



**ODISHA POWER TRANSMISSION CORPORATION LTD  
OFFICE OF THE SENIOR GENERAL MANAGER,  
CENTRAL PROCUREMENT CELL,  
JANPATH, BHUBANESWAR - 751022**

**TENDER SPECIFICATION**

**NO. Sr.G.M.-CPC -TENDER-IVT/CVT- 44 /2016-17**

FOR PROCUREMENT OF INDUCTIVE & CAPACITIVE VOLTAGE TRANSFORMERS.  
**(E tendering mode only)**

<b>Sl. No. (Lot)</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>Requirement (2016-17)</b>	<b>Requirement (2017-18)</b>	<b>Total Quantity.</b>
i	400kV CVT	<b>Nos.</b>	12	12	24
ii	220kV CVT	Nos.	45	30	75
iii	33kV PT (0.2s class)	Nos.	0	15	15

**Request for online tender documents – From dt- 25.11.2016 (10.00 AM)  
to dt- 22.12.2016 (1.00 PM)**

**Last date of submission of online tender - dt- 23.12.2016(1.00 PM)**

**Date of opening of Tender - 24.12.2016(03.00 PM)**



**ODISHA POWER TRANSMISSION CORPORATION LTD.  
REGD. OFFICE: JANPATH, BHUBANESWAR – 751 022,  
ODISHA**

**e-TENDER NOTICE NO. CPC -IVT/CVT- 44 / 2016-17**

For and on behalf of ODISHA POWER TRANSMISSION CORPORATION LTD, Sr.G.M. [C.P.C.] invites Tenders from reputed manufacturers in two part bidding system for supply of **Inductive & Capacitive Voltage Transformers**. The interested bidders would be required to enroll themselves on the tender portal [www.tenderwizard.com/OPTCL](http://www.tenderwizard.com/OPTCL) .Complete set of bidding documents are available at [www.tenderwizard.com/OPTCL](http://www.tenderwizard.com/OPTCL) from 25.11.2016 at 10.00 A.M to 22.12.2016 at 1.00 P.M.. Interested manufacturers may visit OPTCL's official web site <http://www.optcl.co.in> and [www.tenderwizard.com/OPTCL](http://www.tenderwizard.com/OPTCL) for detail specification.

**N.B: All subsequent addendum / corrigendum to the tender shall be hosted in the OPTCL's official website <http://www.optcl.co.in>, [www.tenderwizard.com/OPTCL](http://www.tenderwizard.com/OPTCL) only.**

**SENIOR GENERAL MANAGER [C.P.C.]**

**NOTICE INVITING TENDER**  
**ODISHA POWER TRANSMISSION CORPORATION LTD.,**  
**REGD. OFFICE: JANPATH, BHUBANESWAR – 751 022,**  
**ODISHA, INDIA.**

TENDER SPECIFICATION

**NO. Sr.G.M.-CPC –TENDER-IVT/CVT- 44 /2016-17**

For and on behalf of the ODISHA POWER TRANSMISSION CORPORATION LTD., the undersigned invites bids under two-part bidding system in e- tendering mode only as per the following details.

<b>Tender Specification No.</b>	<b>Sl. No. (Lot)</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>Total Qty.</b>	<b>EMD @ 1% of the Est. cost. In Rupees.</b>	<b>Cost of Tender document (in Rs.)</b>	<b>Last date of receipt &amp; opening of tender</b>
<b>NO. Sr.G.M.-CPC – eTENDER -VT- 44 /2016-17</b>	I	400kV CVT	Nos.	24	73,665	10,000/- + 500/- (VAT)	<b>23.12. 2016. up to 01-00 PM &amp; 24.12.2016 at 03-00PM PM.</b>
	II	220kV CVT	Nos.	75	1,38,039		
	III	33kV PT (0.2s class)	Nos.	15	4,190		

The bidders can view the tender documents from website free of cost.

The bidders who want to submit bid shall have to pay Rs. 10,500/- (Rupees Ten thousand five hundred only non-refundable including VAT @ 5%) towards the tender cost, in the form of Demand draft/Cash only, drawn in favour of the D.D.O Head qrs, OPTCL, Bhubaneswar.

The bidders shall have to submit non-refundable amount of Rs.5, 750/- (Rupees Five thousand seven hundred fifty) only including Service Tax @ 15.0 %) towards the tender processing fee to K.S.E.D.C. Ltd, in e-payment mode. The e-payment of above amount is to be made to enable the bidder to down load the bid proposal sheets & bid document in electronic mode.

The demand draft/pay order for tender cost , processing fee are to be submitted along with the EMD at the office of the undersigned on or before the last date & time of submission of tender.

The bidder shall deposit the tender cost, tender processing fee & EMD BG prior to last date & time for submission of bid as notified in tender notice. Local micro & small enterprisers (MSEs) **(In the state of Odisha)** register with respective DICs, Khadi, Village, Cottage & Handicrafts Industries, OSIC and NSIC can participate without payment of the cost of tender

specification. They have to submit notarized hard copy of valid registration as local MSE as above on or before the last date & time of submission of tender.

The prospective bidders are advised to register their user ID, Password, company ID from website [www.tenderwizard.com/OPTCL](http://www.tenderwizard.com/OPTCL) by clicking on hyper link "Register Me".

Any clarifications regarding the scope of work and technical features of the tender can be had from the undersigned during office hours.

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

**SENIOR GENERAL MANAGER,  
CENTRAL PROCUREMENT CELL**

**TELEPHONE NO.:0674 – 2541801**

**ODISHA POWER TRANSMISSION CORPORATION LTD.  
OFFICE OF THE SR. GENERAL MANAGER**

**CENTRAL PROCUREMENT CELL**

**JANAPATH, BHUBANESWAR – 751022**

**TENDER SPECIFICATION NO. Sr.G.M.-CPC –TENDER-PT/IVT- 44/2016-17**

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**P A R T – I**

**SECTION-I**

**COMMERCIAL SPECIFICATION**

**INSTRUCTIONS TO TENDERER**

**1. Submission of Bids: -**

The bidder shall submit the bid in Electronic Mode only i.e. [www.tenderwizard.com/OPTCL](http://www.tenderwizard.com/OPTCL). The bidder must ensure that the bids are received in the specified website of the OPTCL by the date and time indicated in the Tender notice. Bids submitted by telex/telegram will not be accepted. No request from any bidder to the OPTCL to collect the Bids in physical form will be entertained by the OPTCL.

The OPTCL reserves the right to reject any bid, which is not deposited according to the instruction, stipulated above. The participants to the tender should be registered under ODISHA Sales Tax, Act, VAT Act / Central sales Tax Act.

1. For all the users it is mandatory to procure the Digital Signatures.
2. Contractors / Vendors / Bidders / Suppliers are requested to follow the below steps for Registration:
  - a. Click "Register", fill the online registration form.
  - b. Pay the amount of Rs. 2300/- through **e-payment mode only**.
  - c. Send the acknowledgment copy for verification.
  - d. As soon as the verification is being done the e-tender user id will be enabled.
3. After viewing Tender Notification, if bidder intends to participate in tender, he has to use his e-tendering User Id and Password which has been received after registration and acquisition of DSCs (Digital Signature Certificates).
4. If any Bidder wants to participate in the tender he will have to follow the instructions given below:
  - a. Insert the PKI (which consist of your Digital Signature Certificate) in your System.  
(Note: Make sure that necessary software of PKI be installed in your system).
  - b. Click / Double Click to open the Microsoft Internet Explorer (This icon will be located on the Desktop of the computer).
  - c. Go to Start > Programs > Internet Explorer.
  - d. Type [www.tenderwizard.com/OPTCL](http://www.tenderwizard.com/OPTCL) in the address bar, to access the Login Screen.
  - e. Enter e-tender User Id and Password, click on "Go".
  - f. Click on "Click here to login" for selecting the Digital Signature Certificate.
  - g. Select the Certificate and enter DSC Password.
  - h. Re-enter the e-Procurement User Id Password
5. To make a request for Tender Document Bidders will have to follow below mentioned steps.
  - Click "Un Applied" to view / apply for new tenders.
  - Click on Request icon for online request.
6. After making the request Bidders will receive the Tender Documents which can be checked and downloaded by following the below steps:

- Click to view the tender documents which are received by the user.
  - Tender document screen appears.
  - Click “Click here to download” to download the documents.
7. After completing all the formalities Bidders will have to submit the tender and they must take care of following instructions.
- Prior to submission, verify whether all the required documents have been attached and uploaded to the particular tender or not.
  - Note down / take a print of bid control number once it displayed on the screen
8. Tender Opening event can be viewed online.
9. Competitors bid sheets are available in the website for all.
10. **For any e-tendering assistant contact help desk number mentioned below.**
- Bangalore – 080- 40482000.

The participants to the tender should be registered under ODISHA Sales Tax, Act, VAT Act/Central sales Tax Act.

## **2. Division of Specification**

The Specification is mainly divided into two parts viz. Part-I and Part-II.

### **Part- I Consists of**

- (i) Section-I : Instructions to Tenderers.
- (ii) Section-II : General conditions of supply (commercial)
- (iii) Section-III : Schedules and forms etc.
- (iv) Section-IV : Technical Specification.

### **Part-II Consists of**

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 Part-I (techno- commercial) and Part- II (Price Bid).

