



**ORISSA POWER TRANSMISSION CORPORATION LTD
OFFICE OF THE SR. GENERAL MANAGER,
CENTRAL PROCUREMENT CELL,
JANPATH, BHUBANESWAR - 751022**

**TENDER SPECIFICATION
NO. SR.G.M.-CPC -TENDER-CT-14/2011
FOR**

PROCUREMENT OF

LOT-I (33KV CT)

- a) **RATIO-600-300-150/ 1-1-1A=6 Nos.**
- b) **RATIO-1200-600-300/ 1-1-1A=69 Nos.**

LOT - II (132 KV CT)

- a) **RATIO-800-400-200/1-1-1-1A=8Nos.**
- b) **RATIO-600-300-150/1-1-1-1A=47 Nos.**

LOT - III (400 KV CT)

RATIO-2000-1000-500/1-1-1-1-1A=2 Nos.

Sale of tender paper - From dt-03.11.2011 (10.00 AM) to dt-28.11.2011(1.00 PM)

Last date of submission of tender paper- 29.11.2011(1.00 PM)

Date of opening of Tender - 29.11.2011(3.00 PM)



**ORISSA POWER TRANSMISSION CORPORATION LTD.
REGD. OFFICE: JANPATH, BHUBANESWAR - 751 022,
ORISSA**

TENDER NOTICE NO. 53 / 2011

For and on behalf of ORISSA POWER TRANSMISSION CORPORATION LTD., Sr. G.M. [C.P.C.] invites Tenders from reputed manufacturers for supply of 1) 33KV, 132KV & 400KV C.Ts; 2) 132KV , 220KV IVTs/ CVTs &400Kv CVTs. Tender papers shall be sold at the office of the undersigned during working hours (from 10.00am to 1.00PM) from dt: 03.11.2011 to dt: 28.11.2011. Interested manufacturers may visit OPTCL's official web site <http://www.optcl.co.in> for detail specification.

SR. GENERAL MANAGER [C.P.C.]



NOTICE INVITING TENDER
ORISSA POWER TRANSMISSION CORPORATION LTD.,
REGD. OFFICE: JANPATH, BHUBANESWAR - 751 022,
ORISSA, INDIA.

TENDER NOTICE NO-53/2010-11

For and on behalf of the ORISSA POWER TRANSMISSION CORPORATION LTD., the undersigned invites bids under two-part bidding system in double-sealed cover, duly super scribed with tender specification number and date of opening, from manufacturers for supply of the following equipments, as required under the following specifications.

| <i>Sl. No</i> | <i>Tender Specification No.</i> | <i>Description of equipments/materials</i> | <i>Quantity</i> | <i>Earnest Money Deposit (In Rs.)</i> | <i>Cost of Tender Spec. document (in Rs.)</i> | <i>Last date of receipt & opening of tender</i> |
|---------------|---------------------------------|---|---|---|---|---|
| 1. | Sr. GM-CPC-Tender-CT-14/2011 | <p style="text-align: center;">LOT-I (33KV CT)</p> <p>a)RATIO-600-300-150/ 1-1-1A b)RATIO-1200-600-300/ 1-1-1A</p> <p style="text-align: center;">LOT - II (132 KV CT)</p> <p>a) RATIO-800-400-200/1-1-1-1A b)RATIO-600-300-150/1-1-1-1A</p> <p style="text-align: center;">LOT - III (400 KV CT)</p> <p>RATIO-2000-1000-500/1-1-1-1-1A</p> | <p>06 Nos } 69 Nos } 08 Nos. } 47 Nos. }</p> <p>02 Nos</p> | <p>39,000/- 66,000 18,000</p> | <p>10,000/- + 400/- (VAT)</p> | <p>29.11, 2011</p> |

| | | | | | | |
|----|-----------------------------|--|--|--|------------------------------|----------------|
| 2. | Sr.GM-CPC-Tender-VT-15/2011 | LOT-I- 132KV IVT LOT-II-132KV CVT LOT-III-220KV CVT LOT-III-220KV IVT | 68 Nos. 13 Nos. 05 Nos. 08 Nos. | 94,000/- 25,000/- 14,000/- 29,000/- | 10,000/- + 400/- (VAT) | 29.11. 2011 |
|----|-----------------------------|--|--|--|------------------------------|----------------|

The tender specification documents can be had from the office of the undersigned on payment of non-refundable cost of tender specification documents in the shape of cash from 10 A.M to 1 P.M during any working day from dt.09.08.2011 to 13.09.2011 (both days inclusive) either in person or by remitting demand draft payable to Drawing & Disbursing Officer, ORISSA POWER TRANSMISSION CORPORATION LTD., Regd. Office: Janpath, Bhubaneswar- 751 022. No tender documents will be sold on any other day except as indicated.

The specification can also be down loaded from OPTCL'S official web site and the same may be submitted along with the cost of tender document by way of demand draft/pay order payable to D.D.O., OPTCL Ltd. Janapath, Bhubaneswar at the time of submission of tender document. In case, any deviation is found in the tender document, submitted by the tenderer from the content mentioned in our web site and/or non-submission of the cost of tender documents, the tender shall be liable to be rejected at any stage of the contract. The tenderer has to indemnify OPTCL for any loss accruing due to such alteration in the terms and conditions of the tender document &/ or for such alternation, resulting, in the cancellation of the contract.

The intending bidders, who want to get a copy of the tender specification document by post, are required to deposit an additional amount of Rs.100/- (Rupees one hundred) only over and above the cost of the tender specification, mentioned against each Tender Specification under heading "Cost of tender specification". Complete bids for different items will be received upto 1.00 P.M. only and the same will be opened at 04.00 P.M. on the date mentioned in the notice inviting tender. Date and time of opening of price bids shall be intimated to the techno-commercially responsive bidders only. In the event of any specified date for the sale, submission or opening of bids being declared a holiday for purchaser, the bids will be sold/ received/ opened upto the appointed times on the next working day. Only one representative of each bidder will be allowed to participate in the bid opening with valid identification certificate. OPTCL also reserves the right to accept or reject any or all tenders without assigning any reason thereof, if the situation so warrants. OPTCL shall not be responsible for any postal delay or loss at any stage.

Minimum qualification criteria of bidders: AS STIPULATED IN SECTION-II, PART-I (G.T.C.C) OF THE TENDER SPECIFICATION.

SR. GENERAL MANAGER

CENTRAL PROCUREMENT CELL



FAX NO.:0674 - 2542964
TELEPHONE NO.:0674 - 2541801

**ORISSA POWER TRANSMISSION CORPORATION LTD.
OFFICE OF THE SR. GENERAL MANAGER
CENTRAL PROCUREMENT CELL**

JANAPATH, BHUBANESWAR - 751022

TENDER SPECIFICATION NO.SR.G.M.-CPC -TENDER-CT-14/ 2011

CONTAINING

PART - I

- SECTION - I : INSTRUCTION TO TENDERERS**
- SECTION - II : GENERAL TERMS AND CONDITIONS OF CONTRACT (G.T.C.C.) (COMMERCIAL)**
- SECTION - III : LIST OF ANNEXURES (COMMERCIAL)**
- SECTION - IV : TECHNICAL SPECIFICATION**

PART - II PRICE BID.

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PART-I
SECTION-I
INSTRUCTIONS TO TENDERER

1. Submission of Bids: -

Sealed tenders in triplicate on two part bid basis, each complete in all respects, in the manner hereinafter specified are to be submitted in the office of Sr.General Manager [Central Procurement cell], OPTCL, Bhubaneswar on or before the date and time specified against the relevant tender Specification in the notice inviting the tenders. Each copy of the bids [Original, duplicate and triplicate] shall be in separate double sealed envelopes, super scribed on each of the covers, the relevant tender specification number and the due date of opening of the bids on the top right hand side of the envelopes. On the top left sides, original/duplicate/triplicate as is relevant, shall be written. The participants to the tender should be registered under Orissa Sales Tax, Act,VAT Act/Central sales Tax Act.

2. Division of Specification.

The specification is mainly divided into two parts viz. Part-I & Part-II.

Part-I Consists of

- | | |
|-------------------|---|
| [i] Section-I | Instruction to Tenderers. |
| [ii] Section-II | General Terms & conditions of contract. |
| [iii] Section-III | Schedules and forms etc. |
| [iv] Section-IV | Technical Specification. |

Part-II Consists of

- [i] Abstract of price components as per Annexure-IV
- [ii] Schedule of prices as per Annexure-V

3. Tenders shall be in Two Parts.

The Tenderers are required to submit the tenders in two parts each in separate double sealed covers. Part-I shall be super scribed as "E.M.D"., technical and commercial and Part-II shall be super scribed as "Price Bid".

4. Opening of Bids.

- [a] The part-I shall be opened in the Office of the Senior General Manager [Central Procurement Cell] in presence of such of the Tenderers or their authorized representatives [limited to one person only] on the due date of opening of tender. After scrutiny of the technical particulars and other commercial terms, clarifications, if required, shall be sought for from the bidders. The Tenderers shall be allowed 15 days time for such activity.
- [b] On receipt of technical clarification, the bids shall be reviewed, evaluated and those not in conformity with the technical Specification / qualifying experience, shall be rejected. If any of the technical proposal requires modification to make them comparable, discussion will be held with the participating bidders.

All the responsive bidders shall be given opportunity to submit the revised technical and revised price proposals as a follow up to the clarification (modification if any) on the technical proposals. The qualified bidders shall be given opportunity to submit revised price proposals within 15 days from the date of such discussion or within time frame mutually agreed, whichever is earlier.
- [c] When the revised price proposals are received, the original price proposals will be returned to the bidders unopened along with their original technical proposals. Only the revised technical and price proposals will be considered for bid evaluation. The price bids [Part-II] of such of the Tenderers, whose tenders have been found to be technically and commercially acceptable, including those supplementary revised price bids, submitted subsequently, shall be opened in the presence of the bidder's representative on a date and time which will be intimated to all technically and commercially acceptable Tenderers.
- [d] The bidders are required to furnish sufficient information to the Purchaser to establish their qualification, capacity to manufacture and/or supply the materials/perform the work. Such information shall include details of bidder's experience, its financial, managerial and technical capabilities.
- [e] The bidders are also required to furnish details of availability of appropriate technical staff and capability to perform after sales services. The above information shall be considered during scrutiny and evaluation of bids and any bid which does not satisfactorily meet these requirements, shall not be considered for price bid evaluation.
- [f] The price bids of the technically and otherwise acceptable bids shall only be evaluated as per the norms applicable in terms of this Specification.

5. **Purchaser's Right Regarding Alteration of Quantities Tendered.**

The Purchaser may alter the quantities of materials/equipment at the time of placing orders. Initially the purchaser may place orders for lesser quantity with full freedom to place extension orders for further quantity under similar terms and conditions of the original orders. Orders may also be split among more than one tenderer for any particular item, if considered necessary in the interest of the Purchaser to get the goods/equipment earlier.

6. **Procedure and opening time of tenders.**

Tenders will be opened in the office of the Senior General Manager [C.P.C.] on the specified date and time in presence of the Tenderers or their authorized representatives [limited to one person only] in case of each bidder who may desire to be present, at the time of opening the bids. The Senior General manager [C.P.C.] or his authorized representatives will, on opening each bid, read aloud the name of the bidder. He shall also read aloud the attested and unattested corrections and shall record the number of such corrections on each page of the Techno-Commercial Bid over his dated initials and also initial all such corrections.

7. **Bidder's Liberty to deviate from Specification.**

The Tenderer may deviate from the specification while quoting, if in his opinion, such deviation is in line with the manufacturer's standard practice and conducive to a better and more economical offer. All such deviations should however be clearly indicated giving full justifications for such deviation. [Read with Clause-9, Section-II of the Specification].

8. **Eligibility for submission of bids.**

Only those manufacturers who have deposited the cost of tender specification are eligible to participate in the tender. They should submit the money receipt as a proof of such payment. Further, the tender specification can also be downloaded from OPTCL's website and the cost of tender specification, in such a case, shall have to be remitted alongwith the submission of tender papers. Tenders submitted by others will be rejected. Also tender specification downloaded from OPTCL website may not be taken as 100% correct due to website technical difficulties. So it is advisable to purchase hard copies from the office of the Sr. General Manager (C.P.C.), OPTCL Bhubaneswar.

9. **Purchaser's right to accept/reject bids:**

The purchaser reserves the right to reject any or all the tenders without assigning any reasons what so ever if it is in the interest of OPTCL, under the existing circumstances. [Read with clause-10, Section-II of the specification].

10. **Mode of submission of Tenders.**

[A] Tenders shall be submitted in person or by Registered Post with AD. Any other means of delivery shall not be accepted. When delivered in person, the tenders shall be received by a responsible officer of the office of the Senior General Manager [C.P.C.], OPTCL who shall officially acknowledge the receipt of the same. Tenders received after due date and time shall be returned un-opened.

[B] **Telegraphic or FAX tenders** shall not be accepted under any circumstances.

11. **Earnest money deposit:**

The tender shall be accompanied by Earnest Money deposit of value specified in the notice inviting tenders against each lot /bid. Tenders without the required EMD as indicated at **Annexure-VIII** will be rejected outright and their Part-II envelope will be returned to them, unopened.

The earnest money deposit shall be furnished in one of the following forms subject to the conditions mentioned below:

- (a) **Cash:-** Payable to drawing & disbursing Officer, OPTCL (Hd.qrs. Office), Bhubaneswar - 751022
- (b) **Bank Draft:** -To be drawn in favour of Drawing & Disbursing Officer, OPTCL [H.Qrs.Office], Bhubaneswar-751 022.
- (c) Bank Guarantee from any Nationalized/Scheduled Bank strictly as per enclosed proforma vide **Annexure-VI** to be executed on non-judicial stamp paper worth Rs.29.00 or as applicable, as per prevailing laws in force and also to be accompanied by the confirmation letter of the issuing Bank Branch.
- (d) National saving certificate, duly pledged in favour of Senior General Manager [Central Procurement Cell] OPTCL {H.Qrs.Office}, Bhubaneswar-751 022.

NOTE:

- (i). The validity of the EMD in the form of Bank Guarantee shall be at least for 240 days from the date of opening of tender failing which the tender will be liable for rejection.
- (ii) No interest shall be paid on the Earnest Money Deposit.

