

MADHYANCHAL VIDHYUT VITRAN NIGAM LTD
LUCKNOW

TENDER DOCUMENTS FOR
PROCUREMENT OF
10 MVA COPPER WOUND POWER
TRANSFORMER

OFFICE OF THE SUPERINTENDING ENGINEER,
ELECTRICITY STORE CIRCLE,
B-21 'H' ROAD, MAHANAGAR EXTN.,
LUCKNOW-226006

Tender No : ESCL/09/2012
Date of opening : 31.07.2012
Cost of Tender : Rs. Rs.11,350.00 (Draft to be enclosed
Document alongwith Part-I of the Bid)

SALE PROFORMA

1. Tender Specification No. : ESCL/09/2012
2. Tender Specification for : TENDER DOCUMENTS FOR
PROCUREMENT OF 10 MVA
COPPER WOUND POWER
TRANSFORMER
3. Specification Copy No. :
4. Purchaser's Name and
Address :
.....
.....
5. Date of Purchase :
6. Reference of money
deposited towards cost of
tender specification. :

Superintending Engineer
Electricity Stores Circle,
B-21-H-Road, Mahanagar Extention,
Lucknow. Telefax No.0522-2321152.

I N D E X

SL.NO. CONTENTS

01	Cover Page
02	Tender Form
03	Tender Notice
04	Special Instructions to Tenders
05	Special Conditions for the contract
06	Instructions to Tenderers with schedules for Tender Part-I & Schedule A to P4
07	General conditions of contract Form”B” for the supply Of plant and machinery for works pertaining to the M.V.V.N.L, Lucknow.
08	Form of Agreement.
09	Form of the Bank Guarantee for the Earnest Money.
10	Form of the Bank Guarantee for 10 % Security.
11	General Requirement of Specification
12	Schedule of Guaranteed Technical Particulars
13	IEEMA Price Variation Formula for copper wound Transformer.

मध्यांचल विद्युत वितरण निगम लि0 अल्पकालीन निविदा सूचना

अधोहस्ताक्षरकर्ता द्वारा प्रतिष्ठित, अनुभवी व मूल निर्माताओ से निम्नलिखित क्षमता के वितरण/ पावर परिवर्तकों की आपूर्ति हेतु निविदायें आमंत्रित की जाती हैं। प्रत्येक निविदा प्रपत्र का मूल्य रु011,350.00 वैट सहित (अप्रतिदेय) का रेखांकित बैंक ड्राफ्ट जो अधिशासी अभियन्ता (भुगतान), विद्युत भण्डार मण्डल, लखनऊ को देय हो को भेज कर प्राप्त किया जा सकता है अथवा निविदा www.mvvn.in से download कर रु011,350.00 वैट सहित (अप्रतिदेय) का रेखांकित बैंक ड्राफ्ट जो अधिशासी अभियन्ता (भुगतान), विद्युत भण्डार मण्डल, लखनऊ को देय हो को नत्थी कर जमा किया जा सकता है। नगद, चेक या पोस्टल आर्डर आदि स्वीकार नहीं होगा। निविदा के प्रथम भाग में धरोहर राशि व वैधता, तकनीकी, व्यवसायिक व अन्य शर्तें तथा निविदा के दूसरे भाग में दरें व दर विश्लेषण तथा शर्तें बन्द होंगी। निविदा निम्नलिखित तिथियों को अपरान्ह एक बजे तक प्राप्त की जायेगी और प्रथम भाग उसी दिन सार्वजनिक रूप से अपरान्ह 2.00 बजे से खोली जायेगी। निविदा का द्वितीय भाग खोले जाने की तिथि प्रथम भाग का तकनीकी विश्लेषण करने के उपरान्त सभी सफल निविदादाताओं को सूचित कर दी जायेगी। यदि वह दिन अवकाश का दिन हो तो निविदा अगले कार्य दिवस पर खोली जायेगी। मध्यांचल विद्युत वितरण निगम लि0, निविदा के खो जाने एवं डाक में बिलम्ब के लिए जिम्मेदार न होगा। अधोहस्ताक्षरकर्ता को किसी भी या समस्त निविदाओं को बिना कारण बताये अस्वीकार अथवा निरस्त किये जाने तथा सामग्री को दो या अधिक निविदादाताओं के मध्य वितरण का अधिकार होगा :-

