

CHHATTISGARH STATE POWER TRANSMISSION CO. LTD.

(A Govt. of Chhattisgarh undertaking) (A successor Company of CSEB)

**OFFICE OF CHIEF ENGINEER (STORE & PURCHASE)
CHHATTISGARH STATE POWER TRANSMISSION CO. LTD.
3RD FLOOR, SLDC BUILDING, CSEB CAMPUS
DAGANIYA, RAIPUR (C.G.) 492-013**

Phone: 0771- 2574240/4236, Fax: 0771- 2574246

TENDER SPECIFICATIONS

TR-19/S&P/47

for

**Repairing of 1 No. 160 MVA, 220/132/33KV
(M/s EMCO make) Transformer
Lying in failed condition at
220/132/33 KV URLA S/S of CSPTCL**

(Through E-Bidding)

RFx No- 8100017282

LAST DATE & TIME OF SUBMISSION OF TENDER

20/05/2020 (TIME 15:00 HRS.)

DUE DATE OF OPENING OF TENDER

20/05/2020 (TIME 15:30 HRS.)

**Cost of Tender:- i) Rs.2240 (Incl 12% GST) (if purchased from O/o CE(S&P)
ii) Rs.2360 (Incl 18% GST) (if downloaded from website)**

TENDER No. TR-19/S&P/47/**INDEX**

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TENDER FORM**TR-19/S&P/47****CHHATTISGARH STATE POWER TRANSMISSION CO. LTD., RAIPUR**

Tender document Sl.No.....

ISSUED to M/s -----

Cost of Tender documents

Received vide D.D.No.....Dtd.....

Name of Bank -----

**Signature & Seal of Issuing Authority
Chhattisgarh State Power Transmission Co. Ltd.**

The undersigned hereby tender and offer (subject to CSPTCL's conditions of tendering), the Chhattisgarh State Power Transmission Co. Ltd. to supply the materials and carry out the works which are described or referred to in the enclosures & Annexure to the specification **TR-19/S&P/47**, copies of which are annexed hereto and which under the terms thereof are to be supplied, executed and done by the contractor in a thoroughly good and workman like manner, and to perform and observe the provisions and agreements or the part of the contract contained in or reasonably to be inferred from the said tender documents for the sum and at the rates set out in schedules annexed hereto.

It is confirmed that:

- (i) Questionnaire for Commercial terms and conditions.
- (ii) Questionnaire for Technical specifications of the Equipments, and
- (iii) All other conditions wherever described in the tender documents have been replied in full giving clear details. It has been noted that in case any reply is not given or any reply is incomplete/ambiguous the CSPTCL will have right to take the same to be advantageous for the CSPTCL. CSPTCL's decision in this regard will be final. The bidder will have no right to furnish any technical or commercial clarification after opening of the bid which may in any way alter the offered prices.

Dated, this day of

Bidder's signature**Bidder's address**

CHHATTISGARH STATE POWER TRANSMISSION CO. LTD.

(A Govt. of Chhattisgarh undertaking) (A successor Company of CSEB)

Office of the Chief Engineer (Store & Purchase)

Dangania, Raipur (CG) 492 013

Ph.No. 0771- 2574236/ 4240

website: www.cspc.co.in

Fax- 0771- 2574246

No.02-16/SE-I-(S&P)/TR-19-S&P-47/50/51/42/52/53/54/55/56/22**Raipur, Dtd 23.04.2020****NOTICE INVITING TENDER**

Sealed tenders are invited from **experienced manufacturers/ Repairers** for repairing of following transformers:

Sl. No	Tender No.	Particulars	Qty	Cost of tender document including GST (Rs.)		EMD (Rs.)	Due date
				Printed Tender Form	E-Tender Form Online (downloaded from website)		
1	TR-19/S&P/47 RFx No- 8100017282	Repairing of 160 MVA,220/132/33 KV (M/s EMCO make) failed transformer lying at 220/132 KV Urla (Raipur) S/s.	1 No.	2240/-	2360/-	2.00 Lakhs	20/05/2020
2	TR-19/S&P/50 RFx No- 8100017283	Repairing of 40 MVA 132/33 KV ALSTOM make transformer failed at 220 KV S/s Raigarh .	1 No.	1120/-	1180/-	0.52 Lakhs	21/05/2020
3	TR-19/S&P/51 RFx No- 8100017284	Repairing of 40 MVA 132/33 KV EMCO make transformer failed at 220 KV S/s Siltara, Raipur	1 No.	1120/-	1180/-	0.52 Lakhs	21/05/2020
4.	TR-19/S&P/42 RFx No- 8100017278	Supply, Installation, Testing, Commissioning and Demonstration of Digital level meter cum level generator	7Nos.	1120/-	1180/-	0.37Lakhs	28/05/2020
5.	TR-19/S&P/52 RFx No- 8100017277	Procurement of Sweep Frequency Response Analyzer Kit for Transformer Testing.	1 No	1120/-	1180/-	0.31 Lakhs	23/05/2020
6.	TR-19/S&P/53 RFx No- 8100017274	Procurement of Transformer Oil moisture content measurement kit (PPM Kit).	4Nos	1120/-	1180/-	0.28 Lakhs	23/05/2020
7.	TR-19/S&P/54 RFx No- 8100017275	Procurement of SF6 gas filling, evacuation, filtering, drying, pumping & storage plant with spares.	5Nos	1120/-	1180/-	1.20 Lakhs	23/05/2020
8.	TR-19/S&P/55 RFx No- 8100017288	Supply of 33 KV Current Transformer.	655 Nos.	1120/-	1180/-	1.94 Lakhs	28/05/2020
9.	TR-19/S&P/56 RFx No8100017289	Supply of 33 KV Potential Transformer.	282 Nos.	1120/-	1180/-	0.80 Lakhs	28/05/2020

- NOTE:- i) In case any of the above dates is declared as holiday then the particular date will automatically get shifted to next working day.
ii) Any notice for extension of due date of tender opening shall not be published in newspapers. It will be displayed only on official website of the company.

- iii) **The tender will be processed through e-bidding module of SAP-SRM. Bidders are advised to visit our website www.cspc.co.in/csptcl for viewing detailed instructions regarding submission of offer through SAP-SRM.**
- iv) The NIT shall also be published in www.tarang.website

// TERMS AND CONDITIONS //

- (i) The tender documents can be obtained from the office of the CE (S&P), CSPTCL, Raipur in person on payment of cost of tender documents in the form of D.D. only made out in the name of 'Manager (RAO:HQ), CSPTCL, Raipur' accompanied with firm's application on its letter head. If tender document is required by post, Rs.250/- is to be paid by D.D. additionally along with the cost of documents. If more than one tender document is required, separate DDs should be furnished for each tender. CSPTCL shall not be responsible for any postal delay in receipt/ non-receipt of tender documents. No receipt of tender shall be issued in any case.
- (ii) The tender document can also be downloaded from official website of CSPTCL 'www.cspc.co.in' (go through Chhattisgarh State Power Transmission Co. Ltd. - Tender Notice) and required tender fee in form of DD in favour of 'Manager (RAO: HQ), CSPTCL, Raipur' payable at Raipur should be submitted along with EMD in envelope containing DD of EMD. The envelope containing DDs of cost of tender document & EMD should be suitably super scribed "DDs containing cost of tender document and EMD". The details of DDs should be mentioned on the outer side of the envelope also. Please note carefully that in absence of aforesaid requisite tender fee, further bid shall not be considered for opening.
- (iii) Tender documents and the detailed specification can be obtained on any working day one day prior to the due date. The tenders duly filled in shall be dropped/get dropped in the specified tender box up to 15:00 Hrs. on the due date. Any other means of delivery shall not be accepted. No receipt of tender shall be issued in any case. The tender box shall be locked/sealed at 15:00 Hrs. on the due date and shall be opened at 15:30 Hrs. on the same date.
- (iv) After publication of NIT & before the date of opening of TC Bid, corrigendum/ other information (if any) shall be displayed on our official web only. The bidders are requested to remain in contact with this office or visit our web-site for any development/ clarification/ amendment issued subsequently.
- (v) CSPTCL reserves the right to accept or reject any or all the offers, in part or full without assigning any reason whatsoever.

**Chief Engineer (Store & Purchase)
C.S. Power Transmission Co.Ltd., Raipur**

Special Instructions to bidders for submission of bid through SAP- SRM module (E-bidding)

The tender specification no. **TR-19/S&P/47** is to be processed through e-bidding. The bid is to be submitted online as well as offline (hard copy). Details of NIT & Tender Documents are available on our website-<http://www.cspc.co.in> & <http://ebidding.cspc.co.in:50724/irj/portal>. The bidder may download the same from the above site. In e-bidding portal, tender documents will be displayed in online tender display at Technical RFX section.

Last date & time of submission of bid in hard copy and also in softcopy is **20.05.2020** upto **3.00 pm** and due date & time of opening of part-I and part-II of the tender is on dtd **20.05.2020** at **3.30 pm**.

Important Instructions:-

1. **This tender shall be processed online as well as offline. The price bid is not required to be submitted in hard copy. Only un-priced copy of Price Bid Schedule I (part A,B,C,D,E) & Schedule II are to be submitted in hard copy to indicate the quantity quoted for.**

2.

(I) The bidder has to submit all the documents except price bid in hard copy as per tender specifications in three envelopes. Besides above, scanned copy of following documents is to be uploaded in e-bidding portal:-

- (a) The scanned copy of DD for tender fee.
- (b) The scanned copy of DD for EMD/ EMD exemption.
- (c) Schedule IV commercial information.
- (d) Schedule V Schedule for commercial deviation.
- (e) Schedule VI Schedule for Technical deviation.

The bidders may be informed that only above mentioned documents are to be uploaded in e-bidding portal and no other document is required to be submitted in e-bidding portal. The bidder shall give reply to following questions regarding above documents in e-bidding portal:-

- (i) Whether scanned copy of tender fee DD uploaded. (Yes/No)
- (ii) Whether scanned copy of DD of EMD/EMD Exemption uploaded.(Yes/No)
- (iii) Whether scanned copy of schedules of commercial information Uploaded. (Yes/No)
- (iv) Whether scanned copy of schedules of commercial deviation uploaded. (Yes/No)
- (v) Whether scanned copy of schedules of technical deviation uploaded. (Yes/No)

(II) It is not required to upload /attach scanned copy of price bid in Soft/ Hard copy. **Only the rates are to be filled in the item tab in e-bid in SAP SRM System (online e-tender)**. Rates should be quoted online & in specified fields only. Once the rates are filled, the bidders may change their rates up to the due date and time of submission of tender. After due date and time, no change on any ground whatsoever will be accepted.

(III) After scrutiny of techno-commercial bid, the price bid will be opened in e-bidding system only of eligible bidders for which suitable intimation will be given to the bidders offline & through email.

3. Please note that e-mail is always system generated, hence bidders are advised to regularly check their inbox/junk mail box.
4. CSPTCL will not assume any responsibility for non-supporting of system, internet, line & associated hardware & software for bidding their tender. No extension in time shall be granted on such grounds. It is strongly recommended not to wait for submission of bid in last minutes as internet/technical problem may disrupt their works.
5. Reference time for submission dead line shall be the time displayed in the portal and shall be treated as final.

6. After end of bid submission dead line, no alteration in the tender will be allowed by the system. However, in case of extension of due date of opening of tender, the bidders will be allowed to submit revised bid in the system.
5. CSPTCL will not accept incomplete bid.
6. The bidder must have a valid Digital Signature & SAP SRM User ID. User ID & Password from CSPTCL and Digital Signing Certificate and Digital Encryption Certificate from any recognized digital signature issuing authority are required for participation in any Tender. The bidder shall intimate in advance regarding details of digital signature issuing authority for ensuring the reliability of the same. For User ID and Password for participating in the tender, the bidder shall register on line through e-bidding portal.
7. The e-bidding vendor user manual is displayed on website-<http://ebidding.cspcl.co.in:50724/irj/portal> for the help of the bidders. For any further queries the bidder may contact at Helpline no. 0771-2576672/73 (EITC, CSPDCL, Raipur)
8. The training for bidders will be held on every Wednesday from 3.00 pm to 5.00 pm at office premises of Energy Info Tech Center (EITC) at Dangania, Raipur.
9. Tender shall be opened in the scheduled time as notified. If the due date of opening/submission of tender documents is declared a holiday by the Govt. or local administration, it will be automatically shifted to next working day for which no prior intimation shall be given. Tender opening shall be continued on subsequent days, in case the opening of all tenders is not completed on due date because of the technical constraints of system on the day of opening. It may be noted that the due date of opening/time may be altered/ extended if desired by CSPTCL without assigning any reason. However, intimation shall be available on company's tender portal/bidders email (if participation shown). The bidders are requested to keep track of the same.
10. Amendment in tender specification will be published on our website as well as in SRM system and the intimation regarding amendment in date extension will be conveyed through system generated e-mail to registered bidders only.
11. Before participating the bidder shall carefully read all the instructions and processes.
12. Tender duly completed in all respects will be accepted online up to due date & time and will be opened on the due date at specified time in the presence of tenderers or their authorized representatives. In case of authorized representative(s) they shall bring the original authorization letter with their signature attested by the tenderer.

Chief Engineer (Store & Purchase)
C.S. Power Transmission Co. Ltd., Raipur

SECTION-I**SPECIAL INSTRUCTIONS TO BIDDERS**

1. Date of submission of tender is **20.05.2020 till 3.00 p.m.** and date of opening of tender is **20.05.2020 at 3.30 pm** in the O/o Chief Engineer (S&P), CSPTCL, Raipur.
2. The tender should be dropped in the tender box placed in the O/o Chief Engineer (S&P) for this particular tender No. TR-19/S&P/47. In case, the tender is sent through post / courier, it will be responsibility of the bidder to drop/ get dropped the tender in the tender box. Receipt of tenders shall not be given in any case. The tender should be dropped before or up to 3.00 pm on due date of submission. Tender box shall be sealed at 03.00 pm and in no case tenders shall be allowed to be dropped after 03.00 pm in the tender box.
3. **Earnest Money:-**The Earnest Money in the instant tender is **Rs.2,00,000.00 (Rs. Two lakh only)** payable in the form of demand draft in favour of 'Manager (RAO:HQ), CSPTCL, Raipur'.
4. **Pre Qualifying requirements:-**
 - 4.1 The bidder should have minimum **FIVE** years of experience in manufacturing 'OR' repairing of EHV class transformers of rating 160 MVA or above and HV winding of 220KV class to following Indian Entities as on date of issue of NIT:-
 - i) Power utilities owned and controlled by Central or State Govt, **Or**
 - ii) PSUs, **or**
 - iii) Govt. organizationsOrder copies towards supply/repair issued by entities mentioned above (minimum five year prior to date of issue of NIT) should be furnished in support. Further, the bidder participating in this tender must furnish performance certificates issued by above mentioned entities regarding successful operation of 160 MVA or higher capacity transformer with HV winding of 220 KV or higher (manufactured/ repaired by them) for a minimum period of three years as on the date of issue of NIT.
 - 4.2 Bidder should have sound financial status & the minimum annual average turnover (MAAT) for best three out of last five financial years (**i.e. 2014-15, 2015-16, 2016-17, 2017-18 & 2018-19**) **should not be less than Rs.3.00 crore**. The bidder should furnish self attested copies of audited balance sheets for last five financial years i.e. **2014-15, 2015-16, 2016-17, 2017-18 & 2018-19**.
 - 4.3 In case bidder is a holding company, MAAT shall be that of holding company only (i.e. excluding its subsidiary/ group companies). In case bidder is a subsidiary of holding company, the MAAT shall be of subsidiary company only (excluding its holding company).
 - 4.4 Net worth of bidder for the last three financial years (i.e. **2016-17, 2017-18 & 2018-19**) should be positive. Net Worth of bidder for last three financial years i.e.**2016-17, 2017-18 & 2018-19** should be positive. Net worth means the sum total of the paid up capital and free reserves (excluding reserves created out of revaluation) reduced by aggregate value of accumulated losses (including debit balance in profit and loss account for current year) and intangible assets. C.A. audited Self attested copy of net worth for the last three financial years is to be submitted.
Further the bidder shall give an undertaking duly certified by CA as under:
 - a) All interest payment obligations on outstanding debentures have been discharged and no such payment as on **31.12.2019** is/was outstanding/overdue.
 - b) The Company is presently not in default in payment of any bank loan/interest for more than three months or any loan account of the bidder has not been classified as NPA (Non Performing Asset) by the creditor/lending bank as on date of issue of NIT .