- (iii) E.M.D. in shape of cash may be submitted upto Rs. 25,000/- (Rupees Twenty-five Thousand) only. Above Rs. 25,000/- (Rupees Twenty-five thousand) the Earnest Money Deposit shall be furnished in any one of the forms indicated above (i.e. Through Bank Draft, Bank Guarantee/ National Savings Certificate).
- (iv) No adjustment towards EMD shall be permitted against any outstanding amount with the ORISSA POWER TRANSMISSION CORPORATION LTD..
- (v) The chart showing particulars of EMD to be furnished by Tenderers of different categories is placed at **Annexure-VIII**.
- (vi) In the case of un- successful tenderer, the EMD will be refunded after the tender is decided. In the case of successful Tenderer, this will be refunded only after furnishing of security money referred to at clause-19 of Section-II.
- (vii) Suits, if any, arising out of this clause shall be filed in a Court of law to which the jurisdiction of High Court of Orissa extends.
- (vii) EMD will be forfeited if the tenderer fails to accept the letter of intent and/or purchase order issued in his favour or to execute the order, placed on them.
- (viii) Tenders not accompanied by Earnest Money shall be disqualified.

12. Validity of the Bids: -

The tenders should be kept valid for a period of **180** days from the date of opening of the tender, failing which the tenders will be rejected.

13. PRICE: -

Tenderers are requested to quote-'FIRM' Price. No deviation from FIRM PRICE will be entertained irrespective of deviation clause No.7 of this part of the specification.

14. Revision of tender price by Bidders: -

- [a] After opening of tenders and within the validity of period, no reduction or enhancement in price will be entertained. If there is any change in price, the tender shall stand rejected and the EMD deposited shall be forfeited.
- [b] If required, the tenderers may be asked to extend the validity period of bids under the same terms and conditions as per the original tender except for the change in delivery period. In such an event, the Tenderers are free to change any or all conditions of their bids including price at their own risk.

15. Tenderers to be fully conversant with the clauses of the Specification: -

Tenderers are expected to be fully conversant with the meaning of all the clauses of the specification before submitting their tenders. In case of doubt regarding the meaning of any clause, the tenderer may seek clarification in writing from the Senior General Manager (Central Procurement Cell) OPTCL. This, however, does not entitle the Tenderer to ask for time beyond due date, fixed for receipt of tender.

16. Documents to Accompany Bids.

Tenderers are required to submit tenders in the following manner:

Part-I of the Tender shall Contain the following documents.

- [i] Declaration Form. [As per Annexure-I]
- [ii] Earnest Money. [As per **Annexure-VIII**]
- [iii] Technical specification and Guaranteed Technical Particulars conforming to the Purchaser's Specification along with drawings, literatures and all other required Annexures, duly filled in.
- [iv] Photostat copies of type test certificates of materials/equipments offered as stipulated in the Technical Specification.
- [v] Abstract of Terms & conditions in prescribed proforma as per **Annexure-II**.

- [vi] General Terms & Conditions of supply offer as per Section-II of the Specification.
- [vii] List of orders executed for similar materials/equipments during preceding 2 (two) years indicating the customer's name, Purchase Order No. & Date, date of supply and date of commissioning etc.
- [viii] Data on past experience **as per Clause-7 of Section-II** of the Specification.
- [ix] Sales tax clearance certificate for the previous year. The permanent account number [PAN] of the firm is required under Income tax Act.
- [x] Audited Balance sheet & profit loss accounts of the bidder, for past (3) three years.
- [xi] Schedule of quantity and delivery in the prescribed Proforma vide Annexure, as appended.
- [xii] List of Orders in hand to be executed.

17. Documents/Papers to accompany Part-II Bid.

- (a) Part - II of the tender shall consist of the following
 - (i) Abstract of Price Component, as per Annexure-IV
 - (ii) Schedule of prices in the prescribed proforma as per Annexure-V

18. Conditional Offer:

Conditional offer shall not be accepted.

19. General: -

- (i) Over writing shall be avoided.
- (ii) Erasures and other changes shall bear the dated initial of the person signing the tender.
- (iii) In the event of discrepancy or arithmetical error in the schedule of price, the decision of the purchaser shall be final and binding on the Tenderer.
- (iv) For evaluation, the price mentioned in words shall be taken if there is any difference in figures and words in the price bid.
- (v) Notice inviting tender shall form part of this specification.
- (vi) The price bids of the technically and otherwise acceptable bids shall only be evaluated. The price bids of others along with EMD, if any, shall be returned to the bidders un-opened.
- (vii) Tenderer can offer any lot or all the lots of the tender, if there are more than one lots. But the tender (bid) must be furnished separately for each lot. For each lot, the tenderer has to submit PART-I & PART-II of the bids separately.
- (viii) The person signing the tender should sign on each page of the Tender paper in acknowledgement of having gone through the entire Tender Specification and in agreement thereof. Tender papers, not signed on each page with official seal by the bidder(s), shall not be considered.
- (ix) It should be distinctly understood that the part-II of the bid shall contain only details/documents relating to price, as outlined in clause-17 mentioned herein above. Inclusion of any of the documents/information etc. shall render the bid liable for rejection.

PART-I SECTION-II

GENERAL TERMS AND CONDITIONS OF CONTRACT [G.T.C.C.]

1. **Scope of the contract:**

The scope of the contract shall be to design, manufacture, supply of equipments as per the specification at the consignee's site, and rendering services in accordance with the enclosed technical specification and bill of quantity.

2.0 **Definition of terms:**

For the purpose of this specification and General Terms and Conditions of contract [GTCC], the following words shall have the meanings hereby indicated, except where otherwise described or defined.

2.1 "The Purchaser" shall mean the Senior General Manager[Central Procurement Cell] for and on behalf of ORISSA POWER TRANSMISSION CORPORATION LTD., Bhubaneswar.

2.2 "The Engineer" shall mean the Engineer appointed by the Purchaser for the purpose of this contract.

2.3 "Purchaser's Representative" shall mean any person or persons or consulting firm appointed and remunerated by the Purchaser to supervise, inspect, test and examine workmanship and materials of the equipment to be supplied.

2.4 "The supplier" shall mean the bidder whose bid has been accepted by the purchaser and shall include the bidder's executives, administrators, successors and permitted assignees.

2.5 "Equipment" shall mean and include all machinery, apparatus, materials, and articles to be provided under the contract by the suppliers.

2.6 "Contract Price" shall mean the sum named in or calculated the bid.

2.7 "General Condition" shall mean these General Terms and Conditions of Contract.

2.8 "The Specification" shall mean both the technical as well as commercial parts of the specification annexed to or issued with GTCC and shall include the schedules and drawings, attached thereto as well as all samples and pattern, if any.

- 2.9 "Month" shall mean "Calendar month".
- 2.10 "Writing" shall include any manuscript, type written, printed or other statement reproduction in any visible form and whether under seal or under hand.
- 2.11 "FOR Destination costs" shall mean the cost of equipment and material at the consignee's store/site. The cost is inclusive of Excise duty, Sales tax and other local taxes, packing, forwarding and insurance and freight charges.
- 2.12 The term "Contract document" shall mean and include GTCC, specifications, schedules, drawings, form of tender, Notice Inviting Tender, covering letter, schedule of prices or the final General Conditions, any special conditions, applicable to the particular contract.
- 2.13 Terms and conditions not herein defined shall have the same meaning as are assigned to them in the Indian Contract Act, failing that in the Orissa General Clauses Act.
3. **Manner of execution:**
All equipments supplied under the contract shall be manufactured in the manner, set out in the specification or where not set out, to the reasonable satisfaction of the Purchaser's representative.
4. **Inspection and Testing:**
- [i] The purchaser's representative shall be entitled at all reasonable times during manufacture to inspect, examine and test at the supplier's premises, the materials and workmanship of all equipments/materials to be supplied under this contract and if part of the said equipment/material is being manufactured in other premises, the supplier shall obtain for the purchaser's representative permission to inspect, examine and test as if the equipment/material were being manufactured in the contractor's premises. Such inspection, examination and testing shall not relieve the supplier from his obligations under the contract.
- [ii] The Supplier shall give to the purchaser adequate time/notice (at least clear 15 days for inside the state suppliers and 20 days for outside the state suppliers) in writing for inspection of materials indicating the place at which the equipment/material is ready for testing and inspection and shall also furnish the shop Routine Test Certificate, Calibration certificates of Testing instruments, calibrated in Govt. approved laboratory with authenticity letter of that laboratory along with the offer for inspection. A packing list along with the offer, indicating the quantity which can be delivered in full truck load/Mini truck load to facilitate issue of dispatch instruction shall also be furnished.
- [iii] Where the contract provides for test at the Premises of the supplier or any of his sub-vendors, the supplier 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 carryout such tests efficiently. The supplier is required to produce shop routine test Certificate, calibration certificates of Testing Instruments before offering their materials/equipment for inspection & testing. The test house/laboratory where tests are to be carried out must be approved by the Govt. A letter pertaining to Govt. approved laboratory must be furnished to the purchaser along with the offer for inspection.
- [iv] After completion of the tests, the Purchaser's representative shall forward the test results to the Purchaser. If the test results conform to the specific standard and specification, the Purchaser shall approve the test results and communicate the same to the supplier in writing. The supplier shall provide at least five copies of the test certificates to the Purchaser.
- [v] The Purchaser has the right to have the tests carried out at his own cost by an independent agency whenever there is dispute regarding the quality of supply.

[vi] If the firm fails to present the offered items for inspection/testing as per their inspection call due to any reason(s) during the visit of inspecting officer at the testing site ,the firm shall have to bear all expenses towards repetition of inspection and testing of the total offered quantity or part thereof.

5. **Training facilities.**

The supplier shall provide all possible facilities for training of Purchaser's Technical personnel, when deputed by the Purchaser for acquiring first hand knowledge in assembly of the equipment, its erection, commissioning and for its proper operation & maintenance in service, wherein it is thought necessary by the purchaser.

6. **Rejection of Materials.**

In the event any of the equipments/material supplied by the manufacturer 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 equipment/material or ask the supplier in writing to rectify or replace the defective equipment/material free of cost to the purchaser. The Supplier on receipt of such notification shall either rectify or replace the defective equipment/material free of cost to the purchaser within 15 days from the date of issue of such notification by the purchaser. If the supplier fails to do so, the Purchaser may:-

[a] At its option replace or rectify such defective equipments/materials and recover the extra costs so involved from the supplier plus fifteen percent and/or.

[b] Terminate the contract for balance work/supplies, with enforcement of penalty Clause as per contract for the un-delivered goods and with forfeiture of Performance Guarantee/ Composite Bank guarantee.

[c] Acquire the defective equipment/materials at reduced price, considered equitable under the circumstances.

7. **Experience of Bidders:**

The bidders should furnish information regarding experience particularly on the following points:

[i] Name of the manufacturer:

[ii] Standing of the firm and experience in manufacture of equipment/material quoted:

[iii] Description of equipment/material similar to that quoted, supplied and installed during the last two years with the name(s) of the Organisations to whom supplies were made wherein, at least one (1) certificate shall be from a state/central P.S.U.

[iv] Details as to where installed etc.

[v] Testing facilities at manufacturer's works.

[vi] If the manufacturer is having collaboration with another firm [s], details regarding the same.

[vii] A list of purchase orders of identical material/equipments offered as per technical specification executed during the last two years along with users certificate. User's certificate shall be legible and must indicate, user's name, address, designation, place of use, and satisfactory performance of the equipment/materials for at least two years from the date of commissioning. Wherein at least one (1) certificate shall be from a State/Central or P.S.U. Bids will not be considered if the past manufacturing experience is found to be unsatisfactory or is of less than 2 (two) years on the date of opening of the bid and bids not accompanying user's certificate will be rejected..

8. **Language and measures:**

All documents pertaining to the contract including specifications, schedule, notices, correspondence, operating and 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.

9. **Deviation from specification:**

It is in the interest of the tenderers to study the specification, specified in the tender schedule

thoroughly before tendering so that, if any deviations are made by the Tenderers,(both commercial and Technical), the same are prominently brought out on a separate sheet under heading "Deviations Commercial" and "Deviations Technical".

A list of deviations shall be enclosed with the tender. Unless deviations in scope, technical and commercial stipulations are specifically mentioned in the list of deviations, it shall be presumed that the tenderer has accepted all the conditions, stipulated in the tender specification, notwithstanding any exemptions mentioned therein.

10. **Right to reject/accept any tender:**

The purchaser reserves the right either to reject or to accept any or all tenders if the situation so warrants in the interest of the purchaser. Orders may also be split up between different Tenderers on individual merits of the Tenderer. The purchaser has exclusive right to alter the quantities of materials/ equipment at the time of placing final purchase order. After placing of the order, the purchaser may defer the delivery of the materials. It may be clearly understood by the Tenderer that the purchaser need not assign any reason for any of the above action [s].

11. **Supplier to inform himself fully:**

The supplier shall examine the instructions to tenderers, general conditions of contract, specification and the schedules of quantity and delivery to satisfy himself as to all terms and conditions and circumstances affecting the contract price. He shall quote price [s] according to his own views on these matters and understand that no additional allowances except as otherwise provided there in will be admissible. The purchaser shall not be responsible for any misunderstanding or incorrect information, obtained by the supplier other than the information given to the supplier in writing by the purchaser.

12. **Patent rights Etc.**

The supplier shall indemnify the Purchaser against all claims, actions, suits and proceedings for the infringement of any patent design or copy right protected either in the country of origin or in India by the use of any equipment supplied by the manufacturer. Such indemnity shall also cover any use of the equipment, other than for the purpose indicated by or reasonably to be inferred from the specification.

13. **Delivery:-**

[a] Time being the essence of the contract; the equipment shall be supplied within the delivery period, specified in the contract. The Purchaser, however, reserves the right to reschedule the delivery and change the destination if required. The delivery period shall be reckoned from the date of placing the Letter of Intent/Purchase order, as may be specified in LOI/Purchase order.

[b] The desired delivery period shall be as indicated at Appendix-II (Quantity & Delivery Schedule) of Section-IV (Technical Specification).

14. **Despatch instructions.**

I] The equipments/ materials should be securely packed and dispatched directly to the specified site at the supplier's risk by Road Transport only.

II] **Loading & unloading of Ordered Materials.**

It will be the sole responsibility of the supplier for loading and unloading of materials both at the factory site and at the destination site/store.

The Purchaser shall have no responsibility on this account.

15. **Supplier's Default Liability.**

- [i] The Purchaser may, upon written notice of default to the supplier, terminate the contract in circumstances detailed hereunder.
- [a] If in the judgement of the Purchaser, the supplier fails to make delivery of equipment/material within the time specified in the contract or within the period for which if extension has been granted by the Purchaser in writing in response to written request of the supplier.
- [b] If in the judgement of the Purchaser, the supplier fails to comply with any of the provisions of this contract.
- [ii] In the event, Purchaser terminates the contract in whole or in part as provided in Clause-15 (I) of this section, the Purchaser reserves the right to purchase upon such terms and in such a manner as he may deem appropriate in relation to the equipment/material similar to that terminated and the supplier will be liable to the Purchaser for any additional costs for such similar equipment/material and/or for penalty for delay as defined in clause-22 of this section until such reasonable time as may be required for the final supply of equipment.
- [iii] In the event the Purchaser does not terminate the contract as provided in clause 15(I) of this Section, supplier shall be liable to the Purchaser for penalty for delay as set out in Clause-22 of this section until the equipment is accepted. This shall be based only on written request of the supplier and written willingness of the Purchaser.