## **4. Opening of Bids:-**

(a) The part-I shall be opened on the date and time fixed by the OPTCL. Bids will be opened in Electronic mode in presence 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 proposals 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 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, 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/capability 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 service where applicable. The above information shall be considered during the first stage of 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 order for lesser quantity with full freedom to place extension orders for further quantity under similar terms and conditions of the original orders. Order may also be split among more than one Tenderer for any particular item if considered necessary in the interest of the Purchaser.

**6. Procedure & Opening Time of Tenders:-**

Tenders will be opened in the office of the Sr. General Manager (CPC) on the specified date and time in presence of such of the Tenderers or their authorized representatives (limited to one person only) in case of each bidders who may desire to be present, at the time of opening the bids.

**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 the 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 upload the scanned copy of the D.D/ money receipt as a proof of such payment. The local Micro & Small Enterprises (MSEs) **(In the state of Odisha)** registered with respective DICs, Khadi, Village, Cottage & Handicraft Industries, OSIC and NSIC can participate without payment of the cost of tender specification.

**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 Bids:-**

- (A)Tenders shall be submitted in electronic mode only. ([www.tenderwizard.com/OPTCL](http://www.tenderwizard.com/OPTCL))
- (B)Telegraphic or FAX tenders shall not be accepted under any circumstances.

**11. Earnest Money Deposit:-**

(i) Earnest Money Deposit of value specified in the notice inviting tenders against each lot/bid is to be submitted on or before the last date and time of submission of tender. Tenders without the required E.M.D. or without documentary proof for exemption from furnishing E.M.D. as indicated at Annexure-VIII will be rejected outright. The local Micro & Small Enterprises (MSEs) (In the state of ODISHA) registered with respective DICs, Khadi, Village, Cottage & Handicraft Industries, OSIC and NSIC can participate by submitting EMD deposit 50 % of the amount indicated in the notice inviting tender. 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 (Hrs. Office, Bhubaneswar-751022).

(b) Bank Draft: To be drawn in favour of the Drawing & Disbursing Officer, OPTCL (Hqrs. Office), Bhubaneswar-751022.

(c) Bank Guarantee from any nationalized/scheduled Bank strictly as per enclosed proforma vide Annexure-VI to be executed on non-judicial stamp paper of appropriate value to be accompanied by the confirmation letter of the issuing Bank.

**Note:**

(i) The validity of the E.M.D. Bank Guarantee shall be 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. Up to Rs.25, 000/- (Rupees twenty-five thousand) only the Earnest Money Deposit may be made either in cash or Bank Draft . Above Rs.25, 000/- (Rupees Twenty Five Thousand only) the Earnest Money Deposit shall be furnished in shape of EMD Bank Guarantee, as per proforma attached.

iii) No adjustment towards Earnest Money Deposit shall be permitted against any outstanding amount with the OPTCL.

iv) The chart showing particulars of E.M.D. to be furnished by Tenderers of different categories is placed at Annexure-VIII.

v) In the case of un-successful Tenderer the Earnest Money will be refunded immediately after the tender is decided. In the case of successful tenderer, EMD will be refunded only after furnishing of security money referred to at Clause-19 of section –II. Suits if any, arising out of this Clause shall be filed in a Court of law to which the jurisdiction of high court of Odisha extends.

vi) Earnest Money will be forfeited if the Tenderer fails to accept the letter of intent and /or purchase orders issued in his favour.

vii) Tenders not accompanied by Earnest Money/documentary proof of Exemption of E.M.D. shall be summarily rejected.

**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 as notified in the tender notice failing which the tenders will be rejected.

**13. PRICE:-**

i) 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 period, no reduction or Enhancement in price will be entertained. If there is any change in price, the tender shall stand rejected and E.M.D. deposited shall be forfeited. In case of bidders who are exempted from depositing E.M.D. and who revise their price within the validity period, the bids for similar items against subsequent tender call notice of OPTCL, may not be considered.

b) After opening of price bid if the validity period is not sufficient to place purchase order, the tenderers may be asked by the purchaser to extend the validity period of the bid under the same terms and condition as per the original tender.

However, the tenderers are free to change any or all conditions including price except delivery period of their bids at their own risk, if they are asked by the purchaser to extend the validity period of the bid prior to opening of price bid.

**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 Sr. General Manager (CPC) 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 upload the Scanned/.pdf copy of the following document as vender generic document and also upload the .xls bid documents as mentioned below:-

**Part-I (Vender Generic Document)**

	<b>Document Details</b>	<b>File Name</b>
1	Declaration Form duly filled in and signed. (As per Annexure –I)	Attachment1.pdf
2	(a)Earnest Money(As per Annexure-VI) or Documents in support of exemption from Earnest Money Deposit if any (b)Tender cost (c)Tender Processing fee.	Attachment2.pdf
3	Technical Specification conforming to the Purchaser’s Specification along with drawings and literature.	Attachment3.pdf
4	Photostat copies of latest type test certificate of materials/equipment offered as stipulated in the Technical Specification	Attachment4.pdf
5	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	Attachment5.pdf
6	Data on past experience as per Clause-7 of Section –II of the Specification.	Attachment6.pdf
7	Sales Tax clearance certificates, for the previous year.	Attachment7.pdf
8	Audited Balance Sheet & Profit Loss Accounts for the previous three years.	Attachment8.pdf
9	Schedule of quantity and delivery in the prescribed proforma	Attachment9.pdf
10	Abstract of price components as per Annexure-VI	Attachment10.pdf
11	Any other required document as per tender specification	Attachment11.pdf
12	The notarized hard copy & soft copy of valid registration as local MSE <b>(In the state of Odisha)</b> (if any) on or before the last date & time of submission of tender.	
13	Any attachment having size more than 5Mb is to be divided into parts like Attachment1partI, Attachment1partII etc.	

**Part-I (Techno-commercial Bid Sheet)**

1	All the.xls sheets are to be down loaded and filled in completely and uploaded without any modification to the file name.	.xls sheet name /file name is not to be modified
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**17. Documents/Papers to Accompany Part –II Bid:-**

Part –II of the tender shall consist of the following.

**Part-II (Price Bid Sheet).**

1	All the .xls sheets are to be down loaded and filled in completely and uploaded without any modification to the file name.	.xls sheet name /file name is not to be modified
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**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 figure 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.
- (vii) 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.
- (viii) The tenderer must submit the EMD amount, cost of tender document (Form Fee) and Tender processing fee in a sealed cover envelope super-scribing the tender specification number, Tender Notice No & Date opening of tender clearly on the cover envelope. The said envelope is to be submitted in the office of the purchaser on or before the last date and time of submission of Bids.

**20 Expenses in respect of OPTCL's representative for witnessing the inspection & testing of the offered equipment/materials at the inspection and testing site:-**

The expenses under the following heads, in respect of OPTCL's representative for witnessing the inspection & testing of the offered equipment/materials at the inspection and testing site, shall be borne by the contractor / supplier.

**a) Hotel Accommodation:**

I. Single room accommodation in 4 star hotels for the OPTCL inspecting officer of the rank of Assistant General Manager (Grade E-6) and above.

II. Single room accommodation in 3 star hotels for the OPTCL inspecting officer of the rank below Assistant General Manager (Grade E-6).

**N.B.:** It is the responsibility of the contractor to arrange the hotel accommodation matching with their inspection and testing schedule, so that the inspecting officer can check-in the hotel one day prior to the date of inspection and check out after the completion of the inspection, subject to availability of the return travel ticket. In case of extended duration of inspection or non-availability of the return travel ticket, Contractor/supplier/manufacturer shall arrange for the extended stay of the inspecting officer in the Hotel accordingly. In case there is no hotel with prescribed standard in and around the place of inspection, the contractor/supplier/manufacturer shall suggest alternative suitable arrangement at the time of offer for inspection, which is subjected to acceptability of OPTCL inspecting officer.

**b) Journey of the inspecting officer:**

(i) To and fro travel expenditure from the Head Quarters of the inspecting officer to the place of inspection/testing shall be borne by the contractor/supplier/manufacturer. Journey from the Head Quarters of the inspecting officer to the nearest Air Port by train (Ist/IIInd A.C) & A/C Taxi then by Air to the

place of inspection/testing or to the nearest place of inspection/testing and then by train (1st/IIInd A.C) & A/C taxi to the place of inspection/testing shall be arranged by the contractor/supplier/manufacturer.

(ii) For train journey, inspecting officer of the rank Assistant General Manager and above shall be provided with 1st class AC ticket and inspecting officer below the rank of Assistant General Manager shall be provided with 2nd class AC ticket.

(iii) The Air-ticket / train-ticket booking/cancellation is the responsibility of the contractor / supplier.

(iv) Moreover, if during the journey there is an unavoidable necessity for intermediate travel by road/waterway/sea-route, the contractor/supplier shall provide suitable conveyance to the inspecting officer for travel this stretch of journey or bear the cost towards this. Any such possibilities shall be duly intimated to OPTCL at the time of their offer for inspection.

**c) Local Conveyance:**

At the place of the inspection/testing, for local journey of the inspecting officer between Hotel and inspection/testing site and or any other places, Air-conditioned four wheeler vehicle in good condition shall be provided by the contractor/supplier/manufacturer.

**d) Following points are also to be considered:**

(i) All the above expenses shall be deemed to be included in the bidder's quoted price for that supply item. Bidder shall not be eligible to raise any extra claim in this regard.

(ii) Contractor/supplier/manufacturer may assume that only in 40% of the inspection and testing offer cases, OPTCL inspecting officer, not below the rank of Assistant General Manager will witness the inspection and testing.

(ii) In case of inspection and testing of some critical equipment/materials like Power transformers, OPTCL may depute more than one inspecting officer.