- 4.5 a) The bidder should have all testing facilities in house to carry out routine tests on the repaired transformer as per latest version of IS:2026 including impulse test facility of adequate capacity to carry out impulse test on 160 MVA, 220/132/33 KV Transformer.
- b) The bidder should have adequate plant & manufacturing/ repairing capacity to perform the work properly and expeditiously within the time period specified. **It is mandatory that the bidder should have facility of vapour phase drying and impulse test facilities for 160MVA, 220/132KV or higher capacity. The bidder should furnish list of plant & machinery and testing equipments available in the works.** The details of vapour phase drying and impulse test facilities along with make, sl. No. & rating should be invariably furnished. Further, the bidder should furnish an undertaking that the list of plant & machinery is correct and in case, any of the statements given is found to be incorrect, even at a later stage, the tender shall be liable for rejection.
- 4.6 Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements and/or record of un-satisfactory performance.
- 4.7 The bidder should not be debarred / black listed by bank/ State Govt./Central Govt./ State PSU/ CPSU/ SEB/ Public utility as on the date of issue of NIT. A declaration in this regard shall be furnished by the bidder.
- 4.8 Any sum of money due to CSPTCL on the date of opening of tender should have been paid/settled in full prior to the date of opening of tender. Price bids of bidders not complying with this requirement shall not be opened. Declaration in this regard shall be furnished by the bidder.
- 4.9 The bidder shall have to submit pre-contract integrity pact in the format enclosed as Schedule XII on non-judicial stamp paper worth Rs.250/- duly signed by the bidder along with the Techno-Commercial bid. The validity of this integrity pact shall be from the date of its signing and extended up to 2 years or the complete execution of the order to the satisfaction of both the Buyer and the Bidder/Seller, whichever is later. In case Bidder is unsuccessful, this Integrity Pact shall expire after six months from the date of its signing. Declaration in this regard shall be furnished by the bidder.
5. **PRICE BID:** It is not required to upload /attach scanned copy of price bid in Soft/ Hard copy. **Only the rates are to be filled in the item tab in e-bid in SAP SRM System (online e-tender).** Rates should be quoted online & in specified fields only. Once the rates are filled, the bidders may change their rates up to the due date and time of submission of tender. After due date and time, no change on any ground whatsoever will be accepted.
6. The rates quoted in the price bid shall be taken as final for computing the competitive rates and for all purpose.
7. The tender document shall be available for sale in the Office of CE (S&P) on payment of the cost of tender document through demand draft / cash payment on all working days up to one day prior to the due date of opening. The tender document shall also be displayed in CSPTCL's website i.e. www.cspc.co.in and bidders may download the tenders from the website directly. In such case, the payment of cost of tender document shall be made through demand draft along with the tender. The details are given in clause-6 of Section-I (General Instruction to bidders).
8. The CSPTCL reserves the right to reject any or all tenders or accept any tender in full or part, considered advantageous to the C.S. Power Transmission Co. Ltd., whether, it is lowest or not without assigning any reason whatsoever.

9. **The bidder should ensure following points in order to avoid rejection of Tender:-**
- (i) Demand draft towards EMD or proof of exemption valid on due date of opening duly notarised by a public notary is submitted in envelop-I. Please note that in case of exemption claimed from EMD by the SSI units registered under NSIC/DIC, the copy of the certificate issued by concerned authority along with enclosure, in which name of materials for which certificate has been issued should also be furnished. The name of material under tender should appear in this list. Further, the copy of certificate (each page) should bear original signature & seal of the notary. In case of non compliance of above instruments, tender shall be liable for rejection.
 - (ii) Demand draft towards tender document cost, in case tender has been download from our website, is also placed inside envelope-I. In case of non compliance of above instructions tender shall be liable for rejection.
 - (iii) Techno-Commercial Bid is to be submitted inside envelope II
10. **Integrity Pact:** The bidder shall have to submit pre-contract integrity pact in the format enclosed as **Schedule-VIII** on non-judicial stamp paper worth Rs.250.00 duly signed by the bidder along with the Techno-Commercial bid. The validity of this integrity pact shall be from the date of its signing and extended up to two years or the complete execution of the contract to the satisfaction of both the Buyer and the Bidder/ Seller, whichever is later. In case Bidder is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.
11. **‘EXTREMELY IMPORTANT’- Bidders to note this to avoid rejection-**
- i) **Attention of bidder is drawn to the fact that no additional/new documents will be allowed to be submitted after bid submission with only exception that clarifications/confirmations on the points which lack clarity after techno-commercial evaluation may be obtained. Bidders are therefore, requested to exercise utmost care to make sure that all the documents required as per eligibility criteria/PQR/techno-commercial requirements of the tender are submitted with their bid on or before the date of bid submission. The bid submission date is a cut-off date for submission of all the documents required as per tender conditions/requirements and the bidder must adhere to this deadline.**
 - ii) **It may also be noted that if a bidder has quoted ‘NIL’ deviation in the bid, this will have an overriding effect on any other conditions noted as deviations elsewhere in the bid and no correspondence will be made to withdraw such specific contradictory conditions”.**

GENERAL INSTRUCTIONS TO THE BIDDERS

1.0 **Scope:**

The subject tender specification covers repairs of the following 1 No. 160MVA, 220/132/33 KV M/s. EMCO make failed Power Transformer lying at 220KV S/S Urla (Raipur). The details of scope have been described in the section-II i.e. technical specification.

S. No.	Particulars	Sr. No./year of manufacture	Date of commissioning	Date of failure
1.	160MVA, 220/132/33KV transformer (make: M/s EMCO) ON AN/ ONAF YNa0d11	HT1822/13084	13.10.2010	02.07.2016

The name plate details are given in Annexure-I of the tender.

2.0 Bidders are requested to go through our technical requirements & detailed specifications in section-II carefully and it may be noted that furnishing of all information as required in various schedules enclosed is a must. In case any of the schedules, duly filled in, is not found furnished as required in the Schedules / Annexures, the tender will be treated as incomplete, and CSPTCL shall have rights to reject such tenders.

3.0 **Offers:-**

The offers for repairing are required to be submitted in duplicate in separate sealed envelopes for which following details may be noted.

4.1 **Part-I:-Earnest money deposit:**

Please note that your offer will not be opened at the time of tender opening if earnest money is not deposited in demand draft for the value mentioned at SI.No. 3 of 'Special instructions to bidders' in the tender, unless exempted.

The following are exempted from payment of EMD:-

- (i) SSI units of Chhattisgarh state permanently registered with DIC. The registration should be permanent & should be specifically for the items quoted in the tender & valid on the date of opening of tender.
- (ii) Small Scale units registered with NSIC:- In case of small scale units permanently registered with NSIC, their registration certificates should be valid for the item under tender on due date of opening of Techno-commercial bid.
- (iii) Fully owned State Govt. / Central Govt. **units, for which documentary evidence must be furnished with offer.**
- (iv) The photocopy of the NSIC/SSI registration certificate for the tendered item duly notarised should be furnished with the offer. In case of un-notarised copy, the original certificate should be produced at the time of opening for verification failing which their offer will be liable for rejection. It may please be noted that in absence of duly notarised copy of NSIC Certificate, the tender will be liable for rejection.

It has been noticed that some bidders submit photocopies of notarised certificates. This is not acceptable. The photocopies of of valid certificates should bear original signature & stamps of Notary failing which tender shall be liable for rejection.

- (v) The bidders who come under any of above category must produce documentary evidence failing which offer shall be rejected.

In case the bidder withdraws his offer during the validity period or after placement of order the Earnest Money shall be forfeited. EMD of unsuccessful bidders shall be returned on placement of order. EMD of bidder

on whom order is placed shall be returned on acceptance of security deposit. No interest shall be paid on the EMD amount.

4.2 Part - II (A):- Technical bid:

4.2.1 In this part of bid, bidder will have to furnish confirmation in regard to all our technical requirements. The bid should clearly describe various technical particulars, as per details given in this specification. Also along with above information all details required in various schedules should be furnished so that CSPTCL may be able to examine whether the offer submitted is technically acceptable or not. Schedule-III & VI should be submitted duly filled with this part.

4.2.2 Completeness of equipment and bought out items:

- i) The responsibility for obtaining timely supplies of bought out items will rest on the bidder and only on this basis, delivery period will be offered in the tender.
- ii) It may be noted in the case of damages / shortages due to improper packing or any other negligence, replacement shall be arranged within one month's time. If this is not done, date of delivery of such accessory will be treated as date of delivery of main equipment and full penalty should be recoverable from the bidder on total cost of the material/ work.
- iii) For bought out items, responsibility for guarantee and obtaining immediate replacement in case any defects are noticed and in case defective supply of any item is reported will rest on the bidder.
- iv) In case for attending to defect in any equipment or inspection / replacement of the equipment, which may be bought out item for the bidder; services of engineer of original manufacturer is required, the same will be organised by the bidder at his cost.

4.2.3 It would be obligatory on the part of bidder to enclose a separate schedule of technical deviation in case there are any deviations from our technical requirement. Even if no deviations are involved a separate schedule of deviation for technical particulars should be enclosed wherein a certificate may be recorded that there are no deviations from all our technical requirements. In the event of non-compliance of this instruction, it may be noted that the CSPTCL reserves the right to reject all such offers without assigning any reason or without making any correspondence for obtaining any clarification.

4.3 Part - II (B) Commercial bid:

This bid should clearly spell confirmation in regard to various commercial terms and conditions for supply, acceptance of various important terms and conditions for supply & repairs and questionnaire for commercial terms and conditions for supply duly filled in will form part of commercial bid. The bidder therefore should furnish all informations clearly. Schedule-IV, V, VII & VIII should be submitted with this part.

It may please be noted that it is obligatory on the part of bidder to comply with all our commercial terms and conditions which are furnished in preceding para.

The bidder shall have to submit pre-contract integrity pact in the format enclosed as Schedule-VIII on non-judicial stamp paper worth Rs.250.00 duly signed by the bidder along with the Techno-Commercial bid. In case of non-submission of tender in required format the tender shall be liable for rejection.

4.4 Prices:

The prices offered should be valid for 180 days from due date of tender opening. In case due date of tender is extended by CSPTCL, the validity of 180 days should be from extended date of opening. Quoted prices should be FIRM. The prices should be offered in proforma given in Schedule-I (A to E) & schedule-II as per the details given here under:

Schedule-I (Part-A):

This part covers all the essential activities as mentioned in this part. The break up of prices clearly stating basic price, applicable GST and total price should be given.

Schedule-I (Part-B):

In this part the bidder should quote the charges for various tests to be carried on the repaired transformer. Please note that rates quoted should be offered for all the required tests as per clause-2.0, Section-II of the specifications. GST, as applicable, should be mentioned in the relevant column.

Schedule-I(Part-C):

In this part bidder should offer cost of copper with insulation on per Kg basis for new winding. He should also offer the salvage value of scrap copper recovered from winding on per Kg basis. The final rate of copper shall be arrived by subtracting total rate for scrap copper from total rate per Kg for new copper. Further, rates on per Kg basis of core laminations and salvage value for old laminations which will be retained by bidder on replacement should also be offered on per Kg basis. The final rates of lamination shall be arrived at by subtracting per Kg rate of new laminations by the salvage value on per kg basis of old laminations. The rates should clearly state break up of ex-works price, GST & total amount.

Please note that the payment against replacement of copper winding and core laminations shall be considered on the basis of weights of copper/ core laminations required to be replaced during initial joint inspection in the MOM OR the actual weightment at the time of stage inspection, whichever is lower.

Part-D:**(i) Transport charges: -**

Transport charges on 'FIRM' basis for transportation of 160 MVA, 220/132/33 KV transformers from our 220KV Urla (Raipur) substation to your works and back to the desired destination, which may be any EHV substation within the state of Chhattisgarh. The freight charges should include the following:

- (i) Loading of failed transformer & its accessories at the CSPTCL's 220KV Urla (Raipur) substation including packaging for transportation.
- (ii) Transportation of failed transformer & accessories to your works.
- (iii) Unloading of failed transformer & accessories at your works
- (iv) Loading of transformer & its accessories after its repairs and satisfactory inspection at your works
- (v) Transportation of repaired transformer from your works to any of the substation within the CG state. Unloading, dragging & placement on plinth at the substation with your manpower, tools and T&P.
- (vi) Necessary transit insurance of failed transformer for safe transportation from our EHV substation to your works and transportation of repaired transformer back to the substation destination (which shall be intimated by us separately)
- (vii) The accessories which are required to be replaced by new as per LOA will be retained at respective substation.

If plinth is ready when transformer reaches site, the transformer is to be placed on plinth. In case plinth is not ready at site when repaired transformer reaches the site, the transformer has to be dragged & placed at a location earmarked by the Engineer-in-charge near the plinth. Later on, transformer is to be dragged & placed on plinth after its readiness.

(ii) Escort:

It is obligatory on the part of the bidder to include free escorts services during transport of transformer

Part-E:

A tentative list of accessories which may be required to be replaced along with their tentative quantities have been indicated in this part. The bidder should quote unit rates for all the accessories given in the schedule. The quantity may vary as per the actual requirement which will be finalised during initial joint inspection of the

transformer. The unserviceable accessories shall be retained by the repairer. The rates should be accordingly offered.

Schedule-II: In this schedule rates for erection, testing & commissioning of repaired transformer at any sub-station site within Chhattisgarh state with your own manpower and T&P shall be quoted. Basic rates and GST should be separately quoted.

4.5 Terms of payment:

70% payment including taxes & duties, transportation charges, loading & unloading charges shall be made to you within 30 days against MRC after completion of supply of the respective transformer after repairs. MRC shall be issued after unloading of transformer at site. Balance 30% payment and cost towards erection, testing & commissioning shall be released after successful commissioning of respective transformer. For this purpose, OIC of the work shall certify regarding successful commissioning of transformer based on which directives for payment of balance 30% amount shall be issued by order placing authority.

4.6 Period for repair:

The inspection call for the transformers after repairs should be given within five months from the date of issue of final work order, which will be issued separately by us after initial joint inspection of failed transformer at your works and on basis of minutes of meeting recorded at joint inspection. The above contractual delivery schedule shall be subject to penalty for delay in repair work as per the relevant penalty of this specification. The period permitted for various activities shall be as follows:

- (a) Offering the transformers for initial joint inspection – two months from date of LOA. This period includes period for contractual formalities, lifting of failed transformers from S/S site & its transportation from our site to your works.
- (b) Offering transformer for final inspection after repairs– five months from date of issue of final order.
- (c) Transportation of repaired transformer to any destination in Chhattisgarh as per our dispatch instructions – within 45 days from date of issue of dispatch instructions.

The time for and date of delivery of the stores/site stipulated in the order shall be deemed to be the essence of the contract. In case of delay in execution of the order, the CSPTCL shall take all or any of the following actions:-

- (i) Recover from the supplier as agreed liquidated damages at the rate mentioned in 'liquidated damages' clause.
- (ii) To get the work done from some other agency on account and at the risk of the repairing agency;
- (iii) Cancel the contract & forfeiture of security deposit/ EMD.
- (iv) Debar the firm from future business with CSPTCL for a period which will be at the discretion of CSPTCL.

4.7 Liquidated damages:

For delay in completion of repairs of transformers as mentioned in clause-4.6 above, CSPTCL shall recover liquidated damages @0.5% per week subject to maximum of 10% value of repair cost of transformer. The liquidated damages shall be calculated separately for each of the transformer, if applicable, on the basis of offer of final inspection of the individual transformer.

The break up of period permitted for various activities has been given in clause-4.6 above. Penalty shall be applicable for delay in any of the following activity @0.5% per week or part thereof subject to maximum of 10% of ordered value.

- (i) In case initial joint inspection is not offered within two months from date of LOA.

- (ii) In case final inspection of the transformer after completion of repairs is not offered within five months from date of final order. This period includes stage inspections also. It will be responsibility of the repairer to ensure that stage inspections are offered within such time period so that final inspections offered as per the stipulated period.
- (iii) Even if final inspection is offered within the stipulated period of five months from date of final order, the transformer should reach the site within 45 days from date of issue of despatch instructions. In case of delay in reaching of the transformer at site, the actual date of receipt of transformer at site shall be treated as date of delivery and penalty shall be accordingly levied.

Delay in any of the activity for the transformer mentioned above shall attract liquidated damages @0.5% per week delay. Total liquidated damages shall be subject to maximum of 10% of total cost of repairs.

4.8.1 **Guarantee period:**

The repaired transformer & all the accessories replaced during the repairs shall be guaranteed for a period of 30 months from the date of commissioning and to cover this performance guarantee period, the repairing agency shall submit Security Deposit for 10% value of order as per clause-4.9. In case any of the repaired transformer fails during the guarantee period the same has to be repaired by the repairing agency free of cost. In case any accessory replaced during repairs develops defect during guarantee period the same has to be replaced free of cost. The replacement / repairing will have to be organised by you expeditiously and preferably positively in one month's time.

If for the purpose of replacement / repairs, the equipment / material is required to be dispatched to your works, all charges towards transportation / insurance / packing / forwarding will have to be paid by you for To and Fro dispatches.

In this connection, please note that the following additional conditions will also be applicable in case any damages / defects are noticed in the equipments or its accessories supplied by you.