16. **Force Majeure:**

The supplier shall not be liable for any penalty for delay or for failure to perform the contract for reasons of force majeure such as acts of god, acts of the public enemy, acts of Govt., Fires, floods, epidemics, Quarantine restrictions, strikes, Freight Embargo and provided that the supplier shall within Ten (10)days from the beginning of delay on such account notify the purchaser in writing of the cause of delay. The purchaser shall verify the facts and grant such extension, if facts justify .

17. **Extension of time:-**

If the delivery of equipment/material is delayed due to reasons beyond the control of the supplier, the supplier shall without delay give notice to the purchaser in writing of his claim

for an extension of time. The purchaser on receipt of such notice may or may not agree to extend the contract delivery date as may be reasonable but without prejudice to other terms and conditions of the contract.

18. **Guarantee period: -**

- [i] The stores covered by this specification should be guaranteed for satisfactory operation and against defects in design, materials and workmanship for a period of at least 18 [eighteen] months from the last date of delivery or 12 [twelve] months from the date of commissioning whichever is earlier. The above guarantee certificate shall be furnished in triplicate to the purchaser for his approval. Any defect noticed during this period should be rectified by the supplier free of cost to the purchaser provided such defects are due to faulty design, bad workmanship or bad materials used, within one month upon written notice from the purchaser failing which provision of clause 22 (ii) shall apply.

- [ii] Equipment/material failed or found defective during the guarantee period shall have to be guaranteed after repair/replacement for a further period of 12 months from the date of commissioning or 18 months from the date of receipt at the store/site after such repair/replacement which ever is earlier . The Bank Guarantee is to be extended accordingly. Date of delivery as used in this clause shall mean the date on which the materials are received in OPTCL'S stores/site in full & good condition which are released for Despatch by the purchaser after due inspection.

19. B.G. towards security deposit, 100% payment and performance guarantee:

- [i] For manufacturers situated Inside & out side the state of Orissa.

A Composite Bank Guarantee as per the Proforma enclosed at Annexure-VII of the specification for 10% [ten percent] of the total FORD cost of the purchase order, shall be furnished from any nationalized/scheduled bank having a place of business at Bhubaneswar, to the office of Sr.General Manager [Central Procurement Cell] OPTCL within 15 days from the date of issue of the purchase order,. The BG shall be executed on non judicial stamp

paper worth of Rs.29.00 [Rupees twenty nine] only or as per the prevalent rules, valid for a period of 20 months from the last date of stipulated delivery period, for scrutiny and acceptance, failing which the supply order will be liable for cancellation without any further written notices. The BG should be accompanied by a confirmation letter from the concerned bank and should have provision for encashment at Bhubaneswar, before the Bank Guarantee is accepted and all concerned intimated. The B.G should be revalidated as and when intimated to you to cover the entire guarantee period.

- [ii] No interest is payable on any kind of Bank Guarantee.

- [iii] In case of non-fulfillment of contractual obligation, as required in the detailed purchase order/Specification, the composite Bank guarantee shall be forfeited.

20. Import License

In case imported materials are offered, no assistance will be given for release of Foreign Exchange. The firm should arrange to import materials from their own quota. Equipment of indigenous origin will be preferred.

21. (A) Terms of Payment.

- (i) 100% value of each consignment with 100% Excise duty, Entry Tax, if any, and sales tax in full as applicable along with freight & Insurance charges will be paid on receipt of materials in good condition at stores/desired site and verification thereof, subject to furnishing and approval of Composite Bank Guarantee at the rate of 10% (Ten percent) of the cost of supplied materials, as stipulated under clause-19 of this specification & on prior approval of guarantee certificate & Test certificate by the Purchaser.

(ii) **Payment of Freight & Insurance charges and Entry Tax.**

Freight & Insurance Charges & Entry Tax, incorporated in the Purchase contract shall be paid after receipt of materials at stores/desired site in good condition and on production of authenticated documentary evidence, otherwise no Freight, Insurance charges & entry taxes shall be payable.

[B] The supplier shall furnish Composite Bank Guarantee of appropriate amount to OPTCL covering 10% of F.O.R. Destination cost of the purchase order well in advance (within 15 days from the date of issue of the purchase order) before despatch of materials.

22. Penalty for Delay in Completion of Contract

- I) If the Supplier fails to deliver the materials/equipments within the delivery schedule, specified in the contract including delivery time extension, if any, granted thereto, the Purchaser shall recover from the Supplier, penalty for a sum of half percent (0.5 percent) of

the Ex-works price of the un-delivered equipment for each calendar week of delay or part thereof. For this purpose, the date of receipted chalan shall be reckoned as the date of delivery. The total amount of penalty shall not exceed five percent (5%) of the ex-works price of the unit or units so delayed. Equipment will be deemed to have been delivered only when all its components and accessories as per technical Specification are also delivered. If certain components & accessories are not delivered in time, the equipment will be considered delayed until such time as the missing parts are delivered.

- ii) If the Supplier fails to rectify /replace the equipment/material within 30 days from the date of intimation of the defect, so noticed by the purchaser within the guarantee period then the penalty for sum of one half of the one percent (0.5%) of the total Purchase order amount for each calendar week of delay shall be recovered by the purchaser within the guarantee period. For this purpose, penalty date will start from the 30th. day from the date of issue of letter on defectiveness of equipment/material, so supplied, by the purchaser. The total amount of penalty in this case shall not exceed 10% (TEN PERCENT) of the purchase order amount. The purchase order amount shall mean ex-works price + freight & insurance and all taxes & duties. If the defects so intimated within the guarantee period will not be rectified by the Supplier within the stipulated period as per clause 18 (i), then whole of the B.G. will be forfeited by the purchaser, without any intimation to the Supplier.

23. **Insurance**

The Supplier shall undertake insurance of stores covered by this Specification unless otherwise stated. The responsibility of delivery of the stores at destination in good condition rests with the Supplier. Any claim with the Insurance Company or transport agency arising due to loss or damage in transit has to be settled by the supplier. The Supplier shall undertake free replacement of materials damaged or lost, which will be reported by the consignee within 30 days of receipt of the materials at destination without awaiting for the settlement of their claims with the carriers and underwriters.

24. **Payment Due from the Supplier.** All costs and damages, for which the supplier is liable to the purchaser, will be deducted by the purchaser from any money, due to the supplier, under any of the contract (s), executed with OPTCL.

25. **Sales Tax clearance certificate and Balance sheet and profit & Loss Account:**

- i. Sales Tax clearance certificate for the previous year shall be enclosed with the tender.
ii. Audited Balance Sheet and Profit & Loss Account of the bidder for the previous three years shall be enclosed to assess the financial soundness of the bidder(s).

26. **Certificate of Exemption from Excise Duty/Sales tax.**

Offers with exemption from Excise duty including sales tax shall be accompanied with authenticated proof of such exemption. Authenticated proof for this clause shall mean attested Photostat copy of exemption certificate. Any claim towards Excise duty/ Sales Tax shall be paid on actual basis subject to production of authenticated documentary evidence.

27. **Supplier's Responsibility.**

Notwithstanding anything mentioned in the Specification or subsequent approval or acceptance by the Purchaser, the ultimate responsibility for design, manufacture, materials used and satisfactory performance shall rest with the Tenderers. The Supplier(s) shall be responsible for any discrepancy noticed in the documents, submitted by them alongwith the bid(s)

28. **Validity.**

Prices and conditions contained in the offer should be kept valid for a minimum period of 180 days from the date of opening of the tender, failing which the tender shall be rejected.

29. EVALUATION.

(i) Evaluation of bids will be on the basis of the FOR DESTINATION PRICE (By Road Transport) including Excise Duty, sales Tax & other levies as may be applicable. The FORD PRICE shall consist of the following components

- a) Ex-works price.
- b) Packing & Forwarding charges.
- c) Freight
- d) Insurance.
- e) Excise Duty.
- f) Sales Tax.
- g) Other levies.
- h) Mandatory spares, if any for maintenance of equipment. (At the discretion of the purchaser)
- i) Test charges, if any.
- j) Supervision of erection, testing and commissioning charges, if any.
- k) Any other items, as deemed proper for evaluation by the purchaser.
- l) Loading factors will be taken into account during evaluation if the prices of some of the items, not quoted.

(II) Weightage shall be given to the Following factors in the Evaluation & Comparison of Bids.

In comparing bids and in making awards, the Purchaser will consider other factors such as compliance with Specification, minimum qualification criteria as per clause-30, outright rejection of tenders clause-34 of this tender, relative quality, adaptability of Supplies or services, experience, financial soundness, record of integrity in dealings, performance of materials/equipments earlier supplied, ability to furnish repairs and maintenance services, the time of delivery, capability to perform including available facilities such as adequate shops, plants, equipment and technical organization.

30. Minimum Qualification Criteria of Bidders.

All the prospective bidders are requested to note that their bids for tendered equipment can only be considered for evaluation if:

- i) The bidder should have manufacture and supply experience of above rated or higher capacity equipments for a minimum period of 2 (two) years as on the date of opening of the tender
- ii) At least 50% of the tendered quantity. of above rated or higher capacity equipment should have been supplied within the above-stipulated period.
- iii) The above rated or higher capacity equipment should have at least 2 (two) years successful performance from the date of commissioning. At least one of the performance certificates shall be submitted from Govt. of India/State Govt.(s) or their undertakings.
- iv) The bidder should have conducted type tests on the tendered equipments in Government approved laboratory within five years from the date of opening of the tender..

31. Jurisdiction of the High Court of Orissa.

`Suits, if any, arising out of this contract shall be filed by either Party in a court of Law to which the jurisdiction of High court of Orissa extends.

32. Correspondences.

- i) Any notice to the supplier under the terms of the contract shall be served by Registered Post or by hand at the Supplier's Principal Place of Business.
- ii) Any notice to the Purchaser shall be served at the Purchaser's Principal Office in the same manner.

33. **Official Address of the Parties to the Contract**

The address of the parties to the contract shall be specified:-

- [i] **Purchaser:** Senior General Manager (Procurement)(CPC) OPTCL
Bhubaneswar-751022 (Orissa)
Telephone No. 0674 - 2541801
FAX No. 0674 - 2542964
- [ii] **Supplier:** Address
Telephone No.
Fax No.

34. **Outright Rejection of Tenders**

Tenders shall be outrightly rejected if the followings are not complied with.

- [i] The Tenderer should have purchased/obtained the Bid specification document from the office of the Purchaser or downloaded the same from website of OPTCL, but shall deposit the tender cost, while submitting the tender.
- [ii] The Tender shall be submitted in person or by Registered Post with A.D.
- [iii] The Tender shall not be submitted telegraphically or by FAX.
- [iv] The Tender shall be accompanied by the prescribed Earnest Money deposit.the validity of EMD in the form of Bank guarantee shall be atleast for 240 (Two hundred & forty) days from the date of opening of tender, dialing which the tender will be legible for rejection. .
- [v] The Tender shall be kept valid for a minimum period of 180 days from the date of opening of tender.
- [vi] The Tender shall be submitted in two parts as specified.
- [vii] The Tenders shall be accompanied by a list of major supplies effected prior to the date of opening of tender. Data of at least 2 (two) years shall be furnished.
- [viii] Tender shall be accompanied by Photostat copy of latest type test certificates (for the tests, carried out on the tendered equipments, being offered). Such type tests should have been conducted within last five years from the date of opening of this tender in a Government approved laboratory/CPRI in presence of any Government Organisation's representative(s).
- [ix] The schedule of prices should be filled up fully to indicate the break-up of the prices including taxes and duties. Incomplete submission of this schedule will make the tender liable for rejection. Vide Clause-4(ii) of Part-II.
- [x] The Tenderer should quote 'FIRM' price only and the price should be kept valid for a minimum period of 180 days from the date of opening of the tender.
- (xi) Tender shall be accompanied by legibly written user's certificate to prove the satisfactory operation of the offered equipments/materials for a minimum period of 2 (two) years from the date of commissioning/use as per the tender specification. User's certificate shall include the detailed address of the user with Equipment/Material, Name and type as per this specification, number of years of satisfactory use/operation & date of issue of this user's certificate with official seal written in English only & clearly visible must be furnished. At least one of the user's certificates shall be from state or Central Govt. or their Undertakings.
- (xii) Guaranteed Technical particulars & Abstract of terms and Conditions should be filled in completely.

35. **Documents to be treated as confidential.**

The supplier shall treat the details of the specification and other tender documents as private and confidential and these shall not be reproduced without written authorization from the Purchaser.

36. **Scheme/Projects**

The materials/equipment covered in this specification shall come under "O&M WORKS "

SECTION - III [LIST OF ANNEXURES]

The following schedules and proforma are annexed to this specification and contained in Section-III as referred to in the relevant clauses.

| | | |
|---|--|--------------|
| 1 | Declaration form | ANNEXURE-I |
| 2 | Abstract of terms and conditions to accompany Section-II of Part-I | ANNEXURE-II |
| 3 | Schedule of Quantity and Delivery | ANNEXURE-III |
| 4 | Abstract of price component [to accompany Part-II of this specification] | ANNEXURE-IV |
| 5 | Schedule of prices to accompany Part-II | ANNEXURE-V |

| | | |
|-----|---|-----------------|
| 6 | Bank Guarantee form for earnest money deposit | ANNEXURE-VI |
| 7 | Composite Bank Guarantee form for security deposit, payment and performance | ANNEXURE-VII |
| 8. | Chart showing particulars of E.M.D. | ANNEXURE - VIII |
| 9. | Data on Experience. | ANNEXURE - IX |
| 10. | Schedule of spare parts. | ANNEXURE-X |
| 11. | Schedule of Installations. | ANNEXURE-XI |

ANNEXURE - I **DECLARATION FORM**

To

The Sr. General Manager (CPC)
OPTCL Head Qrs.BBSR,751022

Sub:- Tender Specification No-_____

Sir,

1. Having examined the above specification together with terms & conditions referred to therein * I/We the undersigned hereby offer to supply the materials/equipments covered therein complete in all respects as per the specification and General conditions, at the rates, entered in the attached contract schedule of prices in the Tender.
2. * I/We hereby undertake to have the materials/equipments delivered within the time specified in the Tender.
3. * I/We hereby guarantee the technical particulars given in the Tender supported with necessary reports from concerned authorities.

