESIGN & CONSTRUCTION:**

- 4.1 The Meter box shall be so constructed as to have roof tapering down for easy flow of rainwater. It should be moulded using 100% virgin raw material, SMC as well as Polycarbonate. The box shall be weather proof, unbreakable scratch resistant having good workmanship.
- 4.2 The Meter box shall be made of anti corrosive, dust proof rust proof vermin and water proof ultra violet stabilized and flame retardant high grade virgin material having good dielectric and mechanical strength property.
- 4.3 The minimum inside dimensions of the meter box shall be suitable for installation of all types of meters purchased from various meter manufacturers.
- 4.4 The single phase meter box shall be such that there should be minimum 60 mm clearance at the bottom, 40 mm clearance on all three sides, 25 mm clearance at the front and 10 mm clearance at the back between meter and meter box inner wall.
- 4.5 The wall thickness of the meter box base suitable for single phase shall be minimum 2 mm and cover shall be minimum 2 mm. It should have base raised by about 10 mm in the box for easy wiring for fixing the meter. The meter screws shall not protrude outside.
- 4.6 Minimum Internal Dimensions of the meter box shall be as follows.
Single Phase Meter Box: 260 mm (H) x 190 mm (W) x 120 mm (D)

- 4.7 The tolerance permissible on the various dimensions of the meter box shall be $\pm 1\%$.
- 4.8 The meter box base shall be made from thermosetting plastic i.e. glass reinforced polyester sheet moulding compound conforming to IS: 13410 /1992, Grade SI and cover from fully transparent polycarbonate material grade ISPCXXXILRC11243F34 as per IS: 14434 & requirement of this specification.
- 4.9 The base and cover of meter box shall be individually in one piece except for fixing of accessories like push fit, clamp, handles, meter mounting etc and all metal part excluding hardware shall be of stainless steel only. The box base & cover shall be push fit type. D-Port arrangement with connecting cable to be provided in the box, for optical port meter. In the absence of 'D' port alternative arrangement to be provided in the box, so that data can be down loaded from the meter without opening box door. In both cases sealing arrangement for optical port to be provided.
- 4.10 The base and cover must be UV stabilized to ensure that it does not get 'Yellow' over a period of time. It should not change in colour shape size dimensions when subjected to 200 hrs on UV ageing test as per ASTM: G53 (Cl. No. 9.3), 4 Hours UV at 60⁰ C and 4 Hours Condensation at 50⁰C. The base and cover shall be capable of withstanding temperature of boiling water for five minutes continuously without distortion or softening.
- 4.11 The cover shall be made overlapping type having collars on all four sides. The cover of meter box shall have 4 nos. of non-detachable self-locking push fit type arrangement. It should have suitable non-detachable fitting to base such that if pushed once inside, the cover shall rest on the base of box in such a way that any access from outside to the meter is not possible.
- 4.12 The cover in closed position should be overlapped on base such that direct entry of screwdriver, tool or film is not possible. The cover shall be provided with semi circular / circular gasket of sufficient size to completely fit to the base. The gasket should be made out of good quality neoprene rubber.
- 4.13 The cover of Transparent Polycarbonate Material shall have light transmission of 80% or more (to be tested as per ASTM D 1003). This will facilitate photometer reading as well as transparency.
- 4.14 Meter Box Base and cover shall have minimum 2 nos. of matching Wire Sealing holes.
- 4.15 Meter box shall conform to IP-55.
- 4.16 The mounting arrangement of the meter in the meter box shall be by way of adjustable slotted stainless steel strips of thickness 3 mm which shall be fixed on the base by providing raised groove with internal threads and 4 Nos. of 4 mm diameter, 8 mm long full thread screws to suit mounting of various make of meters.
- 4.17 4 nos. of keyholes of diameter 6 mm shall be provided at the backside of the meter box to facilitate mounting of the meter box on the wall or pole. 4 nos. of 75 mm long 6 mm diameter mounting screws with washers shall be provided along with the meter box .
- 4.18 2 nos. of holes with polymeric material collapsible glands of maximum diameter of 12 mm for single phase shall be provided at the bottom of meter box for incoming and outgoing cables. A proper barrier arrangement shall be provided so that direct accesses to meter incoming terminal shall not possible from outside through incoming & out going holes.
- 4.19 The surface appearance or part of Meter Box must be smooth, non porous and homogeneous, free from ripples, defects and marks. No fillers or fibres should be visible at any place.
- 4.20 The Meter Box shall comply with magnetic influence of AC / DC / 0.5 Tesla Permanent Magnet when tested as per Meter Testing Method of CBIP Report No. 88 with Meter having 0.5 Tesla Magnetic Immunity mounted in it.

5.0 TESTS:

The meter box shall be fully type tested as per IS 14772 / 2000 (amended up to date), IS: 13410 / 1992 & IS: 14434. The type test report of meter box having identical constructional and other features carried out during last three years will be valid. The type test report shall clearly indicate the constructional features identifying material of construction and its grade / composition as per respective IS and other type tests as well as acceptance tests as per table below. All the Type Tests shall be carried out from Laboratories which are accredited by the National Board of Testing and Calibration Laboratories (NABL) of Govt. of India such as CPRI, Bangalore / Bhopal, ERDA Baroda, to prove that the meter box meets the requirements of specification.

Type Test Reports conducted in manufacturers own laboratory and certified by testing institute shall not be acceptable. The bidder shall also furnish the particulars giving specific required as per Guaranteed Technical Particulars. The offers without the details mentioning in GTP stand rejected. The tendered shall submit all the type test reports as below along with offer. Separate type Test Reports for each offered type of meter box shall be submitted. The purchaser reserves the right to demand repetition of some or all the type tests in presence of purchaser's representative at purchaser's cost.

The meter box shall pass all the acceptance and routine tests as laid down in IS: 14772 / 2000 (amended up to date) & IS: 14434 and also additional acceptance tests as prescribed in this specification.

TYPE TEST & ACCEPTANCE TESTS (Test 1 to 8 for Base & Cover)

SN	Test	Reference Standard	Required Value
1	Flammability	UL-94 / IS: 1173	V2
2	Self extinguishing	IS: 4249	SE
3	Heat Deflection Temperature @ 1.8 MPA	IS: 13411 Annex. H / ISO 75	Base = 2: 1500 C Cover = 2: 150° C
4	Glow Wire Test	IS: 11000 (P2/ SI) or IEC - 695-2-1	Base = 900°C Cover = 900°C
5	Ball Pressure Test	IS: 14772/2000/ IEC 335	Confirms
6	Water Absorption	IS: 14772 / 2000	= 0.25%.
7	Mechanical strength	IS: 14772 / 2000	2: 50 MPA
8	Marking, Dimension & Construction	IS: 14772 / 2000	As per IS
9	Material Identification of Base	N.A.	Sheet Moulding Compound
10	Material Identification of Cover	N.A.	Polycarbonate
11	UV Ageing Test for 200 Hours	ASTM G53 (9.3)	Confirms
12	Light Transmission (Transparency) for Cover	ASTM D 1003	2: 80%

In addition to above, all other tests according to IS: 14772/2000.

For Acceptance Test, 10 Samples for each lot offered for inspection shall be selected randomly.