If the material develops defect within guarantee period after installation at site, for the purpose of replacement / repairs, the same will have to be dismantled and taken out by CSPTCL. In such cases, actual cost of dismantling and replacement of the equipment / material will also be recoverable from you.

If the bidder fails to repair /replace the failed/ defective transformer within five months, they will be liable to pay penalty charges for delayed repairs at the rate of 0.5% of the total cost of repair order per week of delay or part thereof, subject to maximum ceiling of 10% of order value. This penalty shall be in addition to the LD for delay in supply of transformer as per clause-4.7.

If the defective/ failed transformer is not lifted for replacement/ repairing within 2 months from the date of intimation by CSPTCL regarding defect/ failure OR one month from date of acceptance of Indemnity Bond submitted by the manufacturer, whichever is later.

OR

not repaired within seven months from date of lifting of failed/ defective transformer, penal action may be taken which will include forfeiture of security deposit and debarring of the firm from future business with CSPTCL for a period as decided by CSPTCL in addition to the applicable penalty.

The above provisions shall be applicable for second time failure also, if any.

4.8.2 **Extended guarantee period post repairs:**

Further, the following extended guarantee shall be applicable in case the transformer fails within guarantee period.

- i) If the transformer fails within 12 months from the initial commissioning, the guarantee period shall get extended to 30 months from the date of

satisfactory re-commissioning of transformer after repairs along with all accessories.

- ii) If the transformer fails after 12 months within the original guarantee period, the original guarantee period shall get extended for a period equal to the time period lapsed between date of failure to date of re-commissioning after repairs i.e. the residual guarantee period or 12 months from date of re-commissioning after repairs, whichever is later.

If the transformer fails within guarantee/extended guarantee period after repair for second time, this will be treated as adverse performance of repairer and in such case penal action shall be taken which will include

- (i) Forfeiture of 10% Security deposit against the repairing order.
(ii) Debarring of the firm from future business with CSPTCL for a period as decided by CSPTCL.

In case, transformer fails during guarantee / extended guarantee period, the following terms shall also be applicable (in first or second time failure both):

- (i) An Indemnity Bond on stamp paper of Rs.250.00 duly notarised shall be required to be submitted by the bidder, in case the transformer is required to be taken back to the works for repairing. The value of Indemnity Bond shall be **Rs. 5.34 Crores**. The transformer shall be handed over for repairing only after submission and acceptance of indemnity bond.
- (ii) The transformer should be offered for inspection after completion of repairing work. The repaired Transformer shall be tested for all routine, additional routine and other tests as described in clause-2.0, Section-II(A) of this tender specification.
- (iii) The dispatch instructions shall be issued for repair transformer after its satisfactory inspection. The transformer should reach the destination (any where in C.G. state) within 45 days from date of issue of dispatch instruction failing which actual date of receipt of repaired transformer at site shall be treated as date of delivery of the repaired transformer for all contractual purposes.
- (iv) In case of failure / defect in transformer (first or second time) within guarantee / extended guarantee period, the validity of security deposit submitted by the bidder against supply as per clause-4.9 should be extended up to expiry of extended guarantee period with additional claim period of six months. In case, bidder fails to extend the guarantee period, claim shall lodged with the issuing bank for encashment of the security deposit bank guarantee.

4.9 **Security deposit:**

The repairing agency has to submit the security deposit in form of cash / demand draft / Bank Guarantee for amount as indicated below to cover performance guarantee period for supply of equipments covered in this specification.

- (i) All the outside state units shall be required to pay security deposit @10% of ordered value.
- (ii) The SSI units of CG having annual business (FY 2018-19) with successor companies of CSEB above Rs.50.00 Lacs shall be required to pay Security deposit @7.5% of the value of order subject to maximum Rs.10.00 lacs.
- (iii) In case of SSI units of CG whose annual business (FY 2018-19) with successor companies of CSEB is up to Rs.50.00 Lacs, they will be required to pay Security deposit @ 5% of the value of order subject to maximum of Rs.20,000/- (Twenty Thousand Only)

In support of annual business of SSI units of CG with successor companies of CSEB, the certificate of Chartered Accountant duly notarised should be furnished.

The bank guarantee shall be submitted on stamp paper worth Rs.250/- or as per the prevailing legal requirements/ any other amount as per the C.G. State Stamp Duty Act and shall be from a Nationalized/ Scheduled Bank in the prescribed form of CSPTCL. No interest shall be paid by CSPTCL on the security deposit. In case of non-fulfilment of contractual obligations by the supplier the security deposit shall be forfeited. The bank guarantee should be valid up to expiry of guarantee period plus six months claim period. In case of delay in repairing of the transformer due to any reason OR extension of guarantee period as per clause-4.8 due to failure of transformer within guarantee period, the validity of the bank guarantee has to be extended accordingly.

As in the instant case LOA shall be issued initially, the security deposit as indicated in LOA has to be furnished based on estimated cost of repairs. However, in case the amount of final repair order is more than the estimated value, the amount of security BG has to be accordingly increased.

The BG should be positively submitted within 30 days from date of issue of LOA.

4.10 Transit insurance:

The responsibility of safe delivery of power transformers at destination shall rest with you. Therefore, to cover the risk during transit, the transit insurance may be arranged at your cost. A trailer of adequate capacity is to be arranged by you through a duly registered transport agency with experienced driver along with suitable escort for safe delivery of transformers. The transport should be arranged through a duly registered Transport Agency and ensure proper packing so that there is no damage to the transformers and its accessories during transportation. Any loss or damage caused to the material during transit due to negligence on the part of supplier shall be made good by the repairer free of all charges within one month from the date of intimation by our consignee to this effect. The intimation will be sent within thirty days of receipt of Transformer and its accessories at site.

4.11 Deviations:-

It would be obligatory on the part of the bidder to enclose a separate schedule of deviation, if there are any deviations from our commercial terms / conditions. Even if no deviations are involved, a separate schedule of deviation for commercial conditions should be enclosed wherein a certificate may be recorded that there are no deviations from all our commercial conditions. All bidders, wherein these conditions are not complied with, may run the risk of rejection without any correspondence from our side.

5.0 Part-III Price bid:-

Price bid shall include submission of details of FIRM prices as per Schedule-I & II as narrated in clause-4.4. Discounts, if any, should be offered only inside the price bid main envelope. Discount offered outside main price bid envelope shall not be considered for opening & evaluation.

6.0 Submission of offers:- The bidders should submit their bids in duplicate in four envelopes as under:-

(i) **Envelope -I :-** (To contain Part-I of the tender document)

This envelope should contain a covering letter with earnest money or earnest money exemption certificate as detailed in clause-4.1. The cover of the envelope should be suitably super scribed with the details of earnest money and tender number. The envelope should be sealed properly.

In case the tender document is downloaded from CSPTCL's website, the required cost of tender document in the form of MICR demand draft drawn in favour of 'Manager (RAO-HQ), CSPTCL, Raipur' should also be kept inside this Envelope.

Please note that the tender shall be liable for rejection if

- i) EMD as per tender specification / proof in support of exemption of EMD as per clause 4.1 of part-I is not found in side the envelope
and/or

- ii) In case demand draft towards tender cost is not found inside this envelope in case tender document is downloaded from website.
- (ii) **Envelope-II:**
This envelope should contain the Technical Bid and commercial bid complete in all respects, in duplicate and Integrity Pact as per proforma provided in the Schedule-VIII.
- (iii) **Envelope-III:-** (To contain Part-III of tender document)
This large envelope should contain the above two envelopes. The following details should be recorded on main envelope.

TENDER SPECIFICATION No. TR-19/S&P/47 DUE FOR OPENING ON 20/05/2020 FOR REPAIRING OF 160MVA, 220/132/33KV (EMCO MAKE) TRANSFORMER LYING IN FAILED CONDITION AT 220/132/33 KV URLA (RAIPUR) S/S OF CSPTCL.

In case tender document is downloaded from website the envelope should also be superscribed 'DOWNLOADED FROM WEBSITE –TENDER COST FURNISHED'

THIS ENVELOPE CONTAINS THREE ENVELOPES FOR:-

1. Envelop-I- Part – I of tender document i.e. Earnest Money Deposit & cost of tender document, if downloaded.
2. Envelop-II- Part-II(A) i.e. Technical bid & Part-II(B) i.e. Commercial Bid along with integrity pact.
3. Envelope-III- Both the above two envelopes have to be filled in the third envelope
Each envelope should bear seal & signature of the bidder.

To,

The Chief Engineer (S&P),
C.S. Power Transmission Co. Ltd.,
Danganiya,
RAIPUR (C.G.) 492 013

Tenders being submitted must be signed by a person holding a power of attorney authorising him to do so. The notarised copy of power of attorney should be furnished. Tenders submitted on behalf of company registered under Indian Companies Act shall be signed by persons duly authorised to submit the tender on behalf of the company and shall be accompanied by notarised copy of resolution / abstract of Article of Association/ special or general power of attorney.

6.1 Opening of tenders:-

Part-I i.e. Earnest Money shall be first opened on the due date & time. Part-II i.e. "Technical & Commercial Bid" will be opened thereafter on the same day in respect of the bidders whose EMD are found to be as per tender specification. These bids will be scrutinised and then CSPTCL will take decision regarding opening of price bid in respect of successful bidders. For the purpose of opening of price bid, a notice of approx. seven days shall be given to the bidders so that they may depute their representative for attending price bid opening. It may be mentioned that period of seven days will be counted from the date of issue of fax intimation by us. Such intimation shall be given within a reasonable period from the date of opening of commercial and technical bids, and after its scrutiny. Only authorised representatives possessing necessary authority letter from the bidder shall be allowed to participate in the tender opening.

7.1 Inspection:

- 7.1.1 CSPTCL shall have access at all times to the works and all other places of repairer where the equipments are being repaired and the repairer shall provide all facilities for unrestricted inspection of the suppliers works, raw material, manufacture of all the accessories and for conducting necessary tests as detailed herein.

- 7.1.2 The successful bidder shall keep the CSPTCL informed in advance of the time of starting and of the progress of repairs in various stages so that arrangements could be made for inspection.
- 7.1.3 No material shall be dispatched from works unless the material has been satisfactorily inspected and tested by the CSPTCL.
- 7.1.4 The acceptance of any quantity of equipment shall in no way relieve the successful bidder of his responsibility for meeting all the requirements of this specification and shall not prevent subsequent rejection if such equipments are later found to be defective.
- 7.1.5 The details of tests to be carried out during final inspections are mentioned at clause-2.0 of Section-II(A) of this specification.

7.2 Stage & final inspection:

The stage & final inspection of the repaired transformer shall be carried out / witnessed jointly by repairer's representative, CSPTCL's representative AND/OR representative of NABL accredited laboratory, if so authorised by CSPTCL.

In case of deputation of third party inspector, the charges of third party inspector for stage & final inspection shall be borne by CSPTCL. However, in case, any of the inspection (either stage or final) is required to be repeated due to any of the following reasons, the total cost incurred on repeat inspection including the charges of third party inspector, if any, shall be borne by the repairer.

- (i) Incomplete testing due to any reason attributable to the repairer,
- (ii) Test results not found to be within the permissible / satisfactory limits or failure to withstand any test during stage or final inspection of repaired transformer.
- (iii) Any other reason attributable to the repairer.

8. False inspection call:

In case transformer is not offered for inspection (stage or final) on the date of inspection offered by the firm due to any reasons, the bidder shall be required to remit a sum of Rs.20,000/- or actual expenses incurred in the visit of CSPTCL's inspector and third party inspector, whichever is more.

9. Erection, testing & commissioning:

The rates for erection, testing & commissioning work of repaired transformer is to be offered by the bidder in schedule-II. All activities including unloading at CSPTCL's site, dragging (if required), placement of transformer on plinth, erection, testing & commissioning are to be carried out by the bidder with his own man power, tools and plants. While unloading is to be done immediately on reaching of trailer at site, the dragging and placement on plinth erection, testing & commissioning will be carried out as per the programme intimated by CSPTCL. For this purpose intimation shall be given one week advance to the successful bidder. It will be obligatory on the part of the bidder to depute his gang positively within a week's time from date of intimation. The work should be carried out in supervision of experienced Engineers.

In case erection, testing & commissioning work is done departmentally, your erection engineer & commissioning engineer should be deputed for a period of seven days to supervise erection & five days to supervise testing & commissioning of transformer. Free services of erection engineer will have to be provided for supervision and guidance. It will be obligatory on the part of bidders to depute their erection supervisor and commissioning engineer positively within one week of telegraphic intimation from CSPTCL.

10. Pool rates:

Formation of bidder's cartel is strictly prohibited. 'Cartel' includes an association of sellers, distributors, traders or service providers who by agreement amongst themselves, limit, control or attempt to control the production, distribution, sale or price of or trade in goods or provision of services, Here, "agreement" includes any arrangement or understanding or action, whether or not is formal or in writing.

Quoting same rates i.e. pool rate is not acceptable. In case the same rate is found to be quoted by more than two bidders, offers of all such bidders shall be outrightly rejected. However, if rates of two bidders are found to be same, quantity of orders to be placed on them will be reduced to half of the quantity a bidder is entitled to be allocated by virtue of their common rank. But, in case of multi-item tender, if rates of even two bidders for more than one item are found to be same, it will be considered as deliberate cartel and offers of both the bidders shall be rejected. Accordingly, all the bidders are advised to quote their own individual and most competitive rates.

Rates received in a tender will be minutely scrutinised to find out as to whether some or all bidders have entered in to any such 'agreement'. If CSPTCL is satisfied with the conclusion that some or all the bidders have formed a cartel, offers of all such bidders shall be rejected.

11. **Evaluation of prices:**

The evaluation of quoted prices shall be done on the basis of summation of following prices:

- (i) Rates quoted for services mentioned in schedule-I (Part-A).
- (ii) Testing charges for conducting all tests as per schedule-I (Part-B).
- (iii) Amount for copper required for new windings on the basis of tentative weight of winding. As per this office order No. 02-04/TR-289/1663/Extn/449 dt 06.02.2009 the total weight of core & windings is 74500 Kgs and weight of winding with insulation is 25000 Kgs. However, the weight of copper winding with insulation shall only be considered for evaluation purpose. Same amount of scrap copper shall be considered for salvage value for estimation purpose. As per the past experience, it is expected that damage to core laminations may not be significant in such failure cases as of the instant transformer. However, a tentative weight of laminations i.e. 10% of total core weight shall be considered for evaluation purpose. As per the order mentioned above, the weight of core works is 39600 Kgs. Therefore, 3960 Kgs core lamination shall be considered for evaluation purpose in the instant case. Same amount of core lamination shall be considered for salvage value of scrap lamination. The above mentioned tentative weights are for the 160MVA transformer to be repaired. For evaluation purpose, same weights as mentioned above shall be considered for the transformer. (Schedule-I, Part-C).
- (iv) Transportation charges as per schedule-I (Part-D).
- (v) Total cost of accessories mentioned in Schedule-I (Part-E) as per the quantities indicated therein.
- (vi) Erection, testing & commissioning charges as per schedule-II.

12.1 **Issue of LOA:**

Based on estimated value worked out as per clause-11, the lowest bidder shall be considered for issuance of LOA. The LOA shall consist of following.

- (i) Services mentioned in schedule-I with quoted rates and amount thereof (Part-A).
- (ii) Testing charges for conducting all tests as per Part-B.
- (iii) Per Kg rates of new copper, per Kg rates of scrap copper (to be deducted), Per Kg rates of core laminations and per Kg weight of scrap laminations (Part-C).
- (iv) Transportation charges as per schedule-I (Part-D).
- (v) Total cost of accessories mentioned in Schedule-I (Part-E) as per the quantities indicated in the tender.
- (vi) Erection, testing & commissioning charges as per schedule-II.

12.2 **Issuance of detailed order:**

Detailed order shall be issued after initial joint inspection and shall consist of following.

- (i) Services mentioned in schedule-I with quoted rates and amount thereof (Part-A).

- (ii) Testing charges for conducting all the tests as mentioned in clause-2.0, Section-II(A) and rates as per Schedule-I Part B.
- (iii) Total cost of new copper worked out on the per Kg cost of lowest bidder. Quantity of new copper shall be taken on the basis of weightment of the windings mentioned in MOM of initial joint inspection. Scrap copper on quoted rates of lowest bidder shall be considered for deduction on total weight of windings (series, common, regulating & tertiary) as per weightment recorded during initial joint inspection. The cost of core laminations based on weight of laminations proposed for replacement recorded in MOM shall be considered after deducting value of scrap lamination (schedule-I, Part-C).
- (iv) Transportation charges as per schedule-I (Part-D).
- (v) Total cost of accessories mentioned in Schedule-I (Part-E) as per the quantities indicated in MOM of initial joint inspection.
- (vi) Erection, testing & commissioning charges as per schedule-II.
- (vii) In case if other accessories which is not covered in LOA and found to be defective during joint inspection and necessary to replace for completion of the work; in such cases cost of accessories offered from OEM (as per vendor list) will be considered.