(iii) Contractor/supplier/manufacturer shall judiciously plan the inspection/testing schedule and place of inspection/testing, so that optimum number of inspection/testing and minimum time shall be required to cover all the equipment/materials of the relevant contract package.

(iv) It shall be the responsibility of the Contractor/Supplier to organize the above tour related matters of OPTCL inspecting officer including the matters related to overseas inspection/testing, if any.

**21. Litigation/Arbitration**

**(i)-** Bidder has to furnish detailed information on any litigation or arbitration arising out of contracts completed or under execution by it over the last five years. A consistent history of litigation by or against the bidder may result in rejection of bid.

**(ii)** The bidder should not have any pending litigation or arbitration with OPTCL with regard to any project or related activity. The bidder should certify/declare the same in unequivocal terms by way of an affidavit duly sworn before a magistrate. Bid furnished by the bidder shall not be eligible for consideration if it is not accompanied by the affidavit. Further, the bid/LOA/LOI shall liable for outright rejection/cancellation at any stage if any information contrary to the affidavit/declaration is detected.



**SECTION – II.**  
**GENERAL TERMS AND CONDITIONS OF CONTRACT [G.T.C.C.]**

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## **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 equipment 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.
- [vii] For PHASE-II delivery, inspection call is to be offered by the bidder after last day of scheduled period of PHASE-I delivery.

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 user's 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 un-satisfactory 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, not withstanding 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 Annexure-D & E (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 whichever 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(In case of successful bidder who is a local Micro and small Enterprise(MSEs)(In the state of Odisha) registered with respective DICs, Khadi, Village, Cottage & Handicrafts Industries, OSIC and NSIC 5% (five percent)), 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) Any imposition of new tax or revision of tax shall be paid/reimbursed at the time of dispatch, scheduled or actual whichever is lower (i.e. If delivery is within schedule period, tax variation is applicable, and if delivery is made beyond schedule date, any additional financial implication due to statutory variation in tax shall be to bidder's account).

(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 Tax 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 30<sup>th</sup>. 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 along with 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 in to 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.

(III) The local MSE bidders shall be required to furnish their willingness to match their bid price with that of the lowest evaluated bidder without any price preference and in case they agree, they shall be eligible to get up to 30% of the tendered quantity to be distributed suitably among the willing MSE bidders failing which the said 30% of the tendered quantity be awarded to the lowest evaluated bidder.

**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**

[i] The tenderer shall submit the bid in electronic mode only and shall submit the tender cost on or before the date and time of submission of technical bid. In case of local Micro and small Enterprises(MSEs) registered with respective DICs, Khadi, Village, Cottage & Handicrafts Industries, OSIC and NSIC participating in the tender they have to submit notarised hard copy of valid registration as local MSE as above on or before the date and time of submission of technical bid.

[ii] The tenderer shall submit the bid in electronic mode only

[iii] The Tender shall not be submitted telegraphically or by FAX.

[iv] The prescribed EMD shall be submitted on or before the date and time of submission of technical bid.

[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] The tenderer shall upload the scanned 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) The tenderer shall upload the scanned copy 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.
- [xiii] The bidder should not have any pending litigation or arbitration with OPTCL with regard to any project or related activity. The bidder should certify/declare the same in unequivocal terms by way of an **affidavit** duly sworn before a **Magistrate**. Bid furnished by the bidder shall **not be eligible** for consideration, if it is not accompanied by the affidavit. Further the bid/LOA/LOI shall be liable for **outright rejection/ cancellation** at any stage if any information contrary to the affidavit/declaration is **detected**.

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**

**[ I TO XIII ]**

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
12.	Schedule of deviations.	ANNEXURE-XII
13	Litigation/Arbitration	ANNEXURE-XIII



**ANNEXURE-II**

(To be filled up by the tenderer as indicated in the excel sheet )

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

(To be filled up by the tenderer as indicated in the excel sheet)

**ANNEXURE-III**  
**SCHEDULE OF QUANTITY AND DELIVERY**  
**TO ACCOMPANY PART-I**

(To be filled up by the tenderer as indicated in the excel sheet)

**ANNEXURE-IV**  
**TO ACCOMPANY PART-I**

(To be filled up by the tenderer as indicated in the excel sheet)

**ANNEXURE-V.**  
**TO ACCOMPANY PART-II**

(To be filled up by the tenderer as indicated in the excel sheet)

1. The tenderer should fill up the schedule properly and in full in excel file in e-tender mode. 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**

1 Ref \_\_\_\_\_ Date \_\_\_\_\_ Bank Guarantee No: \_\_\_\_\_  
In accordance with invitation to Bid No. \_\_\_\_\_ Dated \_\_\_\_\_ of ODISHA 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] ODISHA 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, ODISHA 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 -----Branch of Bhubaneswar ( indicate the name of the branch)in the state of ODISHA. Notwithstanding anything contained herein.

- 1) Our liability under this bank guarantee shall not exceed Rs.----- --( Rupees-----).
- 2) The bank guarantee shall be valid up to dt.-----
- 3) We are liable to pay the guaranteed amount or any part there of under this bank guarantee only & only if you serve upon us at -----branch at Bhubaneswar a written claim or demand on or before dt.-----.

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 \_\_\_\_\_ 20-- by us the \_\_\_\_\_ Bank at

P.O. \_\_\_\_\_ P.S. \_\_\_\_\_

District \_\_\_\_\_ State \_\_\_\_\_

1. WHEREAS the ODISHA 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, ODISHA 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 ----- Branch of Bhubaneswar ( indicate the name of the branch)in the state of ODISHA.

Notwithstanding any thing contained here in.

- 1) Our liability under this bank guarantee shall not exceed Rs.------(Rupees-----).
- 2) The bank guarantee shall be valid up to dt.-----
- 3) We are liable to pay the guaranteed amount or any part there of under this bank guarantee only & only if you serve upon us at -----branch at Bhubaneswar a written claim or demand on or before dt.-----.

Dated \_\_\_\_\_ Day of \_\_\_\_\_

For \_\_\_\_\_  
[Indicate the name of Bank]

Witness ((Signature, names & 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 ODISHA 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 rating, voltage class, 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

Place:

Date:

Signature of Tenderer  
Name, Designation, Seal

**ANNEXURE-XI**

**SCHEDULE OF INSTALLATIONS.**

Rated Amp/mH	Rated Voltage	Place of installation and complete postal address	Year of commissioning

Place: -

Date

Signature of Tenderer:  
Name, Designation, Seal

**ANNEXURE-XII**  
**DEVIATION SCHEDULE.**

**Tenderer shall enter below particulars of his alternative proposal for deviation from the specification, if any.**

**TO ACCOMPANY PART-I**

(To be filled up by the tenderer as indicated in the excel sheet)

**A) Technical deviations**

**TO ACCOMPANY PART-I**

(To be filled up by the tenderer as indicated in the excel sheet)

**B) Commercial deviations.**

**TO ACCOMPANY PART-I**

(To be filled up by the tenderer as indicated in the excel sheet)

**ANNEXURE – XIII**  
**LITIGATION HISTORY**

Name of the Bidder:

Bidder should provide information on any history of litigation or arbitration resulting from contracts executed in the last five years or currently under execution.

Year.	Award for or against bidder	Name of client, cause of litigation and matter in dispute	Disputed amount (current value in Rs.)

Place: -  
Date

Signature of Tenderer:  
Name, Designation, Seal

**TECHNICAL SPECIFICATION FOR 33 KV,132KV ,220KV INDUCTIVE & 132KV, 220KV,& 400 KV CAPACITIVE VOLTAGE TRANSFORMER**

**1.0 SCOPE :**

- 1.1. This specification provides for the design, manufacture, assembly inspection and testing at the manufacturer's works, packing and delivery FOR [Destinations] of outdoor mounted type, single phase, oil filled, self-cooled, single unit type Inductive voltage transformers for 33 KV, 132KV,220 KV systems, & Capacitive Voltage Transformers for,132KV, 220kv & 400 KV system to be used for voltage indication, supply of potential to tariff meters, relays for feeder protection in Grid Sub-stations of OPTCL, ODISHA.. In addition to the above functions the 400 KV 220kv, 132KV CVT shall be suitable for carrier coupling..
- 1.2 The IVTs shall be complete in all respects with insulators, bimetallic connectors, fixing details etc. as described herein.
- 1.3 Bidders are required to quote for 0.2 accuracy class [metering winding] for 33 KV, 132KV, 220 Kv IVTs &132KV, 220kv,400 Kv CVTs in the following manner.
- (a) Guaranteed Technical Particulars.
  - (b) Technical literatures, brochures and drawings as per this specification.
  - (c) Type Test reports.
  - (d) List of orders, executed and Users' certificates with offer, failing submission of the above particulars with the offer, the tender may not be considered for evaluation.

**2.0 Following is the list of documents constituting this Specification.**

- (i) Technical Specification (TS).
- (ii) Technical requirements. - [Appendix-I]
- (iii) Quantity and delivery schedule. - [Appendix-II]
- (iv) Guaranteed Technical Particulars. - [Annexure-A]
- (v) Calibration status of testing equipment and meters/Instruments. - [Annexure-B]
- (vi) Check list towards Type Test Reports.- [Annexure-C]
- (vii) Check list for Delivery Schedule. - [Annexure-D].

N.B.:- Annexure-A,B,C & D are to be filled up by the Bidder.