6.0 TESTING AND MANUFACTURING FACILITIES:

- 6.1 The Meter box manufacturer shall have necessary machinery for production of SMC Base & Transparent Polycarbonate Lid of meter box.
- 6.2 Manufacturer should have in house testing facilities for carrying out routine and acceptance tests as per IS: 14772/2000 and technical specification excluding material identification, UV Ageing Test for 200 Hours.
- 6.3 The Bidder shall have the testing facility of flammability test.

7.0 DRAWINGS / SAMPLES:

The detailed dimensional drawing showing clearly the dimensions and material for meter box and its constructional features shall have to be furnished by the bidder with the offer.

7.1 **Guarantee**

The meter box shall be guaranteed for a period of five years (60 Months) from the date of commissioning or five and half years (66 Months) from the date of supply whichever is earlier. The meter boxes found defective within above guarantee period shall be replaced by the supplier free of cost within one month of receipt of intimation. If the defective material is not replaced within specified period as above, the company shall recover an equivalent amount plus 15% supervision charges from any of the bills or BG of the supplier.

8. **MARKINGS**

The following information shall clearly & indelibly be printed on the meter box

- 1) Purchaser's Name :
- 2) Code name of manufacturer :
- 3) Purchase order number and date :
- 4) Year and month of manufacture :
- 5) Guarantee Period :.....
- 6) Sign of Danger :.....
- 7) Meter Box sr. No.
- 8) special emblem : CAPEX PROGRAMME

9.0 **INSPECTION:**

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

SECTION –V

LIST OF ANNEXURES

(SCHEDULES AND FORMATS)

ABSTRACT OF GENERAL TERMS AND CONDITIONS

(For supply of Single Phase Meter)

1. Whether the bidder is a Manufacturer & furnished relevant documents: Yes / No
2. Required Cost of Tender Furnished Yes / No
3. Required Earnest Money Furnished in Demand Draft Yes / No
4. Whether Type test certificates enclosed with the bid: Yes / No
5. Manufacturer's past supply experience including user's certificate furnished or not: - Yes / No
6. Audited annual reports for the last 3 years furnished or not: Yes / No
7. Deviation to the specification , if any (List enclosed or not):- Yes / No
8. Whether agreed to Purchaser's Delivery schedule: Yes / No
If agreed,
 - a) Date of commencement :
 - b) Rate of delivery per month :
9. Whether agreed to Purchaser's Guarantee clause:- Yes / No
10. Whether agreed for 180 days' validity period of Prices Yes / No
11. Whether the Prices are **FIRM**? Yes / No
12. Whether agreed to furnish security deposit in shape of B.G. encashable at Bhubaneswar in case his tender is successful: - Yes / No
13. Whether agreed to penalty for delayed delivery: - Yes / No
14. Whether agreed to Purchaser's standard terms of payment or not: Yes / No
15. Valid ITCC & STCC furnished or not: Yes / No

Signature of the bidder
With seal of the Bidder

This form is to be duly filled up & signed by the Bidder along with seal & submitted along with the Part-I of tender.

DECLARATION FORM

To
CAPEX Cell,
Registered Office, NESCO, WESCO & SOUTHCO
N 1/22, IRC Village, Nayapalli, Bhubaneswar - 15

Sir,

Having examined the above specifications together with the Tender terms and conditions referred to therein.

- 1- I / we the undersigned do hereby offer to supply the materials covered thereon in complete shape in all respects as per the rules entered in the attached contract schedule of prices in the tender.
- 2- I / we do hereby undertake to have the materials delivered within the time specified in the tender.
- 3- I / we do hereby guarantee the technical particulars given in the tender supported with necessary reports from concerned authorities.
- 4- I / we do hereby certify to have furnished a copy of the tender specifications by remitting Cash/ Demand draft & this has been duly acknowledged by you in your letter No.....Dt.....
- 5- I / we do hereby agree to furnish the composite Bank Guarantee in the manner specified / acceptable by THE <PURCHASER>& for the sum as applicable to me / us as per clause No.23 in Annexure-III(A) of this specification within fifteen days of issue of Letter of intent / Purchase Order, in the event of Purchase order being decided in my / us favour , failing which I / we clearly understand that the said LOI / P.O. shall be liable to be withdrawn by the Purchaser

Signed this.....Day of.....200....

Yours faithfully,

(Signature of Tenderer with Seal)

(This form should be duly filled up & signed by the bidder & submitted along with the original copy of the bid)

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

This Guarantee Bond is executed this ____ day of _____ by us the _____ Bank at _____ P.O. _____
 P.S. _____ Dist _____ State _____
 (indicate designation of Purchaser)

Whereas North Eastern Electricity Company of Orissa Ltd. (NESCO) /Western Electricity Supply Company of Orissa Ltd.(WESCO) /Southern Electricity Supply Company of Orissa Ltd.(SOUTHCO) (as the case may be) Regd. Office: N 1/22, IRC Village, Nayapalli, Bhubaneswar – 751015 registered under the Company Act 1956 (here in after called “the Purchaser”) has placed Purchase Order No. _____ Dt. _____ (hereinafter called “the Agreement”) with M/s _____ (hereinafter called “the Contractor”) for supply of _____ (name of the material) and whereas NESCO/WESCO/SOUTHCO (as the case may be) has agreed (1) to exempt the Contractor from making payment of security deposit, (2) to release 100% payment of the cost of materials as per the said agreement and (3) to exempt from performance guarantee on furnishing by the Contractor to the NESCO/WESCO/SOUTHCO (as the case may be) a composite Bank Guarantee of the value of 10% (ten percent) of the Contract price of the said Agreement.

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

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

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

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

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

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

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

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

7. We, the _____ Bank lastly undertake not to revoke this Guarantee during its currency except with the previous consent of NESCO/WESCO/SOUTHCO (as the case may be) in writing.

Dated _____ the _____ day of Two thousand _____ .

Notwithstanding anything contained herein above.

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

The Bank Guarantee shall be valid up to _____ only.

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

For _____
(Indicate the name of the Bank)

N.B.:

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

TENDER NOTICE NO: CSO/CAPEX / Single Phase Meter /11 Date: 09.12.2011

ANNEXURE – IV(A)

GUARANTEED TECHNICAL PARTICULARS OF SINGLE PHASE STATIC, 10-40A, W/C, KWH METER OF CLASS -1 ACCURACY WITH LCD BACKLIT DISPLAY HAVING OPTICAL PORT AND RF FACILITY.