4. * I/We certify to have purchased/ downloaded a copy of the specification by remitting *cash/money order/D.D./ remitting the cost of tender, herewith and this has been acknowledged by your letter/ money receipt No. Dated,
5. In the event of Tender, being decided in *my/our favour, * I/We agree to furnish the Composite B.G. in the manner, acceptable to ORISSA POWER TRANSMISSION CORPORATION LTD., and for the sum as applicable to *me/us as per clause-19 of section-II of this specification within 15 days of issue of letter of intent/purchase order failing which *I/We clearly understand that the said letter of Intent/Purchase order will be liable to be withdrawn by the purchaser, and the EMD deposited by us shall be forfeited by OPTCL.

Signed this _____ day of _____ 2011
Yours faithfully

Signature of the Tenderer with seal of the company

[This form should be dully filled up by the tenderer and submitted along with the original copy of the tender]

* (Strikeout whichever is not applicable).

ANNEXURE-II

ABSTRACT OF GENERAL TERMS AND CONDITIONS OF CONTRACT [COMMERCIAL] TO ACCOMPANY PART-I

| | | |
|-----|--|------------------|
| 1 | (a) OPTCL Money Receipt No. & Date towards purchase of Tender. (b) Earnest money furnished. (A) Bank Guarantee, (B) Bank Draft. | |
| 2 | Manufacturer's supply experience including user's certificate furnished or not.[As per clause No.7 of Section-II.] | Yes/No |
| 3 | Deviations to the specification if any[list enclosed or not] [As per clause-9 of the Section-II] (a) Commercial (b) Technical. | Yes/No Yes/No |
| 4 | Delivery (period in months from the date of purchase order) | |
| 5 | Guarantee:- Whether agreeable to OPTCL's terms. [As per clause-18 of Section-II] | Yes/No |
| 6 | Whether agreeable to furnish Composite B.G. in case his tender be successful [As per clause-19 of Section-II] | Yes/No |
| 7. | Terms of payment:- Whether agreeable to OPTCL's terms or not [As per clause-21 of Section-II] | Yes/No. |
| 8. | Nature of price:- FIRM | Yes/No |
| 9. | Penalty:- Whether agreeable to OPTCL's terms or not (As per clause-22 of Section-II) | Yes/No |
| 10. | Whether STCC/ P&L A/C, Balance Sheet for the required period are furnished as per clause-25 of Section-II | Yes/No |
| 11. | Validity: - Whether agreeable to OPTCL's terms or not [As per clause-28 of Section-II] | Yes/No |
| 12. | Whether recent type test certificates from any Government approved laboratory are furnished or not. [As per clause-34[viii] of section-II] | Yes/No |
| 13. | Whether guaranteed technical particulars in complete shape are furnished or not | Yes/No |
| 14. | Whether dimensional design/drawings furnished or not | Yes/No |
| 15. | Whether materials are ISI/ISO marked. | Yes/No |
| 16. | Manufacturer's name and it's trademark. | Yes/No |
| 17. | Whether registered under Orissa Sales Tax Act. 1947 | Yes/No |
| 18. | Whether declaration form duly filled in furnished or not. | Yes/No. |

Place: -

Date: -

Signature of the Tenderer
with seal of the company

ANNEXURE-III
SCHEDULE OF QUANTITY AND DELIVERY
(To be filled up by the tenderer)

| SL No | Description of materials | Quantity required | Desired Delivery | Destination | Remarks |
|---------|--------------------------|-------------------|------------------|-------------|---------|
| 1 | 2 | 3 | 4 | 5 | 6 |
| LOT-I | | | | | |
| LOT-II | | | | | |
| LOT-III | | | | | |

Place:

Date:

Signature of Tenderer
with seal of Company.

ANNEXURE-IV

ABSTRACT OF PRICE COMPONENT [TO ACCOMPANY PRICEBID]

| | | |
|-----|--|--|
| 1 | Price basis | F.O.R. Purchaser's destination Stores/sites. |
| 2 | Packing & forwarding | |
| 3 | Rate of Insurance charges | |
| 4 | Rate of Freight charges | |
| 5 | Rate of excise duty | |
| 6 | Rate of sales Tax | |
| 7 | Rate of other taxes/levies /duties etc. | |
| 8 | Rate of entry tax. | |
| 9. | Rate of Service Tax on supervision of erection testing and commissioning | |
| 10. | Nature of price. | |

Place

Date:

Signature of Tenderer

With seal of company

NB:- Abstract of price component shall be done for equipment/material offered, for testing & commissioning charges, if any. All the above prices will be taken during bid price evaluation.

ANNEXURE-V.

SCHEDULE OF PRICES

TENDER SPECIFICATION No.

| Item No. | Description. | Qty (unit) | Unit Ex-factory Price. | Unit Packing & Forwarding. | Unit Freight Charges. | Unit Insurance Charges. | Unit landing cost at destination store/site excluding ST,ED & Entry tax. |
|----------|--------------|------------|------------------------|----------------------------|-----------------------|-------------------------|--|
| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |

| Unit E.D. | Unit S.T. | Unit Entry Tax. | Unit landing Cost including All taxes & Duties. | Total landing cost Including all taxes & duties. |
|-----------|-----------|-----------------|---|--|
| 9. | 10. | 11. | 12= (8+9+10+11) | 13= (3X12) |

Signature of Tenderer
Name, Designation and Seal

NB: -

1. The tenderer should fill up the schedule properly and in full. The tender will be rejected, if the schedule of price is submitted in incomplete form. No post tender correspondence will be entertained on break-up of prices. Also, the supplier should agree for delivery at sub-station site.
2. In case, where F&I components are not specifically indicated in this schedule, 5% of the ex-works price shall be taken towards F&I components for the purpose of comparison of price.
3. The Tenderer shall certify in the price bid that MODVAT benefit, if any, has been fully passed on to the purchaser while quoting the tender price.
4. Conditional offers will not be acceptable.
5. The bidder is to clearly indicate the period up to which the tax holidays are available to them.
6. Price bid in any other format will not be acceptable and the offer will be rejected.
7. Test charges (Routine/type) if any, mandatory spares, if any, maintenance equipment charges, if any, as per Technical Specification, supervisory charges, if any, (in case of equipments by taking 30 Man days) shall be indicated separately, row-wise.
8. All the above charges will be taken into account, during bid price evaluation.

ANNEXURE-VI

PROFORMA FOR BANK GUARANTEE FORM FOR EARNEST MONEY DEPOSIT

- Ref _____ Date _____ Bank Guarantee No: _____
- 1 In accordance with invitation to Bid No. _____ Dated _____ of ORISSA POWER TRANSMISSION CORPORATION LTD. [OPTCL][herein after referred to as the OPTCL for the purchase of _____ Messers _____ Address _____ wish/wished to participate in the said tender and as a Bank Guarantee for the sum of Rs. _____ [Rupees _____ Valid for a period of 240 days [Two hundred forty days] is required to be submitted by the Tenderer. 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 the Sr. General Manager [Procurement] ORISSA POWER TRANSMISSION CORPORATION LTD. _____ [Indicate designation of the purchaser] an amount not exceeding Rs. _____ to the OPTCL, 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 the _____ on whose behalf this guarantee has been issued.
2. We the _____ do hereby, further undertake [Indicate the name of the bank] to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the OPTCL stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the OPTCL 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. _____
3. We undertake to pay the OPTCL any money so demanded notwithstanding any dispute or disputes so raised by the contractor [s] in any suit or proceeding instituted/pending before any Court or Tribunal relating thereto, our liability under this present 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 _____ further agree that the guarantee [Indicate the Name of the Bank] herein contained shall remain in full force and effect during the aforesaid period of 240 days [two hundred forty days] and it shall continue to be so enforceable till all the dues of

the OPTCL under or by virtue of the said Bid have been fully paid and its claims satisfied or discharged or till Managing Director, ORISSA POWER TRANSMISSION CORPORATION LTD. 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 _____

we shall be discharged from all liability under this guarantee thereafter.

5. We, the _____ further agree with the OPTCL that

[Indicate the name of the Bank]

the OPTCL 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 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 OPTCL 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 OPTCL or any indulgence by the OPTCL 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, _____ lastly undertake not revoke this

[Indicate the name of the Bank]

Guarantee during its currency except with the previous consent of the OPTCL in writing.

8. We the _____ Bank further agree that this guarantee shall also be invocable at our place of business at Bhubaneswar in the state of Orissa.

Dated _____ Day of _____

For _____

[Indicate the name of Bank]

Witness ((Signature, names & address)

1.

2.

ANNEXURE-VII

PROFORMA FOR COMPOSITE BANK GUARANTEE FOR SECURITY DEPOSIT PAYMENT AND PERFORMANCE

This Guarantee Bond is executed this _____ day
of _____ 2011 by us the _____ Bank at

P.O. _____ P.S. _____

District _____ State _____

1. WHEREAS the ORISSA POWER TRANSMISSION CORPORATION LTD., a body corporate constituted under the Electricity Act, 2003 [hereinafter called "the OPTCL" which shall include its successors and assigns has placed orders No. _____ Date _____ [hereinafter called "The Agreement"] on M/s. _____ [hereinafter called "The Supplier"] which shall include its successors & assigns for supply of materials.

AND WHERE AS the supplier has agreed to supply materials to the OPTCL in terms of the said agreement AND

WHEREAS the OPTCL has agreed [1] to exempt the supplier from making payment of Security [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 Supplier to the OPTCL, a Composite bank Guarantee of the value of 10 % [ten percent] of the contract price of the said agreement.

NOW THEREFORE, in consideration of the OPTCL having agreed [1] to exempt the Supplier from making payment of Security [2] releasing 100% payment to the Supplier and [3] to exempt from furnishing performance guarantee in terms of the said agreement as aforesaid, we, the _____ [Bank][hereinafter referred to as 'the Bank'] do hereby undertake to pay to the OPTCL an amount not exceeding Rs. _____ [Rupees _____] against any loss or damage caused to or suffered by or would be caused to or suffered by the OPTCL by reason of any breach by the said Supplier [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 this guarantee without any demur, merely on demand from the OPTCL stating that the amount claimed is due by way of loss or damage caused to or suffered by the OPTCL by reason of any breach by the said Supplier [s] of any of the terms or conditions, contained in the said agreement or by reason of the supplier'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 _____

3. We the _____ Bank} also undertake to pay to the OPTCL any money so demanded notwithstanding any dispute or disputes raised by the supplier [s] in any suit or proceeding instituted/pending before any Court or Tribunal relating thereto our liability under this present 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, (_____Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to do so enforceable till all the dues of the OPTCL under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till Managing Director, ORISSA POWER TRANSMISSION CORPORATION LTD. certifies that the terms and conditions of the said agreement 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,(_____Bank) further agree that the OPTCL 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 Supplier [s] and we shall not be relieved from our liability by reason of any such variations or extension being granted to the said supplier [s] or for any forbearance, act or omission on the part of the OPTCL or any indulgence by the OPTCL to the said Supplier [s] or by any such matter or thing whatsoever which under the law relating to sureties would but these provisions 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 and supplier [s].

7. We,[_____Bank] lastly undertake not to revoke this guarantee during its currency except with the previous consent of the OPTCL in writing.

8. We the _____ Bank further agree that this guarantee shall also be invocable at our place of business at Bhubaneswar in the state of Orissa.

Date at _____ the, _____ day of 201_____.

For _____
[Indicate the name of the bank]

Witness (Name, Signature & Address)

1.

2.

ANNEXURE-VIII
**CHART SHOWING PARTICULARS OF EARNEST MONEY DEPOSIT
 FURNISHABLE BY TENDERERS**

| | | |
|----|---|--|
| 1. | Central and State Government Undertakings | Exempted |
| 2. | All other inside & outside state units. | The amount of EMD as specified in the specification /Tender Notice in shape of bank guarantee /DD. |

NB: - REFUND OF E.M.D.

- [a] In case of unsuccessful tenderers, the EMD will be refunded immediately after the tender is decided. In case of successful tenderer, this will be refunded only after furnishing of Composite Bank Guarantee referred to in clause No.19 of Section-II of this specification. Suits, if any, arising out of EMD shall be filed in a court of law to which the jurisdiction of High Court of Orissa extends.
- [b] Earnest Money will be forfeited if the tenderer fails to accept the letter of intent/purchase order, issued in his favour or revises the bid price[s] within the validity period of Bid.

ANNEXURE-IX
DATA ON EXPERIENCE

- [a] Name of the manufacturer.
- [b] Standing of the firm as manufacturer of equipment quoted.
- [c] Description of equipment similar to that quoted [supplied and installed during the last two years with the name of the organizations to whom supply was made].
- [d] Details as to where installed etc.
- [e] Testing facilities at manufacturer's works.
- [f] If the manufacturer is having collaboration with another firm, details regarding the same and present status.
- [g] A list of purchase orders, executed during last three years.
- [h] A list of similar equipments of specified MVA rating, voltage class, Impulse level, short circuit rating, Designed, manufactured, tested and commissioned which are in successful operation for at least two years from the date of commissioning with legible user's certificate. User's full complete postal address/fax/phone must be indicated. (Refer clause No.7 of the Part-I, Section-II of the specification).

Place:

Date:

Signature of tenderer
Name, Designation, Seal

ANNEXURE-X

SCHEDULE OF SPARE PARTS FOR FIVE YEARS OF NORMAL OPERATION & MAINTENANCE

| SL. No | Particulars | Quantity | Unit delivery rate | Total price |
|--------|-------------|----------|--------------------|-------------|
| | | | | |
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| | | | | |

Place:

Date:

Signature of Tenderer
Name, Designation, Seal

ANNEXURE-XI
SCHEDULE OF INSTALLATIONS.

| Rated MVA | Rated Voltage | Place of installation and complete postal address | Year of commissionin g |
|-----------|---------------|---|------------------------------|
| | | | |
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| | | | |
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| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Place: -
Date

Signature of Tenderer:
Name, Designation, Seal

PART - II

PRICE BID

1. **PRICE:**
 - (i) Bidders are required to quote their price(s) for goods offered indicating they are 'FIRM'
 - (ii) The prices quoted shall be FOR Destination only at the consignee's site/store inclusive of packing, forwarding, Freight & Insurance. In addition, the break-up of FOR Destination price shall be given as per schedule of Prices in Annexure-V of Section - III. The Tenderer has to certify in the price bid that MODVAT benefit if any, has been fully passed on to the Purchaser, while quoting the tender prices.
2. **INSURANCE :**

Insurance of materials/equipments, covered by the Specification should normally be done by the Suppliers with their own Insurance Company unless otherwise stated. The responsibility of delivery of the materials/equipments at destination stores/site in good condition rests with the Supplier. Any claim with the Insurance Company or Transport agency arising due to loss or damage in transit has to be settled by the Supplier. The Supplier shall undertake free replacement of equipments/materials damaged or lost which will be reported by the Consignee within 30 days of receipt of the equipments/materials at Destination without awaiting for the settlement of their claims with the carriers and underwriters.
3. **CERTIFICATE FOR EXEMPTION FROM EXCISE DUTY/SALES TAX:**

Offers with exemption from excise Duty/ Sales tax shall be accompanied with authenticated proof of such exemption. Authenticated proof for this clause shall mean Photostat copy of exemption certificates, attested by Gazetted Officers of State or Central Government.
4. **PROPER FILLING UP OF THE PRICE SCHEDULE:**
 - (i) In case where Freight & Insurance charges are not furnished, 5% of the Ex-works price shall be considered as the freight & Insurance charges.
 - (ii) The tenderer should fill up the price schedule (Annexure-V of Section-III) properly and in full. The tender may be rejected if the schedule of price is submitted in incomplete form as per clause-34 (ix) of Section-II of the Specification.
5. **NATURE OF PRICE INDICATED IN SPECIFICATION SHALL BE FINAL.**

The nature of price indicated in the Clause-13, Section - I of PART -I of the Specification shall be final and binding.