13. **Agreement:**

Within 30 days of receipt of LOA for repairing, an agreement has to be executed by bidder with CSPTCL. The agreement shall be executed on non-judicial stamp paper worth Rs.250.00 with a revenue stamp worth Rs.1.00 affixed thereon. The bidder shall have to send two copies of agreements on non-judicial stamp paper of Rs.250.00 and after execution by the CSPTCL, one copy of agreement shall be returned to bidder for its records & other shall be kept by CSPTCL.

14. **Indemnity Bond:**

After issue of LOA, the successful bidder shall have to submit an indemnity bond on a non-judicial stamp paper of Rs.250.00 for a value of **Rs.5.34 crores** towards the cost of the 160MVA transformer in the prescribed proforma of the CSPTCL. Only after submission and acceptance of indemnity bond, the successful bidder shall be permitted to lift the transformer. The indemnity bond should be submitted positively within 30 days from date of issue of LOA.

15. **Penalty for excess losses:**

The transformer was purchased against tender specification TR-07/289 vide order No. 02-04/TR-289/1663/Extn/449 dt 06.02.2009. In the GTP of order, the losses of the transformer mentioned as under:

- (i) No load loss at normal ratio, rated voltage, rated frequency: 35 KW
- (ii) Load losses at normal ratio, rated voltage, rated frequency at 75°C winding temperature: 222 KW (max.)

(a) No load losses (applicable in case core laminations are replaced):

In case the core laminations are replaced (fully or partially), the repairer has to guarantee the no load losses not to exceed the value which was as per the original supply order i.e. 35 KW.

(b) Load losses :

- (i) In case all the windings are replaced, the total load losses should be guaranteed not to exceed the original value i.e. 222 KW.
- (ii) In case windings are not replaced or partially replaced, load losses shall not be guaranteed.

(c) Applicable rate of penalty :

In case of excessive losses penalty @Rs.3,75,000.00 per KW for no load loss and Rs.2,00,000.00 per KW for load loss shall be deducted from the payable cost towards penalty. The maximum variation permissible losses shall be (+) 3%.

16. Unsatisfactory performance:

The bidder who has supplied material earlier in CSPTCL or has carried out repair of transformer earlier in CSPTCL and which has been found to be defective/ not rendering satisfactory service within guarantee period and has not been replaced in the stipulated period shall not be considered for opening of price bid. (The cases reported as on date of NIT shall be taken).

17. The specific requirement/ scope of work has been detailed in Section-II of this tender. Bidders are advised to go through the contents of specific requirement for standard conditions very carefully and in absence of non-compliance/lapse, responsibility for the same will rest on bidder.

Bidders are requested to go through our technical requirement carefully and it may be noted that furnishing of all information as required in various schedules enclosed is a must. In case any of the schedules, duly filled in, is not furnished, the tender will be treated as incomplete.

SECTION –II (A)
SPECIFICATION FOR REPAIRS OF
160 MVA, 220/132/33 KV CLASS POWER TRANSFORMER

1.0: SCOPE :

- 1.1 CSPTCL intends to get repaired 01 No. failed 160 MVA, 220/132/33 KV M/s. EMCO make Power Transformer lying in failed condition at 220KV Urla S/S. The details of parameters available in respect of the failed transformers are mentioned in Annexure-I of the tender specification.
- 1.2 The design and constructional features of unit shall be maintained & design modification at the time of repairs shall not be permitted. The failed transformer will be made available in dismantled condition and this transformer shall be collected from our EHV substation. The repaired transformer shall be transported to destination, anywhere in Chhattisgarh, for which suitable instructions shall be given at the time of approval of test certificates of repaired transformer.
- 1.3 The scope of works shall broadly consist of following: -
 - 1.3.1 Execution of agreement, submission of BG towards security deposit and Indemnity Bond within 30 days from date of issue of LOA by the repairer.
 - 1.3.2 On submission of documents mentioned in (1.3.1) above, CSPTCL shall issue a clearance for lifting failed transformer and its accessories to the repairer from the S/S site.
 - 1.3.3 On issuance of lifting clearance, the repairer should depute a qualified person duly authorised for inspection and taking over of the failed transformer. Format (A)&(B) should be jointly filled by CSPTCL's representative & the authorised person of repairer.
 - 1.3.4 Loading of failed transformer and its accessories at site on trailer, using repairer's own manpower, tools & accessories. The failed transformer shall be sent to repairer's works without oil.
 - 1.3.5 The necessary accessories which is covered in Schedule-E and proposed to be replaced are to be retained at the Substation.
 - 1.3.6 Arrangement for transportation of failed unit and its accessories with escorts to repairer's works and unloading at the works. Transit insurance for both side transports has to be done by repairer.
 - 1.3.7 Safe transportation of various accessories such as OLTC, radiator, conservator cooling fans etc. Please note that responsibility to transport all accessories required for repairing works and testing to their works shall be of the bidder.
 - 1.3.8 Joint internal inspection of failed transformer at repairer's works: Within one week of receipt of transformer at repairer's works, he will intimate date for initial joint inspection of transformer. CSPTCL shall depute its representative for initial joint inspection of the transformer at the repairer's works. During the initial joint inspection, following activities shall be carried out:
 - (a). Opening of top cover of transformer
 - (b). Removal of core coil assembly & OLTC and other accessories of the transformer
 - (c). Dismantling & debrazing of leads
 - (d). Measurement of core dimensions, removal of end frame, top yoke channels, top yoke laminations. Stacking and proper storage of the laminations.
 - (e). Removal of all the windings.
 - (f). Weighment of all the windings with & without spacers, runners etc.
 - (g). The examination of condition of core laminations. In case, some of the laminations are found to be damaged or deformed, the weight of such core

lamination in Kg should be calculated based on dimensions of the laminations. The calculation sheet should be enclosed with the MOM duly verified by CSPTCL's inspector. In case, the conditions of all the laminations are found to be good and reusable, the same should be clearly mentioned in the MOM.

- (h). The accessories which are proposed to be replaced and taken along with the transformer by the repairer should be physically checked and item wise quantities should be mentioned. In addition to this, any accessory not covered under schedule-I(E) and in the opinion of inspector is required to be replaced should be mentioned. Condition of all radiators of the transformer should be examined and number of radiators which require replacement for each transformer should be mentioned in MOM.
- (i). After weighing of windings, the old windings along with the insulating materials and old core laminations proposed to be replaced shall be cut in to small pieces and destroyed / crushed in presence of CSPTCL's engineer at the time of initial joint inspection. The bidder shall make arrangements for proper storage of such destroyed windings/ laminations till preparation of new windings and rebuilding of core and their stage inspection by CSPTCL's engineer.

Based on above points, joint MOM should be prepared by CSPTCL's inspecting engineer and repairer's representative clearly indicating quantum of work involved along with item wise break up. A sketch showing details of outer & inner diameter, size & type of conductor, type of winding, thickness & size of core laminations with limbs and window dimensions shall be made by the repairer during the initial joint inspection. A copy of the same should be enclosed with the MOM. MOM of initial joint inspection should be signed on each page by authorised Engineer of repairer & inspector of CSPTCL. Formats as per Annexure II-A & II-B shall be filled & signed and enclosed with MOM.

1.3.9 Based on the quantum of work involved for repairing of the transformer, final order for repairing shall be issued by CSPTCL. On receipt of final order, further activities for repairing should be taken up which are briefly described here under:

- (i) Cleaning of core laminations, tap changer etc.
- (ii). Refitting / assembly of core laminations after their proper cleaning and treatment and replacement of defective laminations with new laminations, if required.
- (iii). Manufacturing of fresh windings (series, common, regulating & tertiary) with new copper conductors. The size and type of new copper conductor should be as per original winding. The dimensions (ID, OD, height, No.of turns etc.) of the new windings should be as per original windings.
- (iv). After replacing old coils by new coils, if needed, replacement of terminal gear mounting.
- (v). Preparation and replacement of all insulating items including rings, end rings, cylinders, spacers, bushings, lead insulation, terminal tap lead insulation, inter-winding and coil connection etc. (i.e. all major and minor insulation).
- (vi). Apart from replacement of all major and minor insulation replacement of the coils ends to secure the coils firmly shall be carried out.
- (vii). Replacement of OLTC along with diverter switch & driving mechanism with a new one. The new OLTC of approved make as per Annexure-IV (Vendor list) should only be provided. The technical specifications of OLTC are given in Section-II(B). Suitability of tank for OLTC to be provided is to be ensured by the bidder. In case, modification in tank is required for fitting of OLTC, the same has to be done by the bidder. Services of OLTC manufacturer, if

required, have to be arranged by bidder without any extra financial commitment.

- (viii) Removal of explosion vent, if provided, and providing PRV of adequate capacity in its place.
- (ix) **Stage inspection of core & winding:** After assembly of new windings with new copper and new insulating materials & rebuilding of core, offer for stage inspection shall be given by the repairer. CSPTCL shall depute its engineer AND / OR third party inspector for stage inspection. During its stage inspection, low voltage testing of windings, various measurements of conductor of all windings, insulations etc shall be done as indicated in annexure-III of the tender specification. Further, measurement of core along with calculation of total core weight shall also be done during the stage inspection. The weighment of newly wound windings shall also be done & recorded in annexure-III. The invoices of the replaced copper, laminations and all other accessories should be produced by the repairer to the CSPTCL inspector. Further, the test certificates of raw materials should also be produced. MOM should be prepared jointly during this stage inspection and should be signed on each page by authorised engineer of repairer & inspector of CSPTCL/ third party. Formats as per Annexure-III shall be filled & signed and enclosed with MOM.
- (x) After satisfactory stage inspection, core coil assembling, connections including leads, tap leads, soldering and brazing etc should be done.
- (xi) Replacement of OLTC with new one.
- (xii) Vapour phase drying of core and coil assembly and OLTC should be done to achieve proper IR & PI value and tan delta values and oil impregnation of core & winding.
- (xiii) Overhauling of accessories and cleaning & painting of transformer tank, radiators, conservator & RTCC panel, pipes etc. The old paint shall be removed by shot blasting to clean the tank surfaces completely and then one coat of primer and two coats of final paintings shall be applied by spray painting with good quality paint and primer.
- (xiv) Replacement of all gaskets including gaskets required for all transformer accessories by new ones.
- (xv) Marking of terminal connections.
- (xvi) Oil filling under vacuum through filter for testing purpose i.e. pre-testing and oil filling in the transformer. The transformer oil for testing purpose to be arranged by you and oil as per IS-335 shall be used for testing of transformer.
- (xvii) **Final testing of transformer:** After completion of all the above activities, the repairer shall give final inspection call. CSPTCL shall depute its engineer AND/ OR third party inspector for final inspection at repairer's works. It may be noted that all routine test on repaired unit shall be carried out by you as per IS-2026. Repaired unit shall be tested for separate source power frequency voltage and induced over voltage as per IS: 2026 since insulation is in the scope of repairs. Further, all routine tests shall be repeated after dielectric test. It means all routine tests shall be carried out by you before as well as after dielectric test.

Heat run test shall be carried out on the repaired transformer. Impulse tests shall be carried out on all windings at rated impulse voltage as per the name plate. You shall submit routine test reports to us immediately after final routine testing of repaired transformer for our approval and the despatch instructions alongwith destination shall be communicated to you with the approval of routine test certificates.

- (xviii) Nitrogen filling and providing a nitrogen gas cylinder of adequate capacity on returnable basis for transportation purpose and one extra Nitrogen gas cylinder shall also be provided for the period, the transformer is stored at site. The cylinder shall be provided complete with all arrangement for maintaining and recording gas pressure in tank.
- (xix) Loading of transformer and its accessories on trailer at your works and transportation with escort to site to be indicated by CSPTCL.
- (xx) Unloading of transformer & accessories at our substation site using your own manpower, tools, trailers & accessories. If plinth is ready at the time the trailer reaches the site, the transformer has to be unloaded & placed on plinth. In case plinth is not ready, the transformer has to be unloaded near the plinth as per the directives of the OIC.
- (xxi) One set of gaskets for HV, IV & LV bushings and one set of gasket for dummy plates provided on transformer shall be supplied as spare on "Free of Cost" basis. These dummy plates are required to be taken out during erection of transformer.
- (xxii) In case the erection, testing & commissioning work is carried out by CSPTCL, your erection engineer & commissioning engineer should be deputed for a period of 7 days to supervise erection & 5 days to supervise testing & commissioning of transformer on free of cost basis. The required transformer oil (fresh) shall be provided by CSPTCL at the site. The quantity of oil shall be as mentioned in the name plate plus 10% extra. The same should be filled through 4500/6000 LPH two stage ultra high vacuum filter machine under the guidance of CSPTCL's engineer.
- (xxiii) A separate name plate shall be fixed by you on repaired transformer, which shall indicate original order No. & date, Name of manufacturer, rating, repair order No. & date. Name of repairer & month/year in which repair is carried out. Drawing for name plate shall be got approved from us. This name plate shall be in addition to the old name plate of the transformer. The old name plate shall not be removed and the same should be available in the repaired transformer also.

2.0 The tests to be carried out during final inspection of the transformer:

The final inspection of repaired transformer would include checking of overall workmanship, operational inspection of OLTC and complete routine test at full value as per IS-2026. Tests as per procedure described in IS-2026 for new transformer will have to be carried by you. The following are the tests to be performed on repaired transformer.

1	Measurement of Insulation resistance (IR) for 15, 60 & 600 seconds & Polarization Index (PI): The minimum value of PI (IR 600/IR 60) should be 2.0 and that of DAR (IR 60/IR 15) should be 1.3
2	Measurement of voltage ratio & turns ratio
3	Measurement of winding resistance
4	Measurement of voltage vector relationship
5	Measurement of load losses & impedance voltage
6	Measurement of no load losses & excitation current
7	Dielectric tests
7.1	Separate source withstand voltage
7.2	Induced AC over voltage withstand test
8	Magnetic balance test
9	Impulse test: As all the windings, bushings & OLTC are being replaced with new ones; impulse test on HV, IV & LV windings shall be carried out at full impulse value as mentioned in the name plate i.e. 900KV for HV, 550KV for IV & 250KV for LV. The bidder should confirm that impulse test facility for testing of the required impulse voltages are available with them in house.
10	Power frequency test

11	Magnetic circuit (Isolation) test (The value of insulation between the core lamination to end frame, core lamination to tank and between end frame to tank (if end frame is isolated from tank) shall be more than 100 M Ohm and it shall withstand test voltage of 2KV for 60 seconds)
12	Temperature rise test (DGA of oil filled in the transformer to be done before and after temperature rise test)
13	Tan delta of windings & bushings at works and at site: The maximum permissible value of Tan delta for windings and bushings shall be 0.5% (before & after heat run test).
14	Operational test on OLTC
15	Tests on PRV
16	Pressure Test on transformer:- Pressure equal to the normal pressure plus 35 KN/sq m measured at the base of the tank shall be maintained in oil filled condition in the transformer for a period of not less than 12 hours . No leakage of oil should occur.
17	SFRA test before dispatch of transformer from works & after erection of transformer on plinth at site
18	Dew point measurement before dispatching of transformer from works and Dew point measurement after receipt of transformer at CSPTCL's site (before oil filling & filtration).

Note: All testing equipments viz. CT,PT, ampere-meter, volt-meter, watt meter, frequency meter, power analyzer, Insulation resistance test kit, winding resistance test kit, winding turns ratio test kit, tan delta & capacitance measurement test kit, potential divider, temperature sensors, etc. shall be of appropriate class of accuracy and shall have valid calibration certificates from NABL accredited labs.

3.0. Taking over of transformer for repairs and handing over of transformer after repairs: In order to avoid any complication at a later date, the following procedure shall be followed strictly:

3.1 For taking over of transformer for repairs:

The details of various weights of transformer have been given in Annexure-I of the tender. The bidder should ensure sending trailer of adequate capacity for transportation of transformer based on weight mentioned in name plate.

The Bidder will ensure that the route for transport of transformer is properly surveyed and a suitable experienced driver and escort is arranged with trailer of adequate capacity. The details in this regard shall be filled in by you as per Format-A, which shall be signed by your authorised representative and this format-A (duly filled in) will be handed over to our officer at site before taking over the failed transformer for repairs. One copy of format should positively be retained by your representative.

Our site officer, while handing over the transformer will fill in Format-B to indicate the details of items handed over and other particulars and this Format-B will be received by your authorised representative before movement of the consignment from site.

Thus, it would be your responsibility to ensure that the exchange of Format-A & Format-B takes place before the consignment fully moves from our substation.

3.2 For handing over of transformer after repairs:

While handing over the Transformer duly repaired, your authorised representative should handover format-C duly filled in to our officer in-charge and obtain acknowledgement from the ultimate consignee as per format-D that no difficulty may be involved in issue of exchange of format-C & D must be ensured at the time of delivery of transformer.