Sl. No.	Item	Requirement	Bidder's Offer
1	Name of the manufacturer		
2	Type, name (Model)		
3	Standard Applicable	IS:13779/1999, IEC:1036, CBIP Report-88 with its latest amendment as on date	
4	Rating	10-40 A	
(i)	Accuracy Class	Class 1.0	
(ii)	Rated Voltage	230V (+20 % - 40%)	
(iii)	Rated Current	Ib–10 Amp. I _{max} 40 Amp	
(iv)	Rated Frequency	50 Hz ± 5%	
(v)	Power factor	0.25 lag – Unity-0.5 lead	
(vi)	Shall work within accuracy up to max. loading	120% of I _{max} .	
5 (i)	Continuous current rating (Amp)	40 Amps.	
(ii)	Running with no load and 115 % of rated voltage	(No creeping) As per relevant IS : 13779 / 1999	
6	Short time over current for one half cycle at rated frequency	As per relevant IS : 13779 / 1999	
7	Starting current at which meter shall run & continue to run	0.2% of I _b at rate voltage and unity power factor.	
8	Power loss at rated frequency & reference temperature		
(a)	Current circuit at rated current	Less than 1VA.	
(b)	Voltage circuit at rated current	Less than 1 Watt or 4VA.	
9	Type of Material used		
(a)	Base Material and thickness	Base opaque polycarbonate material of LEXAN 143A/943AA or equivalent grade having properties of V0 inflammability level and UV stabilized.	
(b)	Meter cover material	Top transparent polycarbonate material of LEXAN 143A/943AA or equivalent grade having properties of V0 inflammability level and UV stabilized.	
(c)	Terminal Block material	Made of polycarbonate of grade 500 R or equivalent,	

		brass or copper current terminals with flat-head brass screws.	
10	Transducers		
(i)	Input	CT/Shunt or combination and potential divider (PT less).	
(ii)	Output	Digital	
11	Type of display	LCD with Backlit	
(i)	Operation suitability	LCD is Suitable for operation up to 70°C.	
(ii)	No. of Digits	6 digit display excluding decimal.	
(iii)	Size of Numerals	About 8 x 5 mm for clear visibility of reading.	
12	Display sequence (display should be self explanatory)		
12.1	Auto Scroll Mode	As per clause-8 of Technical Specification.	
12.2	Push button mode	As per clause-8 of Technical Specification.	
13	Type of push button arrangement	Spring loaded push button will be provided on top cover of meter & meter box to activate the push button of meter to read parameter.	
14	Reading during power-off Condition	Meter shall comply the provisions as per clause 8 during power outage condition.	
15	Type of port provided with meter for data downloading	(i) A galvanically isolated optical port located in front of the meter for data transfer through MRI. (ii) In built RF communication facility for data downloading and spot billing.	
16	Battery of Real time clock	(i) Battery life is of 10 years. (ii) The drift in time is as per IEC/IS/CBIP report-88.	
17	Fixing / Sealing arrangement		
(i)	Fixing of meter	Min.2 fixing holes (one at top & one at button under terminal block). The top fixing screw shall not be accessible after meter is fixed to meter box base .	
(ii)	Sealing of meter cover to Base	As per IS 13779 and CEA Metering Regulation 2010 with amendments. Supplier will fix its seal on meter. In addition,	

		supplier shall affix buyer seal(s) on side of Meter body as advised by buyer and record should be forwarded to Buyer. However in all such events the seal number should be same as that of the meter serial number with utility logo.	
18	Performance of meter in tamper conditions:		
(i)	I/C & O/G Interchanged	Meter should record forward energy	
(ii)	Phase & Neutral Interchanged	Meter should record forward energy	
(iii)	I/C Neutral Disconnected, O/G Neutral & Load Connected To Earth.	Meter should record forward energy	
(iv)	I/C Neutral Disconnected, O/G Neutral Connected To Earth Through Resistor & Load Connected To Earth.	Meter should record forward energy	
(v)	I/C Neutral connected, O/G Neutral Connected To Earth Through Resistor & Load Connected To Earth.	Meter should record forward energy	
(vi)	I/C (Phase & Neutral) Interchanged, Load Connected To Earth.	Meter should record forward energy	
(vii)	I/C & O/G (Phase or Neutral) Disconnected, Load Connected To Earth.	Meter should record forward energy	
(viii)	Meters shall record Energy when only phase or neutral current passing through the Meter 1Amp or more.	Meter recording shall be within +/- 2% accuracy.	
(ix)	Indication in above tamper condition	(LED or Icon)	
(x)	Protection against HV Spark	Meter shall continue to record energy or log the event, in case it is disturbed externally using a spark gun/ ignition coil, up to 35 KV, meter should be immuned.	
(xi)	Recording of neutral disturbance.	Meter shall log all events when AC/DC/ Pulsating voltage is injected in neutral circuit especially when same can disturb the recording of energy.	
19	Suitability of meter to sustain over voltage i.e.	Should sustain	

	phase to phase voltage injected between phase & Neutral		
20	Calibration LED and other LED/Icon	Calibration LED of Red colour, Power on LED & rest are to be provided as Icons or LED.	
21	Electromagnetic compatibility (EMC/EMI severity level)	As per relevant IS & CBIP report.	
22	Effect on accuracy of external electromagnetic interference of electrical discharge, external magnetic field & DC current in AC supply or in neutral	As per the limits specified in CBIP-88.	
23	Effect of accuracy in tamper conditions	As per IS: 13779 / CBIP-88 with latest amendment.	
24	Ref. Temperature	27°C.	
25	Temperature range of operation	As per IS 13779.	
26	Drift in accuracy of measurement with time	No Drift in accuracy in measurement with time.	
27	Fixing arrangement of name plate	As per IS 13779.	
28	Type of body	Projection type.	
29	Calibration	Software calibrated at factory.	
30	Mounting of components on PCB shall be SMT type	SMT type and ASIC technology.	
31	BIS certification	No:- Validity:-	
32	Components make		
(i)	Current Transformers	Shall any make or origin conforming to IS 2705 or relevant standards	
(ii)	Measurement or computing Chips	Analog Devices, Cyrus Logic, Atmel, Phillips SAMES ,NEC,TEXAS	
(iii)	Memory Chips	<u>USA:</u> Atmel, National Semiconductors, Texas Instruments, Phillips, ST, TDK, TI <u>Japan:</u> Hitachi or Oki	
(iv)	Display modules	Truly semiconductor, Tianma/ Haijing Electronics, China TEK, Vetronics, Xiamen instruments / RCL display, Hongkong: Genda Singapore: Bonafide technologies Korea: AdnanteK Japan: Hitachi, Sony	
(v)	Optical Port	Everlight, Osram, Agilent,	

		NFC,USA-National Semiconductor, Korea-Philips, Japan-hitachi, Taiwan-ligitek.	
(vi)	Electronic Components	<u>USA:</u> National Semiconductors, Atmel, Phillips, Texas Instruments <u>Japan:</u> Hitachi, Oki, AVX or Ricoh <u>Korea:</u> Samsung EPCOS, Vishay, Taiwan-Yaged, Samxon	
(vii)	LED	Everlight, Agilent	
(viii)	Battery	Texcell, SAFT, Varta, MAXWELL,SANYO,PANASONIC	
(ix)	RTC & Micro controller	<u>USA:</u> Philips, Dallas Atmel, Motorola, Microchip , TEXAS <u>Japan:</u> NEC or Oki	
(x)	PCB	Glass Epoxy, fire resistance grade FR4, with minimum thickness 1.6 mm. (BBT test is must).	

TENDER NOTICE NO: CSO/CAPEX / Single Phase Meter /11 Date: 09.12.2011

ANNEXURE – IV(B)

GUARANTEED TECHNICAL PARTICULARS OF SINGLE PHASE STATIC, 10-40A, W/C, KWH METER OF CLASS -1 ACCURACY WITH LCD BACKLIT DISPLAY HAVING OPTICAL PORT FACILITY.