**ORISSA POWER TRANSMISSION CORPORATION
LIMITED**

SECTION - IV

TECHNICAL SPECIFICATION

FOR

**PROCUREMENT OF CURRENT
TRANSFORMERS.**

LOT-I (33KV CT)

- a) **RATIO-600-300-150/ 1-1-1A**
- b) **RATIO-1200-600-300/ 1-1-1A**

LOT - II (132 KV CT)

- a) **RATIO-800-400-200/1-1-1-1A**
- c) **RATIO-600-300-150/1-1-1-1A.**

LOT - III (400 KV CT)

RATIO-2000-1000-500/1-1-1-1-1A

SECTION - IV

TECHNICAL SPECIFICATION FOR 33KV, 132KV, & 400KV CURRENT TRANSFORMERS WITH METERING CORES OF ACCURACY CLASS 0.2S

1.0 SCOPE :

- 1.1. The specification covers the design, manufacture, assembly, inspection and testing at the manufacture's work, packing and delivery F.O.R. (destination) of the outdoor mounted dead tank type, single phase, single unit type current Transformers for protection and metering services in 33KV, 132KV, & 400KV solidly grounded system.
- 1.2. The current transformers shall be of the outdoor type, single phase, 50 C/S, oil immersed, self cooled, hermetically sealed and suitable for operating in the tropical conditions with maximum ambient temperature upto 50°C. The C.Ts should be suitable for use in the areas subject to heavy lightning storms and highly polluted conditions.
- 1.3. Followings are the list of documents constituting this specification.

| | | |
|--------|---|--------------|
| [i] | Technical specification(TS) | |
| [ii] | Technical Requirements | Appendix I |
| [iii] | Quantity and Delivery Schedule (Appendix II) | Appendix II |
| [iv] | Guaranteed Technical Particulars | Annexure -A |
| [v] | Calibration Status of testing equipments and meters / Instruments | Annexure - B |
| [vi] | Check-List towards Type Test Reports | Annexure-C |
| [vii] | Check-List for Delivery Schedule | Annexure-D |
| Note : | Annexure- A, B, C & D are to be filled up by the Bidder | |

- 1.4. The current transformer shall conform in all respects to high standards of engineering, design, workmanship and latest revisions of relevant standards at the time of offer and purchaser shall have the power to reject any work or material which in his judgment is not in full accordance therewith.
- 1.5. [a] **Guaranteed Technical particulars. Bidders are required to quote for 0.2S accuracy class of metering cores with the following data / informations etc.**
 - [b] Technical literatures, brochures and drawings as per this specification.
 - [c] Type Test Reports.
 - [d] List of orders, executed and User's certificates, failing submission of the above particulars with the offer, the tender may not be considered for evaluation.

2.0 STANDARDS

- 2.1 Except to the extent modified in the specification, the C.Ts shall conform to the latest editions and amendments of the standards listed hereunder.
- 2.2

| Sl. No. | Standard Ref. No. | Title |
|---------|-------------------|---|
| 1 | IEC-44 | Instrument transformer-measurement of PDS |
| 2. | IEC-60 | High Voltage Testing Technique. |
| 3. | IEC-171 | Insulation co-ordination |
| 4. | IEC-185 | Current Transformers. |

| | | |
|-----|---------------------------|---|
| 5. | IEC-270 | Partial Discharge Measurement |
| 6. | IEC-8263 | Method for RIV Test on High Voltage Insulators. |
| 7. | IS-335 | Insulating oil for Transformers |
| 8. | IS:2071 | Method of High Voltage Testing |
| 9. | IS:2099 | High Voltage porcelain Bushings |
| 10. | IS:2147 | Degree of Protection Provided by Enclosures for Low Voltage Switchgear and Control. |
| 11. | IS:2165 | Insulation Co-ordination for equipment of 100KV and above |
| 12. | IS:2705 [Part-I to IV) | Current Transformers |
| 13. | IS:3347 | Dimensions of Porcelain Transformer Bushing |
| 14. | IS:5621 | Specification for Large Hollow Porcelain for use in Electrical installation. |
| 15. | IS:4201 | Application guide for CTS |
| 16. | | Indian Electricity Rules, 1956 |
| 17. | IS:13072 of 1991 | SF6 gas (for 22oKV SF6 gas filled CT only) |
| 18. | IEC: 60376 | SF6 gas (for 22oKV SF6 gas filled CT only) |

2.3 Current Transformers with the requirements of other authoritative standards, which ensure equal or better quality than the standards, mentioned above, shall also be acceptable, Where the equipment, offered by the supplier conforms to other standards, salient points of difference between the standards adopted and specified standards shall be brought out in the offer. 4 (four) copies of the reference standards in English language shall be furnished along with the offer.

2.3 The supplier is to furnish the latest edition of the standards as mentioned above from SI.1 to SI.15 with their amendments, if any, at their own cost, if required by the Purchaser.

2.4 All the above along with amendments thereof shall be read and interpreted together. However, in case of a contradiction between the Technical Specification and any other volume, the provisions of this specification will prevail.

3.0 CLIMATIC & SERVICE CONDITIONS :

3.1 The current Transformers are required to operate satisfactorily under the following conditions.

| | | |
|-----|---|-------------|
| [a] | Maximum ambient temperature | 50°C |
| [b] | Minimum ambient temperature | 0°C |
| [c] | Maximum daily average ambient air temperature | 45°C |
| [d] | Maximum relative humidity | 100% |
| [e] | Average no. of rainy days in a year. | 120 days |
| [f] | Average annual rainfall | 150 cm |
| [g] | Maximum wind pressure | 260 Kg/Sq.m |
| [h] | Altitude not exceeding | 1000 m |

3.2 EARTHQUAKE INCIDENCE

The current Transformers are to be designed to withstand earthquakes of an intensity equivalent to seismic acceleration of 0.3g in the horizontal direction and 0.15g in the vertical direction, where 'g' stands for acceleration due to gravity.

3.3 The current Transformers covered under this specification shall be suitable for outdoor installation.

4.0 PUCHASER’S AUXILIARY POWER SUPPLY :

4.1 Following power supplies shall be made available at site.

- (a) A.C. Three phase, 415V, 50HZ earthed
- (b) A.C. Single Phase, 240V, 50HZ earthed.
- (c) 220 V D.C. ungrounded.

4.2 All the equipments and devices shall be capable of continuous satisfactory operation on AC and DC supplies of normal voltage mentioned above with the variation given below.

| | | |
|-----|--|---------------------|
| [a] | AC voltage variation | <u>+ 10%</u> |
| [b] | Frequency variation | <u>+ 5%</u> |
| [c] | Combined voltage and frequency variation | <u>± 10%</u> |
| [d] | DC Voltage Variation | <u>190V to 240V</u> |

4.3 The supplier shall make his own arrangements for the power supplies other than those specified under clause 4.1 above.

5.0 GENERAL TECHNICAL REQUIREMENTS :

5.1 The C.T. shall be of dead tank design and shall be so constructed that it can be easily transported to site within the allowable limitation and in horizontal position if the transport limitations so demand.

5.2 For compensation of variation in the oil volume due to ambient variation, nitrogen cushion / metal bellows shall be used. Rubber diaphragms shall not be permitted for this purpose.

5.3 The C.T. secondary terminals shall be brought out in a weather proof terminal box. The terminal box shall be provided with removable gland plate and gland (s) suitable for 1100 volts grade PVC insulated, PVC sheathed, multicore 4 Sq. mm stranded copper conductor cable. The terminal blocks shall be stud-type and provided with ferrules, indelibly marked or numbered. The terminals shall be rated for not less than 10 Amps. The terminal box shall be dust and vermin proof. Suitable arrangements shall be made for drying of air inside the secondary terminal box. The dimensions of the terminal box and its openings shall be adequate to enable easy access and working space with the use of normal tools.

5.4 Polarity shall be indelibly marked on each primary and secondary terminal. Facility shall be provided for short-circuiting and grounding of the C.T. secondary terminals inside the terminal box.

5.5 The C.T. shall be provided with non-corrosive, legible nameplate with the information, specified in the relevant standards, duly engraved/punched on it.

5.6 The current Transformer shall be vacuum filled with oil after processing and thereafter hermetically sealed to eliminate breathing and to prevent air and moisture from entering the tanks. Oil filling and / or sampling cocks, if provided to facilitate factory processing should be properly sealed before despatching the C.T., The method adopted for hermetic sealing shall be described in the offer

5.7 The castings of base, collar etc. shall be die cast and tested before assembly to detect cracks and voids, if any.

5.8 The instrument security factor of metering core shall be low enough and not greater than '5'. This shall be demonstrated on all the ratios of the metering core in accordance with procedure, specified in IEC-185 OR IS:2705

- 5.9 Current transformers' guaranteed burdens and accuracy class are to be intended as simultaneous for all cores.
- 5.10 For 420 KV, 145 and 36 KV Current Transformers, characteristics shall be such as to provide satisfactory performance for burdens ranging from 25% to 100% of rated burden over a range of 5% to 120% of rated current in case of metering CTS and up to accuracy limit factor / knee point voltage in case of relaying C.TS.
- 5.11 Current Transformers shall be designed so as to achieve the minimum risk of explosion in service. The Bidder shall bring out in his offer, the measures taken to achieve this.

5.12 PRIMARY WINDING

- 5.12.1 Primary winding may be either ring type or hair pin type or the type, which has been type tested.. For 400KV, 132KV, and 33KV class C.Ts, the rated extended primary current shall be 120% on all cores of the C.Ts, specified in tables.
- 5.12.2 The primary windings of current transformers shall be constructed of high purity, annealed, high conductivity electrolytic copper meeting to the requirements of IEC 28/IS:2705.

5.13 SECONDARY WINDINGS:

Suitably insulated copper wire of electrolytic grade shall be used for secondary windings. Type of insulation, used shall be described in the offer. The secondary taps shall be adequately reinforced to withstand handling without damage.

The rating of the Current Transformer's secondary winding shall be 1 (One) Amp. The secondary terminals shall be brought out in a compartment for easy access.

5.14 PRIMARY TERMINALS

The primary terminals shall be heavily tinned electrolytic of 99.9% conductivity. The minimum thickness of tinning shall be 1.5 microns.

5.15 SECONDARY TERMINALS

- 5.15.1 Secondary terminal studs shall be provided with at least three nuts and adequate plain and spring washers for fixing the leads. The studs, nuts and washers shall be of brass, duly nickel-plated. The minimum outside diameter of the stud shall be 6 mm. The length of at least 15 mm shall be available on the studs for inserting the leads. The horizontal spacing between the centers of the adjacent studs shall be at least 1.5 times the outside circum-dia of the nuts.
- 5.15.2 The current transformer shall be provided with suitable test tap for measurement of capacitance, tan delta as well as partial discharges. Provision shall be made on a screw cap for solid and secured earthing of the test tap connection, when not in use. A suitable caution plate shall be provided duly fixed on the cover of the secondary terminal box indicating the purpose of the test tap and the necessity of its solid earthing as per prescribed method before energizing the Current Transformer.
- 5.15.3 The secondary terminals shall be provided with shorting arrangements.

5.16 CORE

Each core of the Current Transformer shall be of toroidal shape. Core laminations shall be of cold rolled grain oriented silicon steel or other equivalent alloys of low hysteresis and eddy current losses, high permeability to ensure high accuracy at both normal and over-current conditions. The cores (Mumetal) used for protection shall produce undistorted secondary current under transient conditions at all ratios, with specified Current Transformer parameters. The core material, thickness of lamination, the relevant graphs showing the characteristics of the core material shall be submitted along with the offer.

5.17 TANK

- 5.17.1 Both expansion chambers and the tanks of the Current Transformers shall be made up of high quality steel, which should be able to withstand full vacuums and pressure occurring during transit and thermal and mechanical stresses resulting from maximum short circuit current during operation. The tanks along with all ferrous parts shall be hot dip galvanized as per relevant standard.
- 5.17.2 The metal tanks shall have bare minimum number of welded joints so as to minimize possible locations of oil leakage. Welding in horizontal plane is to be avoided as welding at this location may give way due to vibrations during transport resulting in oil leakage. Supplier has to obtain specific approval from purchaser for any horizontal welding used in the bottom tank.

5.18 SECONDARY TERMINAL BOX :

- 5.18.1 Secondary Terminal Boxes shall be weather proof with a rating not less than IP 55
- 5.18.2 All secondary terminals shall be brought out in a compartment on one side of each current transformer for easy access.
- 5.18.3 The exterior of this terminal box shall be hot dip galvanized.
- 5.18.4 A terminal board which shall have arrangement for series / parallel connection and arrangement for shorting of secondary terminals shall be provided. For 400KV and 132KV CTs, at least one of the ratios should be achieved through secondary tapping(s). i.e. **Primary re-connection is allowed for two ratios where as third ratio is to be achieved by provision of secondary tapping or alternatively all the stipulated ratios may be achieved through secondary tapings. For 132KV C.T. of ratio-400-200A/1-1-1-1A, the specified ratios may be obtained by series parallel connection or by secondary tapping.**
- 5.18.5 The terminal box shall be provided with a removable cable gland plate at bottom for mounting cable glands for 1.1KV PVC sheathed 4 x 4 Sq. mm stranded copper conductor cables.
- 5.18.6 The terminal box shall be provided with a door in front so as to have easy access of secondary terminals. The door shall have a sealing / locking arrangement and shall be suitable to prevent penetration of moisture and rainwater.
- 5.18.7 All terminals shall be clearly marked with identification number to facilitate connection to external wiring.