**3.0 STANDARDS:-**

- 3.1 The IVTs & CVTs shall conform in all respects to high standards of Engineering, design, workmanship and latest revisions of relevant standards at the time of offer and the Purchaser shall have the power to reject any work or material which in his judgement is not in full accordance therewith.
- 3.2 Except to the extent modified in the specifications, the IVTS & CVTs shall conform to the latest editions and the amendments of the standards listed hereunder:

Sl. No.	Standard Ref. No.	Title.
01	IEC-44(4)	Instrument Transformer – measurement of PDS.
02	IEC-60	High voltage testing techniques.
03	IEC-171	Insulation co-ordination.
04	IEC-186	Voltage Transformers.

05	IEC-186(A)	Voltage Transformers (first supp. to IEC-186)
06	IEC-270	Partial discharge measurement.
07	IS-335	Insulating oil for transformers and switch gears.
08	IEC-8263	Method for RIV Test on high voltage insulators.
09	IS-2071	Method of high voltage testing.
10	IS-2099	High Voltage porcelain bushings.
11	IS-2147	Degree of protection provided by enclosures for low voltage switch-gear and control.
12	IS-2165	Insulation co-ordination for equipments of 100KV and above.
13	IS-3156 (Part-I to IV).	Voltage transformers.
14	IS-3347	Dimensions of porcelain transformer bushings.
15	IS-4146	Application guide for voltage transformers.
16.	IS-5547	Application guide for Capacitor Voltage Transformers.
17.	IS-9348	Coupling Capacitor & Capacitor Devices.

- 3.3 All the above alongwith the 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 Technical Specification will prevail.
- 3.4 The voltage 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 equipments, offered by the supplier conforms to other standards, salient points of difference between the standards shall be brought out in the offer. 4 (four) copies of the reference standards in English language shall be furnished alongwith the offer.
- 3.5 The supplier is to furnish the standards as mentioned above from Sl. 1 to 17 at their own cost, if required by the purchaser.

**4.0 CLIMATIC AND SERVICE CONDITIONS :**

4.1 The VTS are required to operate satisfactorily under the following conditions.

- (a) Maximum ambient temperature -50°C.
- (b) Maximum daily average ambient air temperature - 45°C.
- (c) Maximum relative humidity – 100%.
- (d) Average number of rainy days in a year – 120 days.
- (e) Average annual rainfall – 150 cms.
- (f) Altitude not exceeding – 1000 M.
- (g) Maximum wind pressure – 260kg/sq.m.

4.2 **EARTHQUAKE INCIDENCE:-**

The VTS are to be designed to withstand earthquake of an intensity, equivalent to 0.3g in the horizontal and 0.15g in the vertical direction

Where, 'g' stands for acceleration due to gravity.

## **5.0 PURCHASER'S AUXILIARY POWER SUPPLY:-**

5.1 Following power supplies shall be made available at site:

- (a) AC-3 phase, 415V, 50HZ earthed.
- (b) AC single phase, 240V, 50HZ earthed.
- (c) 220V DC, Ungrounded.

5.2 All equipments and devices shall be capable of continuous satisfactory operation on AC and DC supplies of nominal voltage, mentioned above with variations as given below.

- (a) AC voltage variation.  $\pm 10\%$
- (b) Frequency variation.  $\pm 5\%$ .
- (c) Combined voltage & frequency variation.  $\pm 10\%$
- (d) DC voltage variation. 190V to 240V DC.

5.3 The supplier shall make his own arrangements for the power supplies other than those specified under Clause-5.1 above.

## **6.0 INSTALLATION:-**

The VTS covered under this specification shall be suitable for outdoor installation without any protection from rain, dust, mist and direct rays of the sun.

### **A.7.0. GENERAL TECHNICAL REQUIREMENTS FOR IVT :-**

7.1 Each IVT shall be supplied, filled with insulating oil and shall be hermetically sealed to prevent atmosphere coming in contact with oil, avoiding filtration and change of oil. In case the tenderer intends to use Nitrogen or any other inert gas above the oil level, the gas must not leak out and the same shall be stated in the tender.

7.2 However, the IVT shall have a provision for draining and filling insulating oil after drying or preferably must have arrangement for drying the oil by continuous process with oil filters.

7.3 The IVT shall be suitable for transport in horizontal position if the transport limitations so demand.

### **7.4 SECONDARY TERMINAL BOX:-**

7.4.1 The secondary terminals shall be brought out in a weather proof terminal box with a rating not less than IP-55.

7.4.2 All secondary terminals shall be brought out in a compartment on one side of each IVT for easy access.

7.4.3 The exterior of this terminal box shall be hot-dip galvanized.

7.4.4 The terminal box shall be provided with removable gland plate and glands suitable for 1100 volts grade. PVC insulated, PVC sheathed multi core 4 sq.mm to 6 sq.mm stranded copper conductor cable.

7.4.5 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 rain water.

7.4.6 The dimensions of the terminal box and its openings shall be adequate to enable easy access and sufficient working space for use of normal tools.

7.4.7 The terminal blocks shall be standard type and provided with ferrules indelibly marked or numbered and their identifications shall correspond to the designation on the relevant wiring diagram.

- 7.4.8 Secondary wiring terminal studs shall be provided with at least three nuts, plain and spring washers. The studs, nuts and washers shall be of brass, duly nickel plated. The minimum diameter of the studs shall be 6 mm. The length of at least 15 mm shall be available on the studs for inserting the leads.
- 7.4.9 Primary earthing link should be provided for measurement of capacitance & dielectric dissipation factor.
- 7.4.10 Separate point should be provided
- 7.5 Polarity shall be indelibly marked on each primary and secondary terminal.
- 7.6 The IVT 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 oil sampling cocks, if provided to facilitate factory processing should be properly sealed before dispatching the IVT. The method, adopted for hermetic sealing shall be described in the offer.
- 7.7 The castings of base, collar etc. shall be die cast and tested before assembly to detect cracks and voids, if any.
- 7.8 The characteristics of the IVTS shall be such as to provide satisfactory performance such as voltage error and phase displacement at rated frequency shall not exceed the values as per relevant standards at any voltage between 80% and 120% of rated voltage and with burdens of between 25% and 100% of rated burden at a power factor of 0.8 lagging. The error shall be determined at the terminals of the IVT and shall include the effects of any fuses or resistors as an integral part of the IVT.
- 7.9 Inductive voltage transformers shall be designed so as to achieve the minimum risk of explosion in service. The bidder shall bring out in his offer, measures taken to achieve this.
- 7.10 **PRIMARY WINDING:-**
- Primary winding of the IVT will be connected phase to neutral with the neutral point solidly earthed. The arrangement for this shall be included in the scope of supply. The primary conductor shall be of adequate cross-section so that the maximum permissible current density shall not be exceeded even during short-circuit conditions.
- 7.11 **SECONDARY WINDING.**
- Suitably insulated copper wire of electrolytic grade shall be used for secondary windings. The secondary conductor shall be of adequate cross section so that the maximum permissible current density shall not be exceeded even during short-circuit conditions. Secondary windings details, burden & accuracy class are mentioned in Appendix-I. Secondary windings shall be used for metering, relaying and synchronizing. Each winding shall comply requirements of both Part-II and III of up-to-date editions of IS-3156/IEC-186.
- 7.12 **CORE:-** 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 accuracy i.e. 0.2 accuracy class at both normal and high over voltage. The core material, thickness of lamination, the relevant graphs showing the characteristics of the core materials shall be submitted along with the offer.
- 7.13 **TANK.**
- 7.13.1 Both expansion chambers and tanks of the IVT shall be made of high quality steel / Aluminum and shall be able to withstand full vacuum 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.

7.13.2 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 the purchaser for any horizontal welding, used in the bottom tank

7.13.3 Paint inside the metallic housing shall be of anti-condensation type.

7.14 **PORCELAIN HOUSING.**

7.14.1. 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.

7.14.2. The bushings of the IVTS shall conform to latest edition of IS-2099. The hollow porcelain insulators shall conform to the latest edition of IS-5621

7.14.3 The insulators shall be cemented with Portland cement to the flanges resulting in high mechanical, tensile and breaking strength

7.14.4. The bushings shall have ample insulation, mechanical strength and rigidity for the condition under which they shall be used and shall be used and shall be designed to prevent accumulation of explosive gases and provide adequate oil circulation to remove the internal heat.

7.14.5 Cast metal and 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 ionisation.

7.14.6 The insulation of bushings shall be co-ordinated with that of the IVT such that the flashover, if any, shall occur only external to the IVT.

7.14.7 Oil level gauge and convenient means of filling, sampling and draining of oil shall be provided.

7.14.8 End shields should be provided for distribution of stresses.

7.14.9 Corona shields for bushings, if required, should be provided.

7.15 **INSULATING OIL.**

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

7.16. **PREVENTION OF OIL LEAKAGE AND ENTRY OF MOISTURE:-**

The supplier shall ensure that the sealing of the IVT 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 & secondary terminals..

(b) Interface between porcelain housing and metal tank(s).

(d) Cover of the secondary terminal box.

7.16.1 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.

7.16.2 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.

7.17 **FITTINGS AND ACCESSORIES**:- Fittings and accessories, listed below shall be supplied with each IVT. Any fitting, required essential other than those listed below shall also be supplied along with each IVT.

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

7.18.1 **OIL LEVEL GAUGE**:- An oil level gauge shall be provided to indicate the oil level in the IVT. This gauge shall be mounted in such a way that the oil level can be seen from the ground level.

7.18.2 **PRESSURE RELIEVING DEVICE**:- Each IVT shall be provided with a pressure relieving device so as to protect bushing of the IVT even under unfavorable conditions.