Sl. No.	Item	Requirement	Bidder's Data
1	Name of the manufacturer		
2	Type, name (Model)		
3	Standard Applicable	IS:13779/1999, IEC:1036, CBIP Report-88 with its latest amendment as on date	
4	Rating	10-40 A	
(i)	Accuracy Class	Class 1.0	
(ii)	Rated Voltage	230V (+20 % - 40%)	
(iii)	Rated Current	Ib-10 Amp. I _{max} 40 Amp	
(iv)	Rated Frequency	50 Hz ± 5%	
(v)	Power factor	0.25 lag – Unity-0.5 lead	
(vi)	Shall work within accuracy up to max. loading	120% of I _{max} .	
5 (i)	Continuous current rating (Amp)	40 Amps.	
(ii)	Running with no load and 115 % of rated voltage	(No creeping) As per relevant IS : 13779 / 1999	
6	Short time over current for one half cycle at rated frequency	As per relevant IS : 13779 / 1999	
7	Starting current at which meter shall run & continue to run	0.2% of I _b at rate voltage and unity power factor.	
8	Power loss at rated frequency & reference temperature		
(a)	Current circuit at rated current	Less than 1VA.	
(b)	Voltage circuit at rated current	Less than 1 Watt or 4VA.	
9	Type of Material used		
(a)	Base Material and thickness	Base opaque polycarbonate material of LEXAN 143A/943AA or equivalent grade having properties of V0 inflammability level and UV stabilized.	
(b)	Meter cover material	Top transparent polycarbonate material of LEXAN 143A/943AA or equivalent grade having properties of V0 inflammability level and UV stabilized.	
(c)	Terminal Block material	Made of polycarbonate of grade 500 R or equivalent,	

		brass or copper current terminals with flat-head brass screws.	
10	Transducers		
(i)	Input	CT/Shunt or combination and potential divider (PT less).	
(ii)	Output	Digital	
11	Type of display	LCD with Backlit	
(i)	Operation suitability	LCD is Suitable for operation up to 70°C.	
(ii)	No. of Digits	6 digit display excluding decimal.	
(iii)	Size of Numerals	About 8 x 5 mm for clear visibility of reading.	
12	Display sequence (display should be self explanatory)		
12.1	Auto Scroll Mode	As per clause-8 of Technical Specification.	
12.2	Push button mode	As per clause-8 of Technical Specification.	
13	Type of push button arrangement	Spring loaded push button will be provided on top cover of meter & meter box to activate the push button of meter to read parameter.	
14	Reading during power-off Condition	Meter shall comply the provisions as per clause 8 during power outage condition.	
15	Type of port provided with meter for data downloading	A galvanically isolated optical port located in front of the meter for data transfer through MRI as well as data downloading and spot billing.	
16	Battery of Real time clock	(i) Battery life is of 10 years. (ii) The drift in time is as per IEC/IS/CBIP report-88.	
17	Fixing / Sealing arrangement		
(i)	Fixing of meter	Min.2 fixing holes (one at top & one at button under terminal block). The top fixing screw shall not be accessible after meter is fixed to meter box base .	
(ii)	Sealing of meter cover to Base	As per IS 13779 and CEA Metering Regulation 2010 with amendments. Supplier will fix its seal on meter. In addition, supplier shall affix buyer seal(s) on side of Meter body as advised by buyer and record should be forwarded to	

		Buyer. However in all such events the seal number should be same as that of the meter serial number with utility logo.	
18	Performance of meter in tamper conditions:		
(i)	I/C & O/G Interchanged	Meter should record forward energy	
(ii)	Phase & Neutral Interchanged	Meter should record forward energy	
(iii)	I/C Neutral Disconnected, O/G Neutral & Load Connected To Earth.	Meter should record forward energy	
(iv)	I/C Neutral Disconnected, O/G Neutral Connected To Earth Through Resistor & Load Connected To Earth.	Meter should record forward energy	
(v)	I/C Neutral connected, O/G Neutral Connected To Earth Through Resistor & Load Connected To Earth.	Meter should record forward energy	
(vi)	I/C (Phase & Neutral) Interchanged, Load Connected To Earth.	Meter should record forward energy	
(vii)	I/C & O/G (Phase or Neutral) Disconnected, Load Connected To Earth.	Meter should record forward energy	
(viii)	Meters shall record Energy when only phase or neutral current passing through the Meter 1Amp or more.	Meter recording shall be within +/- 2% accuracy.	
(ix)	Indication in above tamper condition	(LED or Icon)	
(x)	Protection against HV Spark	Meter shall continue to record energy or log the event, incase it is disturbed externally using a spark gun/ ignition coil, up to 35 KV, meter should be immuned.	
(xi)	Recording of neutral disturbance.	Meter shall log all events when AC/DC/ Pulsating voltage is injected in neutral circuit especially when same can disturb the recording of energy.	
19	Suitability of meter to sustain over voltage i.e. phase to phase voltage injected between phase & Neutral	Should sustain	
20	Calibration LED and other LED/Icon	Calibration LED of Red colour, Power on LED & rest are to be provided as Icons or LED.	

21	Electromagnetic compatibility (EMC/EMI severity level)	As per relevant IS & CBIP report.	
22	Effect on accuracy of external electromagnetic interference of electrical discharge, external magnetic field & DC current in AC supply or in neutral	As per the limits specified in CBIP-88.	
23	Effect of accuracy in tamper conditions	As per IS:13779 / CBIP-88 with latest amendment.	
24	Ref. Temperature	27°C.	
25	Temperature range of operation	As per IS 13779.	
26	Drift in accuracy of measurement with time	No Drift in accuracy in measurement with time.	
27	Fixing arrangement of name plate	As per IS 13779.	
28	Type of body	Projection type.	
29	Calibration	Software calibrated at factory.	
30	Mounting of components on PCB shall be SMT type	SMT type and ASIC technology.	
31	BIS certification	No:- Validity:-	
32	Components make		
(i)	Current Transformers	Shall any make or origin conforming to IS 2705 or relevant standards	
(ii)	Measurement or computing Chips	Analog Devices, Cyrus Logic, Atmel, Phillips SAMES ,NEC,TEXAS	
(iii)	Memory Chips	USA: Atmel, National Semiconductors, Texas Instruments, Phillips, ST, TDK,TI Japan: Hitachi or Oki	
(iv)	Display modules	Truly semiconductor, Tianma/Haijing Electronics, China TEK,Vetronics,Xiamen instruments / RCL display, Hongkong: Genda Singapore: Bonafide technologies Korea: Adnantek Japan: Hitachi, Sony	
(v)	Optical Port	Everlight, Osram, Agilent, NFC,USA-National Semiconductor, Korea-Philips, Japan-hitachi, Taiwan-ligitek.	
(vi)	Electronic Components	USA: National Semiconductors, Atmel, Phillips, Texas Instruments Japan: Hitachi, Oki, AVX or Ricoh	

		<u>Korea:</u> Samsung EPCOS, Vishay, Taiwan-Yaged, Samxon	
(vii)	LED	Everlight, Agilent	
(viii)	Battery	Texcell, SAFT, Varta, MAXWELL,SANYO,PANASONIC	
(ix)	RTC & Micro controller	<u>USA:</u> Philips, Dallas Atmel, Motorola, Microchip , TEXAS <u>Japan:</u> NEC or Oki	
(x)	PCB	Glass Epoxy, fire resistance grade FR4, with minimum thickness 1.6 mm. (BBT test is must).	

