



ODISHA POWER TRANSMISSION CORPORATION LIMITED

OFFICE OF THE SENIOR GENERAL MANAGER

CENTRAL PROCUREMENT CELL

JANAPATH, BHUBANESWAR-751022

TEL NO 0674-2541801 FAX NO 0674-2542964

TENDER SPECIFICATION NO.

Sr.G.M.-CPC-500KVA LT Transformer-PSDF-53/2016-17

FOR

PROCUREMENT OF 08 NOS.500KVA, 33/0.433 KV LT TRANSFORMERS

CONTENT

SECTION-I : INSTRUCTION TO TENDERERS.

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Request for online tender documents – From Dt.-16.11.2016 (10.00 Hrs)

to Dt.- 08.12.2016(12.00 Hrs)

Last date of submission of online tender – Up to Dt.08.12.2016 (13.00 Hrs)

Date of opening of Tender - Dt. 09.12.2016(15.00 Hrs)

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

e- TENDER NOTICE NO: CPC-53/2016-17

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 **500KVA, 33/0.433 KV LT TRANSFORMERS**. Bidders would be required to enroll themselves on the tender portal www.tenderwizard.com/OPTCL for participating in the above tender .Complete set of bidding documents are available in www.tenderwizard.com/OPTCL from 16.11.2016 (10.00 Hrs) to dt- 08.12.2016(12.00 Hrs).Interested manufacturers may visit OPTCL's official web site <http://www.optcl.co.in> and www.tenderwizard.com/OPTCL for detail specification.

N.B:-All subsequent addendums / corrigendum to the tender shall be hosted in the OPTCL's official web site <http://www.optcl.co.in> and www.tenderwizard.com/OPTCL only.

SENIOR GENERAL MANAGER [C.P.C.]

NOTICE INVITING TENDER

ODISHA POWER TRANSMISSION CORPORATION LIMITED
REGD. OFFICE: JANPATH, BHUBANESWAR – 751 022,
ODISHA, INDIA.
TENDER NOTICE NO CPC-53/2016-17

For and on behalf of the Odisha Power Transmission Corporation Limited, the undersigned invites bids from manufacturers under two-part bidding system in e-Tender mode only for supply of items as per the following details.

Lot No.	Tender Specification No	Description of materials.	Qty. In Nos.	Earnest Money Deposit (In Rs.)	Cost of Tender Document	Tender Processing Fee	Last date of submission	Date of opening of Tender
I	SR.GM-CPC-TENDER-500KVA L.T. TRANS-53/2016-17	500 KVA, 33/0.433 KV LT Transformers	08	75,024.00	Rs.10000+ 5% VAT (=10500.00)	Rs.5000/ + Service Tax @ 15% (=5750.00)	Up to 13.00 Hrs of Dt. 08.12.2016	On Dt.09.12.16 at 15.00 Hrs.

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

The bidders who want to submit bids shall have to pay non-refundable amount of Rs. 10,500/- (Rupees Ten thousand five hundred) only including VAT @ 5%) towards the tender cost, in the form of Demand draft/Pay order/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%) 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 download the bid proposal sheets & bid document in electronic mode.

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) based in Odisha and registered 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 date & time of submission of techno-commercial bid.

The demand draft/pay order for tender cost, processing fees 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 bidders shall scan the Demand Draft/Pay order/ Bank guarantee, towards EMD/ notarised hard copy of valid registration as local MSE(if any) and upload the same in the prescribed form in .gif or .jpg format in addition to sending the original as stated above.

The prospective bidders are advised to register their user ID, Password, company ID from website 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**

PART – I.
SECTION – I.

INSTRUCTIONS TO TENDERERS

<u>Clause.</u>	<u>Title.</u>
1.	Submission of Bids.
2.	Division of Specification.
3.	Tenders shall be in two parts.
4.	Opening of Bids .
5.	Purchaser’s right regarding alteration in Quantities, Tendered.
6.	Procedure and opening time of tenders.
7.	Bidder’s liberty to deviate from specification.
8.	Eligibility for submission of bids.
9.	Purchaser’s right to accept/reject bids.
10.	Mode of submission of tenders.
11.	Earnest money deposit.
12.	Validity of the bids.
13.	Price.
14.	Revision of Tender Price by Bidders.
15.	Tenderers to be fully conversant with the clauses of the Specification.
16.	Documents to accompany Bids.
17.	Documents/Papers to Accompany PART – II Bid.
18.	Conditional Offer.
19.	General.
20.	Expenses in respect of OPTCL’s representative for witnessing the inspection & testing of the offered equipment/materials at the inspection and testing site.
21.	Litigation

COMMERCIAL SPECIFICATION.

PART - I

SECTION - I

INSTRUCTIONS TO TENDERER

1. Submission of Bids:-

The bidder shall submit the bid in Electronic Mode only i.e 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 of Class-III.
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 DD in favour of K S E D C Ltd Payable at Bangalore.
 - 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.
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 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 & Part-II.

Part-I Consists of

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

Part-II Consists of

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

3. Tenders shall be in Two Parts.

The Tenderers are required to submit the tenders in two parts viz. Part-I (Techno commercial) & Part-II (Price bid). The Tenderers are required to submit the tenders in two parts Part-I, technical and 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 for opening of bids in Electronic mode in presence of such of the Tenderers or their authorized representatives [limited to one person only] on the due date of opening of tender who opt remain present. After scrutiny of the technical particulars and other commercial terms, clarifications, if required, shall be sought for from the bidders. The Tenderers shall be allowed 15 days time for such activity.

[b] On receipt of technical clarification, the bids shall be reviewed, evaluated and those not in conformity with the technical Specification / qualifying experience, shall be rejected. If any of the technical proposal requires modification to make them comparable, discussion will be held with the participating bidders.

[c] The bidders are required to furnish sufficient information to the Purchaser to establish their qualification, capacity to manufacture and/or supply the materials/perform the work. Such information shall include details of bidder's experience, its financial, managerial and technical capabilities.

[d] The bidders are also required to furnish details of availability of appropriate technical staff and capability to perform after sales services. The above information shall be considered during scrutiny and evaluation of bids and any bid which does not satisfactorily meet these requirements, shall not be considered for price bid evaluation.

[e] The price bids of the technically and otherwise acceptable bids shall only be evaluated as per the norms applicable in terms of this Specification.

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

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

6. Procedure and opening time of tenders.

Tenders will be opened in the office of the Senior General Manager [C.P.C.] on the specified date and time in presence of the Tenderers or their authorized

representatives [limited to one person only] in case of each bidder who may desire to be present, at the time of opening the bids.

7. Bidder's Liberty to deviate from Specification.

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

8. Eligibility for submission of bids.

Only those manufacturers who have deposited the cost of tender specification are eligible to participate in the tender. They should submit the money receipt as a proof of such payment. The local Micro and small Enterprises (MSEs) based in Odisha and registered with respective DICs, Khadi, Village, Cottage & Handicrafts 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 Tenders.

[A] Tenders shall be submitted in electronic mode only.
(www.tenderwizard.com/OPTCL)

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

11. Earnest money deposit:

The tender shall be accompanied by Earnest Money deposit of value specified in the notice inviting tenders against each lot / bid. Tenders without the required EMD as indicated at **Annexure-VIII** will be rejected out rightly.

The local Micro and small Enterprises(MSEs) based in Odisha and registered with respective DICs, Khadi, Village, Cottage & Handicrafts Industries, OSIC and NSIC can participate by submitting EMD @ 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 (Hd.qrs. Office), Bhubaneswar - 751022
- (b) **Bank Draft:** -To be drawn in favour of Drawing & Disbursing Officer, OPTCL [H.Qrs.Office], Bhubaneswar-751 022.
- (c) Bank Guarantee from any Nationalized/Scheduled Bank strictly as per enclosed proforma vide **Annexure-VI** to be executed on non-judicial stamp paper worth Rs.100.00 or as applicable, as per prevailing laws in force and also to be accompanied by the confirmation letter of the issuing Bank Branch.
- (d) National saving certificate duly pledged in favour of Senior General Manager [Central Procurement Cell] OPTCL [H.Qrs.Office], Bhubaneswar-751 022.

NOTE:

- (i). The validity of the EMD in the form of Bank Guarantee shall be at least for 240 days from the date of opening of tender failing which the tender will be liable for rejection.
- (ii) No interest shall be paid on the Earnest Money Deposit.
- (iii) E.M.D. in shape of cash may be submitted up to Rs. 25,000/- (Rupees Twenty-five) Thousand) only. Above Rs. 25,000/- (Rupees Twenty-five thousand) the Earnest Money Deposit shall be furnished in any one of the forms indicated above (i.e. Through Bank Draft, Bank Guarantee/ National Savings Certificate).
- (iv) No adjustment towards EMD shall be permitted against any outstanding amount with the **ODISHA POWER TRANSMISSION CORPORATION LTD.**
- (v) The chart showing particulars of EMD to be furnished by Tenderers of different categories is placed at **Annexure-VIII.**
- (vi) In the case of un- successful tenderer, the EMD will be refunded after the tender is decided. In the case of successful Tenderer, this will be refunded only after furnishing of security money referred to at clause-19of Section-II.
- (vii) Suits, if any, arising out of this clause shall be filed in a Court of law to which the jurisdiction of High Court of ODISHA extends.
- (vii) EMD will be forfeited if the tenderer fails to accept the letter of intent and/or purchase order issued in his favour or to execute the order, placed on them.
- (viii) Tenders not accompanied by Earnest Money shall be disqualified.
- (ix) The non judicial stamp papers in which the EMD BG is executed, should be purchased in the name of issuing bank only & not in the name of the bidder.