7.18.3 **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.

7.18.4 **EARTHING**:- Metal tank of each IVT 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.

7.18.5 **LIFTING ARRANGEMENT**:- The IVT 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.

7.18.6 **NAME PLATE**:- The IVT shall be provided with non-corrosive legible name plate with the information specified in relevant standards, duly engraved/punched on it.

7.18.7 **GASKET JOINT**:- The manufacturer shall furnish the type of gasket used or setting methods.

**TERMINAL CONNECTORS:**

All the IVTS shall be provided with bimetallic solderless clamp type, rigid type terminal connectors, suitable for ACSR Moose Conductor for 400 Kv, 220KV IVT & CVT. ACSR.ZEBRA Conductor for 33 KV,132KV IVT & 132KV CVT..Each terminal connector shall be of universal type, suitable for both horizontal and vertical connections to the transmission line conductors/station bus bar.

7.18.8.1 **TERMINAL CONNECTORS** shall be manufactured and tested as per IS:5561.

7.18.8.2 All castings shall be free from blow holes, surface blisters,cracks and cavities.

All sharp edges and corners shall be blurred and rounded off.

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

7.18.8.4 All ferrous parts shall be hot dip galvanized conforming to IS-2633. For bimetallic connectors, copper alloy linear of minimum thickness of 2 mm shall be cast integral with aluminium body.

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

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

7.18.9 **SECONDARY WIRING:-**

The Secondary wiring shall be enclosed in conduits and shall be brought to a terminal block ready for external connections. The wiring shall be of adequate cross-section and not less than 4.00 sq.mm copper wire.

7.18.10 The supplier shall supply necessary hardwares, required for connection of phase side conductor to the line terminal and the grounding strip to the grounding terminal.

7.18.11 Necessary nuts and bolts for fixing the IVTS on the supporting structures shall be in tenderer's scope of supply.

B.7.0 **GENERAL TECHNICAL REQUIREMENTS FOR 400 KV, 220KV & 132KV CAPACITIVE VOLTAGE TRANSFORMER:-**

7.1 The design of capacitor voltage transformers shall such that its accuracy shall not be affected by the presence of pollution on the external surface of its insulators.

7.2 The CVT shall operate satisfactorily in system with high X/R ratio. (Tp=100 ms).

7.3 The CVT transformer tanks along with top metallic shall be galvanized and painted to required shade.

7.4 Impregnation details along with tests and checks to ensure successful completion of impregnation cycle shall be furnished for purchaser's approval.

7.5 Bellows, if used to cater for expansion of insulating oil, shall be tested in accordance with relevant standards. The details shall be subject to the approval of the purchaser.

7.6 The CVT shall be capacitor voltage type with electromagnetic units and shall be suitable for carrier coupling..

7.7 All windings of voltage transformer secondaries shall be protected by HRC cartridge type fuses. In addition, fuses shall be provided for the protection and metering windings for fuse monitoring scheme. The secondary terminals of the CVTs shall be terminated to stud type non-disconnecting terminal blocks in the individual phase secondary boxes via. the fuse

7.8 CVTs shall be suitable for high frequency (HF).coupling, required for power line carrier communication. The carrier signal must be prevented from flowing into potential transformer (EMU) circuit by meant of a RF choke/reactor, suitable for effectively blocking the carrier signal over the entire carrier frequency range i.e. 40 to 500 KHZ. Details of the arrangement shall be furnished along with the bid. HF terminal of the CVT shall be brought out through a suitable bushing and shall be easily accessible for connection to the coupling devices of the carrier communication equipment, when utilized. The bushing shall be fully protected against rain and vermin so as to avoid the possibility of short circuits to earth. An earthing link with fastener shall be provided for HF terminal.

7.9 The electromagnetic unit, comprising compensating reactor, intermediate transformer and protective and damping devices should have a separate terminal box with all secondary terminals, brought out.

7.10 Voltage transformers should be thermally and dielectrically safe when the secondary terminals are loaded with the guaranteed thermal burdens.

7.11 The accuracy of the windings (3P/3P/0.2) shall be maintained through out the entire burden range preferably in the frequency range of 48 HZ to 51.5 HZ on all

the three windings without any adjustment during operation. Preference will be given to such bidders who can offer for maintaining the above accuracy class in the frequency range i.e. 48 HZ to 51.5 HZ up to the above specified burden values.

**7.12 CONSTRUCTIONAL FEATURES:-**

- 7.12.1 The 400 KV, 220KV & 132KV CVT shall be suitable for mounting on support structure of tubular GI pipe of nominal bore of 300/200 mm. or lattice type structures.
- 7.12.2 Access to secondary terminals shall be possible without any danger of access to high voltage circuit.
- 7.12.3 CVTs shall be hermetically sealed units.
- 7.12.4 A protective surge Arrester/spark gap shall be provided to prevent break down of insulation by incoming surges and to limit abnormal rise of terminal voltage of shunt capacitor/primary winding, tuning reactor/RF choke etc. due to short circuit in transformer secondaries. In case of an alternative arrangement, the Bidder shall bring out the details in the Bid.
- 7.12.5 The CVT secondary terminals shall be brought out in to a weather proof terminal box for ease of access. The terminal box shall have an IP rating of not less than IP 55. The terminal box shall be provided with a removable gland plate at the bottom and shall be suitable for accepting the required number of PVC insulated PVC sheathed, 10 core 2.5 mm<sup>2</sup> standard copper conductor cable.
- 7.12.6 All terminals shall be clearly marked to facilitate connection of secondary wiring.
- 7.12.7 Secondary fuses or MCBs shall be provided on or adjacent to each CVT, located such that they are accessible while the primary is live and shall be provided with labels indicating their function and their phase colours CVT secondary circuits shall be complete in themselves and shall be earthed at one point only. A separate earth link shall be provided for each secondary winding and shall be situated at the CVT. Primary earthing links should be provided.
- 7.12.8 Where CVTs are supplied which are, or may be connected to different sections of the bus bar, it shall not be possible for the CVT secondary circuits, to be connected in parallel.
- 7.12.9 An auxiliary switch or relay shall be provided in each phase of the secondary circuit of the synchronizing and metering voltage supply connections to break the circuits automatically as soon as the circuit breaker is opened.
- 7.12.10 To prevent ferro resonance, suitable damping devices shall be provided for connection to the transformer secondaries.
- 7.12.11 CVTs shall meet the requirements, given in this section of the specification.
- 7.12.12 The creepage and flashover distances of the high voltage insulator shall be suitable for the out door service conditions, specified in the schedules.
- 7.12.13 The bidder in the offer is to state the suitable precautions/methods, adopted during design stage of the CVT to avoid the un-desirable effects due to ferro resonance phenomena. The precautions/methods include lower level of working flux density in EMU, greater utilization of the linear portion of the magnetization curve, providing an air gap in the magnetic circuit, connecting a suitable damping resistance permanently across the secondary etc.
- 7.12.14 It should be stated in the bid offer regarding the steps taken in the design stage for elimination/minimization of the influence of the transient response on the behavior of high speed relays.

- 7.12.15 It shall be ensured by the bidder in the offer that the connection of carrier, frequency coupling device across the CVT will not affect the designated accuracy class of the CVT windings.
- 7.12.16 The capacitor divider unit shall comply to IS: 9348/1979.
- 7.12.17 It shall also be complied in the offer through a calculation sheet, proving that the designated accuracy class of the CVT (both metering and protection) are not affected by extreme temperatures, to be encountered in service conditions (Max. ambient temperature 50° C and minimum -0° C).
- 7.12.18 The terminal connectors should be suitable for ACSR ‘ ZEBRA’ Conductor, complying to Cl.No.A.7.18.8 of this specification.
- 7.12.19 Separate point should be provided for measurement of capacitance & dielectric dissipation factor.

8.. **TESTS:-**

- 8.1 **Type Tests:-** The offered 33 KV,132KV & 220 KV Inductive voltage transformer &220kv, 132KV capacitive voltage transformer should have been subjected to the following type tests in a Government approved Test Laboratory. The bidder shall furnish four sets of type test reports along with the offer. These tests must 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 to the design/type offered against this specification, the purchaser reserves the right to demand repetition of some or all type tests/special tests without any extra cost to OPTCL in the presence of purchaser’s representative at the cost of the supplier.

**For 220 KV, 132 KV IVT:**

- (a) Temperature rise test.
- (b) Lightning Impulse Test.
- (c) High Voltage power frequency wet withstand voltage tests.
- (d) Determination of errors.
- (e) IP-55 Test on secondary Terminal Box.

N.B.:- [I] The dielectric type tests should have been carried out on the  
Same transformer.

- (ii) After the IVT was subjected to the dielectric tests, it should have been subjected to all routine tests as per relevant standards.
- (i) For Temperature Rise Test, the test must have been made with the appropriate rated burden, connected to each secondary winding.

**For 400 KV, 220KV & 132KV CVT.**

**TYPE TESTS/SPECIAL TESTS FOR 400 KV, 220KV, 132KV CVT:-**

- a) Lightning Impulse voltage test on complete CVT unit.
- b) Power frequency over-voltage test on complete CVT unit.
- c) Partial discharge test.
- d) Radio interference voltage test.
- e) Corona extinction voltage test.
- f) Temperature rise test on complete CVT unit.
- g) Ferro resonance test on the complete C.V.T. unit.
- h) Transient response tests.
- i) Determination of Temperature Co-efficient test.
- j) High frequency capacitance and equivalent resistance measurement test (as per IEC-358)
- k) Stray capacitance and stray conductance test (as per IEC-358).