GUARANTEED TECHNICAL PARAMETERS OF METER BOX

SL.No.	GUARANTEED TECHNICAL PARAMETERS	GTP VALUE(To be furnished by the bidder)
1.0	MANUFACTURER'S / SUPPLIER'S NAME AND ADDRESS WITH WORKS ADDRESS	
2.0	MATERIAL OF CONSTRUCTION:	
2.1	WHETHER SMC GRADE SI IS USED FOR CONSTRUCTION OF BASE OF METER BOX. (YES / NO)	
2.2	WHETHER POLYCARBONATE MATERIAL OF GRADE ISPCXXXXILRC 11243F34 IS USED FOR CONSTRUCTION OF LID OF METER BOX. (YES / NO)	
2.3	CONFIRM SMC MATERIAL USED IS VIRGIN. (YES / NO)	
2.4	CONFIRM POLYCARBONATE MATERIAL USED IS VIRGIN. (YES / NO)	
2.5	CONFIRM SMC MATERIAL USED IS UV STABILIZED. (YES / NO)	
2.6	CONFIRM POLYCARBONATE MATERIAL USED IS UV STABILIZED (YES / NO)	
3.0	CONSTRUCTIONAL FEATURES OF THE METER BOX:	
3.1	DIMENSIONS OF METER BOX LX B X H	
3.2	CONFORM SHEET THICKNESS OF BASE OF SINGLE PHASE METER BOX IS MINIMUM 1.5 MM (YES /NO)	
3.3	CONFORM SHEET THICKNESS OF BASE OF THREE PHASE METER BOX IS MINIMUM 2.0 MM (YES /NO)	
3.4	SHEET THICKNESS OF COVER OF METER BOX IS 2 MM MINIMUM (YES /NO)	
3.5	MINIMUM CLEARANCE OF 25 MM AT FRONT SIDE BETWEEN METER AND METER BOX INNER WALL. (YES / NO)	
3.6	MINIMUM CLEARANCE OF 10 MM AT BACK BETWEEN METER AND METER BOX INNER WALL. (YES / NO)	
3.7	MINIMUM CLEARANCE OF 60 MM AT BOTTOM BETWEEN METER AND METER BOX. (YES / NO)	
3.8	MINIMUM CLEARANCE OF 40 MM ON ALL THREE SIDES BETWEEN METER AND METER BOX. (YES / NO)	
3.9	WEIGHT OF COMPLETE METER BOX IN KGS.	
3.10	METER BOX IS TYPE TESTED (YES / NO)	
3.11	METER BOX CONFIRMS TO IP-55 (YES /NO)	
3.12	TYPE TEST REPORT NO. & DATE	

3.13	APPLICABLE STANDARD IS: 14772/2000 (AMENDED UPTO DATE),IS: 13410 & IS: 14434 (YES / NO)	
4.0		
4.1	CONFIRM FLAMMABILITY AS V2AS PER UL 941 IS 1173 (YES /NO)	
4.2	CONFIRM SELF EXTINGUISHING AS PER IS: 4249. (YES /NO)	
4.3	CONFIRM HEAT DEFLECTION TEMPERATURE OF BASE 2: 1500C @1.8 MPA AS PER IS:13411.(YES /NO)	
4.4	CONFIRM GWW WIRE TEST AT 9000 C AS PER IS: 11000 (PART 2 1 SECTION 1) 1 IEC-695-2-1 (YES / NO)	
4.5	CONFIRM BALL PRESSURE TEST AS PER IS: 14772/20001 IEC 335 (YES / NO)	
4.6	CONFIRM 200 HRS UV AGEING TEST IS CARRIED OUT AS PER ASTM G53 (9.3). (YES /NO)	
4.7	CONFIRM WATER ABSORPTION VALUE = 0.25% AS PER IS: 14772 1 2000. (YES /NO)	
4.8	CONFIRM MECHANICAL STRENGTH 2: 50 MPA AS PER IS: 14772/2000. (YES /NO)	
4.9	CONFIRM FLEXURE STRENGTH < 155 MPA. (YES /NO)	
4.10	CONFIRM MODULUS OF ELASTICITY 12 X 102 MPA. (YES /NO)	
4.11	CONFIRM IZOD IMPACT STRENGTH NOTCHED = 45 KJ / METER ² MINIMUM. (YES /NO)	
4.12	CONFIRM MATERIAL SMC DOES NOT MELT TEST UPTO 4000C. (YES /NO)	
5.0		
5.1	CONFIRM FLAMMABILITY AS V2 AS PER UL 94 1 IS 1173. (YES /NO)	
5.2	CONFIRM SELF EXTINGUISHING AS SE AS PER IS 4249. (YES /NO)	
5.3	CONFIRM HEAT DEFLECTION TEMPERATURE 2: 150 ⁰ C @ 1.8 MPA AS PER IS: 13411. (YES /NO)	
5.4	CONFIRM GLOW WIRE TEST AT 900 ⁰ C AS PER IS: 11000 (PART 2/ SECTION 1) 1 IEC 695-2-1. (YES /NO)	
5.5	CONFIRM BALL PRESSURE TEST AS PER IS: 14772 / 2000 OR IEC 335 (YES / NO)	
5.6	CONFIRM 200 HRS UV AGEING TEST IS CARRIED OUT AS PER ASTM G53 (9.3). (YES /NO)	
5.7	CONFIRM WATER ABSORPTION VALUE 0.25% AS PER IS: 14772/ 2000 (YES /NO)	

5.8	CONFIRM MECHANICAL STRENGTH 2: 50 MPA AS PER IS: 14772/2000. (YES/NO)	
5.9	CONFIRM FLEXURE STRENGTH 155 MPA. (YES /NO)	
5.10	CONFIRM MODULUS OF ELASTICITY 12X 102 MPA. (YES /NO)	
5.11	CONFIRM IZOD IMPACT STRENGTH NOTCHED = 45 KJ/METER ² MINIMUM. (YES /NO)	
6.0	OTHER FEATURES	
6.1	SELF-LOCKING ARRANGEMENT 4 NOS. MINIMUM (YES /NO)	
6.2	MINIMUM 2 NOS. HOLES FOR WIRE SEAL FOR BASE (YES / NO)	
6.3	MINIMUM 2 NOS. HOLES FOR WIRE SEAL FOR COVER (YES / NO)	
6.4	MINIMUM 2 NOS. ADJUSTIBLE POLYMERIC GLANDS ON THE BOTTOM OF BASE (YES/NO)	
6.5	METER BOX WITHSTANDS 0.5 TESLA MAGNETIC INFLUENCE TEST (YES / NO)	
6.6	METER BOX CONFIRMS TO IP - 55 (YES / NO)	
6.7	LIFE EXPECTED IS 5.5 YEARS (YES / NO)	
6.8	IN-HOUSE TESTING FACILITY IS AVAILABLE. (YES /NO)	
6.9	WHETHER YOU AGREE TO SUPPLY METER BOXES AS PER TECHNICAL SPECIFICATIONS OF THE TENDER (YES / NO)	
6.10	WHETHER TYPE TEST REPORTS SUBMITTED (YES / NO)	
6.11	WHETHER SAMPLE METER BOXES WITH METER ARE SUBMITTED (YES / NO)	