12. Validity of the Bids: -

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

13. PRICE: -

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 of period, no reduction or enhancement in price will be entertained. If there is any change in price, the tender shall stand rejected and the EMD deposited shall be forfeited.

[b] After opening of price bid if the validity period is not sufficient to place purchase order, the tenderer 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 tender 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 Senior General Manager (Central Procurement Cell) OPTCL. This, however, does not entitle the Tenderer to ask for time beyond due date, fixed for receipt of tender.

16. Documents to Accompany Bids.

Tenderers are required to submit tenders in the following manner:

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

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

- [vii] List of orders executed for similar materials/equipment during preceding 2 (two) years indicating the customer's name, Purchase Order No. & Date, date of supply and date of commissioning etc.
- [viii] Data on past experience **as per Clause-7 of Section-II** of the Specification.
- [ix] Sales tax clearance certificate for the previous year. The permanent account number [PAN] of the firm is required under Income tax Act.
- [x] Audited Balance sheet & profit loss accounts of the bidder, for past (3) three years.
- [xi] Schedule of quantity and delivery in the prescribed Proforma vide Annexure, as appended.
- [xii] List of Orders in hand to be executed.
- [xiii] Deviation schedule.
- (xiv) Local micro & small enterprisers (MSEs) based in Odisha and registered with respective DICs, Khadi, Village, Cottage & Handicrafts Industries, OSIC and NSIC have to submit notarized hard copy of valid registration as local MSE as above on or before the date & time of submission of techno-commercial bid and upload the scan/soft copy of the same in e-tender portal.

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

- (a) Part – II of the tender shall consist of the following
 - (i) Schedule of prices in the prescribed proforma

18. Conditional Offer:

Conditional offer shall not be accepted.

19. General: -

- (i) 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.
- (ii) For evaluation, the price mentioned in words shall be taken if there is any difference in figures and words in the price bid.
- (iii) Notice inviting tender shall form part of this specification.
- (iv) The price bids of the technically and otherwise acceptable bids shall only be evaluated. The EMD of others, if any, shall be returned to the bidders.
- (v) Tenderer can offer any lot or all the lots of the tender, if there are more than one lots. But the tender (bid) must be furnished separately for each lot. For each lot, the tenderer has to submit PART-I & PART-II of the bids separately.
- (vi) 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.

- (vii) The tenderer must submit the EMD amount, cost of tender document in a sealed cover envelope super scribing the tender specification number, Tender Notice No & Date of 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 bid.

20.0 Expenses in respect of OPTCL's representative for witnessing the inspection & testing of the offered equipment/materials at the inspection and testing site.

The testing and inspection of the equipment/ materials at manufacturer works are in the scope of work of the Contractor/Supplier.

OPTCL inspecting officer, on receipt of offer for inspection from the contractor/supplier, proceeds to the manufacturer works to witness the Type/Acceptance/Routine test.

Important:

It is hereby informed to all the bidders that the relevant clauses of the contract specification, pertaining to inspection and testing of equipment/materials, are hereby supplemented with following additional terms and conditions.

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 hotel for the OPTCL inspecting officer of the rank of Assistant General Manager (Grade E-6) and above.

II. Single room accommodation in 3 star hotel 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 (Ist/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.

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

(iv) 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.

(v) 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.

21.0 Litigation / Arbitration:

(a). Bidder is required to furnish detailed information on any litigation or arbitration arising out of contract 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.

(b). 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 the 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.

SECTION – II.

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

<u>Clause.</u>	<u>Title.</u>
1.	Scope of the contract.
2.	Definition of terms.
3.	Manner of execution.
4.	Inspection and testing.
5.	Training facilities.
6.	Rejection of materials.
7.	Experience of bidders.
8.	Language and measures.
9.	Deviation from Specification.
10.	Right to reject/accept any tender.
11,	Supplier to inform himself fully.
12.	Patent rights etc.
13.	Delivery.
14.	Despatch Instructions.
15.	Supplier's Default Liability.
16	Force Majeure.
17.	Extension of Time.
18.	Guarantee Period.
19.	Bank Guarantee towards Security Deposit, Payment and Performance.
20.	Import License.

21. Terms of Payment.
22. Penalty for Delay in Completion of Contract.
23. Insurance.
24. Payment Due from the Supplier.
25. Sales Tax clearance, Balance Sheet& P/L A/C
26. Certificate of exemption from E.D/Sales Tax.
27. Supplier's Responsibility.
28. Validity.
29. Evaluation.
30. Minimum qualification criteria of Bidders.
31. Jurisdiction of High Court of ODISHA.
32. Correspondences.
33. Official Address of the Parties to the Contract.
34. Outright rejection of Tenders.
35. Documents to be treated as confidential.
36. Scheme/Projects.

PART-I

SECTION-II

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

1. **Scope of the contract:**

The scope of the contract shall be to design, manufacture, supply of 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 ODISHA 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 Odisha General Clauses Act.

3. **Manner of execution:**

All equipment 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 equipment/materials to be supplied under this contract and if part of the said equipment/material is being manufactured in other premises, the supplier shall obtain for the purchaser’s representative permission to inspect, examine and test as if the equipment/material were being manufactured in the contractor’s premises. Such inspection, examination and testing shall not relieve the supplier from his obligations under the contract.

[ii] The Supplier shall give to the purchaser adequate time/notice (at least clear 15 days for inside the state suppliers and 20 days for outside the state suppliers) in writing for inspection of materials indicating the place at which the equipment/material is ready for testing and inspection and shall also furnish the shop Routine Test Certificate, Calibration certificates of Testing instruments, calibrated in Govt. approved laboratory with authenticity letter of that laboratory along with the offer for inspection. A packing list along with the offer, indicating the quantity which can be delivered in full truck load/Mini truck load to facilitate issue of dispatch instruction shall also be furnished.

[iii] Where the contract provides for test at the Premises of the supplier or any of his sub-vendors, the supplier shall provide such assistance, labour, materials, electricity, fuel and instruments, as may be required or as may be reasonably demanded by the Purchaser’s representative to carryout such tests efficiently. The supplier is required to produce shop routine test Certificate, calibration certificates of Testing Instruments before offering their materials/equipment for inspection &

testing. The test house/laboratory where tests are to be carried out must be approved by the Govt. A letter pertaining to Govt. approved laboratory must be furnished to the purchaser along with the offer for inspection.

- [iv] After completion of the tests, the Purchaser's representative shall forward the test results to the Purchaser. If the test results conform to the specific standard and specification, the Purchaser shall approve the test results and communicate the same to the supplier in writing. The supplier shall provide at least five copies of the test certificates to the Purchaser.
- [v] The Purchaser has the right to have the tests carried out at his own cost by an independent agency whenever there is dispute regarding the quality of supply.
- [vi] If the firm fails to present the offered items for inspection/testing as per their inspection call due to any reason(s) during the visit of inspecting officer at the testing site, the firm shall have to bear all expenses towards repetition of inspection and testing of the total offered quantity or part thereof.

5. **Training facilities.**

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

6. **Rejection of Materials.**

In the event any of the equipment /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 equipment /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/equipment offered as per technical specification executed during the last two years along with users certificate. User's certificate shall be legible and must indicate, user's name, address, designation, place of use, and satisfactory performance of the equipment/materials for at least two years from the date of commissioning. Wherein at least one (1) certificate shall be from a State/Central or P.S.U. Bids will not be considered if the past manufacturing experience is found to be 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, notwithstanding any exemptions mentioned therein.

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

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

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

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

12. **Patent rights Etc.**

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

13. **Delivery:-**

[a] Time being the essence of the contract; the equipment shall be supplied within the delivery period, specified in the contract. The Purchaser, however, reserves the right to reschedule the delivery and change the destination if required. The

delivery period shall be reckoned from the date of placing the Letter of Intent/Purchase order, as may be specified in LOI/Purchase order.

- [b] The desired delivery period shall be as indicated at Annexure – III(Schedule of quantity & delivery) of Section – III.

14. **Despatch instructions.**

- I] The equipment / 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 equipments along with all its accessories and spares, covered by this specification should be guaranteed for satisfactory operation and against defects in design, materials and workmanship for a period of at least 48 [Forty Eight] months from the last date of delivery or 36 [Thirty six] months from the date of commissioning, whichever is earlier. 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.

The date of commissioning shall be the date from which the equipment is in satisfactory operation. The last date of delivery shall be the date on which the transformer along with all its accessories and spares are received at OPTCL's stores/sub-station site in complete shape and good condition, substantiated with verification certificate by OPTCL which are released for Dispatch by the purchaser after due inspection.

The above guarantee certificate shall be furnished in triplicate to the purchaser for his approval.

- [ii] Equipment along with all its accessories and spares failed or found defective during guarantee period shall have to be guaranteed after repair/replacement for a further period of 36 months from the date of commissioning or 48 months from the date of receipt at OPTCL's stores/sub-station site in complete shape and good condition, after such repair/replacement whichever is earlier. Date of receipt as

used in this clause shall mean the date on which the transformer along with all its accessories and spares are received at OPTCL's stores/sub-station site in complete shape and good condition which are released for dispatch by the purchaser after due inspection. The Bank guarantee is to be extended accordingly.