5.19 PORCELAIN HOUSING

- 5.19.1 The housing shall be made up of homogeneous, vitreous porcelain of high mechanical and dielectric strength, Glazing of porcelain shall be of uniform brown or dark brown colour with a smooth surface, arranged to shed away rain water or condensed water particles (fog.) The details of location and type of joint, if provided on the porcelain, shall be furnished by the Bidder along with the offer.
- 5.19.2 The bushings of the Current Transformers shall conform to the latest edition of IS:2099. The hollow porcelain insulator shall conform to the latest edition of IS:5621.
- 5.19.3 The insulators shall be cemented with Portland cement to the flanges resulting in high mechanical, tensile and breaking strength.
- 5.19.4 The bushings shall have ample insulation, mechanical strength and rigidity for the condition under which they shall be used and shall be designed to prevent accumulation of explosive gases and provide adequate oil circulation to remove the internal heat.
- 5.19.5 Cast metal end caps for the bushings shall be of high strength, hot dip galvanized malleable iron. They shall have smooth surface to prevent discharge-taking place between the metal parts and porcelain as a result of ionization.
- 5.19.6 The insulation of bushings shall be coordinated with that of the current transformer such that the flashover, if any, will occur only external to the Current Transformer.

- 5.19.7 Oil level gauge and convenient means of filling, sampling and draining of oil should be provided.
- 5.19.8 End shields should be provided for distribution of stresses.
- 5.19.9 Corona shields for bushings, if required should be provided.

5.20 INSULATING MEDIUM .(OIL)

The quantity of insulating oil for the filling and the complete specification of the insulating oil shall be stated. The oil shall comply in all respects with the provisions of latest edition of IS: 335. The current Transformers shall be supplied, filled with purified oil completely.

5.21 PREVENTION OF OIL LEAKAGE AND ENTRY OF MOISTURE:

5.21.1 The supplier shall ensure that the sealing of the Current Transformer is properly achieved. In this connection, the arrangement provided by the supplier at various locations including the following ones shall be described, supported by sectional drawings.

- (a) locations of emergence of primary and secondary terminals.
- (b) Interface between porcelain housing and metal tank/s
- (c) Cover of the secondary terminal box.

5.21.2 Nuts and bolts or screws, used for fixation of the interfacing porcelain bushings for taking out terminals shall be provided on flanges, cemented to the bushings and not on the porcelain.

5.21.3 For gasketed joints, wherever used, nitrite butyl rubber gaskets shall be used. The gasket shall be fitted in properly machined groove with adequate space for accommodating the gasket under compression.

5.22 FITTINGS AND ACCESSORIES :

Fittings and accessories, listed below shall be supplied with each Current Transformer. Any fitting, required essential other than those listed below shall also be supplied along with each Current Transformer without any extra cost to the purchaser :

- (a) Oil level gauge.
- (b) Oil filling hole and cap.
- (c) Pressure relieving device.
- (d) Phase terminal connectors.
- (e) Lifting lugs for core and windings, bushings and complete Current Transformers.
- (f) Tank earthing pads/terminals with necessary nuts, bolts and washers for connecting to purchaser's earth strip.
- (g) Name / Rating plate.

5.22.1 (A)OIL LEVEL GAUGE :

An oil level gauge shall be provided to indicate the oil level in the Current Transformer. This gauge shall be mounted in such a way that the oil level can be seen from ground level. If metal bellow is used, a ground glass window shall be provided to monitor the position of the metal bellow. The metal below shall be tested in accordance with relevant standards. The details shall be to the approval of the purchaser.

5.22.2 PRESSURE RELIEVING DEVICE :

Each Current Transformer shall be provided with a pressure relieving device so as to protect bushing of the Current Transformer even under unfavorable conditions. In case of non provision of the PRD, the same should be brought out clearly in the offer with detailed explanation and proof.

5.22.3 (A)OIL DRAIN COCK :

An oil drain cock alongwith a stop cock shall be provided in the bottom flange so as to permit taking of oil samples for testing, if required.

5.22.4 EARTHING :

Metal tank of each Current Transformer shall be provided with two separate earthing terminals for bolted connection to 50mm X 6mm flat, to be provided by the purchaser for connection to station earth-mat.

5.22.5 LIFTING ARRANGMENT :

The Current Transformer shall be provided with suitable lifting arrangement to lift the entire unit. The lifting arrangement shall be clearly shown in the general arrangement drawing. Lifting arrangement (lifting eye) shall be positioned in such a way so as to avoid any damage to the porcelain housing or the tanks during lifting for installation / transport.

Necessary string guides shall be offered which shall be of removable type.

5.22.6 NAME PLATE & MARKING :

5.22.6.1 The Current Transformer shall be provided with non-corrosive, legible name plate with the information specified in relevant standards, duly engraved/punched On it.

5.22.6.2 A schematic drawing indicating the connections shall be provided in the interior of the Terminal box.

5.22.7 TERMINAL CONNECTORS :

All the Current Transformers shall be provided with bimetallic solderless clamp type, rigid type terminal connectors, suitable for

(i) 132/33KV C.T. – ACSR ‘ZEBRA’ conductor.

(ii) 400 KV C.T. – ACSR ‘TWIN MOOSE’ conductor.

Each terminal connector shall be of universal type, suitable for both horizontal and vertical connections to the transmission line conductors / station bus bars.

5.22.7.1 Terminal connectors shall be manufactured and tested as per IS: 5561.

5.22.7.2 All castings shall be free from blow holes, surface blisters, cracks and cavities. All sharp edges and corners shall be blurred and rounded off.

5.22.7.3 No part of a clamp shall be less than 10mm thick.

5.22.7.4 All ferrous parts shall be hot-dip galvanized conforming to relevant standard.

5.22.7.5 For bimetallic connectors, copper alloy linear of minimum thickness of 2 mm shall be cast integral with aluminium body.

5.22.7.6 All current carrying parts shall be designed and manufactured to have minimum contact resistance.

5.22.7.7 Connectors shall be designed to be corona free in accordance with the requirements, stipulated in IS:5561.

6.0 TEST:

6.1 TYPE TESTS & SPECIAL TESTS:-

The current transformers, offered should have been subjected to the following type tests and Special Tests in Government approved test laboratory. The bidder shall furnish type test and Special Tests reports along with the offer for the offered CTs. These tests should not have been conducted earlier than five years from the date of opening of the bid. For any change in the design/type already type tested and the design/type offered against this specification, the purchaser reserves the right to demand repetition of some or all type & special tests without any extra cost to OPTCL in the presence of OPTCL's representative(s) at the cost of the supplier.

(a) Lightning Impulse Voltage Test.

(b) Multiple chopped lightning impulse test.(IEC-60044-1 Clause-9.1)

(c) High Voltage power frequency wet withstand voltage Test.

(d) Short time current test.

(e) Temperature rise test.

- (f) Determination of errors or other characteristics according to the requirements of the appropriate designation and accuracy class as per individual parts of IS: 2705.
 - (g) Instrument Security Factor Test.
 - (h) IP-55 Test on Secondary Terminal Box.
- (In addition to the above tests, following type tests/special tests should have been conducted exclusively for 220KV C.T)
- (i) Radio Interference voltage test.
 - (j) Corona Extinction test.
 - (k) Thermal stability test.
 - (l) Thermal Co-efficient test.
 - (m) Fast transient test.
 - (n) Seismic withstand test.
 - (o) Mechanical terminal load on bushing.
 - (p) Magnetization and internal burden tests..
 - (q) Effectiveness of sealing tests.
 - (r) Capacitance and dielectric loss angle test. (For both 400KV & 132KV CTs.)
 - (s) STC Test on primary terminal connector.

N.B:

- Lightning Impulse Test, switching Impulse Voltage test and High Voltage power frequency wet withstand voltage Tests should have been carried out on the same current transformer.
- After the current transformers have been subjected to lightning Impulse Test, and High Voltage power frequency wet withstand voltage tests, these must have been subjected to all the routine tests as per IS: 2705 (Part-I to IV).

6.2 ROUTINE TESTS:

The following routine tests shall be conducted on each Current Transformer in the presence of OPTCL's representative(s) for which no charges will be payable by OPTCL. No sampling will be allowed.

- (i) Appearance and Dimensional Check.
- (ii) Verification of Terminal Marking and polarity.
- (iii) Verification of all individual parts / components of the Current Transformer so as to ensure to have complied the above specification.
- (iv) Measurement of Insulation Resistance.
- (v) Power Frequency Dry withstanding Test on Primary and Secondary winding including primary intersections.
- (vi) Over - Voltage Interturn test.
- (vii) Partial discharge Test for 400 KV and 132KV C.TS
- (viii) Knee point voltage and Excitation current measurement for 'PS' class cores.
- (ix) Secondary winding resistance measurement.
- (x) Determination of errors.
- (xi) ISF Test.
- (xii) Leakage Test.
- (xiii) Magnetization Characteristics of the Current Transformers.
- (xiv) Turn ratio error on 'PS' class cores.
- (xv) Measurement of capacitance for 400KV and 132KV C.TS.
- (xvi) Measurement of tan delta at 0.3, 0.7, 1.0 and $1.1U_M/\sqrt{3}$ for 400KV & 132KV C.Ts.

- The Method For Conducting Partial Discharge Test.

The test circuit for the measurement of partial discharge (PD) should have been in accordance with sub-clause 4.2 of IEC-270. The applied voltage should be raised to the rated voltage of the Current Transformers and should have been maintained for a period greater than or equal to 10 seconds. The voltage should have been reduced to measuring voltage of

1.1 $\frac{X145}{420KV}$ rms/phase

$3\frac{1}{2}$

to ground and maintained for a period greater than or equal to 1 minute. The PD should not exceed 10 picco-coulombs.

7.0 INSPECTION :

7.1 The purchaser shall have access at all times to the works and all other places of manufacture, where the Current Transformers are being manufactured and the supplier shall provide all facilities for unrestricted inspection of the supplier's works, raw materials, manufacture of all the accessories and for conducting the necessary tests.

7.2 The supplier shall keep the purchaser informed in advance of the time of starting and of the progress of manufacture of equipment in its various stages so that arrangement could be made for inspection.

7.3 No material shall be despatched from its point of manufacture unless the material has been satisfactorily inspected, tested and despatch clearance issued. However, the purchaser reserves the right to alter the despatch schedule, attached to this specification without any extra financial liability to OPTCL.

7.3.1 The acceptance of any quantity of equipment shall in no way relieve the supplier of his responsibility for meeting all the requirements of this specification and shall not prevent subsequent rejection, if such equipments are found to be defective.

8.0 QUALITY ASSURANCE PLAN :

8.1 The Bidder shall invariably furnish following information alongwith his offer.

- (i) Statement giving list of important raw materials, names of sub-suppliers for the raw materials, list of standards, according to which the raw materials are tested, list of tests, normally carried out on raw material in presence of Bidders' representative, copies of test certificates.
- (ii) Information and copies of test certificates as in (i) above in respect of bought out items.
- (iii) List of manufacturing facilities available.
- (iv) Level of automation achieved and list of areas where manual processing exists.
- (v) List of areas in manufacturing process where stage inspections are normally carried out for quality control and details of such test and inspections.
- (vi) Special features provided in the equipment to make it maintenance free.
- (vii) List of testing equipments, meters available with the Bidder for final testing of equipment specified and test plant limitation, if any, vis-à-vis the type, acceptance and routine tests, specified in the relevant standards. These limitations shall be very clearly brought out in the offer.
- (viii) All the testing equipments, meters etc, should have been calibrated in a Government approved laboratory. The Bidder must submit the list of testing equipments and meters test-wise as per Annexure - B of the Technical Specification.

- 8.2 The supplier shall within 30 days of placement of order submit the following information to the purchaser.
- (i) List of raw materials as well as bought out accessories and the names of the materials as well as bought-out accessories and the names of sub-suppliers, selected from those, furnished alongwith the offer.
 - (ii) Type Test Certificates of the raw material and bought out accessories.
 - (iii) Quality Assurance plan (QAP) with hold points for the purchaser's inspection. The QAP and hold points shall be discussed between the purchaser and the supplier before the QAP is finalized.
- 8.3 The supplier shall submit the routine test certificate of bought-out items and raw materials at the time of acceptance testing of the fully assembled equipment.
- 9.0 **DOCUMENTATION :**
- 9.1 All drawings shall conform to relevant Indian Standard as per relevant IS. All drawings shall be in ink and suitable for microfilming. All dimensions and data shall be in S.I. units.
- 9.2 The supplier shall furnish four sets of following drawings/ documents along with his offer for 0.2S accuracy class metering core CTs.
- (a) General outline and assembly drawings of the Current Transformers.
 - (b) Sectional views showing.
 - (i) General constructional features.
 - (ii) Materials / gaskets / sealing used.
 - (iii) The insulation of the winding arrangement, method of connection of the primary / secondary winding to the primary / secondary terminals etc.
 - (c) Schematic drawing
 - (d) Rating and Diagram plate.
 - (e) Secondary Terminal Box.
 - (f) Assembly Sectional view of Primary Terminal
 - (g) Assembly drawing for secondary terminal.
 - (h) The detailed dimensional drawing of Porcelain Housing such as ID, OD, thickness and Insulator details such as height, profile of petticoats, angle of inclination and gap between successive petticoats, total creepage distance etc.
 - (i) Sectional view of Pressure Release device.
 - (j) Drawing showing details of Oil level Indicator.
 - (k) All type and special test reports relating to tests, as mentioned at CI. No. 6.1 of this Technical Specification.
 - (l) Ratio and phase angle error curves for CTS.
 - (m) Magnetization characteristic curves such as B-H curves and sp.loss vs. flux density curves.
 - (n) Drawings for Terminal Connector.
- 10.0 **TEST REPORTS :**
- (i) Four copies of type test and special test reports shall be furnished to the purchaser with the tender offer for 0.2S accuracy class metering core CTs.
 - (ii) Copies of acceptance test reports and routine test reports shall be furnished to the purchaser. One copy will be returned, duly certified by the purchaser and only thereafter shall the materials be despatched.
 - (iii) All records of routine test reports shall be maintained by the supplier at his works for periodic inspection by the purchaser.
 - (iv) All test reports of tests, conducted during manufacture shall be maintained by the supplier. These shall be produced for verification as and when required for by the purchaser.

11.0 SPARE PARTS

A list of spare parts recommended for five years operations for each Current Transformer shall be furnished with the tender. The purchaser will decide the actual quantities of spare parts to be ordered on the basis of the list and the item wise price of spare parts.