The above is to be duly filled up, signed and submitted in sealed condition in a separate envelop superscribed as “ Part-II Bid – Price Bid”

Annexure- V

Price Schedule for Materials/ Equipments Offered as per Tender Notice No CSO/CAPEX / Single Phase Meter / 11 Date: 09.12.2011

NESCO

Name of Bidder _____

Sl.No	Item Description	Unit	Quantity	Price for each unit							
				Unit Ex-Works Price (Rs.)	Unit Packing & Forwarding Charges (Rs.)	Unit Excise Duty with education cess (Rs.)	Unit Sales Tax/VAT (Rs.)	Unit freight & insurance and other local costs incidental to delivery (Rs.)	Unit Entry Tax, if any (Rs.)	Total Unit Price inclusive of taxes & duties (Rs.)	Total Landing Price inclusive of taxes & duties (Rs.)
1	2	3	4	5	6	7	8	9	10	11 = (5+6+7+8+9+10)	12 = 4 x 11
1	Single Phase Meter (Optical)	Nos	55,623								
2	Single Phase Meter (Optical + RF)	Nos	20,000								

Total amount in Words
Rupees.....only

Signature of Bidder alongwith Seal & date _____

- Note:
- 1) Any column left blank shall be treated as NIL / Inclusive of .
 - 1) Unit price under Column-11 is inclusive of all.
 - 3) In case of discrepancy between unit price and total price, the unit price shall prevail over the total price.

The above is to be duly filled up, signed and submitted in sealed condition in a separate envelop superscribed as “ Part-II Bid – Price Bid”

Annexure- V

Price Schedule for Materials/ Equipments Offered as per Tender Notice No CSO/CAPEX / Single Phase Meter /11 Date: 09.12.2011

WESCO

Name of Bidder _____

Sl.No	Item Description	Unit	Quantity	Price for each unit							
				Unit Ex-Works Price (Rs.)	Unit Packing & Forwarding Charges (Rs.)	Unit Excise Duty with education cess (Rs.)	Unit Sales Tax/VAT (Rs.)	Unit freight & insurance and other local costs incidental to delivery (Rs.)	Unit Entry Tax, if any (Rs.)	Total Unit Price inclusive of taxes & duties (Rs.)	Total Landing Price inclusive of taxes & duties (Rs.)
1	2	3	4	5	6	7	8	9	10	11 = (5+6+7+8+9+10)	12 = 4 x 11
1	Single Phase Meter (Optical)	Nos	55,623								
2	Single Phase Meter (Optical + RF)	Nos	20,000								

Total amount in Words
Rupees.....only

Signature of Bidder along with Seal & date _____

- Note:
- 1) Any column left blank shall be treated as NIL / Inclusive of .
 - 2) Unit price under Column-11 is inclusive of all.
 - 3) In case of discrepancy between unit price and total price, the unit price shall prevail over the total price.

The above is to be duly filled up, signed and submitted in sealed condition in a separate envelop superscribed as “ Part-II Bid – Price Bid”

Annexure- V

Price Schedule for Materials/ Equipments Offered as per Tender Notice No CSO/CAPEX / Single Phase Meter /11 Date: 09.12.2011

SOUTHCO

Name of Bidder _____

Sl.No	Item Description	Unit	Quantity	Price for each unit							
				Unit Ex-Works Price (Rs.)	Unit Packing & Forwarding Charges (Rs.)	Unit Excise Duty with education cess (Rs.)	Unit Sales Tax/ VAT (Rs.)	Unit freight & insurance and other local costs incidental to delivery (Rs.)	Unit Entry Tax, if any (Rs.)	Total Unit Price inclusive of taxes & duties (Rs.)	Total Landing Price inclusive of taxes & duties (Rs.)
1	2	3	4	5	6	7	8	9	10	11 = (5+6+7+8+9+10)	12 = 4 x 11
1	Single Phase Meter (Optical)	Nos	159267								
2	Single Phase Meter (Optical + RF)	Nos	20,000								

Total amount in Words
Rupees.....only

Signature of Bidder alongwith Seal & date _____

- Note:
- 1) Any column left blank shall be treated as NIL / Inclusive of .
 - 3) Unit price under Column-11 is inclusive of all.
 - 3) In case of discrepancy between unit price and total price, the unit price shall prevail over the total price.

The above is to be duly filled up, signed and submitted in sealed condition in a separate envelop superscribed as “ Part-II Bid – Price Bid”

(TECHNICAL DEVIATION FORMAT)

Clause No	Prescribed as per Tender Specification	Deviation in the bidder's Offer

Bidder's Signature with Seal.

N.B :

The bidder has to mention all technical deviations in his offer which differs from the Technical Requirement of this Tender in above format. Deviations not mentioned in above format but mentioned in any other format or in any other part of the offer document shall not be considered as deviation and the bidder shall be deemed to have accepted our technical requirement without deviation.

(COMMERCIAL DEVIATION FORMAT)

Clause No	Prescribed as per Tender Specification	Provided in the bidder's Offer

Bidder's Signature with Seal.

N.B :

The bidder has to mention all commercial deviations in his offer which differs from the Commercial Requirement of this Tender in above format. Deviations not mentioned in this format but mentioned in any other format or in any other part of the offer document shall not be considered as deviation and the bidder shall be deemed to have accepted our commercial requirement without deviation.

Format for Consortium Agreement

(On non-judicial stamp paper of appropriate value to be purchased in the name of executants companies or as required by the jurisdiction in which executed)

This Consortium Agreement executed on this, day ofTwo Thousand.....By:

M/sa Company (SSI Unit) incorporated under the companies Act – 1956and having its registered office at(hereinafter called the “Lead Member/First member” which expression shall include its successors); and

M/sa company (SSI Unit) incorporated under the Companies Act – 1956and having its registered office at(hereinafter called the “Second Member” which expression shall include its successors)and

M/s.a company (SSI Unit) incorporated under the companies Act-1956.....and having its registered office at (hereinafter called the “Fourth Member” which expression shall include its successors)

The Lead Member/First Member, the Second Member, the Third Member and the Forth Member shall collectively hereinafter be called as the “Consortium Members” for the purpose of submitting a bid proposal to North Eastern Electricity Supply Company of Orissa Ltd. (NESCO)/ Western Electricity Supply Company of Orissa Ltd. (WESCO)/ Southern Electricity Supply Company of Orissa Ltd. (SOUTHCO) (Hereinafter referred to as DISCOMs) , being a Company incorporated/Constituted under the Companies Act,1956 having its registered office at N 1/22, IRC Village, Nayapalli, Bhubaneswar - 751015,India (hereinafter called the “Purchaser”)in response to the invitation of bids (hereinafter called as “Tender Notice No.....” Document) Dated for supply of Materials/Equipments (hereinafter called as “the Transaction”).

WHEREAS Clause-6.1.2 of the Invitation for Bids (IFB),stipulates that Two or more Local SSI Units having been manufacturers of tender item(s) as per this tender specification, provided they fulfill the following eligible criteria;

- a) They should have legally valid consortium agreement as per the prescribed format for the purpose of participation in the bidding process. The total no of a consortium shall be limited to four members.
- b) All members of the Consortium should be the eligible manufacturer(s) of the materials / equipments tendered.
- c) Each member should have valid statutory license to use BEE three star or more level Certification/Type tested report for the tendered materials/equipments conducted within last five years as applicable for the tender.
- d) Consortium as a whole shall meet the qualifying norms specified in the tender, they participate.