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

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

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), based in 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 2 months more than from guarantee period (as indicated this clause-18 of above) 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. Terms of Payment.

(A)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) (In case of successful bidder who is a local Micro and small Enterprise(MSEs), based in Odisha & registered with respective DICs, Khadi,

Village, Cottage & Handicrafts Industries, OSIC and NSIC 5% (five 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.

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 as applicable shall be paid, 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 taxes shall be payable.

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

22. Penalty for Delay in Completion of Contract

- I) If the Supplier fails to deliver the materials/equipment within the delivery schedule, specified in the contract including delivery time extension, if any, granted thereto, the Purchaser shall recover from the Supplier, penalty for a sum of half percent (0.5 percent) of the Ex-works price of the un-delivered equipment for each calendar week of delay or part thereof. For this purpose, the date of receipted chalan shall be reckoned as the date of delivery. The total amount of penalty shall not exceed five percent (5%) of the ex-works price of the unit or units so delayed. Equipment will be deemed to have been delivered only when all its components and accessories as per technical Specification are also delivered. If certain components & accessories are not delivered in time, the equipment will be considered delayed until such time as the missing parts are delivered.
- II) If the Supplier fails to rectify /replace the equipment/material within 30 days from the date of intimation of the defect, so noticed by the purchaser within the guarantee period then the penalty for sum of one half of the one percent (0.5%) of the total Purchase order amount for each calendar week of delay shall be recovered by the purchaser within the guarantee period. For this purpose, penalty date will start from the 30th. day from the date of issue of letter on defectiveness of equipment/material, so supplied, by the purchaser. The total amount of penalty in

this case shall not exceed 10% (TEN PERCENT) of the purchase order amount. The purchase order amount shall mean ex-works price + freight & insurance and all taxes & duties. If the defects so intimated within the guarantee period will not be rectified by the

Supplier within the stipulated period as per clause 18 (i), then whole of the B.G. will be forfeited by the purchaser, without any intimation to the Supplier.

23. Insurance

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

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

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

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

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

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

27. Supplier's Responsibility.

Notwithstanding anything mentioned in the Specification or subsequent approval or acceptance by the Purchaser, the ultimate responsibility for design, manufacture, materials used and satisfactory performance shall rest with the Tenderers. The Supplier(s) shall be responsible for any discrepancy noticed in the documents, submitted by them 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.
- m) Any imposition of new tax or revision of tax shall be considered at the time of price bid evaluation.

(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/equipment 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 furnish their willingness to match their bid price with that of the lowest evaluated bidder without any price preference. In such case, they shall be eligible to get up to 30% of the tendered quantity to 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 equipment 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 as per the specification** on the tendered equipment in Government approved laboratory within five years from the date of opening of the tender.
- v) The bidder must possess BIS license for the tendered transformer.

31. Jurisdiction of the High Court of Odisha.

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 Odisha 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 (Odisha)

Telephone No. 0674 - 2541801

FAX No. 0674 - 2542964

[ii] **Supplier:** Address

Telephone No.

Fax No.

34. **Outright Rejection of Tenders**

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

[i] The tenderer 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), based in Odisha & 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 3 (three) 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 equipment , 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 equipment /materials for a minimum period of 3 (three) 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) (a) Detailed information on any litigation or arbitration arising out of contract 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.
- (xiii) (b) 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 the 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 General Terms & Conditions of contract.	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 Deviation.	ANNEXURE-XII
13.	Litigation History	ANNEXURE-XIII

ANNEXURE - I
DECLARATION FORM

To

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

Sub:- Tender Specification No-_____

Sir,

1. Having examined the above specification together with terms & conditions referred to therein * I/We the undersigned hereby offer to supply the materials/equipments covered therein complete in all respects as per the specification and General conditions, at the rates, entered in the attached contract schedule of prices in the Tender.
2. * I/We hereby undertake to have the materials/equipments delivered within the time specified in the Tender.
3. * I/We hereby guarantee the technical particulars given in the Tender supported with necessary reports from concerned authorities.
4. * I/We certify to have submitted the bid electronically by remitting *cash/money order/D.D./ remitting the cost of tender, herewith and this has been acknowledged by your letter/ money receipt No.....Dated,
5. In the event of Tender, being decided in *my/our favour, * I/We agree to furnish the Composite B.G. in the manner, acceptable to ODISHA POWER TRANSMISSION CORPORATION LTD., and for the sum as applicable to *me/us as per clause-19 of section-II of this specification within 15 days of issue of letter of intent/purchase order failing which *I/We clearly understand that the said letter of Intent/Purchase order will be liable to be withdrawn by the purchaser, and the EMD deposited by us shall be forfeited by OPTCL.

Signed this day of 2016

Yours faithfully

Signature of the Bidder
with seal of the company

[This form should be dully filled in by the tenderer and uploaded at the time of submission of tender.]

* (Strikeout whichever is not applicable).

N.B:- The annexure is to be filled up & uploaded as PDF

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

1	Whether the material/equipment offered conforms to the OPTCL'S specification (If not, specify the deviations in Annexure).	Yes/No
2.a.i	Cost of Tender Document:	Submitted/Not submitted
2.a.ii	OPTCL Money Receipt No. & Date / D.D No & Date.	
2.b.i	Earnest money furnished.	Submitted/Not submitted
2.b.ii	Bank Guarantee No. & Date / D.D No. & Date.	
2.c.i	Tender Processing Fee:	Submitted/Not submitted
2.c.ii	D.D No. & Date.	
3	Manufacturer's supply experience including user's certificate uploaded or not. [As per clause No.7 of Section-II.]	Yes/No
4.a.i	Commercial Deviations to the specification if any	Yes/No
4.a.ii	If Yes, [list uploaded or not, As per clause-9 of the Section-II	Yes/No
4.b.i	Technical Deviations to the specification if any	Yes/No
4.b.ii	If Yes, list uploaded or not, As per clause-9 of the Section-II	Yes/No
5	Delivery <u>(Period in months from the date of issue of PO)</u>	
6	Guarantee: - Whether agreeable to OPTCL's terms[As per clause-18 of Section-II].	Yes/No
7	Whether agreeable to furnish Composite B.G. in case his tender be successful [As per clause-19 of Section-II]	Yes/No
8	Terms of payment:- Whether agreeable to OPTCL's terms or not [As per clause-21 of Section-II]	Yes/No
9	Nature of price:- FIRM	Yes/No
10	Penalty: - Whether agreeable to OPTCL's terms or not (As per clause- 22 of Section-II)	Yes/No
11	Whether STCC/ P&L A/C, Balance Sheet for the required period are uploaded as per clause-25 of Section-II	Yes/No
12	Validity: - Whether agreeable to OPTCL's terms or not[As per clause-28 of Section-II]	Yes/No
13.a	Whether ED is included / excluded and shown separately.	Included/Excluded
13.b	% of ED(On Ex-Works price) as well as L.S indicated.	Yes/No
13.c	If NIL/EXEPMTED please specify with validity period of such exemption.	
14.a	Whether ST is included/excluded in Ex-works	Included/Excluded

	price	
14.b	% of ST (On Ex-Works price +ED+Edu. Cess)	
15	Whether recent type test certificates from any Government approved laboratory is uploaded or not. [As per clause-30[viii] of section-II]	Yes/No
16	Whether guaranteed technical particulars are uploaded or not	Yes/No
17	Whether dimensional design/drawings uploaded or not	Yes/No
18	Whether materials are ISI/ISO marked.	Yes/No
19	Manufacturer's name and it's trademark	
20	Whether registered under Odisha Sales Tax Act 1997/Central sales Tax Act	Yes/No
21	Whether declaration form, duly filled in, uploaded or not	Yes/No

Place:
Date:

Signature of the Bidder
with seal of the company.

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

Sl. No.	Lot No.	Description of materials	Quantity required.	Desired delivery	Destination
1.		2.	3.	4.	5.
1	I	500KVA, 33/0.433KV Copper wound Transformer with OLTC.	08 Nos.	Delivery to be completed within 3 months from the date of issue of the purchase order.	Any Stores/ Sites of OPTCL within State of Odisha.

Place:
Date:

Signature of the Bidder
with seal of the company.

N.B:- The annexure is to be filled up & uploaded as PDF

ANNEXURE- IV
ABSTRACT OF PRICE COMPONENT [TO ACCOMPANY PRICEBID]

1	Price basis	F.O.R. Purchaser's destination Stores/sites.
2	Packing & forwarding	
3	Rate of Insurance charges	
4	Rate of Freight charges	
5	Rate of excise duty	
6	Rate of sales Tax	
7	Rate of other taxes/levies /duties etc.	
8	Rate of entry tax.	
9.	Rate of Service Tax	
10.	Nature of price.	
11.	Whether MODVAT benefit if any, has been fully passed on to the purchaser.	Yes / No.

Place:
Date:

Signature of the Bidder
with seal of the company.