1. विशिष्टिकरण संख्या0 ESCL/ 01/ 2012
10 केवीए, सिंगल फेज़ (CEA मानक के अनुरूप) परिवर्तक 230-नग
धरोहर धनराशि रु0 95,000.00
निविदा खुलने की तिथि 30.07.2012
2. विशिष्टिकरण संख्या0 ESCL/ 02/ 2012
16 केवीए, सिंगल फेज़ (CEA मानक के अनुरूप) परिवर्तक 230-नग
धरोहर धनराशि रु0 1,97,000.00
निविदा खुलने की तिथि 30.07.2012
3. विशिष्टिकरण संख्या0 ESCL/ 03/ 2012
25 केवीए, थ्री स्टार रेटिंग परिवर्तक 745-नग
धरोहर धनराशि रु0 7,15,000.00
निविदा खुलने की तिथि 30.07.2012
4. विशिष्टिकरण संख्या0 ESCL/ 04/ 2012
63 केवीए, थ्री स्टार रेटिंग परिवर्तक 370-नग
धरोहर धनराशि रु0 6,42,000.00
निविदा खुलने की तिथि 30.07.2012
5. विशिष्टिकरण संख्या0 ESCL/ 05/ 2012
100 केवीए, थ्री स्टार रेटिंग परिवर्तक 300-नग
धरोहर धनराशि रु0 10,50,000.00
निविदा खुलने की तिथि 30.07.2012

6. विशिष्टिकरण संख्या0 ESCL/ 06/ 2012
250 केवीए, (CEA मानक के अनुरूप) परिवर्तक 165- नग
धरोहर धनराशि रू0 11,41,000.00
निविदा खुलने की तिथि 31.07.2012
7. विशिष्टिकरण संख्या0 ESCL/ 07/ 2012
400 केवीए, (CEA मानक के अनुरूप) परिवर्तक 95- नग
धरोहर धनराशि रू0 9,50,000.00
निविदा खुलने की तिथि 31.07.2012
8. विशिष्टिकरण संख्या0 ESCL/ 08/ 2012
5 एमवीए पावर परिवर्तक 19 नग
धरोहर धनराशि रू0 11,00,000.00
निविदा खुलने की तिथि 31.07.2012
9. विशिष्टिकरण संख्या0 ESCL/ 09/ 2012
10 एमवीए पावर परिवर्तक 18 नग
धरोहर धनराशि रू0 17,35,000.00
निविदा खुलने की तिथि 31.07.2012

उक्त मात्रा मे 50% की घटोत्तरी या बढोत्तरी की जा सकती है ।

अधीक्षण अभियन्ता
विद्युत भण्डार मंडल,म0वि0वि0नि0लि0
बी-21, एच रोड, महानगर विस्तार
लखनऊ टेली फ़ैक्स- 0522- 2321152

राष्ट्र हित में ऊर्जा बचायें

Special Instructions to Tenders

1. **Terms and conditions:**

This tender specification is subject to terms and conditions as stipulated in instruction to Tenderers, Form "B", General requirement of specification, Technical specification and Schedule of guaranteed technical particular (Annexed herewith) except to the extent modified/laid down hereunder. These conditions shall prevail over the conditions mentioned elsewhere in this specification.

2. **Payments Terms:**

100% payment of the contracted value along with CST/VAT and Excise Duty, as applicable at the time of supply, shall be made on receipt of material at destination, after check at site and found in order within 120 days of receipt of such delivery. No interest shall be paid for delayed payments what so ever delay may be.

3. **Price:**

The ex-works rates quoted should be VARIABLE (Base date 01.06.2012). The component of packing, forwarding, freight and transit plus 30 days storage insurance shall also be FIRM in all respect during the currency of the contract.