- e) The lead member of the Consortium should meet at least 50% of the qualifying norms in respect of the supply experience.
- f) Besides the lead member, other member (s) of the Consortium should meet at least 15% of the qualifying norms in respect of the supply experience.
- g) All the Consortium member(s) shall authorize the lead partner by submitting a power of Attorney as per the prescribed format duly signed by the authorized signatories. The lead partner shall be authorized to receive instructions for and on behalf of all partners of the Consortium and entire execution of the contract including receipt of payment exclusively done through the lead partner.
- h) The Consortium and its members shall be jointly and severally responsible and be held liable for the purpose of guaranteed obligation and any other matter as required under the contract.
- i) Any member of the Consortium member(s) shall not be eligible either in an individual capacity or part of any other consortium to participate in the tender, where the said consortium participates.
- j) The prescribed formats for Consortium Agreement (Annexure – VII) and Power of Attorney (Annexure – VIII) are provided in the tender specification as enclosures.

AND WHEREAS the members of the Consortium strictly comply the eligible criteria of the CLAUSE -6.1.2 of the Invitation for Bids (IFB) as stipulated above,

AND WHEREAS bid has been proposed to be submitted to the purchaser vide bid by Lead Member based on this CONSORTIUM agreement between all the members, signed by all the members.

NOW THIS INDENTURE WITNESSETH AS UNDER:

In consideration of the above premises, in the event of the selection of Consortium as successful bidder, all the Parties to this Consortium Agreement do hereby agree abide themselves as follows:

1. M/sshall act as Lead Member for and on behalf of Consortium Members. The said Consortium members further declare and confirm that they shall jointly and severally be bound and shall be fully responsible to the Purchaser for the design, manufacture, supply, and successful performance of the materials /equipment, obligations under the supply contract under Agreement(s) submitted/executed by the Lead Member.
2. Despite any breach by the Lead Member or other member(s) of the CONSORTIUM agreement, the Member(s) do hereby agree and undertake to ensure full and effectual an successful performance of the contract with Purchaser and to carry out all the obligations and responsibilities under the said Contract in accordance with the requirements of the Contract.
3. If the Purchaser suffers any loss or damage on account of any breach of the Contract or any shortfall in the performance in meeting the performance guaranteed as per the specification in terms of the Contract, the Member(s) of these presents undertake to promptly make such loss or damage caused to the purchaser, on its demand without any demur. It shall not be necessary or obligatory for the purchaser to proceed against Lead member to these presents before proceeding against or dealing with the other members. The obligation of each of the member is absolute and not independent of the consortium or any member.
4. The financial liability of the members of this CONSORTIUM agreement to the Purchaser, with respect to any of the claims arising out of the performance or non- performance of the obligations set forth in the said CONSORTIUM agreement, read in conjunction with relevant conditions of the contract shall, however, not be limited in anyway so as to restrict or limit the liabilities of any of the members of the CONSORTIUM agreement. The liability of each member is absolute and not severable.

5. It is expressly understood and agreed between the members to this CONSORTIUM agreement that the responsibilities inter se amongst the members shall not in any way be a limitation of joint and several responsibilities and liabilities of the Members to the Purchaser. It is clearly understood that the lead member shall ensure performance under the agreement(s) and if one or more Consortium members fail to perform its/their respective obligations under the agreements, the same shall be deemed to be a default by all the Consortium Members. It will be open for the purchaser to take any steps, punitive and corrective action including the termination of contract in case of such default also.
6. This CONSORTIUM agreement shall be construed and interpreted in accordance with the laws of India and shall be subjected to exclusive jurisdiction within Bhubaneswar in all matters arising there under.
7. In case of an award of a Contract, all the members to the CONSORTIUM agreement do hereby agree that they shall be jointly and severally responsible for furnishing a contract performance security from a bank in favour of the purchaser in the forms acceptable to purchaser for value of 10% of the Contract price. It is also hereby agreed that the lead member shall, on behalf of the CONSORTIUM submit the contract performance security in the form of an unconditional irrecoverable Bank guarantee in the prescribed format and as per terms of the contract.
8. It is further agreed that the CONSORTIUM agreement shall be irrevocable and shall form an integral part of the Contract, and shall continue to be enforceable till the Purchaser discharges the same. It shall be effective from the date first mentioned above for all purposes and intents.
9. Capitalized terms used but not defined herein shall have the meaning as assigned to them to the Tender Documents and/or the agreements.
10. In case of any dispute amongst the members of the Consortium, purchaser shall not be in any way liable and also the consortium members shall not be absolved from the contractual obligation in any manner.

IN WITNESS WHEREOF the Members to the CONSORTIUM agreement have through their authorized representatives executed these presents and affixed Common Seals of their companies, on the day, month and year first mentioned above.

- | | |
|--|--|
| <p>1. Common Seal of <.....>
 Has been affixed in my/our presence
 Pursuant to the Board of Director's
 resolution dated.....</p> <p>Signature.....
 </p> <p>Name.....
 Designation.....
 </p> | <p>For Lead/First Member</p> <p>(Signature of authorized
 representative)</p> <p>Name</p> <p>Designation</p> <p>Common Seal of the company</p> |
| <p>2. Common Seal of <.....>
 Has been affixed in my/our presence</p> | <p>For Second Member</p> |

Pursuant to the Board of Director's
resolution dated.....

(Signature of authorized
Representative)

Name

Designation

Signature.....

.....

Name.....

Designation.....

Common Seal of the company

.....

3. Common Seal of <.....>

Has been affixed in my/our presence

Pursuant to the Board of Director's

resolution dated.....

For Third Member

(Signature of authorized
representative)

Name

Designation

Signature.....

.....

Name.....

Designation.....

Common Seal of the company

.....

4. Common Seal of <.....>

Has been affixed in my/our presence

Pursuant to the Board of Director's

resolution dated.....

For Fourth Member

(Signature of authorized
representative)

Name

Designation

Signature.....

.....

Name.....

Designation.....

Common Seal of the company

.....

WITNESSES

1.....

(Signature)

Name

(Official address)

2.....

(Signature)

Name

(Official address)

FORM OF POWER OF ATTORNEY FOR CONSORTIUM

(On Non-Judicial Stamp Paper of Appropriate value to be purchased in the Name of CONSORTIUM)

KNOW ALL MEN BY THESE PRESENTS THAT WE, the Members whose details are given hereunder.....have formed a CONSORTIUM and having our Registered Office (s)/Head Office (s) at (hereinafter called the ‘Consortium’ which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators and assigns) do hereby constitute, nominate and appoint M/s A company incorporated under the laws of and having its Registered/Head office atas our duly constituted lawful Attorney (hereinafter called “Lead Member”) to exercise all or any of the powers for supplyfor which bids have been invited by the Purchaser namely North Eastern Electricity Supply Company of Orissa Ltd. (NESCO)/ Western Electricity Supply Company of Orissa Ltd. (WESCO)/ Southern Electricity Supply Company of Orissa Ltd. (SOUTHCO) ,to undertake the following acts:

- (i) To submit proposal, participate and negotiate in respect of the aforesaid Bid – Specification of the Purchaser on behalf of the “Consortium”
- (ii) To negotiate with Purchaser the terms and conditions for award of the contract pursuant to the aforesaid Bid and to sign the contract with the Purchaser for and on behalf of the “Consortium”
- (iii) To do any other act or submit any document related to the above.
- (iv) To receive, accept and execute the contract for and on behalf of the “Consortium”.
- (v) To submit the contract performance security in the form of an unconditional irrecoverable Bank guarantee in the prescribed format and as per terms of the contract.