ANNEXURE-V
SCHEDULE OF PRICES

Sl. No	Item Description	Quantity (Unit)	UOM	Unit Ex-Works Price in Rs.	Total Ex-Works Price	Unit Packing & Forwarding Charges	Unit Freight	Unit Insurance
1	2	3	4	5	6=3*5	7	8	9
			Nos					

Total Packing, forwarding, F&I Charges	Unit E.D	Unit Service Tax	Unit CST	Unit VAT	Unit Entry Tax	Unit Exit Tax	Total Taxes & duties	Total Amount including packing, forwarding, F&I and all taxes & duties
10=3*(7+8+9)	11	12	13	14	15	16	17=3*(11+12+13+14+15+16)	18=(6+10+17)

Signature of Tenderer
Name, Designation and Seal

NB: -

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

ANNEXURE-VI

PROFORMA FOR BANK GUARANTEE FORM FOR EARNEST MONEY DEPOSIT

Ref

Date

Bank Guarantee No:

1 In accordance with invitation to Bid No.....Dated..... of 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 [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 Chief General Manager [Procurement] ODISHA POWER TRANSMISSION CORPORATION LIMITED _____

[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 to pay [Indicate the name of the bank]

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, the _____ Bank 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 [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 LIMITED 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 the OPTCL

[Indicate the name of the bank]

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 Guarantee

[Indicate the name of the bank]

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 _____ branch at Bhubaneswar in the State of Odisha.

(Indicate Branch name & Branch code)

Dated _____ Day of _____

Notwithstanding contained herein above,

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

ii) This bank Guarantee shall be valid upto _____.

iii) We are liable to pay the guarantee amount or any part thereof under this bank Guarantee only, if you serve upon us at Branch (Indicate branch name & branch code) Bhubaneswar in the state of Odisha, a written claim or demand on or before _____.

Witness ((Signature, names & address)

1.

2

For _____

[Indicate the name of Bank]

ANNEXURE-VII

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

This Guarantee Bond is executed this _____ day of _____ 2013 by us the _____ Bank at _____ P.O. _____ P.S. _____ District _____ State _____

1. WHEREAS the ODISHA POWER TRANSMISSION CORPORATION LIMITED, 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. _____ [herein after called "The Supplier"] which shall include its successors and 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 FORD price of the said agreement.

*Strike out, whichever is not applicable.

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 be 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 LIMITED 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 for 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 (Indicate name of branch & code) at Bhubaneswar in the State of Odisha.

Dated _____ Day of _____

Notwithstanding contained herein above,

- i) Our liability under this Bank Guarantee shall not exceed Rs. _____(Rupees _____).
- ii) This bank Guarantee shall be valid upto _____.
- iii) We are liable to pay the guarantee amount or any part thereof under this bank Guarantee only, if you serve upon us at Branch (Indicate branch name & branch code) Bhubaneswar in the state of Odisha, a written claim or demand on or before _____.

For _____
[Indicate the name of the bank]

Witness (Name, Signature & Address)

1.

2.

ANNEXURE- VIII

**CHART SHOWING PARTICULARS OF EARNEST MONEY DEPOSIT
FURNISHABLE BY TENDERERS**

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

NB: - REFUND OF E.M.D.

- [a] In case of unsuccessful tenderers, the EMD will be refunded immediately after the tender is decided. In case of successful tenderer, this will be refunded only after furnishing of Composite Bank Guarantee referred to in clause No.19 of Section-II of this specification.
Suits, if any, arising out of EMD shall be filed in a court of law to which the jurisdiction of High Court of 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.

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ANNEXURE-IX

DATA ON EXPERIENCE

Sl. No	PARTICULARS	
[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(s) of the Organisations to whom supplies were 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 & present status	
[g]	A list of purchase orders, executed during last three years	
[h]	A list of similar equipments of specified KVA rating, voltage class, Impulse level, short circuit rating, designed, manufactured, tested & commissioned which are in successful operation for at least two years from the date of commissioning with legible users certificate. Users 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 Bidder
Name, Designation, Seal

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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 Bidder
Name, Designation, Seal

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ANNEXURE-XI

SCHEDULE OF INSTALLATIONS

Rated KVA	Rated Voltage	Place of Installation complete address	Year of commissioning

Place:

Date:

Signature of Bidder
Name, Designation, Seal

N.B:- The annexure is to be filled up & uploaded as PDF

ANNEXURE-XII

SCHEDULE OF DEVIATION

A. TECHNICAL.

Sl.No.	Requirements/ Equipment.	Specification Clause No.	Deviations.	Remarks

It is hereby confirmed that except for deviation mentioned above, the offer conforms to all the other features specified in Technical Specification Section ____ of this Bid document.

Place: _____ Signature of the Bidder.

Date: _____ Name:

Business address:

B. COMMERCIAL.

Sl.No.	Requirements/ Equipment.	Specification Clause No.	Deviations.	Remarks

It is hereby confirmed that except for deviation mentioned above, the offer conforms to all the other features specified in Commercial Specification Section ____ of this Bid documents.

Place: _____
Signature of the Bidder.

Date: _____ Name:

Business address:

N.B:- The annexure is to be filled up & uploaded as PDF

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 Bidder:

Name, Designation, Seal



ODISHA POWER TRANSMISSION CORPORATION LIMITED

TECHNICAL SPECIFICATION

FOR

ENERGY EFFICIENT (BIS ENERGY LEVEL-I)

500KVA, 33/0.433 KV STATION TRANSFORMER

TECHNICAL SPECIFICATION FOR ENERGY EFFICIENT

(BIS ENERGY LEVEL-I)

500 KVA, 33/0.433 KV STATION TRANSFORMER

1.0 S C O P E

1.1 The specification covers the design, engineering, manufacture, stage inspection, testing, pre-delivery inspection, supply, delivery, loading, unloading and performance requirements of nominal system voltages 33/0.433 KV non-sealed type **copper wound** distribution transformers of **500 KVA rating** for outdoor use in the networks of OPTCL. The transformers shall be double wound, three phases, CRGO Electrical Steel, oil immersed with ONAN cooling with Oil filled up to maximum permissible level.

1.2 The transformer shall conform in all respects to highest standards of engineering, design, workmanship, this specification and the **latest revisions of relevant standards** at the time of offer and the owner shall have the power to reject any work or material, which, in his judgment, is not in full accordance therewith.

2.0. TYPE:

The Transformers shall be of the outdoor core type double wound oil immersed self-cooled type 'ON' and conform to ISS 1183/1964 , 2026/1977 and IS-1180 (Part-1) : 2014 with up-to-date amendments.

All the transformers shall be suitable for operation in humid atmosphere in the tropical place where maximum ambient temperature may be considered as 50°C.

3.0 CODES & STANDARDS

3.1 The transformers shall comply with IS 1183/1964, 2026/1977 and IS-1180 (Part-1): 2014 & the latest version thereon & CBIP standards with Class-A materials specified therein and should be designed taking ambient temp. as 50° C.

3.2 Except where modified by this specification, the Transformers shall be designed, manufactured and tested in accordance with the latest editions of the following standards.

LIST OF REFERRED INDIAN STANDARDS

Sl. No.	IS No.	Title
1	191 : 2007	Copper
2	335 : 1993	New Insulating Oils
3	554 : 1999	Pipe threads where pressure- tight joints are made on the threads-Dimensions, tolerances and designation
4	1576 : 1992	Solid pressboard for electrical purpose
5	1608 : 2005	Mechanical testing of metals-Tensile testing
6	6792	BDV
7	1885 (Part-38) : 1993	Electro technical vocabulary : Part 38 Power transformers and reactors
8	1897 : 2008	Copper strip for electrical purpose
9	2026	Power Transformers :
10	(Part-1) : 2011	General
11	(Part-2) : 2010	Temperature rise
12	(Part -3) : 2009	Insulation levels, dielectric tests and external clearances in air
13	(Part-5) : 2011	Ability to withstand short circuit
14	(Part-8) : 2009	Application guide
15	(Part-10) : 2009	Determination of sound levels
16	2099 : 1986	Bushings for alternative voltages above 1000 volts
17	3024 : 2006	Grain oriented electrical steel sheets and strips
18	3347	Dimensions for porcelain transformer bushings for use in lightly polluted atmospheres
19	(Part-1 / Sec-1) : 1979	Up to and including 1 KV, Section 1 Porcelain parts
20	(Part-1 / Sec-2) : 1979	Up to and including 1 KV, Section 2 Metal parts
21	(Part-2 / Sec-1) : 1979	3.6 KV Bushings, Section 1 Porcelain parts
22	(Part-2 / Sec-2) : 1979	3.6 KV Bushings, Section 2 Metal parts
23	(Part-3 / Sec-1) : 1988	17.5 KV Bushings, Section 1 Porcelain parts
24	(Part-3 / Sec-2) : 1988	17.5 KV Bushings, Section 2 Metal parts
25	(Part-4 / Sec-1) : 1988	24 KV Bushings, Section 1 Porcelain parts
26	(Part-4 / Sec-2) : 1982	24 KV Bushings, Section 2 Metal parts
27	(Part-5 / Sec-1) : 1979	36 KV Bushings, Section 1 Porcelain parts
28	(Part-5 / Sec-2) : 1979	36 KV Bushings, Section 2 Metal parts
29	2099	Electrical characteristics of Bushings
30	3347	Dimension of Bushing
31	3639 : 1966	Fittings and accessories for power transformers
32	4253 (Part-2) 2008	Cork composition sheet : Part 2 Cork and rubber
33	(Part-1) : 1971	Round conductors
34	7404 (part-1) : 1991	Paper covered copper conductors : Part 1 Round conductors
35	7421 : 1988	Porcelain bushings for alternating voltages up to and including 1000 V
36	8999 : 2003	Pipe threads where pressure tight joints are made on the threads- Verification by means of limit gauges
37	9335 (Part-1) : 1979	Cellulosic papers for electrical purpose : Definitions and general requirements

38	(Part-2) : 1998	Methods of test
39	(Part -3 / Sec-1) : 1984	Specifications for individual materials, Section 1 General purposes electrical paper
40	(Part -3 / Sec-3) : 1984	Specifications for individual materials, Section 3 Crepe paper
41	(Part -3 / Sec-5) : 1985	Specifications for individual materials, Section 5 Special papers
42	11149 : 1984	Specification for rubber gaskets
	12444 : 1988	Continuously cast and rolled electrolytic copper wire rods for electrical conductors
43	13730	Specification of particular types of winding wires
44	(Part-0 /Sec-3) : 2012	General requirements, Section 3 Enameled round copper wire
45	(Part-17) : 1996	Polyviny1 enameled rectangular copper wire, Class 105
46	(Part-27) : 1996	Paper covered rectangular copper wire
47	1852	Tolerance for transformer tank

This list is not to be considered exhaustive and reference to a particular standard or recommendation in this specification does not relieve the Supplier of the necessity of providing the goods complying with other relevant standards or recommendations.