- l) Accuracy tests.
- m) Thermal stability test.
- n) Thermal Co-efficient test (as per IEC-358)
- o) Fast transient test.
- p) Seismic withstand test.
- q) IP-55 test on secondary Terminal Box.
- r) Magnetization and internal burden tests.
- s) Effectiveness of sealing tests.
- t) Mechanical Terminal load test on Bushing.
- u) Dielectric loss angle test (Tan Delta Test).

N.B:- 1.The dielectric type tests should have been carried out on the same CVT.

2.After the CVT was subjected to the dielectric tests, it should have been subjected to all routine tests as per relevant standards.

3.The ratio errors, phase displacements before, during and after the temperature rise test on complete CVT unit should have been determined with stipulated burdens and the same should comply with the designated accuracy class for each winding of the CVT.

8.2 **ROUTINE TESTS:-** The following routine tests shall be conducted on each VT in the presence of Purchaser's representative for which no charges will be payable by OPTCL. No sampling is allowed.

- (a) Verification of terminal markings.
- (b) Power frequency withstand tests on primary windings/capacitor voltage divider for IVT/CVT
- (c) Partial discharge measurement for 132KV IVT & 400 KV,220KV & 132KV CVT.
- (d) Power frequency withstand tests on secondary windings/Low voltage terminal of the capacitor divider for 400 KV,220KV & 132KV CVT.
- (e) Power frequency withstand tests between sections.
- (f) Determination of errors on complete IVT./CVT.
- (g) Measurement of Insulation resistance.
- (h) Oil leakage test.
- (i) Measurement of capacitance and dielectric dissipation factor before and after dielectric tests (as per IEC-358)
- (j) Power frequency tests on electromagnetic unit for 400 KV, 220KV & 132KV CVT.
- (k) Any other test as per relevant national & international standards.

N.B:- Determination of errors shall be performed after the other tests. The standard reference VT to be used during testing for determination of ratio error and phase angle error should of 0.05 accuracy class or better as per standard practice, presently adopted by OPTCL.

## 9. **INSPECTION:**

- 9.1 The Purchaser shall have access at all times to the works and all other places of manufacture, where the IVTs/CVTs are being manufactured and the supplier shall provide all facilities for unrestricted inspection of the supplier's works, raw materials, manufacturer of all the accessories and for conducting the necessary tests.
- 9.2 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 at the discretion of the Purchaser.
- 9.3 No material shall be despatched from its 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.

- 9.4 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.
- 9.5 Clear 15 (Fifteen) days notice shall be given to this office for deputing officer(s) for inspection. The Voltage Transformers shall be despatched only after the inspection is conducted by a representative of OPTCL and release order, issued from this office after approval of Routine Test Certificates. The shop routine test certificates in triplicate for all the Voltage Transformers along with the calibration certificates of all the meters and equipments to be used during testing (as per Annexure-B of the Specification) should be furnished along with the Inspection Offer. The Inspecting Officer will be authorised for inspection of the Voltage Transformers subject to the condition that the routine test certificates and calibration certificates of the testing equipments/meters will be found to be in order.
10. **QUALITY ASSURANCE PLAN:-**
- 10.1 The Bidder shall invariably furnish following informations along with 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 materials in presence of Bidder's representative, copies of test certificates.
  - [ii] Information and copies of test certificates as in [i] above in respect of bought out 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 tests and inspection.
  - [vi] Special features provided in the equipment to make it maintenance free.
  - [vii] List of testing equipments, meters 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.
- 10.2 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 name of Sub-suppliers selected from those, furnished along with the offer.
  - [ii] Type test certificates of the raw materials and bought out accessories.
  - [iii] Quality Assurance Plan (QAP) with hold points for the Purchaser's possible inspection. The QAP and hold points shall be discussed between the Purchaser and the Supplier before the QAP is finalised.
- 10.3 The Supplier shall submit the routine test certificates of bought out items and raw materials at the time of acceptance testing of the fully assembled equipment.
- 11 **DOCUMENT:** The supplier shall furnish four sets of following drawings/documents along with his offer.
- [a] General outline and assembly drawings of the Inductive Voltage Transformers/ Capacitive Voltage Transformers.
  - [b] Sectional views showing:-

- [i] General constructional features.
- (ii) Materials/gaskets/sealing used.
- iii] The insulation of the winding arrangements, method of connection of primary/secondary winding to the primary/secondary terminals etc.
- [c] Schematic drawing.
- [d] Rating & diagram plate as per relevant IEC/ISS
- [e] Secondary Terminal Box.
- [f] Assembly Sectional view of Primary terminal./ capacitor voltage divider
- [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.
- [k] All type test reports relating to the tests as specified in Clause-8.1 of the above.
- [l] Ratio and phase angle error curves for IVTS/ CVTS
- [m] Magnetization characteristic curves such as B-H curves and Sp. Loss vs. Flux density curves for core material, used for IVT & EMU unit of CVT.
- [n] Sectional view of EMU unit of 220KV&132KV CVT.

12. **TEST REPORTS:-**

- [i] Four copies of type test/special test reports shall be furnished to the Purchaser with the tender offer.
  - [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.
13. The necessary galvanized flanges, bolts etc. for the base of the Inductive/Capcitive Voltage Transformers shall be supplied without any extra cost to the purchaser.

14. **PACKING AND FORWARDING:-**

- 14.1 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. Any material found short inside the packing cases shall be supplied by supplier without any extra cost.
- 14.2 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.
- [h] Set of approved drawings.

14.3 The supplier shall ensure that the bill of materials is approved by the Purchaser before despatch.

15. Any tender without complete information as asked for in the above Specification is likely to be rejected.

APPENDIX – I.

**TECHNICAL REQUIREMENTS FOR 33 KV, 132KV & 220 KV INDUCTIVE VOLTAGE TRANSFORMERS &, 132KV, 220KV, 400 KV CAPACITIVE VOLTAGE TRANSFORMER.**

SL. NO	PARTICULARS	33 KV IVT	132KV IVT	220 KV IVT	132KV CVT	400 KV/ 220KV CVT
1	Type	Single phase, 50Hz, oil filled, self cooled, Hermetically sealed, outdoor porcelain type.	Single phase, 50Hz, oil filled, self cooled, Hermetically sealed, outdoor porcelain type.	Single phase, 50Hz, oil filled, self cooled, Hermetically sealed, outdoor porcelain type.	Single, phase, 50Hz, oil Filled, self cooled, Hermetically sealed, Outdoor porcelain type.	Single phase, 50Hz, oil Filled, self cooled, Hermetically sealed, Outdoor porcelain type.
2	Nominal system voltage.	33 KV	132KV.	220 KV.	132KV	400 KV/ 220KV
3	Highest system voltage.	36 KV	145KV.	245KV.	145KV	420 KV/245KV
4	Frequency.	50Hz± 5%	50Hz± 5%	50Hz± 5%	50Hz ± 5%	50Hz± 5%
5	System earthing.	Effectively solidly earthed	Effectively solidly earthed	Effectively solidly earthed	Effectively solidly earthed.	Effectively solidly earthed.
6	Number of phases.	3 [single phase]	3 [single phase]	3 [single phase]	3 [single phase]	3 [single phase]
7	(i)Number of secondary windings. (ii)Purpose of windings.	2 [two]  Protection & metering.	2 [two]  Protection & metering.	3 [three]  Protection & metering.	3 [three]  Protection & metering.	3 [three]  Protection & metering.

8	Rated primary voltage.	33/1.732 KV	132/1.732KV V	220/1.732KV V	132/1.732 KV	400/1.732 KV  220/1.732 KV
9	Rated secondary voltage.	Winding-I- 110/1.732V (Protection) Winding-II- 110/1.732V (Metering)	Winding-I- 110/1.732V (Protection) Winding-II- 110/ 1.732V (Metering)	Winding-I & II- 110/1.732V (Protection) Winding-III- 110/1.732V (Metering)	Winding-I- 110/1.732V Winding-II- 110/1.732V Winding-III- 110/1.732V	Winding-I- 110/1.732V Winding-II- 110/1.732V Winding-III- 110/1.732V
10	Ratio	33 KV/1.732: 110V/1.732	132KV/1.73 2: 110V/1.732	220KV/1.73 2: 110V/1.732	132KV/1.73 2: 110V/1.732	400/1.732KV /110/1.732 KV,220KV/1. 732: 110V/1.732
11	Rated burden.	Winding-I(P)- 100 VA  Winding-II(M)- 100 VA  Simultaneous Burden- 200 VA with accu. cl-0.2	Winding-I(P)- 200 VA  Winding- II(M)- 200 VA  Simultaneou s Burden- 400 VA with accu. cl-0.2	Winding-I(P)- 100 VA  Winding-I(P)- 100 VA  Winding- II(M)- 100 VA  Simultaneou s Burden- 300 VA with accu. cl-0.2	Winding-I (P)-100 VA  Winding-II (P)-100 VA  Winding-III (M)-100 VA /0.2 class simultaneou s burden- 100 VA with accu. cl-0.2	Winding-I (P)- 100 VA  Winding-II(P)- 100 VA  Winding- III(M)-100VA /0.2 class simultaneous burden-100 VA with accu. cl-0.2
12	Accuracy class .	3P/ 0.2	3P/ 0.2	3P/3P/ 0.2	3P/3P/0.2	3P/3P/0.2
13	Rated voltage factor  at rated frequency.	1.2 continuous.  1.5 for30 seconds.	1.2 continuous.  1.5 for30 seconds.	1.2 continuous.  1.5 for30 seconds.	1.2 continuous.  1.5 for 30 second.	1.2 continuous.  1.5 for 30 second.
14	Temperature rise at 1.2 times the rated primary voltage, rated frequency & rated burdens.	As per IEC- 186.	As per IEC- 186.	As per IEC- 186.	As per IEC- 186	As per IEC- 186