12.0 The necessary galvanized flanges, bolts etc. for the base of the Current Transformers shall be supplied without any extra cost to the purchaser.

13.0 PACKING AND FORWARDING :

13.1 The equipment shall be packed in suitable crates so as to withstand handling during transport and outdoor storage during transit. The supplier shall be responsible for any damage to the equipment during transit, due to improper and inadequate packing. The easily damageable material shall be carefully packed and marked with the appropriate caution symbols. Wherever necessary, proper arrangement for lifting such as lifting hooks etc. shall be provided. A material found short inside the packing cases shall be supplied by supplier without any extra cost.

13.1.1 Each consignment shall be accompanied by a detailed packing list containing the following informations :-

- (a) Name of the consignee
- (b) Details of consignment
- (c) Destination
- (d) Total weight of consignment
- (e) Sign showing upper / lower side of the crate
- (f) Handling and unpacking instructions
- (g) Bill of materials indicating contents of each package.

13.1.1 The supplier shall ensure that the bills of materials is approved by the purchaser before dispatch.

13.2 Any tender without complete information, as asked for in the above specification, is likely to be rejected.

APPENDIX-I
TECHNICAL REQUIREMENT FOR 33 KV, 132 KV ,400KV CT .

The Current Transformers under this specification shall conform to the parameters given below :-

| Sl. No. | Item. | Specification | | | |
|---------|---|--|---|-------------------------|--|
| | | 36 KV | 145 KV | 420KV | |
| 1 | Type of CT/Installation. | Single phase, dead tank, oil filled, hermetically sealed, outdoor, self-cooled | | | |
| 2 | Type of mounting. | Pedestal type | | | |
| 3 | Suitable for system frequency. | 50 HZ \pm 5 % | | | |
| 4 | Rated voltage (KV rms) | 33 | 132 | 400 | |
| 5 | Nominal system voltage (KV rms) | 33 | 132 | 400 | |
| 6 | Highest system voltage (KV rms) | 36 | 145 | 420 | |
| 7 | Current ratio (A/A) | a)800-400-200/ 1-1-1A b)600-300-150/ 1-1-1A c)400-200-100/ 1-1-1A | a)800-400-200/1-1-1-1A b)400-200-100/ 1-1-1-1A | 2000-1000-500/1-1-1-1-1 | |
| 8. | Method of earthing the system where the current transformer will be installed. | Solidly Effectively earthed. | | | |
| 9 | Rated continuous thermal current (A) | 120 % of rated primary current | | | |
| 10 | Acceptable limit of temperature rise above 50°C ambient temperature for continuous operation at rated continuous thermal current. | | | | |
| (a) | Winding | 45°C | | | |
| (b) | Oil | 40°C | | | |
| (c) | External surface of the core, metallic parts in contact with or adjacent to, insulation. | 45°C | | | |
| 11 | Acceptable partial discharge level | Less than 10 picco coulombs | | | |
| 12. | Maximum radio interference voltage at 1.1 times the maximum rated voltage. | Less than 500 micro volts | | | |
| 13. | 1.2/50 micro second lightning impulse withstand voltage (KVP) (dry) | 170 | 650 | 1425 | |

| | | | | |
|-----|--|--|---------|--------|
| 14. | 1 minute dry power frequency withstand voltage primary (KV rms) | 70 | 275 | 630 |
| 15. | Switching Impulse with stand and voltage (KVP) | -- | - | 1050 - |
| 16. | 1 Minute dry power frequency withstand voltage secondary (KV rms) | 3 | 3 | 5 |
| 17. | Minimum creepage distance of porcelain Housing (mm) | 900 | 3625 | 10,500 |
| 18. | Rated short time withstand current for 1 second at all ratios (KA rms) | 25KA | 31.5 KA | 40KA |
| 19. | Instrument security factor at all ratios for metering core. | Not more than 5.0 | | |
| 20. | Minimum rated short time thermal current density of the primary winding at all ratios (A/mm ²) | As per clause No9.6.3- Note of IS: 2705 (Part-I)/1992 | | |
| 21. | Application, current ratio, output burden, accuracy class, minimum knee point voltage, secondary winding resistance, maximum excitation current at minimum knee point voltage etc. | Enclosed in separate sheets for each rating of the Current Transformers. | | |
| 22. | Type of core | Torroidal type | | |
| 23. | Seismic acceleration | 0.15g (Vertical) 0.3g (Horizontal) | | |
| 24. | Dielectric dissipation factor at 145/.1.732KV (for 132 KV C.T.) at ambient temperature | 0.005 or less 0.05 or better. | | |
| 25. | Accuracy class of standard C.T. to be used during testing towards determination of ratio errors and phase angle errors for metering cores. | 0.05 or batter. | | |

**SPECIFIED PARAMETERS FOR KPV,
SEC. WDG. RESISTANCE, EXCITATION
CURRENT FOR PS CLASS CORES**

33KV / 132KV/ 400KV CT

AND

BURDEN, ISF FOR METERING CORES

OF

ACC.CLASS 0.2S

FOR

33KV , 132KV & 400KV CT

REQUIREMENT FOR 36 KV CURRENT TRANSFORMERS

| No. of Cores | Core No. | Applic-ation | Current Ratilo | Output burden in VA | Acc: class as per IS: 2705 | Minimum knee point voltage (V _k) at all ratios in volts. | Maximum CT resistance RCT in ohms at 75 °C at all ratios | Maximum excitation current at V _k in mA at all ratios. | Instrum-ent security factor at all ratios |
|--|----------|--------------|--------------------------|---------------------|----------------------------|--|--|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 36 KV CT ; RATIO- 1200-600-300/1-1-1. | | | | | | | | | |
| 3 | 1 | Protec-tion | 1200/1 600/1 300/1 | - - - | PS PS PS | 400 | 5.0 | 25 | - |
| | 2. | Meter-ing | 1200/1 600/1 300/1 | 30 30 30 | 0.2S 0.2S 0.2S | - | - | - | 5 or less 5 or less 5 or less |
| | 3. | Protec-tion | 1200/1 600/1 300/1 | - - - | PS PS PS | 400 | 5.0 | 25 | - |
| 36 KV CT ; RATIO- 600-300-150/1-1-1 | | | | | | | | | |
| 3 | 1 | Protec-tion | 600/ 1 300/1 150/1 | - - - | PS PS PS | 450 | 5 | 25 | - |
| | 2. | Meter-ing | 600/ 1 300/1 150/1 | 30 30 30 | 0.2S 0.2S 0.2S | - | - | - | 5 or less 5 or less 5 or less |
| | 3. | Protec-tion | 600/ 1 300/1 150/1 | - - - | PS PS PS | 450 | 5 | 25 | - |

REQUIREMENT FOR 145 KV CURRENT TRANSFORMERS

| No. of Cores | Core No. | Applic-ation | Current Ratilo | Output burden in VA | Acc: class as per IS: 2705 | Minimum knee point voltage (V _k) at all ratios in volts. | Maximum CT resistance RCT in ohms at 75 °C at all ratios | Maximum excitation current at V _k in mA at all ratios. | Instrum-ent security factor at all ratios |
|---|----------|-----------------------|----------------|---------------------|----------------------------|--|--|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 145 KV CT ; RATIO- 800-400-200/1-1-1-1 | | | | | | | | | |
| 4 | 1. | Protec- tion | 800/1 | - | PS | 400 | 4 | 30 | - |
| | | | 400/1 | - | PS | | | | |
| | | | 200/1 | - | PS | | | | |
| | 2. | Meter- ing | 800/1 | 30 | 0.2S | - | - | - | 5 or less |
| | | | 400/1 | 30 | 0.2S | - | - | - | 5 or less |
| | | | 200/1 | 30 | 0.2S | - | - | - | 5 or less |
| | 3. | Back up | 800/1 | - | PS | 400 | 4 | 30 | - |
| | | | 400/1 | - | PS | | | | |
| | | | 200/1 | - | PS | | | | |
| | 4. | For future use. | 800/1 | - | PS | 400 | 4 | 30 | - |
| | | | 400/1 | - | PS | | | | |
| | | | 200/1 | - | PS | | | | |
| 145 KV CT ; RATIO- 600-300-150/1-1-1-1 | | | | | | | | | |
| 4 | 1. | Protec- tion | 600/1 | - | PS | 500 | 5 | 60 | - |
| | | | 300/1 | - | PS | | | | |
| | | | 150/1 | - | PS | | | | |
| | 2. | Meter- ing | 600/1 | 30 | 0.2S | - | - | - | 5 or less |
| | | | 300/1 | 30 | 0.2S | - | - | - | 5 or less |
| | | | 150/1 | 30 | 0.2S | - | - | - | 5 or less |
| | 3. | Back up | 600/1 | - | PS | 500 | 5 | 60 | - |
| | | | 300/1 | - | PS | | | | |
| | | | 150/1 | - | PS | | | | |
| | 4. | For future use. | 600/1 | - | PS | 500 | 5 | 60 | - |
| | | | 300/1 | - | PS | | | | |
| | | | 150/1 | - | PS | | | | |

REQUIREMENT FOR 420 KV CURRENT TRANSFORMERS

| No. of Cores | Core No. | Application | Current Ratio | Output burden in VA | Acc: class as per IS: 2705 | Minimum knee point voltage (V _k) at all ratios in volts. | Maximum CT resistance RCT in ohms at 75 °C at all ratios | Maximum excitation current at V _k in mA at all ratios. | Instrument security factor at all ratios |
|---|----------|-----------------------------|----------------------------|---------------------|----------------------------|--|--|---|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 420 KV CT ; RATIO- 2000-1000-500/1-1-1-1 | | | | | | | | | |
| 5 | 1 | Bus diff: check | 2000/1 1000/1 500/1 | - - - | PS PS PS | 2000 1000 500 | 10 05 2.5 | 30 60 120 | - |
| | 2. | Bus diff: check | 2000/1 1000/1 500/1 | - - - | PS PS PS | 2000 1000 500 | 10 05 2.5 | 30 60 120 | - - - |
| | 3. | Metering | 2000/1 1000/1 500/1 | 30 30 30 | 0.2S 0.2S 0.2S | - | 10 05 2.5 | - | 5 or less 5 or less 5 or less |
| | 4. | Trans: back B/U -Line Prot: | 4000/1 2000/1 1000/1 | - - - | PS PS PS | 2000 1000 500 | 10 05 2.5 | 30 60 120 | - - - |
| | 5. | Trans: back B/U -Line Prot: | 4000/1 2000/1 1000/1 | - - - | PS PS PS | 2000 1000 500 | 10 05 2.5 | 30 60 120 | - - - |

APPENDIX - II
QUANTITY AND DELIVERY SCHEDULE

| Sl. No. | Description of Current Transformers | Quantity required | Desired delivery | Destination |
|------------------------|---|--------------------|--|--|
| 1 | 2 | 3 | 4 | 5 |
| <u>LOT- I</u> | <u>33KV CT.</u> a) Ratio-1200-600-300A/1-1-1A b) Ratio-600-300-150A/1-1-1A | 69 Nos 06 Nos | 4 Months from the date of the placement of the Purchase order. | Any stores/ sites within Oriss State, same will be indicated in the purchase order/ release order, |
| <u>LOT- II</u> | <u>132KV CT.</u> a) Ratio-800-400-200A/1-1-1-1A b) Ratio-600-300-150A/1-1-1-1A | 08 Nos. 47 Nos. | -do- | -do- |
| <u>LOT- III</u> | <u>400KV CT.</u> Ratio-2000-1000-500A/1-1-1-1-1A. | 02 Nos. | -do- | -do- |

The detail delivery program and quantity to be delivered will be intimated at the time of placement of the purchase order/issue of release order.

**GUARANTEED TECHNICAL PARTICULARS FOR CURRENT
TRANSFORMER.**

| SL. NO. | DESCRIPTION | LOT-I(33KV) | | LOT-II(132KV) | | LOT-III (400KV) |
|---------|--|------------------------------|-------------------------------|---------------------------------|------------------------------|----------------------------------|
| | | a) 1200-600 - 300/ 1-1-1A | b) 600-300- 150/ 1-1-1A | c) 800-400- 200/1-1-1- 1A | a) 600-300- 150/ 1-1-1-1A | 2000-1000- 500/ 1-1-1-1-1A |
| 1. | Bidder's name and address | | | | | |
| 2. | Name and address of the Manufacturer | | | | | |
| 3. | Manufacture's type designation | | | | | |
| 4. | Standards applicable | | | | | |
| 5. | Rated frequency (HZ) | | | | | |
| 6. | Rated Voltage (KV) | | | | | |
| 7.0 | Rated current (A) | | | | | |
| 7.1 | Rated continuous current (A) | | | | | |
| 7.2 | Rated extended primary current (A) | | | | | |
| 8. | Short time thermal current withstand for stipulated time duration (KA) | | | | | |
| 9. | Dynamic current withstand (KAP) | | | | | |
| 10. | 1.2/50 μ s impulse withstand voltage (KVP) | | | | | |
| 11. | One minute dry and wet power frequency withstand voltage (KV-rms) | | | | | |
| 12. | No. of cores per CT | | | | | |
| 13. | Transformation Ratio | | | | | |
| 14. | No. of secondary turns | | | | | |
| 15. | Rated output at all ratios for metering core (VA) | | | | | |
| 16. | Accuracy class | | | | | |

| | | | | | | |
|------|---|--|--|--|--|--|
| 17. | Minimum Knee point voltage at different taps for all 'PS' class cores (V) | | | | | |
| 18. | Secondary winding resistance at different taps for all cores (Ω) (75°C) | | | | | |
| 19.0 | Maximum exciting current at all ratios (for all PS class cores) | | | | | |
| 19.1 | 100% KPV (Knee point voltage) (mA) | | | | | |
| 19.2 | 25% KPV (Knee point voltage) (mA) | | | | | |
| 19.3 | 20% KPV (Knee point voltage) (mA) | | | | | |
| 19.4 | 10% KPV (Knee point voltage) (mA) | | | | | |
| 20. | Instrument security factor at different ratios. | | | | | |
| 21. | Radio interference voltage at $1.1 V_r / 3^{1/2}$ at 1.0 MHZ (Micro volts) | | | | | |
| 22. | Whether auxiliary CT provided for metering winding | | | | | |
| 23. | Corona extinction voltage (KV rms) | | | | | |
| 24. | Partial discharge level (PC) | | | | | |
| 25. | Total creepage distance (mm) | | | | | |
| 26. | Primary | | | | | |
| 26.1 | No. of primary turns | | | | | |
| 26.2 | Material and cross-section of primary (mm ²) | | | | | |
| 26.3 | Type of primary | | | | | |
| 27. | Whether CT is suitable for transportation horizontally. | | | | | |
| 28. | Percentage current (ratio) error and phase displacement in minutes at rated burden and at | | | | | |
| 28.1 | 5% rated current | | | | | |