**4.0 The service conditions shall be as follows:
Provisions of IS 2026 (Part-I) shall apply.**

Sl. No	Description	SERVICE CONDITIONS
[a]	Maximum altitude above sea level	1000 m
[b]	Maximum ambient temperature	50 °C
[c]	Maximum daily average ambient air temperature	40 °C
[d]	Minimum ambient air temperature	-5° C
[e]	Maximum temperature attainable by an object exposed to the sun	60 ° C
[f]	Maximum yearly weighted average ambient temperature	32° C
[g]	Maximum relative humidity	100%
[h]	Average no. of rainy days in a year.	120 days
[i]	Average annual rainfall	150 cm
[j]	Maximum wind pressure	260 Kg/Sq.m
[k]	Average number of thunderstorm days per annum (isokeraunic level)	100

Environmentally, the region where the equipment will be installed includes coastal areas, subject to high relative humidity, which can give rise to condensation. Onshore winds will frequently be salt laden. On occasions, the combination of salt and condensation may create pollution conditions for outdoor insulators. Therefore, outdoor material and equipment shall be designed and protected for use in exposed, polluted, salty, corrosive, tropical and humid coastal atmosphere.

5. TECHNICAL PARTICULARS:

The transformer shall have core type copper wound construction, oil immersed 'ON' suitable for out-door service as a step down transformer. The rating and electrical characteristics of the transformers shall be as follows:

		500KVA	
i)	Frequency	-	-----50 Hz ± 5% -----
ii)	Continuous rating	-	500 KVA
iii)	Rated HT/LT voltage	-	-----33/0.433 KV-----
iv)	Number of phase	-	-----3 phases -----
v)	Connection HT	-	-----Delta -----
vi)	Connection LT	-	-----Star -----
vii)	Vector group	-	-----Dyn – 11-----
viii)	Taps	-	-10% to +5% in steps of 2.5% variation in high voltage side.
	Number of Tap Position	-	7
ix)	Percentage impedance at Continuous maximum Rating at 75° C winding Temperature.	-	----- +4.5% (Minimum) ----- (No negative tolerance is allowed)
x)	Type of tap changer for transformer-	-	Rotary type, off load control tap changing gear
xi)	BIL	-	-----170 KVP-----
xii)	Terminal connection	-	Bimetallic clamp suitable for requisite alluminium conductor as per system Requirement.

6. WINDING CONNECTIONS AND PHASE DISPLACEMENT

The primary winding shall be connected in delta and the secondary winding in star [vector symbol, Dyn 11, IS2026 (part-I)], so as to produce a positive phase displacement of 30° from the primary to the secondary vectors of the same phase. The neutral of the secondary winding shall be brought out to a separate insulated terminal.

7. TAPPING RANGES AND TAPPING METHODS

Winding tapped	HV
Number of tap positions	7
Voltage variations	+ 5 percent to -10 percent in steps of 2.5 percent for variation of HV

The transformer shall be so designed that the temperature rise is maintained within limits, specified in relevant standards when operated at full output or constant primary service voltage on any primary tapplings irrespective of the tapping corresponding to the service voltage.

An externally operated off circuit tapping switch shall be provided to enable changing of taps without removing the transformer cover or lowering of the oil level. The transformer shall give full rated KVA output at all the taps.

The switch mechanism shall be so designed as to prevent the entry of moisture into the tank. The design of the switch mechanism shall ensure that the switches are making full contact. The tap mechanism shall be provided with a locking device.

8. INSULATION

8.1 The electric strength of the winding insulation and of bushings shall conform to the values given in the IS: 2026/1977.

8.2 For rated system voltage of 33 Kv, the impulse test voltage is 170 kV (Peak) & power frequency voltage is 70KV.

8.3 All windings of the transformer shall have uniform insulations.

9. CAPACITY

The transformers shall be for the rated kV specified on the HV side and on the LV side. The insulation and magnetic circuit shall be suitable for working continuously at 10% in excess of the normal voltage and at the same time at a frequency of 3% below the normal.

10. CURRENT DENSITY

All windings shall be made of copper according to the copper standard and the current density in each winding shall be kept within 2.4 A/sq.mm.

11. PERMISSIBLE FLUX DENSITY AND OVER FLUXING

11.1 The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla.

NOTE -The design calculations in support of flux density shall be furnished by the manufacture.

11.2 No load current shall not exceed 2 percent of the full load current and shall be measured by energizing the transformer at rated voltage and frequency. Increase of 12.5 percent of rated voltage shall not increase the no-load current by 5 percent of full load current.

12 LIMITS OF TEMPERATURE-RISE

12.1 The type of cooling shall be ONAN as per IS 2026 (Part-2).

12.2 The permissible temperature-rise shall not exceed the limits of 45°C when measured by resistance method for transformer winding and 40°C measured by thermometer for top oil when tested in accordance with IS 2026 (Part2).

13. FRERQUENCY

The transformers shall be suitable for continuous operation with a frequency variation of plus or minus 3% from the normal frequency of 50 Hz without exceeding the specified temperature rise.

14. EFFICIENCY

The efficiencies of the transformer corresponding to 25%, 50%, 75%, 100%, 110% and 125% load may be specified. Maximum efficiency should occur at 50% load.

15. LOSSES & PERCENTAGE IMPEDEANCE

The total Losses (No-load + Load Loss at 75° C) at 50% of rated load and 100% of rated load shall not exceed the values given in the following table.

Ratings	Total Loss (No-load + Load Loss at 75° C) at 50% of rated load	Total Loss (No-load + Load Loss at 75° C) at 100% of rated load	Percentage Impedance at 75 Degree C at Normal Tap.
500 KVA (Copper wound)	1720W (Max.)	5106W (Max.)	4.5 (Minimum)

The above losses are maximum allowable losses & there shall not be any + ve tolerance on the losses for the transformers. The purchaser reserves the right to reject the whole lot of supply in case the loss figures exceed the limit given in above table at the time of testing.

16. PARALLEL OPERATION

The transformers with similar connection shall be capable of operating in parallel on corresponding taps and of sharing loads in proportion to their ratings subject to the tolerances of impedance.

17. TERMINAL ARRANGEMENTS

HT side – Bimetallic clamp type, suitable for appropriate aluminium conductor as per requirement and layout.

LT side – cable connection, 3 ½ x 300 mm² armoured PVC aluminium cable. The neutral of the star end brought to a separate insulation terminal for earthing purpose.

18. BUSHING TERMINALS

All main winding and neutral leads shall be brought out through outdoor type bushing having terminals of appropriate voltage & current ratings, suitable for bare copper or aluminium conductors for 33 kV side and to suit for 3 ½ x 300 mm² armoured PVC cable for 433 volt side & so located that the full flash over strength will be utilized.

Bushings shall be of the outdoor type and easily replaceable. All bushings shall have a minimum creepage distance of 25 mm /KV and shall have a continuous rating of 200% of the transformer rating. The protected creepage distance shall not be less than 50% of the total.

Each bushing shall be so coordinated with the transformer insulation that all flashovers will occur outside the tank. The porcelain used for the bushings shall be of the wet processed type, homogenous and free from cavities or other defects. The glaze of the porcelain parts shall be uniform in colour and free of blisters, burns and other defects.

The bushings shall conform to IS: 2099/73 and dimension of bushings shall confirm to relevant part / section of IS: 3347 with its latest amendments.

19. FLASHOVER CHARACTERISTICS OF BUSHINGS

The spacing between the bushings must be adequate to prevent flash over between phases under all condition of operation. Special adjustable coordinating gaps should be provided on the high-tension terminals and the gap setting adjusted with

reference to the impulse coordination of the system. The bidder is required to provide the guaranteed withstand voltage for the impulse and flash over values of the bushings.

20. Marking & Relative Positions of Terminals

Appropriate characters in accordance with IS 2026 (Part-1) shall be indelibly marked upon or adjacent to the terminals.

21. Minimum Clearances in Air

The minimum phase to phase and phase to earth external clearances for LV & HV bushings shall be as below.

Nominal System Voltage	Phase and Phase clearances in mm	Phase and Earth clearances in mm
Up to 1.1 KV	75	40
33KV	350	320

22. SUPPRESSION OF HARMONICS

The transformers shall be designed with particular attention for suppression of harmonic voltages especially the 3rd and 5th so as to eliminate wave form distortion and any possibility of high frequency reaching such a magnitude as to cause, interference with post office or other communication circuits.