15	Temperature rise at 1.5 times the rated primary voltage for 30 seconds, rated frequency & rated burden.	As per IEC-186.	As per IEC-186.	As per IEC-186.	As per IEC-186.	As per IEC-186.
16	One-minute power frequency dry withstands test voltage for primary winding.	70 KV [rms]	275KV [rms]	460 KV [rms]	275KV [rms]	630 KV [rms]/460 KV rms
17	1-minute power frequency wet withstands test voltage for primary winding.	70 KV [rms]	275KV [rms]	460KV [rms]	275KV [rms]	630 KV [rms]/460 KV rms
18	1.2/50 micro second impulse withstand test voltage for primary winding	170 KV [peak]	650KV [peak]	1050KV [peak]	650KV [peak]	1425 KV peak/1050KV [peak]
19 (i)  (ii)	One-minute power frequency withstands test voltage for  Secondary winding  Between LV(HF) terminal & earth terminal	3KV [rms]  -  -	3KV [rms]  -  -	3KV [rms]  -  -	3KV [rnms]  10KV [rms] for exposed terminals & 4KV [rms] for terminals, enclosed in a weather proof box.	3KV [rnms]  10KV [rms] for exposed terminals & 4KV [rms] for terminals, enclosed in a weather proof box.
20	Class of insulation.	'A'	'A'	'A'	'A' or better for EMU.	'A' or better for EMU.

21	Material of the conductor of primary and secondary windings.	Copper.	Copper.	Copper.	Copper for EMU	Copper for EMU
22	Fault level of the bus to which PTs will be connected.	25KA [rms].for 1second.	31.5KA [rms].for 1second.	40 KA [rms].for 1second.	31.5KA [rms] 1 second.	40KA [rms].for 1 second.
23	Minimum creepage distance.	900mm	3625mm	6125mm	3625 mm	10500/6125 mm
24	Quality of oil.	EHV Grade As per IS-335.	EHV Grade As per IS-335.	EHV Grade As per IS-335.	EHV Grade As per IS-335.	EHV Grade As per IS-335.
25	Radio interference voltage at 1.1 times maximum rated voltage at 1.0 MHZ.		500 micro volts.	500 micro volts.	500 micro volts.	500 micro volts.
26	Partial discharge level.		Less than 10 piccocoulom bs.	Less than 10 piccocoulom bs.	Less than 10 Piccocoulom bs.	Less than 10 piccocoulomb s.
27	Seismic acceleration- Horizontal – Vertical.	0.3g. 0.15g.	0.3g. 0.15g.	0.3g. 0.15g.	0.3g. 0.15g.	0.3g. 0.15g.
28	Accuracy class of standard V.T. to be used during testing towards determination of ratio errors and phase angle errors for metering windings.	0.05 or better.	0.05 or better.	0.05 or better.	0.05 or better.	0.05 or better.
29.	Capacitance (Pf)		-	-	4400 + 10%,-5%	4400/4400 + 10%,-5%

**APPENDIX-II****QUANTITY AND DELIVERY SCHEDULE. PHASE-I.**

Sl. No.	Description	Quantity required.	Desired delivery	Destination.
			Within 4 months from the date of placement of the purchase order.	Any stores/sites within the ODISHA State. The same will be indicated in the Purchase order/Release order.
i	400kV CVT	12	-do-	-do-
ii	220kV CVT	45	-do-	-do-
vi	33kV PT (0.2s class)	0	-do-	-do-

N.B.:- The detail delivery programme and quantity to be delivered will be intimated at the time of placement of the Purchase order/issue of release order.

**APPENDIX-II****QUANTITY AND DELIVERY SCHEDULE****PHASE-II.**

Sl. No.	Description	Quantity required.	Desired delivery	Destination.
i	400kV CVT	12	Within 4 (four) Months from the last day of scheduled period of 1st phase delivery.	Any stores/sites within the ODISHA State. The same will be indicated in the Purchase order/Release order.
ii	220kV CVT	30	-do-	-do-
vi	33kV PT (0.2s class)	15	-do-	-do-

N.B.:- The detail delivery programme and quantity to be delivered will be intimated at the time of placement of the Purchase order/issue of release order.

ANNEXURE – A

GUARANTEED TECHNICAL PARTICULARS.

Sl. No	Description.	33 KV IVT	400 KV CVT	220 KV IVT	132KV IVT	132KV CVT	220KV CVT
		3P/0.2 Accuracy Class	3P/3P/0.2 Accuracy Class.	3P/0.2 Accuracy Class	3P/0.2 Accuracy Class	3P/3P/0.2 Accuracy Class.	3P/3P/0.2 Accuracy Class.
1	Bidder's name and address.						
2	Name and address of the Manufacturer.						
3	Manufacturer's type and designation.						
4	Standards applicable.						
5	Type of IVT/CVT						
6	Rated primary voltage (kv).						
7	Rated secondary voltage (volts).						
7.1	Winding-I.						
7.2	Winding-II.						
7.3	Winding-III.						
8	Rated frequency [HZ].						
9	Rated burden:- Protection Winding Protection Winding Metering Winding						
10	Number of secondary						

	windings.						
11	Accuracy class.						
[I]	[protection] Winding						
[II]	[metering] Winding						
12	Rated voltage factor for continuous operation at rated frequency.						
13	Rated voltage factor for 30 seconds at rated frequency.						
14	One minute dry and wet power frequency withstand voltage for primary side [kv] rms.						
15	One minute power frequency withstand voltage for secondary winding [kv] rms.						
16	1.2/50 micro-second impulse withstand test voltage for primary side						
17	Temperature rise over an ambient temperature of 50°C						
[a]	With 1.2 times rated primary voltage at rated frequency and						

	<p>at rated burdens.</p> <p>[I] Winding [°C]</p> <p>[II] Oil [°C]</p> <p>[III] Other parts [°C]</p>						
[b]	<p>With 1.5 times rated primary voltage for 30 seconds at rated frequency and at rated burdens.</p> <p>[I] Winding [°C]</p> <p>[II] Oil [°C]</p> <p>[III] Other parts [°C]</p>						
18	Class of insulation.						
19	Total creepage distance in (mm)						
20	Maximum radio interference voltage at 1.1 times maximum line to ground voltage (micro volts)						
21	Corona inception and extinction voltage (kv) rms						
22	Partial discharge level (picco coulombs)						
23	<p>Primary.[For 220KV, 132KV &amp; 33KV IVT]</p> <p>(a) No. of primary turns</p>						

	<p>(b) Material of primary</p> <p>(c) Size of the primary conductor bare/insulated.</p> <p>(d) Cross sectional area of primary conductor (sq.mm)</p> <p>(e) Current density adopted for primary winding (A/sq.mm)</p> <p>(f) Type of primary winding.</p> <p>(g) Name of the insulating materials used for primary conductor.</p> <p>(h) Weight of primary winding.</p>						
24	<p>Secondary. [For 220KV, 132KV &amp; 33KV IVT]</p> <p>(a)No. of secondary turns</p> <p>(b) Material of secondary</p> <p>© Size of the secondary conductor bare /insulated.</p> <p>(d)Cross sectional area of secondary conductor (mm<sup>2</sup>)</p> <p>(e)Current density</p>						

	<p>adopted for secondary winding(A/mm<sup>2</sup>)</p> <p>(f)Type of secondary winding</p> <p>(g)Name of the insulating materials used for secondary conductor.</p> <p>(h)Weight of secondary winding.</p>						
25	<p>Core. [For 220KV, 132KV &amp; 33KV IVT]</p> <p>(a)Shape of the core</p> <p>(b)Material and grade of the core laminations</p> <p>(c)Thickness of the core lamination (mm)</p> <p>(d)Maximum flux density adopted (Tesla)</p> <p>(e)Net iron area of the core</p> <p>(f)Watt loss/kg. for the core materials at the operating flux density(W/kg)</p> <p>(g) Total weight of the core(kg)</p> <p>(h)Whether B-H curve for core material enclosed?</p> <p>(i)Whether specific loss vrs. Flux density curve</p>						

	enclosed ?						
26	<p>INSULATION.  [For 220KV,  132KV &amp; 33KV  IVT]  (a) Insulation  between core  and  secondaries.  (b) Insulation  between  secondaries.  © Insulation  between  secondary and  primary.  (d) Insulation  between  primary .and  core.</p>						
27	<p>DIMENSIONS  OF CORE AND  WINDINGS.  [For 220KV,  132KV &amp; 33KV  IVT]  (a)Diameter of  the core (mm)  (b)Inner  diameter of the  secondary  windings(mm)  (c) Outer  diameter of the  secondary  windings (mm)  (d) Inner  diameter of the  primary  winding(mm)  (e) Outer  diameter of the  primary  winding(mm)  (f) Minimum  clearance from  primary  winding to  tank(mm)  (g) Minimum  clearance from  secondary  winding to  tank(mm)</p>						
28	Percentage						