It is clearly understood that the Lead Member shall ensure performance of the contracts(s) and if one or more Member fail to perform their respective portion of the contracts (s), the same shall be deemed to be a default by all the members.

It is expressly understood that this power of Attorney shall remain valid binding and irrevocable till completion of the defect or liability period in terms of the contract.

The CONSORTIUM hereby agrees and undertakes to ratify and confirm all the whatsoever the said Lead Member quotes in the bid, negotiates and signs the contract with the Purchaser and / or proposes to act on behalf of the CONSORTIUM by virtue of this Power of Attorney and the same shall bind the CONSORTIUM as if done by itself.

IN WITNESS THEREOF the members Constituting the CONSORTIUM as aforesaid have executed these presents on thisday ofunder the Common Seal (s) of their Companies.

For and on behalf of
the Members of CONSORTIUM

1. -----
2. -----
3. -----
4. -----

The Common Seal of the above Members of the CONSORTIUM:

The Common Seal has been affixed there unto in the presence of:

WITNESS

1. Signature.....
 Name.....
 Designation.....
 Occupation.....

2. Signature.....
 Name.....
 Designation.....
 Occupation.....

SELF DECLARATION FORM

Name of the Purchaser: -----

Tender Notice No: -----

Sir,

1. I / we, the undersigned do hereby declare that, I / we have never ever been blacklisted and / or there were no debarring actions against us for any default in supply of material / equipments or in the performance of the contract entrusted to us in any of the Electricity Utilities of India.

2. In the event of any such information pertaining to the aforesaid matter found at any given point of time either during the course of the contract or at the bidding stage, my bid/contract shall be liable for truncation / cancellation / termination without any notice at the sole discretion of the purchaser.

Place-
Date-

Yours faithfully,

Signature of the bidder
With seal

(This form shall be duly filled-up and signed by the bidder & submitted along with the original copy of the Bid.)

ANNEXURE – X (A)

PROFORMA FOR BANK GUARANTEE FOR EARNEST MONEY DEPOSIT

(ON NON-JUDICIAL STAMP PAPER OF Rs.100/-)

Ref Date Bank Guarantee No:

In accordance with invitation to Tender Notice No.----- Dated ----- of North Eastern Electricity Supply Company of Orissa Ltd. [herein after referred to as the NESCO] for the purchase of _____ (name of Material)

M/s _____ Address _____

_____ wish/wished to participate in the said tender and as the Bank Guarantee for the sum of Rs. _____ [Rupees _____ Valid for a period of days (in words) is required to be submitted by the Bidder.

1. We the _____ [Indicate the Name of the Bank] [Hereinafter referred to as 'the Bank'] at the request of M/S _____ [Herein after referred to as supplier (s)] do hereby unequivocally and unconditionally guarantee and undertake to pay during the above said period, on written request by NESCO an amount not exceeding Rs. _____ to the NESCO, without any reservation. The guarantee would remain valid up to 4.00 PM of _____ [date] and if any further extension to this is required, the same will be extended on receiving instructions from M/s _____ on whose behalf this guarantee has been issued.

2. We the _____ [Indicate the name of the bank] do hereby further undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the NESCO stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the NESCO by reason of any breach by the said supplier [s] of any of the terms or conditions or failure to perform the said Bid. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____ (in wards)

3. We, the _____ Bank undertake to pay the NESCO any money so demanded not withstanding any dispute or disputes so raised by the supplier [s] in any suit or proceeding instituted/pending before any Court or Tribunal relating thereto, our liability under this agreement being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the supplier(s) shall have no claim against us for making such payment.

4. We, the _____ Bank [Indicate the name of the bank] or our local branch at Bhubaneswar further agree that the guarantee herein contain shall remain in full force and effect during the aforesaid period of ----- days and it shall continue to be so enforceable till all the dues of the NESCO under by virtue of the said Bid have been fully paid and its claims satisfied or discharged or till NESCO certifies that the terms and conditions of the said Bid have been fully and properly carried out by the said Supplier [s] and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the _____ (date) we shall be discharged from all liability under this guarantee thereafter.

5. We, the _____ Bank [Indicate the name of the bank] or our local branch at Bhubaneswar further agree that the NESCO shall have the fullest liberty without our consent and without affecting in any manner our obligations here under to vary any of the terms and conditions of the said Bid or to extend time of performance by the said Supplier [s] from time to time or to postpone for any time or from time to time any of the powers exercisable by the NESCO against the said supplier [s] and to forbear or enforce any of the terms and conditions relating to the said bid and we shall not be relieved from our liability by reason of any such variation, postponement or extension being granted to the said Supplier [s] or for any forbearance act or omission on the part of the NESCO or any indulgence by the NESCO to the said Supplier[s] or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the name, style and constitution of the Bank or the supplier [s].

7. We, the _____ Bank or our local branch at Bhubaneswar lastly undertake not revoke this Guarantee during its currency except with the previous consent of the NESCO in writing.

8. We, the _____ Bank further agree that this guarantee shall also be invocable at our place of business at Bhubaneswar (**Indicate detail address of local branch with code no.**) in the State of Orissa.

Dated _____ Day of 2011.

Witness ((Signature, names & address)

1.

2

For _____ [Indicate the name of Bank]

Power of Attorney No. _____

Date: _____

SEAL OF BANK

Note: The non-judicial stamp paper of worth Rs.100/- shall be purchased in the name of the bank, which has issued the bank guarantee.

ANNEXURE- X (B)

**FORM OF EXTENSION OF BANK GUARANTEE
(ON NON-JUDICIAL STAMP PAPER OF Rs.100/-)**

Ref. No. _____

Dated: _____

NESCO Ltd.,

Regd. Office: N1/22, IRC Village, Nayapalli

Bhubaneswar - 751015

Dear Sirs,

Sub: Extension of Bank Guarantee No. _____ for Rs. _____ favouring yourselves expiring _____ on account of M/s. _____ in respect of contract No. _____ dated _____ (hereinafter called original bank guarantee).

At the request of M/s. _____ we _____ bank Branch office at _____ having its head office at _____ do hereby extend our liability under the above mentioned guarantee No. _____ Dated _____ for a further period of _____ Years/months from _____ to expire on _____ except as provided above, all other terms and conditions of the original bank guarantee No. _____ dated _____ shall remain unaltered and binding.

Please treat this as an integral part of the original guarantee to which it would be attached.

Yours faithfully,

For _____

Manager/Agent/Accountant

Power of Attorney No. _____

Date: _____

SEAL OF BANK

Note: The non-judicial stamp paper of worth Rs.100/- shall be purchased in the name of the bank, which has issued the bank guarantee.