3.3 It would be your responsibility to ensure that copies of format-A & B are sent to us immediately after receipt of failed transformer at your works. The formats-A & B should be shown to our inspecting officer also during initial joint inspection and these formats A & B with minutes of meeting, original weighment receipts should be

sent to us after completion of initial joint inspection. When the repaired transformer has been handed over by you, it would be your responsibility to ensure sending format-C & D to this office for completing records.

In case instructions for furnishing the formats complete in all respects and exchange of formats as above is not done by you carefully, you will be liable for all financial losses/deductions from your bills/delay in payments of your bills.

4.0 Technical parameters:

All technical parameters of transformer after repairs shall be maintained as per particulars of originally manufactured transformer and transformer after repairs shall be suitable for parallel operation with similar transformer of same voltage rating. The percentage impedance of the transformer should remain within $\pm 5\%$ of the original value as per the name plate. The limit of losses after repairs should be as per clause-15 of Section-I.

5.0 Responsibility for engaging agencies for transportation work and loading/unloading works:

- 5.1 It would be your responsibility to engage proper experienced agencies for transportation of power transformer and for loading/unloading of transformer. You will ensure that trailer of adequate capacity after verification of wt. of transformer is sent for transportation of transformer with all necessary tool, tackles, sleepers, ropes, manpower and accessories for loading & unloading operations and also the driver is experienced enough to handle the consignment. You will also ensure that a suitable escort is sent from your end for collection of transformer and for completing various formalities regarding exchange of formats A, B, C & D. You will also ensure that the route for transportation is properly surveyed and proper precaution is taken in regard to various culverts, bridges, road/railway crossing and crossing of overhead line and under bridges. Engagement of experienced staff for the purpose of transportation is necessary so that proper precaution during uphill and downhill movement in steep gradients is taken.
- 5.2 In the nutshell, it would be your sole responsibility to organise all such activities and manpower which are necessary to ensure safe transportation of power transformer. It will also be your responsibility to take all necessary transit insurance cover at your cost and also insurance cover for manpower and trailers.
- 5.3 Please note that it will also be your responsibility to send a letter of authorisation duly signed by your authorised representative at your works/office indicating name and signature of the person to whom consignment is required to be handed over. In absence of such an authorisation letter, our officer-in-charge may refuse to handover the consignment and in all such cases, responsibility for delay will rest on you. In the authority letter, proper seal may be affixed and you must within one week of receipt of order from us intimate name of your responsible representative, who will sign the authority letter alongwith the specimen signature. Similarly signature of authorised representative to receive and handover the consignment and also signature of your representative in Format-A & C should be ensured.
- 5.4 It may also be noted that for all disputes, if any, between you and the agencies appointed by you (for transportation and loading/unloading activities) responsibility will rest on you and the CSPTCL will not come into picture. You will have to settle all disputes with your agencies and CSPTCL will not render any assistance whatsoever in the matter. Please also note that financial losses, if any, suffered by the CSPTCL due to any negligence by any of the agencies engaged by you for transportation and loading/unloading activities shall be recoverable from you only and the CSPTCL will not enter into any correspondence with such agencies.
- 5.5 The unloading of the transformer after its repairing at the substation site of CSPTCL shall be the responsibility of the repairer. The repairer should depute experienced engineers/ technicians for unloading of transformer, its dragging and placement on plinth. Further, erection, testing, commissioning should also be carried out under the supervision of competent and experienced engineers.

5.6 Transportation:

The bidder shall include charges for fitting one Electronic impact recorder (on returnable basis) during transportation of transformers to measure the magnitude and duration of the impact in all three directions. The acceptance criteria and limits of impact in all three directions which can be withstood by the equipment during transportation and handling shall be submitted by the manufacturer during detailed engineering. The recording shall commence in the factory before dispatch and must continue till reaching the site. The data of electronic impact recorder(s) shall be down-loaded at site and a soft copy of it shall be handed over to engineer-in-charge. The software of the impact recorder should be provided to the OIC of the work which shall be intimated along with despatch instructions. Before commencing erection work of the transformer, the impact recorded in all three directions should be checked and it should be ensured that they are within the prescribed limit. In the unlikely event of impact recorder output not available at site, the equipment shall be thoroughly internally inspected by the manufacturer's representative before erection at site to ensure healthiness of the equipment.

Further, the manufacturer shall mount vehicle tracking system (GPRS/ GPS/ GSM based) to track the exact position of the vehicle on which the power transformer is being loaded for transportation and during detailed engineering take approval for the equipment installed.

The details of arrangement for transport configuration of power transformer (which shall be adopted by manufacturer) shall be submitted by the manufacturer to CSPTCL for approval. The price quoted by the bidder should take into account this requirement.

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SECTION-II (B)

TECHNICAL SPECIFICATIONS OF IMPORTANT ACCESSORIES TO BE REPLACED

1. Tap changing equipment: TAPS IN OLTC:

In 160 MVA, 3 phase transformer, the OLTC is to be provided on IV winding (i.e. 132 KV).

1.1 Tap change Switch (General Requirement):

- a) The on load tap changer shall be provided on IV winding for IV variation with tap range of (-)10% to (+)10% in steps of 1.25% each.
- b) OLTC gear shall be motor operated for local as well as remote operation. An external hand-wheel/handle shall be provided for local manual operation.
- c) Arrangement shall be made for securing and padlocking the tap changer wheel in any of the working positions and it shall not be possible for setting or padlocking the wheel in any intermediate position. The arrangement shall be such that no padlock key can be inserted unless all contacts are correctly engaged and switch set in a position where no open or short circuit is possible. An indicating device shall be provided to show the tap in use.

1.2 On Load Tap Changing Gear (OLTC):

The details of the method of diversion of the load current during tap changing; the mechanical construction of the gear and the control features for OLTC gear shall be submitted with the bid. Information regarding the service experience on the gear and a list of important users shall be furnished. The tap changer shall change the effective transformation ratio without producing phase displacement.

- 1.2.1 The current diverting contacts shall be housed in a separate oil chamber not communicating with the oil in main tank of the transformer
- 1.2.2 The contacts shall be accessible for inspection without lowering oil level in the main tank and the contact tips shall be replaceable.
- 1.2.3 The bidder shall indicate the safeguards in order to avoid harmful arcing at the current diverting contacts in the event of operation of the OLTC gear under over load conditions of the transformer. Necessary tools and tackles shall be furnished for maintenance of OLTC gear.
- 1.2.4 The OLTC oil chamber shall have oil filling and drain plug, oil sampling valve, relief vent and level glass. It shall also be fitted with surge relay the outlet of which shall be connected to a separate conservator tank.
- 1.2.5 The diverter switch or arcing switch shall be so designed as to ensure that its operation once commenced shall be completed independently of the control relays or switches, failure of auxiliary supplies etc.
- 1.2.6 Drive mechanism chamber shall be mounted on the tank in accessible position. It should be adequately ventilated and provided with anti-condensation metal clad heaters. All contactors, relay coils and other parts shall be protected against corrosion, deterioration due to condensation, fungi etc.
- 1.2.7 Each transformer unit shall be provided with a local control cabinet and a remote OLTC control panel. The control feature shall provide following:
- 1.2.8 Local-remote selector switch mounted in the local control cubicle shall switch control of OLTC in the following manner: When the selector switch is in LOCAL position, it shall be possible to operate the RAISE LOWER control switches specified in section-1.2.8.1 below. Remote control of RAISE-LOWER functions shall be prevented.
 - 1.2.8.1 When the selector switch is in REMOTE the local control cubicle mounted RAISE LOWER Switches shall be inoperative. Remote control of the raise lower function shall be possible from the remote control panel. The LOCAL-REMOTE selector switch shall have at least two spare contacts per position which are closed in that position but open in the other position.

- 1.2.8.2 Operating mechanism for on load tap changer shall be designed to go through one step or tap change per command. Subsequent tap change shall be initiated only by a new or repeat command.
- 1.2.8.3 On load tap changer shall be equipped with a time delay for "INCOMPLETE STEP" in alarm consisting of a normally open contact which, closes, if the tap changer fails to make a complete tap change. The alarm shall not operate for momentary loss of auxiliary power.
- 1.2.8.4 The selsyn units or approved equivalents shall be installed in the local OLTC control cabinet to provide tap position indication for the transformer.
- 1.2.8.5 The OLTC load tap changer shall be equipped with a fixed resistor network capable of providing discrete voltage steps for input to the supervisory system.
- 1.2.9 Limit switches shall be provided to prevent overrunning of the mechanism and shall be directly connected in the circuit of the operating motor. In addition, a mechanical stop shall be provided to prevent over-running of the mechanism under any condition. Limit switches may be connected in the control circuit of the operating motor provided that a mechanical-declutching mechanism is incorporated.
- 1.2.10 Thermal device or other means shall be provided to protect the motor and control circuit. All relays, switches, MCBS etc. shall be mounted in the drive mechanism chamber and shall be clearly marked for the purpose of identification.
- 1.2.11 A permanently legible lubrication chart shall be fitted within the driving mechanism chamber.
- 1.2.12 A five digit counter shall be fitted to the tap changing equipment to indicate the number of operations completed.
- 1.2.13 All relays and operating devices shall operate correctly at any voltage between the limits specified.
- 1.2.14 It shall not be possible to operate the electric drive when the manual operating gear is in use.
- 1.2.15 It shall not be possible for any two controls to (i.e. manual, local electrical and remote) be in operation at the same time.
- 1.2.16 The equipment shall be suitable for supervisory control and indication with make before break multi-way switch, having one potential free contact for each tap position. This switch shall be provided in addition to any other switch/switches which may be required for remote tap position.
- 1.2.17 All electrical control switches and the local operating gear shall be clearly labeled in a suitable manner to indicate the direction of tap changing.
- 1.3 **Manual control:**
The cranking device for manual operation of the OLTC gear shall be removable and suitable for operation by a man standing on ground level. The mechanism shall be complete with the following:
- (i) Mechanical tap position indicator which shall be clearly visible from near the transformer.
 - (ii) A mechanical operation counter.
 - (iii) Mechanical stops to prevent over-cranking of the mechanism beyond the extreme tap positions.
 - (iv) The manual control considered as back up to the motor operated load tap changer control shall be interlocked with the motor to block motor-start-up during manual operation. The manual operating mechanism shall be labelled to show the direction of operation for raising the primary and vice-versa.
- 1.4 **Electrical control:**
This includes the following:
- (i) Local Electrical control

- (ii) Electrical remote control from remote control panel.
- (iii) Remote Electrical Group Control

The OLTC control scheme offered shall have provision of remote electrical group control during parallel operation of transformers. This is in addition to independent control of OLTC.

- (i) A four position selector switch having MASTER, FOLLOWER, INDEPENDENT and OFF position shall be provided in the remote OLTC control panel for each transformer. This shall be wired to enable operator to select operation of OLTC in either Master, Follower or Independent mode.
- (ii) Out of step relays with timer contacts shall also be provided to give alarm and indication in case of tap positions in all the transformers under group control being not in identical position.
- (iii) Master Position:
If the selector switch is in MASTER position, it shall be possible to control the OLTC units in the FOLLOWER mode by operating the controls of the MASTER unit Independent operation of the units under FOLLOWER mode shall have to be prevented. However, the units under independent mode will be controlled independently.
- (iv) Follower position:
If the selector switch is in FOLLOWER mode, control of OLTC shall be possible only from MASTER panel.
- (v) Independent Position:
In this position of Selector Switch, Control of OLTC of individual unit only shall be possible.

2. Remote OLTC/Cooler control Panel (RTCC Panel):

The RTCC panels for the 160MVA transformer are available at 220KV Urla S/S and are in good and working condition.

3. Cooler control cabinet:

The Cooler control panel for the 160MVA transformer is available at 220KV Urla S/S and is in good and working condition..

4. Bushing Current Transformer:

- 4.1 Bushing current transformers of 800/1-1 Amp with 2 no. Cores of PS class and KPVC of minimum 800 V are to be provided in HV, IV & neutral bushings for restricted earth fault protection.
- 4.2 One core each shall be provided on middle phase of HV, IV and LV Bushing for WTI. The ratio of the same should be specified by the bidder.
- 4.3 It shall be possible to remove turret mounted CTs from the transformer tank without removing the tank cover. Necessary precautions shall be taken to minimize the eddy currents and local heat generated in the turret.
- 4.4 All secondary leads shall be brought to a terminal box near each bushing. These terminals shall be wired out to cooler Control Cabinet using separate cables for each core. The terminal shall be stud type of adequate size. Modification required for accommodating terminal boxes on top cover of tank shall be carried out by the bidder.

5. Neutral earthing arrangement:

- 5.1 The neutral terminals of the star connected windings shall be brought to the ground level by a copper grounding bar (of adequate size) which shall be supported from the tank by porcelain insulators of highest system voltage of 36 kV.
- 5.2 The end of the copper bar shall be brought to the ground level, at a convenient point, for connection to ground network through two (2) Zebra conductors. The connection shall be made by using suitable clamp with necessary accessories.

- 5.3 Suitable flexible copper strip connection of adequate size shall be provided for connecting to Neutral Bushing terminals to avoid terminal load on the Bushings.

6. **Bushings:**

The bushings of CSPTCL's approved make shall be manufactured tested and supplied with guaranteed particulars generally conforming to the latest issue of the following Standard Specifications:

i)	IS-2099	Bushings for alternating voltage above 1000V
ii)	IEC 60137	Bushings for alternating voltage above 1000V
iii)	IS 3347 (Part I to VIII)	Dimensions of porcelain transformer bushings for use in lightly polluted atmospheres.
iv)	IEC 60233	Tests on hollow insulators
v)	IS 2544	Specification for porcelain insulator for voltages above 1000 volts.
vi)	IS 5621	Hollow insulators

Oil impregnated paper insulated condenser type bushing shall be provided for 245 KV, 145KV, 72.5KV and 52KV class with the following specifications.

These bushings shall be outdoor immersed self-contained draw-through lead or rod type, with oil filling. The active part of bushing shall consist of a condenser body built up around a centre tube using high quality kraft insulating paper. The paper craft shall be wound over the centre tube with pure aluminium foils inserted at pre designed locations to get optimum combination of external flashover and internal puncture strength.

The condenser body shall be enclosed in weather resistant housing consisting of a top expansion chamber, upper porcelain, a welded flange – ground sleeve assembly, lower porcelain and a bottom cap. The annular space between the condenser body and the housing shall be filled with Grade-I transformer oil. An assembly located in the top housing hold all the gasket and O ring between porcelain and metal parts thereby completely sealing the bushing. An oil site window shall be provided on the expansion chamber for observing the oil level. The space in the expansion chamber above oil shall be filled with dry Nitrogen gas.

Brown glazed porcelain insulators of high strength are used as air end and oil end insulators. Air end porcelain shall normally be provided with total nominal creepage length 25 mm/KV of the rated voltage unless otherwise specified. Oil end porcelain shall be cone shaped without shed. Air end porcelain shall be provided with long and short sheds (aerodynamic shed profile). Porcelain used in bushing manufacture shall be homogenous, free from lamination, cavities and other flaws or imperfections that might affect the mechanical or dielectric quality and shall be thoroughly vitrified, tough and impervious to moisture. Bushings shall be manufactured from high quality porcelain. Glazing of the porcelain shall be uniform brown in colour, free from blisters, burrs and similar other defects.

Bushings hollow column insulators shall be designed to have ample insulation, mechanical strength and rigidity for the conditions under which they will be used. The hollow column insulator shall be of reputed make and subject to the approval of CSPTCL. Bushing porcelain shall be robust and capable of withstanding the internal pressures likely to occur in service. The design and location of clamps and the shape and the strength of the porcelain flange securing the bushing to the tank shall be such that there is no risk of fracture. All portions of the assembled porcelain enclosures and supports other than gaskets, which may in any way be exposed to the atmosphere shall be composed of completely non hygroscopic material such as metal or glazed porcelain.

When operating at normal rated voltage there shall be no electric discharge between the conductors and bushing which would cause corrosion or injury to conductors, insulators or supports by the formation of substances produced by chemical action. No radio interference shall be caused by the insulators bushings when operating at the normal rated voltage.

All iron parts shall be hot dip galvanised and all joints shall be air tight. Galvanized bolts and nuts shall be used as fasteners. Surface of joints shall be trued up porcelain parts by grinding and metal parts by machining. Bushing design shall be such as to ensure a uniform compressive pressure on the joints.

After assembly, the bushings shall be dried out at a very high vacuum pressure. These shall then be impregnated with transformer oil. Oil impregnation shall be carried out under pressure. The oil level in bushing shall then be adjusted and the bushings shall be sealed subsequently.