	<p>voltage ratio (error)/phase displacement (min.)at 100% rated burden at 0.8PF lagging for measuring winding.</p> <p>(a) 80% of rated voltage at frequency:-</p> <p>(b) 120% of rated voltage at frequency:-</p> <p>(c) Accuracy of standard PT to be used. during determination of errors (0.05 or better.</p>						
29	<p>Percentage Voltage ratio /phase displacement (min.)at 25% rated burden at 0.8PF lagging for measuring winding.</p> <p>(a) 80% of rated voltage at rated frequency:-</p> <p>(b) 120% of rated voltage at rated frequency:-</p>						
30	<p>Percentage voltage (ratio)error /phase displacement (min.) at 100% rated burden at 0.8PF lagging for</p>						

	<p>protection winding</p> <p>(a)5% of rated voltage.</p> <p>(b)1.2 times rated voltage</p> <p>(c)1.5 times rated voltage</p> <p>(d) 2% of rated voltage..</p>						
31	<p>Percentage voltage (ratio) error /phase displacement (min) at 25% of rated burden at 0.8PF lagging for protection winding</p> <p>(a)5% of rated voltage</p> <p>(b)1.2 times rated voltage.</p> <p>©1.5 times rated voltage.</p> <p>(d) 2% of rated voltage.</p>						
32	Whether IVT/CVT is suitable for horizontal transportation.						
33	Quantity of oil per IVT/ CVT (Ltrs/kg)						
34	Standard to which oil conforms.						
35	Characteristic of oil(Prior to filling)						
35 .1.	Breakdown voltage (kv-rms)						
35 .2.	Dielectric dissipation constant tan delta)						
35 .3	Water content(PPM)						
35 .4	Gas content (PPM)						
35 .5	Interfacial tension at 27						

	degree C(N/m)						
35 .6	Specific resistance.						
35 .6. 1	At 90 deg.C (ohm-cm)						
35 .6. 2	At 27 deg.C (ohm-cm)						
36	Whether IVTS are hermetically sealed ? If so how ?						
37	Total Weight (kg)						
38	Transport weight (kg)						
39	Dimensional details.						
40	Whether IVT characteristic curves enclosed?						
41	TANK AND SECONDARY TERMINAL BOX.						
41 .1	Material of the IVT/ CVT tank						
41 .2	Material of the secondary terminal box.						
41 .3	Thickness of the IVT/ CVT tank material.						
41 .4	Thickness of the secondary terminal box material.						
41 .5	Zinc coating of IVT/ CVT tank (g/sq.m)						
41 .6	Zinc coating of the secondary terminal box (g/sq.m)						
41 .7	Weather proof rating of secondary terminal box.						
41 .8	Weight of tank fitting and other						

	accessories.						
	TERMINAL CONNECTORS						
01	Manufacturer's name						
02	Applicable standards.,						
03	Type.						
04	Material of connector. (a)Clampbody (b)Bolts and Nuts. (c ) Spring Washers						
05	Rated current.						
06	(a) Rated terminal load(kg) (b) Factor of safety.						
07	Minimum thickness of any part(mm)						
08	Weight of connector complete with hardware.						
09	Type test reports as per IS enclosed.						
10	OGA drawing enclosed.						
	BUSHING/ SUPPORT INSULATOR						
01	Manufacturer's name						
02	Type.						
03	Applicable standards.						
04	Dimensions: (i)Height(mm) (ii)Diameter (top)(mm) (iii)Diameter ( bottom)(mm)						
05	Total creepage distance (mm).						
06	Rated voltage (KV)(rms)						
07	Power frequency withstand						

	voltage for (1 minute dry and wet(KV/ rms)						
08	1.2/50 micro-second Impulse withstand voltage (KVP)						
09	Corona Extinction voltage(kv)						
10	Weight(kg)						
1	Maximum allowable span (mm)						
12	Cantilever strength(kg)						
13	OGA drawing enclosed.						

**ADDITIONAL TECHNICAL REQUIREMENT FOR 132 KV, 220 KV, & 400 KV CVT.**

1. Rated capacitance of the CVT
2. High frequency capacitance for entire carrier frequency range.
3. Equivalent series resistance over the entire frequency.
4. Stray capacitance and stray conductance of the LV terminal over entire carrier frequency range.
5. Capacitance (PF) /Tan delta between:-
  - a) HV-HF point
  - b) HF point-Ground point of International Transformer.
  - c) HV-Ground point of Intermediate Transformer winding.
6. Capacitive reactance of the two parts of the divider i.e. High voltage capacitor, and Intermediate voltage capacitor, connected in parallel.
7. Total Inductive reactance, offered by CVT.
8. Voltage ratio of the capacitor divider.

9. Open circuit Intermediate voltage.
10. Rated open circuit Intermediate voltage.
11. Reference range of temperatures within which the CVT complies with the relevant accuracy requirements.
12. Protective device, in-corporate in the CVT for limiting over voltages and/or to prevent sustained Ferro resonance.
13. Rated voltage of Surge Arrester, connected at the secondary of CVT.
14. Natural frequency of coupling (KHZ).
15. Self tuning frequency of CVT (KHZ).
16. Bandwidth (KHZ).
17. Temperature rise over ambient.
18. One minute power frequency test voltage of secondary winding (KV).
19. One minute power frequency test voltage of H.F. terminal (KV).
20. One minute power frequency test voltage of capacitor (dry & wet) (KV).
21. 1.2/50/micro second Impulse withstand test voltage of capacitor (KVP).
22. 250/2500 micro second switching surge withstand voltage of capacitor (dry & wet).
23. Literature  
Whether the followings are enclosed?
  - 23.1 Type Test reports as per IEC 186.
  - 23.2 OGA drawing of CVT and terminal connector.
  - 23.3 Characteristic curves.
  - 23.4 Drawing showing clearance from earthed object.
  - 23.5 Details of Surge Arrester, connected at secondary winding of CVT.
24. **ELECTROMAGNETIC UNIT:-**
  - 24.1 **CORE:-**
    - a) Core diameter (mm)
    - b) Window Weight (mm)
    - c) Leg centre (mm)
    - d) Net cross sectional area of iron

In the core (mm<sup>2</sup> )

- e) Core lamination thickness (mm)
- f) Type & grade of core.
- g) Design flux density at rated voltage.  
And rated frequency (Tesla)
- h) Design flux density at highest system voltage  
& lowest system frequency (Tesla).
- i) Minimum knee point voltage (volts).

24.2 **PRIMARY WINDING:-**

- a) No. of turns.
- b) Bare size of conductor
- c) Insulated size of conductor.
- d) Area of cross section.
- e) Current density (A/ mm<sup>2</sup>).
- f) Conductor material.
- g) Class of insulation.
- h) Power frequency withstand level.  
(KV-rms).
- i) Impulse withstand level (KVP).

24.3 Secondary Winding

Protection  
Winding

Protection  
Winding

Metering  
Winding.

- a) No.of turns
- b) Bare conductor size (mm)
- c) Insulated conductor size (mm)
- d) Cross-sectional area (sq.mm)
- e) Current density (A/ mm<sup>2</sup>)
- f) Conductor material.
- g) Class of Insulation.'
- h) Power frequency withstand  
Level (KV-rms).

ANNEXURE -B.

**CALIBRATION STATUS OF TESTING EQUIPMENTS AND INSTRUMENTS/METERS.**

Name of the test	Meters and equipments required for the corresponding test with range, accuracy, make and Sl. No.	Date of Calibration.	Due date of Calibration	Name of the Calibrating Agency.	Whether Calibrating Agency is Govt. Approved.
1	2	3	4	5	6

Whether documents relating to Govt. Approval of	Whether the meters/ equipment fulfill the	Whether the calibrating agency has put any limitation towards the use	Whether green sticker or blue sticker or yellow sticker has been affixed on the	Inspite of limitations, whether the particular	Remarks
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the calibrating Agency furnished ?	accuracy class as per calibration report	of the particular meter/equipment. If yes, state the limitations.	body of the particular equipment/meter. State the colour of the affixed sticker.	meter/equipment can still be used ? Justify its use for corresponding test(s).	
7	8	9	10	11	12

Signature of the tenderer with seal and date.

**ANNEXURE-C**  
**CHECK LIST TOWARDS TYPE TEST REPORTS.**

Name of the Type Test.	Date of Test.	Name of the Laboratory where the Test has been conducted	Whether the Laboratory is Government Approved.	Whether the Test reports are valid as per Clause No.8.1 of T.S.	Whether the copy of Test Report in complete shape alongwith drawings etc. furnished or not ?	Whether the Tested I.V.T/ CVT fulfills the technical requirements as per TS.	<b>If the type tested I.V.T/ CVT</b> does not fulfill the technical requirements as per this specification, whether the bidder agrees to conduct the particular test(s) again at their own cost without any financial liability to OPTCL in the presence of OPTCL's representative within the specified delivery period.	<b>Remark</b>
1	2	3	4	5	6	7	8	

Signature of the Tenderer with seal and date.

**ANNEXURE -D.**

CHECK LIST FOR DELIVERY SCHEDULE (PHASE-I.)

Sl. No.	Description of the equipments.	Quantity.	Delivery Schedule.
1	2	3	4
<u>LOT-I</u>			
<u>LOT-II</u>			
LOT-III			

Signature of the Tenderer with seal and date.

**ANNEXURE -E.**

CHECK LIST FOR DELIVERY SCHEDULE (PHASE-II.)

Sl. No.	Description of the equipments.	Quantity.	
1	2	3	4
<u>LOT-I</u>			
<u>LOT-II</u>			
LOT-III			

Signature of the Tenderer  
with seal and date.

**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.