4. **Delivery:**

The material should be delivered to consignees as per dispatch instructions to be issued by S.E (Store), M.V.V.N.L, Lucknow. The supplier has to supply the material at any place under the jurisdiction of MVVNL. Delivery is to be done as per MVVNL requirement.

5. **Quantity to be quoted:**

Bidders may quote for one or more items given in schedule of delivery and quantity. The bidders shall quote minimum 20 % of total quantity, for the item they are quoting with proportionate earnest money. The offer of the tenders quoting less than 20% quantity or submitting earnest money equivalent to less than 20 % of total quantity shall be rejected.

6. The purchaser is not bound to accept the lowest or any tender and or all the tenders without assigning any reason. The purchaser may negotiate or re-tender on limited tender basis if substantial financial benefit is likely to accrue to Madhyanchal Vidyut Vitran Nigam Limited. This is know as inviting "Rock Bottom Rates" where in the tenderers are given the choice to reduce their rate to the minimum level possible. The purchaser may also provide the counter offer rates if need be, to the various tenderers in the best interest of the Madhyanchal Vidyut Vitran Nigam Limited.

7. These Special Condition shall be read and construed along with the general conditions, of Form-'B' and "Instructions to Tenderer" but in case of any conflict or inconsistency between provisions of Form - 'B' "Instructions to Tenderer" the conditions contained herein shall prevail.

8. The material will be guaranteed for the period of at least 36 calendar months from the date of installation at site or 42 months from the date of receipt of material by purchaser at site/store, whichever is earlier called "maintenance period". If the material is damaged within guaranteed period, it shall be replaced/repared by the supplier free of cost within one month of receipt of intimation. If damaged material are not replaced/repared within above period the purchaser shall recover an equivalent amount plus 15% supervision charges.
9. The quantity of the material to be purchased may be increased or decreased to the extent of 50% of the quantity mentioned in the tender notice.
10. Tenderers shall submit detailed COST ANALYSIS of the transformer with cost of each component used in the manufacturing of the transformer with quantity and its rates along with documentary proof of rates. This is mandatory for all without it their tender offer may not be considered.
11. Tenderers in case of getting purchase order have to deposit TEN PERCENT security money.
12. **Turn Over Requirement:-**
The bidder should have a minimum annual turnover of Rs. 500.00 Crores (Rs Five Hundered Crores) in the last three consecutive (each) financial year. The audited balance sheet/CA's certificate shall be enclosed in support of above failing which the bid shall not be considered.
13. In case of Trail order grantee period of transformer shall be five years.
14. Tenderer must quote the monthly supply / delivery schedule in tender bid.
15. The material will be supplied upto Dec.,2012 or as per requirement of MVVNL.
16. Tenderers shall submit the clear Type Test Report for Power Transformer of same rating from any reputed Institution i.e. CPRI / ERDA / NTH.
17. In case of Trial Order the performance guarantee shall be additional for TWO YEARS and guarantee period shall also be additional for TWO YEARS.
18. **Quality Control**
In addition to inspection of transformers at firm's works by departmental officers. 01 % T/F of ordered quantity shall be sent to CPRI Bengloor / Bhopal for Type Test and 04 % of ordered quantity shall also be sent to CPRI Bengloor / Bhopal for routine test. Selection of unique No. of above T/Fs shall be ascertained by DISCOM on random basis from store centre. The total expenditures in transformer testing including transportation etc. shall be borned by the firm.
19. The Tender bids of those tenderers who have been served with the notice for processing of "Black listing" from any DISCOM of UPPCL shall not be considered.

Special Conditions for the Contract of Three phase Copper Wound 10 MVA
Power Transformer

- 1- Manufacturer shall punch its name, serial number on the core assembly of the core assembly of the transformer. This is mandatory and is to be ensured.