For the bushings of rated voltage 245 KV, stress relieving shield shall be provided on the lower cap. The shield shall consist of an aluminium shroud insulated in kraft paper and press board moulding. The maximum stress in oil and the surface of these shield insulation must be limited to those values normal for insulated conductors and similar components in the same transformer.

The draw lead or draw rod connecting the top terminal will be supplied along with bushing. The complete joint connector shall be provided with the draw lead and the free connector shall be suitable for brazing the lead from the connecting improvement in the case of draw rod the free end shall form the connector. For the air side connection, rod type terminal shall be provided.

The bushing shall be provided with an insulation test tap suitable for measuring bushing power factor (dissipation factor) and capacitance by ungrounded specimen test method. The cover of this tap should be removed from the tap attachment only for testing purpose. Normally the tap shall be grounded through the cover and the bushing shall not be operated with cover remove.

Tests:

Bushings shall conform to type tests and shall be subjected to routine tests in accordance with IS: 2099, IEC 60137, IS: 2544 & IS: 5621. The following type test reports of the offered bushings shall have to be submitted for approval.

- a) Wet power frequency voltage withstand test.
- b) Dry lightning impulse voltage withstand test.
- c) Dry or wet switching impulse voltage withstand test.
- d) Thermal stability test.
- e) Temperature rise test.
- f) Thermal short time current withstand test.
- g) Dynamic current withstand test.
- h) Cantilever load withstand test.
- i) Tightness test on liquid filled and liquid insulated bushings.

The dielectric tan delta value shall not be more than 0.005. The insulation resistance of the bushing shall not be less than 20 G ohm. The partial discharge of the bushing shall not be more than 10 pC.

7. Terminal connectors:

- 7.1 The bidder shall be provided Bushing terminals with terminal connectors of approved type and size for connection to external parts. Terminal connectors must have been successfully type tested strictly as per IS:5561. The drawing of terminal connector offered shall have to be got approved by CSPTCL.
- 7.2.1 All connections with ACSR zebra conductors shall be bolted type.
- 7.2.2 Connectors shall be electrolytic grade copper forged and silver plated/ tinned for 10 Microns.
- 7.2.3 No part of a clamp shall be less than 12 mm thick. Minimum conductor coverage on the clamp shall be 100mm. Minimum bushing terminal coverage in the clamp shall be 100mm and minimum pad overlap in the clamp shall be 100*100 mm.
- 7.3 GI nuts, bolts and washers shall be used. Nuts and bolts shall have hexagonal head with threads as per IS and shall be fully threaded type. Also instead of spring washers check/ lock nuts shall be provided.

- 7.4 The connectors shall be designed for minimum 120% of the maximum current carrying capacity of the ACSR zebra conductor and the temperature rise under these conditions shall not be more than 50% of that of the main conductor. The terminal connector of 132KV side should be suitable for twin zebra conductor.

Terminal connector shall be suitable for Zebra ACSR conductors. Clamps shall be designed adequately to take care of any bimetallic effect. The temperature at the clamp shall not exceed 80°C. The bushing side of connector shall be of copper and conductor side shall be of aluminium.

The terminal connectors shall also meet the following requirements:

- i) Terminal connector shall be tested for short circuit current capability test, temperature rise test, corona test etc. The drawing of terminal connector offered shall have to be got approved by CSPTCL
- ii) All castings shall be free from blow holes, surface blisters, cracks and cavities. All sharp edges and corners shall be blurred and rounded off.
- iii) The nut, bolts & washers used in current carrying path shall be hot dip galvanized.
- iv) For bimetallic connectors, copper alloy liner of minimum thickness of 4 mm shall be integral with aluminium body.
- v) Flexible connectors shall be made from tinned copper sheets.

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

8. Painting:

The internal and external surfaces of main tank including oil filled chamber and structural steel work to be painted shall be shot or sand blasted to remove all rust and scale or foreign adhering matter or grease. All steel surfaces in contact with insulating oil shall be painted with two coats of heat resistant, oil insoluble, insulating varnish. All steel surfaces exposed to weather shall be given a primary coat of zinc chromate, second coat of oil and weather resistant varnish of a colour distinct from primary and final two coats of glossy oil and weather resisting Light Gary paint in accordance with shade no. 631 of IS-5. The conservator tank, connecting pipes, marshalling box, radiators and mounting structures should also be painted with the same paint. The radiators and their valves (which are not replaced) should be cleaned and checked for leakage, if any, and leakage should be arrested before painting of the same.

All paints shall be carefully selected to withstand extremes of weather. The paint shall not scale off or crinkle or be removed by abrasion due to normal handling.

The minimum thickness of outside painting of tank shall be 20 microns and the total thickness shall be minimum 80 microns.

SCHEDULE –I (Part-A)**PRICE SCHEDULE INDICATING DETAILS OF TOTAL REPAIR CHARGES FOR
160MVA, 220/132/33 KV (M/s EMCO make) POWER TRANSFORMER**

S. No.	Particulars	Qty.	Unit charges for repair of transformer	GST @	Total Unit rate incl. GST	Amount in Rs. 7= (3x6)
1	2	3	4	5	6	7= (3x6)
1	Dismantling of transformer including core. Cleaning of all healthy parts, including coils, laminations, tap changer, radiator tubes, conservator, breather etc. Rebuilding of core laminations after replacement of required laminations, preparation of new windings. Re-assembly of core and new windings including brazing, soldering and insulating. vapour phase drying. Re-assembly of complete transformer. Changing of all gaskets and fitting of accessories of transformer. Oil filling and filtration	1				
2.1	Fitting of new OLTC along with modification in tank, if required.	1				
2.2	Over hauling of OLTC	1				
3	Cost of providing new insulation for leads (phase and neutral), tap leads, inter winding connections and inter coil connections	1				
4	Internal painting & external spray painting of transformer with radiators, conservator and connecting pipes.	1				
Sub Total (Part-A)						

Seal & signature of bidder

SCHEDULE-I (Part-B)**TESTING CHARGES AFTER REPAIRS OF
160MVA, 220/132/33 KV (M/s EMCO make) POWER TRANSFORMER**

S. No.	Particulars	Qty.	Unit charges for repair of transformer	GST @	Total Unit rate incl. GST	Amount in Rs.
1	2	3	4	5	6	7= (3x6)
1	Measurement of Insulation resistance (IR) & Polarization Index (PI)	1				
2	Measurement of voltage ratio & turns ratio	1				
3	Measurement of winding resistance	1				
4	Measurement of voltage vector relationship	1				
5	Measurement of load losses & impedance voltage	1				
6	Measurement of no load losses & excitation current	1				
7	Dielectric tests:					
7.1	Separate source withstand voltage	1				
7.2	Induced AC over voltage withstand test	1				
8	Magnetic balance test	1				
9	Impulse test	1				
10	Power frequency test	1				
11	Magnetic circuit (Isolation) test	1				
12	Temperature rise test including DGA of oil filled in the transformer to be done before and after temperature rise test	1				
13	Tan delta of windings & bushings at works and at site	1				
14	Pressure Test on transformer	1				
15	SFRA test before dispatch of transformer from works & after erection of transformer on plinth at site	1				
16	Dew point measurement before dispatching of transformer from works and Dew point measurement after receipt of transformer at CSPTCL's site (before oil filling & filtration).	1				

Seal & signature of bidder

SCHEDULE-I (Part-C)**COST ON THE BASIS OF COPPER CONTENT/LAMINATION OF TRANSFORMER
FOR REPAIRS OF 160MVA, 220/132/33 KV (M/s EMCO make)
POWER TRANSFORMER**

Sl. No.	Particulars	Unit charge Rs/Kg	GST @ ____	Total Rs/Kg
1	Cost of new copper coil with insulation of all the limbs of power transformers including series, common, regulating & tertiary windings of 160MVA transformer. (Rs./ Kg)			
2	Scrap salvage value of series, common, regulating & tertiary windings copper with insulation, which will be retained by Bidder. (Rs./ Kg)			
3	Cost of lamination that may be required to be replaced. (Rs./ Kg)			
4	Scrap salvage value of core lamination which will be retained by bidder. (Rs./ Kg)			

Note:

The bidder should offer rates on per Kg basis. For evaluation purpose, weights of windings and lamination as mentioned in clause-11 of Section-I shall be considered. However, in final order quantum shall be based on actual replacement.

Seal & signature of Bidder

SCHEDULE-I (Part-D)
TRANSPORTATION CHARGES

Sl. No.	Particulars	Qty.	Unit charge	GST @ _____	Total unit charge incl. GST	Amount in Rs.
1	2	3	4	5	6	7= (3x6)
1	To & Fro transportation charges inclusive of the following:	1				
	a. Loading of failed transformer & accessories at site i.e. 220KV Urla (Raipur) including packaging for safe transportation					
	b. Unloading of failed transformer and accessories at your works					
	c. Transportation from 220KV Urla (Raipur) to your works of failed transformer & after repairs, transportation to any site within the state of Chhattisgarh including insurance					
	d. Unloading of transformer, its dragging & placement on plinth at the destination site in Chhattisgarh state.					
	Sub Total (Part-D)					

SIGNATURE OF BIDDER
NAME AND SEAL OF THE TENDERING COMPANY

SCHEDULE-I (Part-E)
SCHEDULE OF PRICES AND QUANTITY OF SPARES & ACCESSORIES

Sl. No.	Particulars	Qty. (No./set)	Unit Ex-works price	Freight	GST @	Unit FORD price
1	245KV OIP condenser bushing, 1250 Amps.	3				
2	170 KV Bushing condenser type OIP, 1250 Amps.	3				
3	72.5 KV Bushing condenser type OIP, 1250 Amps (for LV)	3				
4	52 KV Bushing condenser type OIP, 1250 Amps (for neutral)	1				
5	Silica gel breather for main tank	1				
6	Silica gel breather for OLTC tank	1				
7	Pressure Relief Valve (PRV) of adequate capacity with 2 No. contacts	3				
8	Buchholz Relay (Main Tank)	1				
9	Oil Surge Relay for OLTC	1				
10	Aircell	1				
11	Cooling fans 0.5 Kw, 415 volt, 3-ph, 24" size, 10400 m ³ /hr	12				
12	OLTC with diverter switch in driving mechanism complete	1 set				
13	Repeater dial of transformer winding temperature indicator	2				
14	Repeater dial of transformer oil temperature indicator	2				
15	Bushing CTs for HV, IV & neutral bushings as per specifications given for REF protection	7				
16	Terminal connectors for bushings	1 set				
17	36 KV post insulator for support of neutral copper strip	1 set				

Note:

- (i) The quantities for spares are tentative and may vary as per actual requirement. The order shall be placed as per the requirement on the basis of report of initial joint inspection.
- (i) The makes of accessories shall be strictly as per vendor list given in Annexure-IV.

Signature of bidder
Name and seal of the tendering company

SCHEDULE –II**ERECTION, TESTING & COMMISSIONING
OF 160MVA, 220/132/33 KV (M/s EMCO make) POWER TRANSFORMER**

Sl. No.	Particulars	Unit charge	GST@	Total
1	Erection, testing & commissioning of the transformer after its repair at any sub-station site within Chhattisgarh state with your manpower and T&P etc.			
TOTAL				

Seal & signature of bidder

SCHEDULE-III

TECHNICAL PARTICULARS OF ACCESSORIES TO BE REPLACED

Sl. No.	Particulars	
1.0	Please confirm that new OLTC along with diverter switch and driving mechanism shall be provided and any modification in tank, if required, shall be carried out. Also furnish the following details regarding OLTC proposed to be provided.	
1.1	Make	
1.2	Type	
1.3	Power flow direction /bi-directional / restricted bi- directional	
1.4	Rated voltage to earth (kv)	
1.5	Rated current (amps.)	
1.6	Step voltage (volt)	
1.7	Number of steps	
1.8	Control manual /Local electrical /remote electrical	
1.9	Voltage control automatic /non automatic	
1.10	Line drop compensation provided /not provided	
1.11	Parallel operation	
1.12	Protective devices	
1.13	Auxiliary supply detail	
1.14	Time for complete tap change (one step) in sec.	
1.15	Diverter selector switch transient time (cycles)	
1.16	Value of maximum short circuit current (amps)	
1.17	Maximum impulse withstand test voltage with 1.2/50 micro-seconds full wave between switch assembly and ground (kv peak)	
1.18	Maximum impulse frequency test voltage between switch assembly and earth (kv rms)	
1.19	Maximum impulse withstand test voltage with 1.2/50 microseconds across the tapping range (kv peak)	
1.20	Approximate overall dimensions of tap changer (h _x w _x d)	
1.21	Approx. overall weight (kg)	
1.22	Approx. mass of oil (kg)	
1.23	Particulars of the O.L.T.C. control cubicle	
1.24	Driving mechanism box (a) Make and type (b) Details of apparatus proposed to be housed in the box.	
2.0	BUSHINGS (Please confirm that new 245KV, 145KV, 72.5KV & 52KV bushings shall be provided and furnish following details):	
2.1	Type & make	
2.2	Rated voltage class & rated current	
2.3	Dry & Wet flashover voltage	
2.4	Power frequency withstand test voltage for 1 minute for wet & Dry (KV rms)	
2.5	Visible corona discharge voltage (KV rms)	
2.6	Partial discharge level	
2.7	Under oil flashover of puncture withstand test voltage (1.2/50 micro sec. Wave.)	
2.8	Full wave impulse withstand test voltage (1.2/50 micro sec. wave) (i) Positive (ii) Negative	
2.9	Creepage distance in air (mm)	
2.10	Protected Creepage distance (mm)	
2.11	Recommended gap setting.	

2.12	Weight of assembled bushing, kg.	
2.13	Qty. of oil in ltrs.	
2.14	Whether test tap is provided.	
2.15	Cantilever & Torsional force withstand values.	
2.16	Type of connection lead arrangement & length of condenser portion.	
2.17	Bottom PCD & Details of bolts.	
3.0	Details of bushing current transformers:	
3.1	Quantity	
3.2	No. of cores	
3.3	Ratio	
3.4	V.A. burden	
3.5	Accuracy	
3.6	Knee point voltage	
3.7	Magnetizing current at Knee point voltage	
3.8	Secondary resistance.	
3.9	Free space required at top for removal of bushing (mm)	
4.0	Please confirm that cooler control cabinet as per requirement shall be provided and furnish following details	
4.1	Material of cooler control cabinet and its thickness:	
4.2	Details of temperature indicators (WTI & OTI)	
4.2.1	Make and type	
4.2.2	Permissible setting rang for alarm & trip	
4.2.3	Number of contacts	
4.2.4	Current rating of each contact	
4.2.5	Whether remote indicators provided. If so whether equipment required at purchaser's control room's included	
5.0	Please confirm that terminal connectors for all bushings shall be provided by you as per the drawings to be approved by CSPTCL.	
6.0	Please confirm that accessories of RTCC shall be provided as per specification	

Signature of bidder with seal

SCHEDULE -IV
EXPERIENCE AND QUALIFYING REQUIREMENT

1	Name of bidder	
2	Whether manufacturer/ repairer	
3	Name of contact person and Mobile/ land line No. & e-mail ID	
4	Date of establishment of factory & commencement of manufacturing or repairing with address & phone Nos. of factory, e mail id where the repairing work shall be carried out.	
5	<p>Details of Plant & Machinery :</p> <p>All details of plant & machinery viz coil winding machine, overhead crane and vapour phase drying etc. with size, capacity, make, quantity and rating should be enclosed.</p>	
6	<p>Testing Instruments & Facilities :-</p> <p>Complete details of testing equipments & Instruments, with capacity, rating, make, accuracy at full value as per IS -2026 viz. Induced over voltage, Separate source voltage withstand test, measurement of insulation resistance, winding resistance, heat run test, No load & load tests, voltage ratio tests, vector group etc. should be furnished. It may be specifically confirmed that facilities exist to conduct Impulse testing as per IS-2026 on repaired transformer. The details of Impulse test facility with make, rating & capacity of equipment should be mentioned.</p>	
7	Please confirm that factory layout plan with clear depiction of oil storage, shot blasting & painting facilities with open space is enclosed.	
8	In case bidder is a manufacturer please confirm that details of new transformers of rating of 160MVA, 220/132/33 KV & above manufactured with quantity, to whom supplied with order copy and performance certificate is enclosed.	
9	In case the Bidder is a repairing agency, please confirm that details of repairing work of transformer of 160MVA, 220/132/33 KV & above carried out with rating, quantity, to whom supplied with order copy and performance certificate of repaired transformer is enclosed.	
10	Please confirm that details of current orders in hand with quantity, order No. & date, value and name of organisation for repairing work/supply is enclosed.	