23. CENTRE OF GRAVITY

The center of gravity of the assembled transformer shall be low and as near the vertical centerline as possible. The transformer shall be stable with or without oil. If the center of gravity is eccentric to the vertical line either with or without oil, its location shall be shown on the outline drawing.

24. VIBRATIONS AND NOISE

The transformers shall operate without undue vibration and noise and shall comply with NEMA publication: TR – 1 and IS 2026 (Part-10).

25. WINDING AND INSULATION

All permanent current carrying joints shall be welded or brazed.
 All threaded connections shall be provided with locking facilities.
 The assembled core and coils shall be properly dried before impregnation. The process of impregnation should be stated.
 All leads from the winding shall be rigidly supported to prevent injure isolation due to vibration. Flexible tubes shall be used where practicable.
 The HT and LT winding of all transformers shall be of the fully insulated type.

- a. Special attention should be given to provide adequate insulation and clearances between HT and LT windings and live parts must be adequate for normal voltage of operation plus 10%.
- b. The end turn insulation of the transformers shall in conformity with latest practice.
- c. Windings shall be circular and concentric with the HT windings on the outside. All similar coils shall be inter changeable.
- d. The windings shall be oil impregnated paper insulated and made of continuous & smooth electrolytic copper conductor. The insulation of coils & assembly of windings shall be insoluble, non-catalytic and chemically inactive in the hot transformer oil. The insulation shall be of class “A” category.

e. The insulation of the transformer winding and connection shall be free from insulating compound which may so often coagulate, shrink or collapse during service. None of the materials used shall shrink, disintegrate, carbonized or become brittle under the action of hot oil when the transformer is operated continuously with the conductors at any temperature which may be reached at the specified loading conditions.

The finished width of any oil ducts shall be such and the clamping arrangement shall be so designed as not to impede the free circulation of oil through the ducts.

26. BRACING OF WINDINGS

Windings connections and tappings of the transformers shall be braced to withstand the shocks, which may occur during transport and during service due to short circuit, switching or other transient condition. No mechanical movement of coils shall be possible with dead short circuit on either side of the transformer. The short circuit rating shall be as per Clause 9.1 ISS: 2026/1977.

27. MAGNETIC CIRCUITS

The transformers core shall be of high grade non-ageing, electrical silicon steel cold-rolled laminations each coated with hot oil proof, lead enamel insulation clamped together firmly to the frame to ensure even pressure over the whole of the core laminations and to prevent undue vibration and noise. After being sheared the laminations shall be treated to remove all burns and shall be reannealed to remove all strains.

In no case, second grade core material is to be used. The purchaser at his discretion, may select samples from the core laminations and get the same tested in CPRI/ NABL Accredited laboratory to prove the quality of the core material. The cost of such test shall be borne by the bidder.

The supplier shall have to offer every batch of core laminations received from his Sub-Vendor along with **Invoice of the sub-vendor, Mills test certificate, packing list, Bill of landing, Bill of entry certificate to customs etc. towards proof of prime core materials for verification by the Purchaser's representative without any cost to the Owner.** Besides, the contractor must mention in his bid about the type of CRGO laminations to be utilized for the offered transformers along with a copy of the specific core loss curve at different flux densities.

Paper or varnish insulation shall not be accepted. The joints in the core shall be inter leaved and in no account will 'Butt Joints' be accepted. Suitable axial cooling ducts suitable proportioned to prevent excessive temperature rise must be provided to ensure, free circulation of oil and efficient cooling of the core. The clamping structure shall be so constructed with MS Channels, and insulated bolts and so designed that eddy currents is minimum and hood must not be used for the purpose. The core shall be designed and build up in such a manner as to avoid accidental or slow development of short circuit plates through iron and frame.

The core and coils shall be so fixed in the tank that their shifting will not occur when the transformer is moved.

Means shall be provided for earthing the core with the framework at one point only.

28. TRANSFORMER TANK

28.1 The tank is of plain tank configuration with radiator fins for cooling. Stiffeners shall be provided to give mechanical strength, so that bulging does not occur in service. The tank shall be so designed that with the minimum dismantling necessary, the core and winding can be lifted free of the case. External lugs or eyes for lifting the core or windings shall be provided. Ample space shall be provided with an appropriate arrangement of things, suitable for lifting transformer core with winding. The tank shall be fitted with a substantial under carriage and provided with rollers. The minimum thickness of the bottom & top plates shall be 6 mm and side plates shall be 4 mm.

28.2 PRESSURE & VACUUM REQUIREMENTS

The transformer tank shall be capable of withstanding a gauge pressure of 80kPa and a vacuum gauge pressure of 500mm of Mercury.

29. ABILITY OF TRANSFORMER TO WITHSTAND EXTERNAL SHORT CKT

The performance of transformer under external short circuit conditions shall be in accordance with IS: 2026 (Part-5).

30. OIL

Sufficient quantity of oil shall be supplied with each transformer for filling each tank, bushing and conservator to the proper level. The oil shall be in accordance with IS No.335/1972 & its latest amendments. Oil test certificates shall be furnished at the time of inspection of transformers in support of the use of new unused oil conforming to IS 335 in the transformer.

The dielectric strength of the oil shall not be less than 60 KV at 2.5 mm. gap when tested in accordance with IS: 6792/ 1972.

31. EARTHINGS

The core and tank cover shall be earthed to the tanks by means of copper connection capable of carrying for 30 seconds without damage and over loading with earth fault current not less than full load current of the main transformer. In no case shall the cross sectional area be less than 0.1 sq. inch. Two earthing terminal shall be provided suitable for No 7 SGW bare copper wire with suitable soldering lugs.

32. TANK FITTINGS AND ACCESSORIES

The standard fittings to be provided on each transformer in line with manufacturers practice may be provided including the following:-

a. Oil conservator of sufficient capacity to accommodate necessary volume of oil as well as breathing space and shall be provided with drain plug/valve oil gauge, with a mark to indicate oil level required at a temperature of 40° C. The Silica Gel dehydrating breather should have minimum capacity to contain 0.5 kg dehydrated silica gel.

b. Explosion Vent

A safety valve of chimney type shall be provided. The bottom of the safety valve pipe shall project into the tank.

c. Glass Type Thermometer

Mercury in glass type thermometer mounted on the top of the transformer to read the temperature in the hottest part of the oil.

d. Drain Valve

1" (15mm) drain valve cum lower filter valve suitable for connection to the flange of the same diameter. The valve should be fitted with an adopter for 16 mm hose for filtering purposes. The valve shall be located so as to enable with drain out of the oil from the tank. This valve shall be equipped with a small sampling cock.

e. Earthing terminal and numbers- Two points.

f. Air relief vent.

g. Rating and diagram plate

The rating plate should bear the data specified in the proper clauses of ISS-2026/1977. The diagram plate should also show the internal connection and so the voltage vector relationship of the several windings in addition to a plan view of the transformer giving accurate physical relationship with the terminals.

h. Oil filter valve

The oil filter valves should be fitted with adopter for 16 mm hose. These valves are for oil filtration and for draining of oil for sample and test purpose.

i. Joint and Gaskets

All joints in the transformer and auxiliary equipment shall be made in such a manner as to prevent ingress of moisture of leakage of oil.

j. Arcing horn with each HT bushings.

k. Pad lock for tap changing switch.

l. Accessory equipment not specifically listed above but normally regarded as standard shall be provided in accordance with relevant clauses of ISS: 2026/1977, IS: 1180(Part-1): 2014 & CBIP practice.

33. PACKAGE

The packing may be in accordance with the manufacture's standard practice. The bushings shall be packed and dispatched separately. Full details of packing for approval of the purchaser should be given. The package shall be such to satisfy the conditions of transport by rail and road to existing place where the transformer is to be erected and also be suitable for rough handling.

34. PAINTING

Before dispatch all steel work not under oil shall be painted with a primary coat of anti-corrosive paint of durable nature and one coat of final finishing paint. The transformers shall be painted with heat resisting dark grey paint sand blast painting will be preferred.

35. TESTS

The transformers shall be subjected to stage inspection of core, windings, tanks and fittings before the final inspection. Test certificates from manufacturer for core, conductors, oil, mild steel used for tanks, insulations and etc. shall be furnished to the purchaser before calling for stage inspection. After the successful stage inspection, final inspection and other tests will be carried out as mentioned below in accordance with

Indian Standard Specification No. 2026/1977 at Manufacturer's works before dispatch to site.

The purchaser reserves the right of having other reasonable tests carried out at his own expenses either before dispatch or at site to ensure that transformer complies with the requirement of the specification. The test certificates (for both stage inspection & final inspection, tests) in duplicate shall be submitted as soon as the tests are completed for approval.

35.1 Before calling for final inspection, the supplier shall furnish the factory test results (routine and additional routine test results) of the offered transformer along with list of equipment used during testing with serial number, make, class of accuracy, the valid calibration certificates of the equipment/instruments used during testing to the owner for owner's information and reference. On verification of the test results, measuring instruments & calibration certificates, the owner may direct the contractor for use of better equipment/meters during inspection/testing.

All routine, type and special tests shall be performed as per relevant parts of IS 2026.

Routine tests are to be conducted at the manufacturer's factory as per IS: 2026 & as indicated below, in presence of purchaser's representative.

Type tests and special tests as indicated below will only be conducted at CPRI/ ERDA .

35.2 Routine Test:- The followings shall be regarded as routine tests and shall be conducted at the manufacturer's work on each transformer in presence of purchaser's representative. No extra cost shall be paid for these tests.

a. Measurement of winding resistance at normal & extreme taps.