- 2- "challenge Testing" can be done on any transformer supplied by any firm on request of the any supplying firm against the specification. This is to ensure Confidence among suppliers and transparency in the procurement and insurance of quality control. Firms requesting Challenge Testing have to give in writing to MVVNL to get tested the particular transformer supplied and deposit in advance "Challenge Testing" fee with the department Head quarter. Thereafter aforesaid marked transformer shall be sent to CPRI for "Challenge Testing" Above test shall be witnessed by challenging firm (Complainant), supplier of the aforesaid transformer & MVVNL representative. In case of failure in "Challenge Testing" action shall be taken as per terms & condition of specification. As such the challenge testing clause shall have following salient points.
 - (a) The MVVNL will examine the challenge within the month of the date of the date of receipt in writing. The MVVNL will reconsider whether to conduct challenge Test or not, keeping in view the basis of the complainant and examination of pass records.

 - (b) The decision of the MVVNL will be final and will be conveyed to complainant along with justification.

 - (c) If a challenge test is required , then :-
 - (i) The complainant will deposit the expenses related to transportation (to and from the place of picking of sample to the Test laboratory) and testing in advance to the MVVNL.

 - (ii) The MVVNL will arrange for selection and sealing of samples. The transportation to the assigned laboratory is the task of the MVVNL.

 - (iii) The testing will be conducted in CPRI test lab and testing charges would be paid our of the advance by the complainant.

 - (d) If the equipment fails the challenge test, than the expenses paid by the complainant would be reimbursed by the user of label whose equipment has failed.

 - (e) If the equipment passes the challenge test, than complainant would forfeit the deposit.

- (f) If the equipment fails the challenge testing, the enforcement process as mentioned in the scheme for National energy labeling programme page 9 of 46 will be applicable.

Inspection & Testing

- (i) Authorized inspectors of MVVNL shall ensure (in addition to existing provision of testing & inspection as specified in technical specification and IS-1180&IS 2026) 100% measurement of each transformers of following test parameters:-

- (a) No Load Current
- (b) No Load Loss
- (c) Load Loss

Copies of test report are to be sent to MVVNL Head quarter, Consignee Store Division and is to be kept with inspecting officers. Inspecting teams have to ensure sealing of each & every transformer of the inspected lot in their presence.

- (ii) At Consignee Store Centers each & every transformers inspected at suppliers work, will be subjected to No load current, No load loss, load losses measurement again and it is to be noted down in measurement book and there after only bills shall be verified for payment. In case of No load losses and/or load losses exceeding guaranteed maximum limit specified in the technical specification, No payment shall be made to the supplier. It is to be ensured by the Consignee Store division.
- (iii) In case No load loss and/or load loss exceeding the guaranteed maximum limit payment of the supplier shall be stopped and the supply of that type of transformer shall be rejected. Thereafter rejected transformers shall be lifted by the supplier at their cost and further balance quantity of the contract shall stand cancelled and further action shall be taken as per provisions of Contract agreement.
- (iv) On necessary arrangement & commissioning of testing lab facilities at Madhyanchal Discom Head Quarter at Lucknow under Guidance/Consultancy of Third Party/CPRI/ERDA etc. One transformer of every supplier selected randomly, sorted with help of computer Unique No wise, shall be tested as per routine test/Acceptance test mentioned in Technical Specification so as to ensure transparency, Quality control and check on inspection carried out by MVVNL Team.