Signature of bidder with seal

SCHEDULE – V**COMMERCIAL INFORMATION**

Strike-off, whichever is not applicable

1.i)	Whether purchased from this office or downloaded?	Yes/No
ii)	If down loaded, whether tender cost furnished? Details of MICR DD for tender cost	Yes/No
iii)	Earnest Money details	Bank draft/Banker's cheque/ Cash with 'Manager, (RAO: HQ). CSPTCL, Raipur'
iv)	Amount of EMD and full details	Rs.
v)	If exempted, state whether bidder is	SSI Unit of CG/ Small scale unit registered with NSIC/ Fully owned State/ Central Govt. unit.
vi)	Reference of documentary evidence regarding exemption enclosed	Yes/No
2.	Whether the offer is valid for 180 days from the date of opening of commercial/technical bid	Yes/No (If no, state validity period)
3.	Please confirm that the quoted prices are FIRM	Yes/No
4. a)	Please confirm that break up of applicable taxes has been mentioned in price bid	
b)	Whether you agree to clause regarding variation in the rates of GST	Yes/No
5.	PAYMENT TERMS:- Whether CSPTCL's terms of payment is acceptable to the bidder (if no state conditions)	Yes/No
6.	PERIOD OF REPAIR:-	
(a)	Please confirm whether period of repair as per clause-4.6 section-I is acceptable to you or not.	Yes/No
(b)	If period of repair as per tender is not acceptable to you please mentioned the offered completion period.	
7.	LIQUIDATED DAMAGE Whether agreeable to CSPTCL's liquidated damage clause	Yes/No
8.	GUARANTEE PERIOD including addl. Guarantee in case of failure of transformer :- Please confirm whether guarantee period as per clause-4.8, section -I of tender specification	Yes/No
9. a.	SECURITY DEPOSIT Whether agreeable to furnish CSPTCL's Standard security deposit @ 10% of value of order for satisfactory execution of the order and to cover guarantee period.	Yes/No
b.	If not, indicate deviation specifically	
10.	Pre contract Integrity Pact in prescribed format (Schedule-VIII) on non-judicial stamp paper worth Rs.250.00 enclosed. Pre qualifying requirements:	Yes/No
11.	Mention turn over of the firm for last five years (2014-15, 2015-16, 2016-17, 2017-18 & 2018-19) (Enclose Self attested copies of balance sheets in support)	

12.	In case the bidder is a manufacturer of transformer, please furnish :	
	(a). Year of start of manufacturing 160MVA or above rating transformer	
	(b). No. of 160MVA or above rating transformers supplied to power utilities in India till now.	
	(c). Please confirm that copies of orders issued by Indian power utilities in support of minimum 5 years experience and minimum 3 performance certificates issued by user power utilities have been furnished.	
13.	Please confirm that vapour phase drying facility for 160MVA transformer is available in house and furnish details like quantity, make, sl. No. & capacity.	
14.	Please confirm that impulse test facility for 160MVA transformer is available in house and furnish details like quantity, make, sl. No. & capacity.	

Seal & signature of Bidder

SCHEDULE – VI**SCHEDULE OF TECHNICAL DEVIATIONS**

We/I have carefully gone through the Technical specification and the General condition of contract and we/I have satisfied ourselves/myself and hereby confirm that our/my offer strictly conforms to the requirements of technical specification and General conditions of contract except for the deviations, which are given below :-

Sl. No.	Description & clause no. of the specification and page no.	Stipulation in specification	Deviation offered	Remarks regarding justification of the deviation

Except for aforesaid deviations, the entire order, if placed on us, shall be executed in accordance with your specification and any other conditions, variation/deviation etc. if found elsewhere in our offer should not be given any considerations while finalising the tender.

Place:
Date:

Signature of Bidder
Name and seal of the tendering company

SCHEDULE - VII
SCHEDULE OF COMMERCIAL DEVIATIONS

We/I have carefully gone through the Commercial requirements of specification and the General condition of contract and we/I have satisfied ourselves/myself and hereby confirm that our/my offer strictly conforms to the requirements of commercial specification and General conditions of contract except for the deviations, which are given below :-

Sl. No.	Description & clause no. of the specification and page no.	Stipulation in specification	Deviation offered	Remarks regarding justification of the deviation

Except for aforesaid deviations, the entire order, if placed on us, shall be executed in accordance with your specification and any other conditions, variation/deviation etc. if found elsewhere in our offer should not be given any considerations while finalising the tender.

Place:

Date:

Signature of Bidder

Name and seal of the tendering company

SCHEDULE-VIII

PRE-CONTRACT INTEGRITY PACT

1. GENERAL

- 1.1 This pre-bid contract Agreement (hereinafter called the Integrity Pact) is made on.....day of the month20..., between the CSPTCL acting through Shri.....CE(S&P) (hereinafter called the "BUYER", which expression shall mean and include, unless the context otherwise requires, his successors in the office and assigns) and the First Party, proposes to procure (name of the Stores/Equipment/Work/Service) and M/s. represented by Shri.....Chief Executive Officer (hereinafter called the "BIDDER/Seller", which expression shall mean and include, unless the context otherwise requires, his successors on permitted assigns) and the Second Party, is willing to offer/has offered.
- 1.2 WHEREAS the BIDDER is a Private Company/Public Company/ Government undertaking/Partnership/Registered Export Agency, constituted in accordance with the relevant law in the matter and the BUYER is a power company an undertaking of Govt. of CG, performing its function on behalf of the Government of Chhattisgarh.

2. OBJECTIVES

NOW, THEREFORE, the BUYER and the BIDDER agree to enter into this pre-contract agreement, hereinafter referred to as Integrity Pact, to avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the Contract to be entered into with a view to:-

- 2.1. Enabling the BUYER to obtain the desired Stores/Equipment/Work/Service at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and
- 2.2. Enabling BIDDERS to abstain from bribing or indulging in any corrupt practices in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing any corrupt practices and the BUYER will commit to prevent corruption, in any form, by its official by following transparent procedures.

3. COMMITMENTS OF THE BUYER

The BUYER commits itself to the following:-

- 3.1 The BUYER undertakes that no official of the BUYER, connected directly or indirectly with the contract, will demand, take promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting of implementation process related to contract.
- 3.2 The BUYER will, during the pre-contract stage, treat BIDDERS alike, and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to the other BIDDERS.
- 3.3 All the officials of the BUYER will report the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.

In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the BUYER with the full and verifiable facts and the same prima facie found to be correct by the BUYER, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the BUYER

and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the BUYER the proceedings under the contract would not be stalled.

4. COMMITMENTS OF BIDDERS

The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-

- 4.1. The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
- 4.2. The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage, or inducement to any official of the BUYER or otherwise in procuring the Contract of forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the CSPTCL for showing or forbearing to show favour or disfavour to any person in relation to the contract or any other contract with the CSPTCL.
- 4.3. The BIDDER further confirms and declares to the BUYER that the BIDDER in the original Manufacture/Integrator/Authorized government sponsored export entity of the stores and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the BUYER or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.
- 4.4. The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payment he has made, is committed to or intends to make to officials of the BUYER or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
- 4.5. The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- 4.6. The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- 4.7. The BIDDER shall not use improperly, for purpose of competition or personal gain, or pass on to others, any information provided by the BUYER as part of the business relationship, regarding plans, technical proposal and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- 4.8. The BIDDER commits to refrain from giving any compliant directly or through any other manner without supporting it with full and verifiable facts.
- 4.9. The BIDDER shall not instigate or cause to instigate any third person to commit any of the acts mentioned above.

5. PREVIOUS TRANSGRESSION

- 5.1. The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify BIDDER's exclusion from the tender process.

- 5.2. If the BIDDER makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

6. EARNEST MONEY (SECURITY DEPOSIT)

- 6.1. Every BIDDER while submitting commercial bid, shall deposit an amount as specified in RFP as Earnest Money/Security Deposit, with the BUYER through any of the following instruments:
- (i) Bank Draft or Pay Order in favour of.....
 - (ii) A confirmed guarantee by an Indian Nationalised Bank, promising payment of the guarantee sum to the..... (BUYER).....on demand within three working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by the BUYER shall be treated as conclusive proof of payment.
 - (iii) Any other mode or through any other instrument (to be specified in the RFP).
- 6.2. The Security Deposit shall be valid up to complete conclusion of the contractual obligations to the complete satisfaction of both the BIDDER and BUYER, including warranty period.
- 6.3. In the case of successful BIDDER a clause would also be incorporated in the Article pertaining to Performance Bond in the Purchase Contract that the provisions of Sanctions for violation shall be applicable for forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.
- 6.4. No interest shall be payable by the BUYER to the BIDDER on Earnest Money/Security Deposit for the period of its currency.

7. SANCTIONS FOR VIOLATIONS

- 7.1. Any breach of the aforesaid provisions by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the BUYER to take all or any one of the following actions, wherever required:-
- (i) To immediately call off the pre contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.
 - (ii) To forfeit fully or partially the Earnest Money Deposit (in pre-contract stage) and/or Security Deposit/Performance Bond (after the contract is signed), as decided by the BUYER and the BUYER shall not be required to assign any reason therefore.
 - (iii) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.
 - (iv) To recover all sum already paid by the BUYER, and in case of the Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate while in case of a BIDDER from a country other than India with Interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from the BUYER in connection with any other contract such outstanding payment could also be utilized to recover the aforesaid sum and interest.
 - (v) To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER, in order to recover the payments, already made by the BUYER, along with interest.
 - (vi) To cancel all or any other contracts with the BIDDER and the BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such cancellation/rescission and the BUYER shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.

- (vii) To debar the BIDDER from participating in future bidding processes of the CSPTCL for a minimum period of five years, which may be further extended at the discretion of the BUYER.
- (viii) To recover all sum paid in violation of this Pact by BIDDER(s) to any middlemen or agent or broken with a view to securing the contract.
- (ix) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the BUYER with the BIDDER, the same shall not be opened.
- (x) If the BIDDER or any employee of the BIDDER or any person action on behalf of the BIDDER, either directly or indirectly, is closely related to any of the officers of the BUYER, or alternatively, if any close relative of an officer of the BUYER has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filling of tender. Any failure to disclose the interest involved shall entitle the BUYER to rescind the contract without payment of any compensation to the BIDDER.

The term 'close relative' for this purpose would mean spouse whether residing with the Government servant or not, but not include a spouse separated from the Government servant by a decree or order of a competent court; son or daughter or step son or step daughter and wholly dependent upon Government servant, but does not include a child or step child who is no longer in any way dependent upon the Government servant or of whose custody the Government servant has been deprived of by or under any law; any other person related, whether by blood or marriage, to the Government servant or to the Government servant's wife or husband and wholly dependent upon Government servant.

- (xi) The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the BUYER, and if he does so, the BUYER shall be entitled forthwith to rescind the contract and all other contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such rescission and the BUYER shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.
- 7.2. The decision of the BUYER to the effect that a breach of the provisions of this pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the Monitor(s) appointed for the purpose of this Pact.

8. INDEPENDENT MONITORS

- 8.1. The BUYER will appoint Independent Monitors (herein after referred to as monitors) for this Pact.
- 8.2. The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.
- 8.3. The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.
- 8.4. Both the parties accept that the Monitors have the right to access all the documents relating to the project/ procurement, including minutes of meetings. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER/ Subcontractor(s) with confidentiality.
- 8.5. As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the BUYER.
- 8.6. The Monitor will submit a written report to the designated authority of BUYER/Secretary in the department/within 8 to 10 weeks from the date of reference or intimation to him by the BUYER /BIDDER and, should the occasion arise, submit proposal for correcting problematic situations.

9. FACILITATION OF INVESTIGATION

In case of any allegation of violation of any provision of this fact or payment of commission, the BUYER or its agencies shall be entitled to examine all the documents including the books of Account of the BIDDER and the BIDDER shall provide necessary information of the relevant documents and shall extend all possible help for the purpose of such examination.

10. LAW AND PLACE OF JURISDICTION

This pact is subject to Indian Law, the place of performance and jurisdiction shall be the seat of the BUYER.

11. OTHER LEGAL ACTIONS

The actions stipulated in this integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of any other law in force relating to any civil or criminal proceeding.

12. VALIDITY

- 12.1 The validity of this integrity Pact shall be from the date of its signing and extend up to 2 years or the complete execution of the contract to the satisfaction of both the BUYER and the BIDDER/Seller whichever is later. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.
- 12.2. If one or several provision of this pact turn out to be invalid; the reminder of this pact shall remain valid. In such case, the parties will strive to come to an agreement to their original intention.
- 13. The parties hereby sign this integrity Pact aton.....

BUYER BIDDER

Name of Officer
Destination Department/PSU

CHIEF EXECUTIVE OFFICER

Witness

- 1).....
- 2).....

Witness

- 1).....
- 2).....

ANNEXURE-I**Details of 160 MVA 220/132/33KV transformer to be repaired**

1	Make	M/s EMCO
2	Sl. No.	HT1822/13084
3	Year of manufacture	2009
4	Rating (MVA) ONAN/ONAF	220/132/33KV, 160/128MVA, tertiary 50/40MVA
5	Vector Group	YNa0d11
6	Amps	HV IV LV 419.89 699.82 874.77
7	Impedance on rated MVA base at rated current & frequency at 75 deg C avg wdg temperature between	Principal tap/ highest tap/ lowest tap
7.1	HV - IV	8.35%±10% TOL/6.9%/10.2%
7.2	HV - LV	30% sub.to IS Tol.
7.3	IV - LV	20% 21% 19%
7.4	Tolerance	IS tolerance
8	Weight of core & wdg.	Approx. 74500 Kg
9	Weight of complete transformer with all fittings & oil (approx.)	Approx. 167000 Kg
10	Weight of complete transformer arranged for transport of heaviest package (i.e. excluding accessories) approx.	Approx. 97000 Kg
11	Oil quantity	Approx. 54720 Ltr.
12	Lightning Impulse levels	HV :950KV, IV: 650 KV, LV: 170 KV

ANNEXURE – II**FORMAT FOR INITIAL INSPECTION**

1. On receipt of the failed transformer in the repairer's workshop, the repairer has to intimate by fax/ speed post to CE (S&P) to depute his authorized representative(s) for initial inspection and estimate.
2. The core and coil assembly as a whole is to be un-tanked in the presence of CSPTCL's representative for initial inspection and estimate.
3. The repairer will remove the top core and dismantle all windings in the presence of CSPTCL's representative for details of measurement of core and windings in the following format:

Sl. No.	Particulars			
(a). Windings:				
1.	Rated current per phase (1 ph) amp.			
2.	Conductor Bare (mm)			
3.	Conductor insulated (mm)			
4.	Type of conductor Insulation			
5.	No. of conductors in parallel			
6.	Bare conductor's sectional area			
7.	Current density (A/mm ²)			
8.	Rated volts per phase (volts)			
9.	Turns per phase (T)			
10.	Type of winding			
11.	No. of discs (No.)			
12.	No. of turns/ disc.			
13.	Inside diameter (mm)			
14.	Outside diameter (mm)			
15.	Winding depth (mm)			
16.	Winding length (mm)			
17.	Gap between discs (mm)			
18.	No. of spacers in one circle			
19.	Size of the spacer (mm)			
20.	Length of mean turn in meter			
21.	Weight of winding (Kg/ each) (Weight of winding includes the weight of insulated conductor, spacers, runners and other insulations as has been completely required to make the winding).			
22.	Weight of winding (Kg/ each) (Here weight of winding includes only the weight of insulated conductor without spacers, runners & other insulations).			
23.	Briefly describe condition of the copper conductor of the windings and fault noticed.			
(b). Insulation:				
1.	Between core & LV winding (Details like thickness (mm), length (mm), type of insulation etc to be mentioned).			
2.	Between HV & LV 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 =			

4. **Other parameters of core:**

No. of steps	1	2	3	4	5	6	7	8 etc
Width in mm								
Stack in mm								
Cross sectional area of stack								

5	Total gross cross sectional area of the core in mm ²	
6	Net core iron area = gross C/S area x 0.97	
7	Maximum flux density (B _m) in Wb/sq. mm	
8	Total core weight in Kg by weighment	
9	Thickness of core lamination in mm	
10	No. of core bolts/ phase	
11	Diameter of each core bolt hole in mm	
12	Weight of damaged core lamination, if any	
13	Weight of the core laminations needed to Replace the damaged core in Kg (To be calculated from the size of the laminations, volume etc.). The drawing of the required laminations along with all dimensions details of calculation of weight to be furnished.	
14	Condition of the tank	
15	Weight of scrap insulated conductor recovered from failed winding by : (i) Weighment in the presence of CSPTCL's Representative (in Kg) [separate weight of different windings] (ii) Weight of scrap bare conductor by weighment in the presence of CSPTCL's representative by stripping off the insulation from the conductor (in Kg)	
16	Any other items which have not been covered above required for repair of the defective transformer may be discussed to finalise jointly by the CSPTCL's representative and by the repairer during initial inspection.	