As per [IS: 2026(Part-1)]

b. Ratio, polarity and phase relationship & vector group test.

As per [IS: 2026(Part-1)]

c. Impedance voltage / short circuit impedance at the normal tap & extreme taps. As per [IS: 2026(Part-1)]

d. Measurement of load loss and neutral unbalance current.

This test shall be carried out with three wattmeter's method with low power factor wattmeter, low range Ammeters and phase sequence meters.

The load loss measurement shall be made at 50% and 100% load. [IS: 2026(Part-1)] at normal tap and extreme taps.

e. Temperature rise test. [IS: 2026(Part-2)]

Note- Maximum measured total loss (No load at rated excitation + Load loss at maximum current tap converted to 75°C reference temperature) at 100 percent loading shall be supplied during temperature rise test

f. Measurement of no-load loss and no load current. [IS: 2026(Part-1)]

This test to be carried out with 3 wattmeter method by using low power factor wattmeters, 3 power factor meters, phase sequence meters, three low range ammeters and three each average value and RMS value voltmeters. The test voltage from 10% voltage to 121% voltage shall be applied and currents, voltages (Average value and RMS value), wattmeter, power factor and frequency meter readings in all the 3 phases to be recorded during the test. A voltage (RMS) vrs. Measured current graph shall be plotted by the supplier and handed over it to the purchaser for analysis.

During the test, supplier's own generator set shall be used for feeding the rated voltage at rated frequency. If the applied frequency is greater than the rated frequency, then proportionate voltage to the rated frequency will be fed during the test and following frequency correction formula along with the formula given in Clause 16.5 IS:2026(Part-I) shall be used.

$$K = 0.5/f 1 + 0.5 (f/f 1)^2$$

Where f = rated frequency & f1 = applied frequency.

For example :- If measured loss = x, correction factor due to rms & Average voltage as per ISS = k1, and frequency correction factor = k. Then corrected loss will be calculated as = measured loss x * k1 * k.

If applied frequency is less than the rated frequency, then no frequency correction formula will be applied. Rated voltage at that frequency will be fed during the test.

N.B. No load current shall not exceed 2 percent of the full load current and shall be measured by energizing the transformer at rated voltage and frequency. Increase of 12.5 percent of rated voltage shall not increase the no-load current by 5 percent of full load current.

g. Insulation resistance Test by motorized megger:- Insulation resistance values to be taken at 1 minute & at 10 minutes intervals. Ratio of insulation resistance taken at 10 minutes and at 1 minute should not be less than 1.5.

h. Induced over voltage withstand. [IS: 2026(Part-3)]

i. Separate sources voltages withstand. [IS: 2026(Part-3)]

j. Magnetic balance test

k. Oil BDV Test

l. Oil Leakage Test [Clause 21.5 of IS-1180 (Part-1) : 2014]

m. Pressure Test [Clause 21.5 of IS-1180 (Part-1) : 2014]

n. Measurement of dimensions & etc.

35.3 Type test:- The followings shall be regarded as type tests .

a. Lightning Impulse Test including chopped waves. [IS: 2026(Part-3)]

b. Temperature rise test. [IS: 2026(Part-2)]

Note- Maximum measured total loss (No load at rated excitation + Load loss at maximum current tap converted to 75°C reference temperature) at 100 percent loading shall be supplied during temperature rise test.

c. Pressure Test: - As per Clause 21.5 of IS-1180 (Part-1): 2014

35.4 Special tests:-

The followings shall be regarded as special tests.

a. Determination of Sound levels. [IS: 2026(Part-10)]

b. Short-circuit withstand test. [IS: 2026(Part-5)]

Note-Routine tests before and after short circuit test shall be conducted as per **IS: 2026(Part-1)**.

c. No Load Current - at 112.5 percent of rated voltage.

d. Paint Adhesion test: - The test is performed as per ASTM D3359.

e. BDV and moisture content of oil in the transformer (IS 335)

The test certificates of the routine tests, type tests & special tests as indicated above, conducted by the supplier on the tendered transformer at CPRI or any Govt. approved laboratory within the last 5(five) years from the date of opening of this tender shall be submitted along with the tender offer.

CPRI/Govt. approved laboratory test certificate along with CPRI/Govt. approved laboratory drgs. (Internal and external drgs.) shall accompany the bid.

36. TEST REPORT

After all tests have been completed, certificated copies of each test report shall be furnished. Each report shall provide the following information.

- i. Complete identification data including serial number of the transformer.
- ii. Method of application where applied, duration and interpretation of the results for each test.
- iii. Temperature data corrected to 75 °C including ambient temperature.

37. REJECTION

The transformer may be rejected at the discretion of the purchaser if the test results are not satisfactory and tolerances are exceeded.

38. After Sale Service:-

36.1 The supplier should guarantee after sales services for minimum period of one and half years after the Guarantee period.

36.2 The supplier should provide after sales services within 15 days of receipt of intimation from the field engineer in charge of the equipment.

39. Following are the list of annexure enclosed with this technical specification.

1. Annexure-1 - Schedule of technical particulars (GTP)
(To be furnished in techno commercial bid)
2. Annexure-II- Format for stage Inspection
3. Annexure-III- Quantity & Delivery schedule
(To be furnished in techno commercial bid)
4. Annexure-IV- Calibration status of testing Equipments
(To be furnished by the manufacturer)
5. Annexure-V- Check list towards type test reports
(To be furnished by the manufacturer)
6. Annexure-VI- Check list for delivery schedule (To be furnished by the manufacturer)

ANNEXURE-I.

SCHEDULE OF TECHNICAL PARTICULARS TO BE FURNISHED BY THE MANUFACTURER

STANDARD FORM OF GUARANTEED TECHNICAL PARTICULARS:-

1. Name of the manufacturer.
2. Service.
3. KVA Rating:-
 - a) H.V. Winding.(KVA)
 - b) L.V. Winding.(KVA)
4. Highest system voltage/Nominal voltage.
 - a) H.V. Winding.(KV)
 - b) L.V.Winding(KV)
5. Rated frequency.(Hz)
6. Number of phases.
7. Connections:-
 - a) H.V. Winding.
 - b) L.V. Winding.
8. Connection symbol
9. Tappings:-
 - a) Range
 - b) Number of steps for high voltages variation.
10. Reference ambient temperature:-
 - a) Maximum ambient air/temperature.(°C.)

- b) Maximum daily average ambient air temperature.(°C.)
 - c) Maximum yearly average ambient air temperature.(°C.)
 - d) Minimum ambient air temperature.(°C).
 - e) Maximum cooling water temperature.(°C).
11. Type of cooling
12. Temperature rise over ambient temp.
- a) Temperature of oil(°C).
 - b) Winding.(°C).
13. i) Total loss (No load + Load losses at 75°C) at 100% of the rated load(KW).
 ii) Total loss (No load + Load losses at 75°C) at 50% of the rated load (KW).
 iii) Stray loss & Eddy current loss at 75°C at 100% of the rated load (KW).
 iv) Stray loss & Eddy current loss at 75°C at 50% of the rated load (KW).
 v) % Regulation.
14. (A) Component losses.
- i) No-load loss at rated nominal voltage and normal frequency(In watts).
 - ii) Load loss at 75°C at 100% of rated load at normal tapping & at extreme (highest & lowest) taps(In Watts).
 - iii) Load loss at 75°C at 50% of rated load at normal tapping & at extreme (highest & lowest) taps (In Watts).
- (B) Resistance at normal tap & at 75°C.
- i) H.V(Ohm).
 - ii) L.V. (Ohm).
15. Impedance voltage & percentage Impedance at full rated current at 75°C. at
- a) Normal tap.
 - b) Lowest tap position
 - c) Highest tap position.
16. % Reactance at rated current and rated frequency.

17. No load current at rated nominal voltage and rated frequency and at 50%, 75%, 100%, 110%, 112.5 % , 121% & 125% voltage & at rated frequency(Amp).

18. Insulation level (See IS-2026 (Part-III/1977)).

a) Separate source power frequency voltage withstand

i) H.V. Winding(KV rms).

ii) L.V. Winding(KV rms).

b) Induced over voltage withstand.

i) H.V. Winding(KV rms).

ii) L.V. Winding(KV rms).

c) 1.2/50 microsecond wave shape Impulse Withstand .

i) H.V. Winding(KV Peak).

ii) L.V. Winding(KV Peak).

c) P.I. value.

19. Efficiency:-

a) Efficiencies at 75°C at unity power factor.

i. At 25% of full load (%)

ii. At 50% of full load (%)

iii. At 75% of full load (%)

iv. At 100% of full load (%).

v. At 110% of full load (%).

vi. At 125% of full load (%).

b) Efficiency at 75°C and 0.8 P.F. lagging (%)

vii. At 25% of full load (%)

viii. At 50% of full load (%)

ix. At 75% of full load (%)

x. At 100% of full load (%).

xi. At 110% of full load (%).

xii. At 125% of full load (%).

c) Load at which maximum efficiency occurs (%)

d) Maximum efficiency(%)

20. Regulation at full load at 75°C

a. At unity power factor(%)

b. At 0.8 power factor lagging(%)

21. Equipment for ONAN cooling.

i. No. of Radiators on main tank.

ii. Make & type

iii. No. of tubes/Fins in each radiator.

iv. Tube/Fins length(Meter)

v. Total radiating surface

vi. Thickness of sheets of Tube/Fins(mm)

vii. Size of tubes(dia in sq. mm)/fins(L x B x H in mm)

viii. Loss to be dissipated by Radiators in KW.