| | | | | | | |
|---------|--|--|--|--|--|--|
| 28.2 | 10% rated current | | | | | |
| 28.3. | 20% rated current | | | | | |
| 28.4. | 120% rated current | | | | | |
| 29. | Percentage current (ratio) error and phase displacement in minutes at 25% rated burden and | | | | | |
| 29.1 | At 5% rated current | | | | | |
| 29.2 | At 10% rated current | | | | | |
| 29.3. | At 20% rated current | | | | | |
| 29.4. | At 120% rated current | | | | | |
| 30. | Quantity of oil per CT (Litres) | | | | | |
| 31. | Standard to which oil conforms generally. | | | | | |
| 32. | Characteristics of oil (prior to filling) | | | | | |
| 32.1 | Breakdown voltage (KVrms) | | | | | |
| 32.2 | Dielectric dissipation constant (tan delta) | | | | | |
| 32.3 | Water content (ppm) | | | | | |
| 32.4 | Gas content | | | | | |
| 32.5 | Interfacial tension at 27°C (N/m) | | | | | |
| 32.6 | Specific resistance | | | | | |
| 32.6. 1 | At 90°C (Ωcm) | | | | | |
| 32.6. 2 | At 27° C (Ωcm) | | | | | |
| 33. | Whether current transformers are hermetically sealed. If so, how ? | | | | | |
| 34. | Total weight (Kg) | | | | | |
| 35. | Transport weight (Kg) | | | | | |
| 36.1 | Temperature rise over an ambient temperature of 50°C for continuous operation at rated continuous thermal current. | | | | | |
| 36.1 | Winding | | | | | |
| 36.2 | Oil | | | | | |

| | | | | | | |
|-------|---|--|--|--|--|--|
| 36.3 | External surface of the core, metallic parts in contact with or adjacent to insulation. | | | | | |
| 37. | Whether CT characteristic curves enclosed. | | | | | |
| 37.1 | Ratio and phase angle curve | | | | | |
| 37.2 | Magnetisation curves | | | | | |
| 37.3 | Ratio correction factor curves. | | | | | |
| 38. | DATA ON PRIMARY WINDING | | | | | |
| 38.1 | Rated primary current (A) | | | | | |
| 38.2 | No. of conductors in one turn | | | | | |
| 38.3 | No. of turns of primary | | | | | |
| 38.4 | Material of the primary conductors | | | | | |
| 38.5 | Size of the primary conductor (Bare/ Insulated (mm x mm) | | | | | |
| 38.6 | Cross-sectional area of each conductor (mm ²) | | | | | |
| 38.7 | Total cross-sectional area of primary winding (mm ²) conductors | | | | | |
| 38.8 | Current density(A/ mm ²) | | | | | |
| | (i) At highest ratio | | | | | |
| | (ii) At intermediate ratio | | | | | |
| | (iii) At lowest ratio | | | | | |
| 38.9 | Short circuit current density (A/ mm ²) | | | | | |
| | (i) At highest ratio | | | | | |
| | (ii) At intermediate ratio | | | | | |
| | (iii) At lowest ratio | | | | | |
| 38.10 | Ampere-turn of Primary (AT) | | | | | |
| | (i) At highest ratio | | | | | |
| | (ii) At intermediate ratio | | | | | |
| | (iii) At lowest ratio | | | | | |
| 38.11 | Length of primary conductor (m) | | | | | |

| | | | | | | |
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| 38.12 | Weight of primary winding (kg.) | | | | | |
| 39. | CORE | | | | | |
| 39.1 | Material and grade of the core | | | | | |
| 39.2 | Thickness of core (mm) | | | | | |
| 39.3 | Net Iron cross-sectional area of core (mm ²) | | | | | |
| 39.3.1 | Core-1 | | | | | |
| 39.3.2 | Core - 2 | | | | | |
| 39.3.3 | Core - 3 | | | | | |
| 39.3.4 | Core - 4 | | | | | |
| 39.3.5 | Core - 5 | | | | | |
| 39.4 | Mean magnetic path length (cm) | | | | | |
| 39.4.1 | Core - 1 | | | | | |
| 39.4.2 | Core - 2 | | | | | |
| 39.4.3 | Core - 3 | | | | | |
| 39.4.4 | Core - 4 | | | | | |
| 39.4.5 | Core - 5 | | | | | |
| 39.5 | Whether B-H curve for the core material, used, furnished ? (B-wb/m ² , H-AT/cm) | | | | | |
| 39.6 | Whether specific loss vs. flux density graph for the core material used furnished ? | | | | | |
| 39.7 | Axial length of core (mm) | | | | | |
| 39.7.1 | Core - 1 | | | | | |
| 39.7.2 | Core - 2 | | | | | |
| 39.7.3 | Core - 3 | | | | | |
| 39.7.4 | Core - 4 | | | | | |

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| 39.7. 5 | Core - 5 | | | | | |
| 39.8 | Inside diameter / outside diameter of the cores (mm) | | | | | |
| 39.8. 1 | Core - 1 | | | | | |
| 39.8. 2 | Core - 2 | | | | | |
| 39.8. 3 | Core - 3 | | | | | |
| 39.8. 4 | Core - 4 | | | | | |
| 39.8. 5 | Core - 5 | | | | | |
| 39.9 | Weight of the core (kg) | | | | | |
| 39.9. 1 | Core - 1 | | | | | |
| 39.9. 2 | Core - 2 | | | | | |
| 39.9. 3 | Core - 3 | | | | | |
| 39.9. 4 | Core - 4 | | | | | |
| 39.9. 5 | Core - 5 | | | | | |
| 40. | SECONDARY WINDINGS | | | | | |
| 40.1 | Rated secondary current (A) | | | | | |
| 40.2 | Material of the secondary windings | | | | | |
| 40.3. | Size of the secondary conductor [Bare / Insulated] [mm] | | | | | |
| 40.3. 1 | Core - 1 | | | | | |
| 40.3. 2 | Core - 2 | | | | | |
| 40.3. 3 | Core - 3 | | | | | |
| 40.3. 4 | Core - 4 | | | | | |
| 40.3. 5 | Core - 5 | | | | | |
| 40.4 | Cross sectional area of the secondary conductor (mm ²) | | | | | |

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| 40.4. 1 | Core - 1 | | | | | |
| 40.4. 2 | Core - 2 | | | | | |
| 40.4. 3 | Core - 3 | | | | | |
| 40.4. 4 | Core - 4 | | | | | |
| 40.4. 5 | Core - 5 | | | | | |
| 40.5 | Current density of secondary windings (A/mm ²) | | | | | |
| 40.5. 1 | Core - 1 | | | | | |
| 40.5. 2 | Core - 2 | | | | | |
| 40.5. 3 | Core - 3 | | | | | |
| 40.5. 4 | Core - 4 | | | | | |
| 40.5. 5 | Core - 5 | | | | | |
| 40.6 | No. of secondary turns | | | | | |
| 40.6. 1 | Core - 1 | | | | | |
| 40.6. 2 | Core - 2 | | | | | |
| 40.6. 3 | Core - 3 | | | | | |
| 40.6. 4 | Core - 4 | | | | | |
| 40.6. 5 | Core - 5 | | | | | |
| 40.7 | No. of layers | | | | | |
| 40.7. 1 | Core - 1 | | | | | |
| 40.7. 2 | Core - 2 | | | | | |
| 40.7. 3 | Core - 3 | | | | | |
| 40.7. 4 | Core - 4 | | | | | |
| 40.7. 5 | Core - 5 | | | | | |
| 40.8 | No. of turns / layer | | | | | |
| 40.8. 1 | Core - 1 | | | | | |

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| 40.8. 2 | Core - 2 | | | | | |
| 40.8. 3 | Core - 3 | | | | | |
| 40.8. 4 | Core - 4 | | | | | |
| 40.8. 5 | Core - 5 | | | | | |
| 40.9 | Average length / turn of secondary windings (mm) | | | | | |
| 40.9. 1 | Core - 1 | | | | | |
| 40.9. 2 | Core - 2 | | | | | |
| 40.9. 3 | Core - 3 | | | | | |
| 40.9. 4 | Core - 4 | | | | | |
| 40.9. 5 | Core - 5 | | | | | |
| 40.10 | Resistance of the conductor used for secondary winding per meter length at 75°C (Ω/M) | | | | | |
| 40.11 | Weight of secondary windings (kg) | | | | | |
| 40.11 .1 | Core - 1 | | | | | |
| 40.11 .2 | Core - 2 | | | | | |
| 40.11 .3 | Core - 3 | | | | | |
| 40.11 .4 | Core - 4 | | | | | |
| 40.11 .5 | Core - 5 | | | | | |
| 41 | INSULATION | | | | | |
| 41.1 | Name and class of insulating material between core and secondary winding. | | | | | |
| 41.2 | Name/s of Insulating materials between secondary winding and primary windings. | | | | | |

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| 41.3 | Insulating materials used to achieve grading of capacitance. | | | | | |
| 42. | DIAMETER OF WINDINGS | | | | | |
| 42.1 | Inside / outside diameter of secondary windings (mm) | | | | | |
| 42.1.1 | Inside / outside diameter of secondary windings (mm) | | | | | |
| 42.1.1 | Core - 1 | | | | | |
| 42.1.2 | Core - 2 | | | | | |
| 42.1.3 | Core - 3 | | | | | |
| 42.1.4 | Core - 4 | | | | | |
| 42.1.5 | Core - 5 | | | | | |
| 42.2 | Inside / outside diameters of primary winding (mm) | | | | | |
| 42.3 | Minimum clearance from tank (mm) | | | | | |
| 42.4 | Minimum clearance from secondary to tank (mm) | | | | | |
| 43. | TANK AND SECONDARY TERMINAL BOX | | | | | |
| 43.1 | Material of the CT tank | | | | | |
| 43.2 | Material of the CT secondary terminal box | | | | | |
| 43.3 | Thickness of CT tank material (mm) | | | | | |
| 43.4 | Thickness of CT secondary terminal box material (mm) | | | | | |
| 43.5 | Zinc coating of the CT tank (gm/m ²) as per relevant upto date ISS | | | | | |
| 43.6 | Zinc coating of the CT secondary terminal box (gm/m ²) as per the relevant upto date ISS. | | | | | |

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| 43.7 | Ingress protection rating of the secondary terminal box. | | | | | |
| 43.8 | Weight of the tank, fittings and other accessories (kg) | | | | | |
| 44. | TERMINAL CONNECTOR | | | | | |
| 44.1 | Manufacturer's name | | | | | |
| 44.2 | Applicable standard | | | | | |
| 44.3 | Type | | | | | |
| 44.4 | Material of connector | | | | | |
| 44.4.1 | Clamp body | | | | | |
| 44.4.2 | Bolts and Nuts | | | | | |
| 44.4.3 | Spring washers | | | | | |
| 44.5 | Rated current (Amp) | | | | | |
| 44.6 | Rated terminal load (Kg) | | | | | |
| 44.7 | Factor of safety | | | | | |
| 44.8 | Minimum thickness of any part (mm) | | | | | |
| 44.9 | Weight of clamp complete with hardwares (kg) | | | | | |
| 44.10 | Type test reports as per IS enclosed | | | | | |
| 44.11 | OGA drawing enclosed | | | | | |
| 45. | INSULATOR | | | | | |
| 45.1 | Manufacturer's name | | | | | |
| 45.2 | Type | | | | | |
| 45.3 | Applicable standards | | | | | |
| 45.4 | Height (mm) | | | | | |
| 45.5 | Diameter (top) (mm) | | | | | |
| 45.7 | Total creepage distance (mm) | | | | | |
| 45.8. | Rated voltage (KV) | | | | | |
| 45.9 | Power frequency withstand voltage for 1 min. dry and wet. (KV - rms) | | | | | |

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| 45.10 | 1.2/50 micro-sec impulse withstand voltage (KVP) | | | | | |
| 45.11 | Corona extinction voltage (KV) | | | | | |
| 45.12 | Weight (Kg) | | | | | |
| 45.13 | Maximum allowable span (mm) | | | | | |
| 45.14 | Cantilever strength (Kg) | | | | | |
| 45.15 | The drawing enclosed. | | | | | |
| 46. | Dielectric dissipation factor at 245/1.732KV (for 220KV C.T) and 145/1.732 KV (for 132 kv C.T.) at ambient temperature. | | | | | |
| 47. | Accuracy class of standard C.T. to be used towards determination of ratio errors and phase angle errors for metering cores. | | | | | |

ANNEXTURE - B.
CALLIBRATION STATUS OF TESTING EQUIPMENTS AND INSTRUMENTS / METERS

| Name of the Test | Meters & Equipments required for the corresponding test with range accuracy, make & Sl.No. | Date of Calibration | Due Date of Calibration | Name of the Calibrating Agency | Whether Calibrating Agency is Govt. approved | Whether documents relating to Govt. approval of the calibrating Agency furnished | Whether the meters / equipments fulfill the accuracy class as per calibration report | Whether the calibrating agency has put any limitation towards the use of the particular meter / equipment. If yes state the limitations. | Whether green sticker or Blue Sticker or Yellow Sticker has been affixed on the body of the particular equipment / meter. State the colour of the affixed sticker | In spite of imposed limitations, whether the particular meter / equipment can still be used? Justify its use for corresponding test (s) | Remarks |
|------------------|--|---------------------|-------------------------|--------------------------------|--|--|--|--|---|---|---------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

Signature of the tenderer with
Seal & date

ANNEXURE - C
CHECK-LIST TOWARDS TYPE TEST & SPECIAL TEST REPORTS

| Name of the Type Test & special test | Date of Test. | Name of the Laboratory where the Test has been conducted | Whether the Laboratory is Government approved | Whether the Test report is valid as per Cl.No. 6.1 of TS | Whether the copy of test report in complete shape alongwith drawings etc. furnished or not ? | Whether the tested Current Transformers fulfill the technical requirements as per TS | If the tested Current Transformer does not fulfill the technical requirements as per this specification, whether the bidder agrees to conduct the particular type test again at their own cost without any financial liability to OPTCL in the presence of OPTCL's representative(s) within the specified delivery period. | Remarks |
|--------------------------------------|---------------|--|---|--|--|--|--|---------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Signature of the Tenderer with seal and date

ANNEXURE - D

CHECK-LIST FOR DELIVERY SCHEDULE

| Sl. No. | Description of the Equipment | Quantity | Delivery Schedule |
|---------|------------------------------|----------|-------------------|
| LOT-I | | | |
| LOT-II | | | |
| LOT-III | | | |
| LOT-IV | | | |

Signature of the Tenderer
with seal and date