For C.S.Power Transmission Co. Ltd.**For Repairer**

Name :

Name of repairer:

Design.:

Desing.:

Date :

Date :

Place :

Place :

ANNEXURE – III
FORMAT FOR STAGE INSPECTION

S. No.	Particulars							
1(a)	Windings:							
1.	Conductor Bare (mm)							
2.	Conductor insulated (mm)							
3.	Type of conductor Insulation							
4.	No. of conductors in parallel							
5.	Bare conductors in parallel							
6.	Current density (A/mm ²)							
7.	Rated volts per phase (volts)							
8.	Turns per phase (T)							
9.	Type of winding							
10.	No. of discs (No.)							
11.	No. of turns/ disc.							
12.	Inside diameter (mm)							
13.	Outside diameter (mm)							
14.	Winding depth (mm)							
15.	Winding length (mm)							
16.	Gap between discs (mm)							
17.	No. of spacers in one circle							
18.	Size of the spacer (mm)							
19.	Length of mean turn in meter							
20.	Weight of winding (Kg/ each) (Weight of winding includes the weight of insulated conductor, spacers, runners and other insulations as has been completely required to make the winding).							
(b)	Insulation:							
1.	Between core & LV winding (Details like thickness (mm), length (mm), type of insulation etc to be mentioned).							
2.	Between HV & LV 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 =							
(d)	Other parameters of core:							
No. of steps	1	2	3	4	5	6	7	8 etc
Width in mm								
Stack in mm								
Cross sectional area of stack								

2	Total gross cross sectional area of the core in mm ²	
3	Net core iron area = gross C/S area x 0.97	
4	Maximum flux density (B _m) in Wb/sq. mm	
5	Total core weight in Kg by weighment	
6	Thickness of core lamination in mm	
7	Condition of the tank	
8	Any other items which have not been covered above and repaired may be discussed to finalise jointly by the CSPTCL's representative	
9	Quantity, make, type & sr. no. of each of the accessory of the transformer proposed to be replaced should be tabulated in a separate sheet. All accessories should be checked & tested (if required) in presence of CSPTCL's Engineer. The copies of invoices & test certificates of accessories should be furnished to CSPTCL's inspector.	

For C.S.Power Transmission Co. Ltd.**For Repairer**

Name :

Name of repairer:

Design.:

Desing.:

Date :

Date :

Place :

Place

ANNEXURE-IV**LIST OF VENDERS FOR MAJOR ITEMS OF TRANSFORMER**

S. No.	Name of Item	Supplier
1.	CRGO	M/s. Nippon steel corporation, Japan M/s. Kawasaki Corp., Japan (M/s JFE, Japan) M/s. Armco, USA, M/s. Covefi, France M/s. Salzgitter, Germany M/s. S Usinor, France M/s Transfer, France M/s Mitsubishi, Japan. M/s AST Terni, Italy M/s. EBG India Pvt Limited, (Indian Agent) for M/s GELSE NKIRCHEN, Germany M/s British Steel Corporation , UK M/s Thyseen Krupp Group of Companies M/s. POSCO, Korea M/s A.K.Steel USA
2. (a)	Winding conductor	M/s Invex Filli Isolati Speciali s.p.a. Italy M/s. Asta M/s. Smit Draad, Holland M/s. Incab Industries, Jamshedpur M/s. Sterlite Industries, Mumbai M/s. Bhandari Conductor, Mumbai/ Mandideep. M/s. Shakti Insulated Wires, Mumbai M/s KSH International Pvt Limited, Taloja M/s Delta-Trans Conductor, Mumbai M/s Vijay Electricals, Hyderabad M/s RIMA Transformers & Conductors (P) Ltd, Bangalore. M/s Lacroix and Kress (GMBH) Germany M/s Pirellcavi Italy M/s Shree Cable & Conductors M/s. Hindalco M/s. Chandra Metals M/s. BCPL Conductors
(b)	CTC Conductor	M/s Sam Dong Korea M/s Invex Filli Isolati Speciali s.p.a. Italy M/s Loc Roix AND KRESS – Germany M/s. KSH International (P) Ltd. M/s. Chandra Metals
3.	Pre-compressed press Board & press Board components	M/s. H. Weidmann, Switzerland M/s. Fige Holms Brruk, Swedan M/s. Senapathy Whiteley, Banglore M/s. Raman Board, Mysore
4.	Insulating Material	M/s. Dupont, USA M/s. Senapathy Whiteley, Banglore M/s. H. Weidmann, Switzerland M/s. Munksio M/s Amotfors, Sweden M/s Krammerer
5.	Air Cell	M/s PRONL, France, M/s. Swastik M/s. Unirub M/s. Rubber Products M/s Sukrut Udyog
6.	Gaskets	M/s. Talbros, Faridabad M/s. Cortica, Chennai M/s. Packing & Jointing, Chennai M/s Indian Rubber Products, Haridwar

S. No.	Name of Item	Supplier
		M/s Bombay Oil Seal Mfg. Mumbai M/s MGM Rubber Kolkata M/s Bharat Corrub Industries, Vadodara. M/s Indian work Industries M/s Works Product Pvt Ltd
7.	OIP Condenser bushing	M/s. BHEL M/s. CGL M/s. TELK M/s ASEA-MICAFIL M/s. Trench M/s. Alstom (earlier M/s. Areva) M/s. Vijai Electricals Ltd. M/s ABB
8.	Terminal Connector	M/s. Best & Crompton, Chennai M/s. PeeVee Engg., Bangalore M/s. Milind Engg., Mumbai M/s. Nootan, Baroda M/s Utsav, Baroda M/s Vinayak and Co., Mumbai M/s Megha Engg. Enterprises, Chennai M/s Klemmen Engg. Corporation , Chennai
9.	OTI/WTI with repeater	M/s. Accurate Control,UK M/s. AKM, Swedan M/s. Perfect Control, Chennai, India M/s. Preci Measure, Bangalore M/s Radix Electrosystems Pvt. Ltd/ Radix Pyrotech India
10.	Magnetic oil gauge	M/s. Sukrut Udyog, Pune M/s. Yogya, Jhansi
11.	Buchholz Relay & Oil surge relays	M/s. Fukuda Instrument, Japan M/s. Atvus, Calcutta M/s. English Electric, Chennai M/s. Prayog; M/s BHEL M/s Instrument and Control, Vadodara
12.	Pressure Relief Device	M/s. Qualtrol, USA M/s. GE, USA; M/s. Sukrut Udyog, Pune
13.	Fan & Motor	M/s. Alstom (earlier Areva) M/s. CGL, Mumbai M/s. Khaitan, Calcutta. M/s EPC, Calcutta M/s Marathan
14.	Un-impregnated Densified laminated wood	M/s. Permal Wallce Bhopal M/s. Kit ply Assam M/s. Mysore Polymers Bangalore M/s Narmada Forest Ind. Pvt. Ltd. Bhopal. M/s Western India Plywood , Kerala M/s Rochling Detonite
15.	Valves	M/s. Leader M/s. Bombay Metal & Alloys M/s. Audco M/s. Petson M/s. Manixon M/s. Creseant M/s Precision Engg. Kottayam, M/s Eapen Joseph, Kottayam M/s Apex Piping Systems, Jalandhar M/s Liberty Engg., Mumbai M/s Niton Valves, Mumbai M/s Eapen Joseph & Co., Coimbatore

S. No.	Name of Item	Supplier
		M/s Oswal Agra M/s Neo Engg. Ahamedabad M/s CG Valve Udaipur
16.	MCB	M/s. Sieman M/s. MDS M/s. S&S M/s. Havell's
17.	Fuse	M/s. Siemens/ S&S / Areva / Havell's
18.	OLTC Complete	M/s. BHEL M/s. CTR M/s. TELK M/s Easun, Madras
19.	Terminal Blocks	M/s. ELMEX M/s. Technoplast, M/s. Tosha
20.	Silica gel Breather	M/s. Yogya Enterprises, Jhansi. M/s. Anusen Industries, Pune. M/s Instruments & Controls , Vadodara, India
21.	Radiator	M/s CTR Manufacturing Industries, Pune M/s Thermal Transformer Product, Bangalore M/s Exotherm, Bangalore. M/s P.E. Engg. Hyderanad. M/s Hitech Switchgear, Mumbai M/s Mahindra Electrical works M/s Triveni Electroplast

Note: The bidders should submit their offer considering the above mentioned vendors only. Any change in vendor of any item shall be permitted by CSPTCL only in case of justified reasons. No alteration in vendor without the approval of CSPTCL is permissible.

ANNEXURE –V**ANNEXURE SHOWING FORMATS TO BE FILLED WHILE
HANDING OVER/ TAKING OVER OF TRANSFORMER****OFFICE OF THE CHIEF ENGINEER (S&P)
CSPTCL: RAIPUR****FORMAT – A**

- a) Place where this format was handed over.
b) Date on which this format was handed over

**INFORMATION TO BE FILLED IN BY THE REPAIRING AGENCY AND TO BE
PRODUCED AT THE PLACE OF LOADING OF FAILED TRANSFORMER**

1	Order / LOA number and date of CSPTCL against which this transport work is being undertaken.	
2	Intimation for loading of transformer received from.	
3	Date on which above intimation was received by the contractor.	
4	Registration number & capacity of Truck/Trailer sent for loading of transformer.	
5	(i) Name of transport contractor with full addressed/phone number and fax number.	
	(ii) Name of Drivers	
	(iii) Name of Cleaner/ Helper	
	(iv) Name of escort/ authorised person	
	(v) Name of person in whose name authority letter for taking over the consignment has been produced with his specimen signature.	
6	Driving licence number of driver(s) and other personnel(s) escorting the truck/ Trailer.	
7	Details of route after survey, which would be followed by the Truck /Trailer.	
8	Please confirm that the route has properly been surveyed to take care of culverts, bridges, road/railway crossings, overhead lines, under bridges, up & down gradients in hilly track etc. during transportation.	
9	Please confirm all T&P, Sleepers and accessories for loading of transformer is being sent with the trailer.	
10	Transit insurance policy No./details of other documents given by the insurance company for covering transit insurance.	

11	Please confirm that at the time of handing over this Format-A, the Representative of supplier/transporters has taken over Format-B duly filled in from the officer in-charge of CSPTCL responsible for handing over of Transformer.	
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For C.S. Power Transmission Co. Ltd.**For Repairer**

Name :

Name of repairer:

Design.:

Desing.:

Date :

Date :

Place :

Place

Note:- Legible name & designation of all signatory should be indicated and date & seal, should also be affixed under each signature.

**OFFICE OF THE CHIEF ENGINEER (S&P)
CSPTCL: RAIPUR**

FORMAT - B

- a) Place where this format was handed over.
b) Date on which this format was handed over

INFORMATION TO BE FILLED IN BY THE OFFICER IN-CHARGE (CSPTCL) AT THE PLACE FROM WHERE THE FAILED TRANSFORMER IS LOADED FOR TRANSPORTATION TO WORKS OF SUPPLIER/ REPAIRING AGENCY.

1	Registration number of Truck/ Trailer with capacity in MT.				
2	Name of driver/s & personnel escorting the Truck Trailer.				
3	Time & date at which Truck/Trailer received at place of loading of Xmer.				
4	Time & date at which loading is completed.				
5	Time & date at which the Truck/Trailer left from site to repairer works.				
6	Details of transformer (without oil) loaded for transportation :				
	(a) Make				
	(b) Sl.No.				
	(c) Rating				
	(d) Supply order no. & dt.				
	(e) Year of manufacture of transformer				
	(f) Weight of transformer (without oil) as per Name plate (Transport Mass)				
	(g) Dimensions				
	(h) Percentage Impedance				
7	Details of OLTC with driving gear mechanism (without oil) handed over for transportation:				
	(a) Make & type				
	(b) Sl. No.				
	(c) Rating				
	(d) Condition of OLTC including details of shortage, if any				
8	Details of Accessories of transformer handed over to Repairing Agency.				
Sl. No.	Particulars	Details of availability Make/CON./S. No.	Required Quantity	Balance Qty.	Details of quantity handed over to repair.
a					
b					
c					
d					
e					
f					
g					
h					
i					
j					
k					
l					

9	Any other information which in the opinion of officer in-charge is important for undertaking repairs.	
10	Please confirm that Format-A has been received by officer in-charge and this Format-B duly filled in, is handed over to representative of Repairing Agency.	

For C.S.Power Transmission Co. Ltd.**For Repairer**

Name :

Name of repairer:

Design.:

Desig. :

Date :

Date :

Place :

Place

Note:- Legible name & designation of all signatory should be indicated and date & seal, should also be affixed under each signature..

**OFFICE OF THE CHIEF ENGINEER (S&P)
CSPTCL: RAIPUR**

FORMAT – C

- a) Place where this format was handed over.
b) Date on which this format was handed over

**INFORMATION TO BE FILLED IN BY THE REPAIRING AGENCY AND TO BE
PRODUCED AT THE PLACE OF UNLOADING OF REPAIRED TRANSFORMER.**

1	Order /LOA number and date of CSPTCL against which this transport work is being undertaken.	
2	Intimation for unloading and transport of transformer received from.	
3	Date on which above intimation was received by the contractor.	
4	Registration number & capacity of Truck/Trailer sent for transportation of Transformer	
5	(i) Name of transport contractor with full addressed/phone number and fax number. (ii) Name of Drivers. (iii) Name of Cleaner/Helper. (iv) Name of escort/authorised person (v) Name of person in whose name authority letter for taking over the consignment has been produced with his specimen signature	
6	Details of accessories received with transformer with details about their conditions a) OLTC, Transformer S.No., rating b) HV/LV/Neutral Bushing, make, S.No., Qty., Rating c) OTI/WTI make, S.No., Qty., Rating d) Buchholz Relay/OSR, make, S.No., Qty., Rating e) Thermosyphon/ Silica gel Breather f) Piping, Cooling fins Radiator.	
7	Driving licence number of driver(s) and other personnel(s) escorting the truck/Trailer.	
8	Details of route after survey, which would be followed by the Truck /Trailer	
9	Please confirm that the route has properly been surveyed to take care of culverts, bridges, road/railway crossings, overhead lines, under bridges, up & down gradients in hilly track etc. during transportation	

10	Please confirm all T&P, Sleepers and accessories for loading of transformer is being sent with the trailer	
11	Transit insurance policy No./details of other documents given by the insurance Company for covering transit insurance.	
12	Please confirm that at the time of handing over this Format-C, the representative of supplier/transporters has taken over Format-D duly filled in, from the officer in-charge of CSPTCL responsible for taking over of transformer.	

For C.S.Power Transmission Co. Ltd.**For Repairer**

Name :

Name of repairer:

Design.:

Desing.:

Date :

Date :

Place :

Place

Note:- Legible name & designation of all signatory should be indicated and date & seal, should also be affixed under each signature..

**OFFICE OF THE CHIEF ENGINEER (S&P)
CSPTCL: RAIPUR**

FORMAT – D

- a) Place where this format was handed over.
b) Date on which this format was handed over

**INFORMATION TO BE FILLED IN BY THE OFFICER IN-CHARGE (CSPTCL) AT THE
PLACE FROM WHERE THE REPAIRED TRANSFORMER IS UNLOADED FOR
TRANSPORTATION TO WORKS OF SUPPLIER / REPAIRING AGENCY**

1	Order/ LOA No. & date against which the repaired transformer has been received.	
2	Registration number & capacity of Truck/Trailer on which repaired transformer is received.	
3	Name of driver/s & personnel escorting the Truck/Trailer.	
4	Time & date at which Truck/Trailer received at place of unloading of transformer	
5	Details of transformer (without oil) received after repairs :	
	a) Make & S.No.	
	b) Rating (KV ratio, MVA etc.)	
	c) Weight	
	d) Dimensions	
	e) Percent impedance	
	f) Condition of transformer received	
6	Details of accessories received with transformer with details about their conditions	
	a) OLTC, Transformer S. No., rating	
	b) HV/LV/Neutral Bushing, make, S.No., Qty., Rating	
	c) OTI/WTI make, S.No., Qty., Rating	
	d) Buchholz Relay/OSR, make, S.No., Qty., Rating	
	e) Thermosyphon/ Silica gel Breather	
	f) Piping, Cooling fins Radiator.	
7	Details of accessories not received with transformer of received in damaged condition	
8	Any other information which in the opinion of officer in-charge is essential for received transformer.	

9	Time & date at which unloading work Completed	
10	Please confirm that detailed onward & physical inspection of repaired transformer and all accessories after unloading has been done and all items have been found to be in good & healthy. In case of otherwise details may be recorded here	
11	Nitrogen pressure noticed at the time of taking delivery of consignment (nitrogen cylinder are not to be returned.)	
12	Please confirm that Format-B has been received by officer in-charge and this Format-D, duly filled in is handed over to representative of Repairing Agency.	

For C.S.Power Transmission Co. Ltd.**For Repairer**

Name :

Name of repairer:

Design.:

Desing.:

Date :

Date :

Place :

Place

Note:- Legible name & designation of all signatory should be indicated and date & seal, should also be affixed under each signature..