Dissipation per fin at 50°C ambient temperature and full load.

22. Number of coolers or cooler banks per transformer

23. Rating of each cooler or cooler bank.

24. Terminal arrangement.

a. High voltage.

b. Low voltage.

c. Neutral.

25. Approximate masses:-

a. Core(Kg)

b. Winding(Kg).

c. Core Coil assembly(Kg)

d. Tank, fittings & accessories(Kg)

e. Oil(Kg)

f. Radiators(Kg)

g. Total mass(Kg)

26. Oil data:-

a. Quantity for first filling(Ltr.)

- b. Grade of oil used.
- c. Maker's name.
- d. BDV at the time of filling.
- e. Moisture content in ppm.
- f. Type of oil.

27. Tank dimensions for over all dimensions.

- a. Length(mm)
- b. Breadth(mm)
- c. Height(mm)
- d. Thickness of main tank sheets(mm)
 - i. Top plate
 - ii. Bottom plate
 - iii. Side plate.
- e. Tank inside dimension
 - i. Length
 - ii. Breadth
 - iii. Height
- f. Tank outside dimension
 - i. Length
 - ii. Breadth
 - iii. Height.

28. Dispatch details.

- a. Approximate mass of heaviest package(Kg)
- b. Approximate dimensions of largest package(mm)
 - i) Length.
 - ii) Breadth.
 - iii) Height.

29. Un-tanking height(mm)

30. **Clearances:-**

30. (i) Clearances inside the transformer with oil:-

- (a) Minimum clearance between phases (mm).
- (b) Minimum clearance between phase to any body part (mm).
- (ii) Clearances outside the transformer:-
 - a. Minimum clearance between phases (mm).
 - b. Minimum clearance high voltage to earth (mm)
 - c. Minimum clearance height for lifting core & windings from tank(mm)

31. CORE :-

- a) Grade of Core materials used.
- b) Thickness of Core laminations used(mm).
- c) Sp. Loss in watts/Kg. of core materials corresponding to desired flux densities.
(Curve to be furnished along with the bid).
- d) Maximum flux density with + 12.5% combined voltage & frequency variation from rated voltage and frequency (Tesla or W/m²)
(Design calculations in support of flux density to be furnished along with the bid).
- e) Maximum flux density at rated system voltage & rated frequency (Tesla or W/m²)
- f) No-load loss at 100% rated voltage and rated frequency (Watt).
- g) No load current at 100% of rated voltage & rated frequency
- h) No load current at 110% of rated voltage.
- i) No load current at 112.5% of rated voltage.
- j) No load current at 121% of rated voltage.
- k) No load current at 125% of rated voltage.
- l) EMF per turn
- m) Core diameter (mm).
- n) Core Window Height(mm)
- o) Core Leg centre(mm)
- p) Total Height of core(mm)
- q) Max width of core
- r) No. of core bolt.
- s) Dia of each core bolt in mm.

- t) Thickness of core bolt insulation(mm)
- u) Total Weight of core(Kg.)
- v) No of Steps
- w) Dimensions of Steps

	Width in mm	Thickness in mm
i) Step – 1		
ii) Step -2		
iii) Step – 3		
iv) Step – 4		
v) Step – 5		
vi) Step – 6		
vii) Step – 7		
viii) Step – 8		
ix) Step – 9		
x) Step – 10		
- x) Gross core cross sectional area(cm²).
- y) Stacking factor
- z) Net core cross sectional area(cm²).

32. WINDING: -

LV

HV

HV regulating.

- a) Type of winding
- b) Current per phase (Amp.)
- c) Bare conductor size (mm)
- d) Insulated conductor size(mm).
- e) Type of insulation
- f) Thickness of insulation(mm)
- g) Total Conductor cross section (mm²)
- h) Current density (A/mm²)
- i) Turns per phase (T).
- j) Coils per limb.

- k) Turns per coil.
- l) Turns per layer.
- m) Layers per coil.
- n) Winding depth.
- o) Coil dia inside.
- p) Coil dia outside.
- q) Length of mean turns.
- r) Resistance at 75°C,
- s) Total $I^2 R$ loss including stray & eddy current loss at 75°C,
- t) Weight of copper with insulations.
- u) Weight of copper without insulations.

33. Breather:-

- a. Make
- b. Type
- c. Capacity
- d. Weight of silica gel filled in(grams).

34. Inter layer insulation provided in design for:-

- a. Turn insulation high voltage.
- b. Turn insulation low voltage.
- c. Insulation core to low voltage.
- d. Insulation high voltage to low voltage.
- e. Insulation between winding to top & bottom yoke
- f. In between all layers(mm)
- g. Whether wedges are provided at 50% turns of the coil.

35. Insulation materials.

- a) For conductors(H.V. & LV)
- b) For core.

36. Particulars of bushings:-

- a. Maker's name.
- b. Type IS-3347/IS-1180.

- c. Rating as per I.S.
- d. Dry flash over voltage(KV)
- e. Wet flash over voltage(KV).

37. Explosion Vent:

- a. Diameter of Pipe:
- b. Thickness of Diaphragm

38. I.R. value at 30°C.

- a. HV/E
- b. LV/E
- c. HV/LV

39. Polarisation Index :-

- a. HV/E.
- b. LV/E.
- c. HV/LV.

Bidders Name:-

Signature :-

Designation :-

Date:-

ANNEXURE-II

FORMAT FOR STAGE INSPECTION

A	WINDING		
Sl.No		L.V.	HV
1.	Conductor Bare mm		
2.	Conductor Insulated (mm)		
3.	Type of Conductor Insulation		

4.	No. of Conductor in parallel.		
5.	Current density (A/mm ²)		
6.	Rated volts per phase (volts).		
7.	Turns per phase (T)		
8.	Type of winding.		
9.	No. of discs (Nos.)		
10.	No. of turns/disc.		
11.	Inside diameter (mm)		
12.	Outside diameter ((mm)		
13.	Winding depth (mm)		
14.	Winding Length (mm)		
15.	Gap between disc (mm)		
16.	No. of spacers in one circle.		
17.	Size of the spacer (mm)		
18.	Length of mean turn in meter.		
19.	Weight of winding (Kg/each) (Weight of winding includes the weight of insulated conductor, spacers, runner & other insulations as has been required to make the windings).		
B.	INSULATION.		
1.	Between core & L.V. Winding (Details like thickness (mm), length(mm) type of insulation etc. to be mentioned).		
2.	Between H.V. & L.V. Winding (Details like thickness (mm), length (mm), type of insulation etc. to be mentioned).		
3.	Between windings to top yoke (Details as above to be mentioned).		
4.	Between windings to bottom yoke (Details as		

	above to be mentioned).								
C	CORE								
1.	Core Diameter in mm=								
2.	Window Height in mm=								
3.	Distance between core leg center in mm=								
4.	Widths of window in mm=								
5.0	OTHER PARAMETERS OF CORE:-								
i	No. of steps	1	2	3	4	5	6	7	8 etc.
ii	Width in mm								
iii	Stack in mm								
iv	Sectional area of stack.								
6.	Total gross cross sectional area of the core in mm								
7.	Net core iron area=gross C/S area x 0.97								
8.	Maximum flux density (Bm) in Wb/sq.mm								
9.	Total core weight in Kg by weighment								
10.	Thickness of core lamination in mm								
D.	Condition of the Tank:-								
E.	Any other items/tests which have not been covered above and required & indicated in the specification to be carried out by the OPTCL's representative.								

FOR OPTCL

Name:

Designation:

Date:

FOR REPAIRER.

Name of Repairer:

Name of Repr.

Designation.

Date:

Place:

Place:

ANNEXURE- III.

SCHEDULE OF QUANTITY AND DELIVERY

Sl. No.	Description of materials	Quantity required.	Desired delivery	Destination.
1.	2.	3.	4.	5.
3.	500KVA, 33/0.433KV L.T. Transformer	08 Nos.	Delivery to be completed within 3 months from the date of issue of the purchase order.	Any Stores/ Sites of OPTCL within State of Odisha.

Signature of the Tenderer with seal & date.

N.B:- The data as per the format is to be filled up by the bidder & uploaded as PDF

ANNEXURE-IV

CALIBRATION STATUS OF TESTING EQUIPMENT AND INSTRUMENTS/ METERS

AVAILABLE IN THE FACTORY.

[FOR CONDUCTING TESTS AS PER CLAUSE 31.4 & 31.5 OF SECTION IV OF TECHNICAL SPECIFICATION]

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

Signature of the Tenderer with seal & date.

N.B:- The data as per the format is to be filled up by the bidder & uploaded as PDF

ANNEXURE-V

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 report is valid	Whether the copy of Test report in complete shape along with drawings etc furnished or not?	Whether the type tested Transformers full fill the technical requirements as per TS.	Remaks .
1.	2.	3.	4.	5.	6.	7.	8.

Signature of the Tenderer with seal & date

N.B:- The data as per the format is to be filled up by the bidder & uploaded as PDF

ANNEXURE- VI

CHECK LIST FOR DELIVERY SCHEDULE.

Sl.No.	Description of the Equipment	Quantity.	Delivery Schedule.

**Signature of the Tenderer
with seal and date.**

N.B:- The data as per the format is to be filled up by the bidder & uploaded as PDF