INSTRUCTIONS TO TENDERERS

1.1 PREPARATION OF TENDER

- 1.1.1** Before submission of the tender, the Tenderers are required to make themselves fully conversant with the Technical Specification, Drawing, Instruction to tenderers, General requirement of Specification including schedules and General conditions of Contract of Form 'B' as may be applicable so that no ambiguity arises at a later date in this respect.
- 1.1.2** Any inconsistency or ambiguity in the offers made by Tenderer shall be interpreted to the maximum advantage of M.V.V.N.L. and disadvantage to the Tenderer. The Tenderer shall have no right to question the interpretation of the Purchaser in all such cases and the same shall be binding on the tenderers.
- 1.1.3** The tender should be prepared and submitted strictly in accordance with the instructions contained in these specifications. The tender shall be complete in all respect. Tender must be submitted in the manner specified on the attached prescribed schedule and/or copies there of. To complete the proposal, the Tenderer must fill in the Tender form, Declaration, all schedules & datasheet, annexed with the specification, item by item in accordance with the instructions and notes supplementary thereto. The interpolations, insertions, cutting & corrections made in the tender offers should be duly initialed by the tenderer.
- 1.1.4** Tenderer shall supply the data required in sheets annexed with the specification by typing at appropriate places against each item to facilities preparation of comparative statements. These sheets must be properly signed by authorised representative of the Tenderer/Manufacturer testifying the data submitted. All schedules must be duly filled in and shall be enclosed with each copy of the tender. In case the Tenderer does not supply any of the required information at the time of tender, necessary loading may be made while evaluating the prices of his offer without giving him any further opportunity to supply or clarify the same. The Tenderers are notified that in case the required information are not furnished in the specified Proforma / schedules attached with the specification, the Purchaser shall not be responsible for any error in the evaluations of their tender on this account. Further, the failure to comply with this requirement may result in the rejection of the tender at the discretion of the Purchaser.
- 1.1.5** Purchaser may revise or amend these specifications and drawing etc., prior to date notified for opening of tenders. Such revision / amendment, if any, will be communicated to all prospective tenderers as amendment/addendum to the specification maintaining reasonable time schedule for preparations of tender by the Tenderers.
- 1.1.6** Any portion of the terms and conditions as laid down in these specifications which are not clear to the Tenderers should be got clarified from the Purchaser before submission of the tender so that no ambiguity / confusion arises at a later date in this respect.
- 1.1.7** A set of technical, descriptive and illustrative literature along with drawing must accompany each copy of the tender so that clear understanding of equipment offered is obtained. The tender sent by post must be posted by registered Post AD sufficiently in advance so as to reach the purchaser by the scheduled date and time of submission of tender. Any tender received after the date and time of submission even on account of Postal delay shall not be opened. The tenderers are, therefore, requested to ensure in their own interest that the tenders are delivered in time.

E-MAIL / FAX / TELEX / TELEGRAPHIC TENDERS SHALL NOT BE CONSIDERED UNDER ANY CIRCUMSTANCES.

- 1.1.8** Tenderer, if so desire, may authorise one representative for attending tender opening on his behalf. In such instance, the representative shall be required to submit the authorisation certificate with his signature duly attested by the person signing tender on behalf of the Tender. This certificate shall be submitted to the authority opening the tender. In absence of such certificate, no representative shall be allowed to participate in tender opening.

1.2 PRE-QUALIFYING CONDITIONS

Tender's meeting following conditions only will be considered.

1.2.1 Qualification of Tenderers

- (a) The tenderers shall either themselves be manufacturers of the equipment offered or accredited representatives of such manufacturers in India or of their Principals abroad with whom they may be having collaboration. Such accreditation should be at least of one year on date of tender.
- (b) Relevant documents in support of the above must be furnished along with undertaking of the manufacturers. If these documents are not furnished along with the tenders, the offer will be liable to be rejected summarily.
- (c) Firms with ISO certification and / or ISI mark shall be eligible. Purchaser at his discretion may consider the firms of U.P. having minimum 5 year operational experience in U.P.P.C.L. / M.V.V.N.L. for supply of same or higher capacity equipment.
- (d) The tenderer quoting minimum 20% of the tendered quantity shall be eligible.

1.2.2 (a) Operational Experiences :

Offered equipment should have given three years proven trouble free operational service in tropical climate. However, in case of equipment being manufactured in India under valid FOREIGN COLLABORATION, operating experience in tropical climate of offered collaborator's equipment shall also be acceptable provided copy of valid collaboration agreement for the equipment offered is submitted with the tender. Further, in case of offer of imported equipment, the three years operating experience will be considered in respect of those areas only which are similar to the tropical condition prevailing in India.

(b) Manufacturing Experience:

The indigenous manufacturers or their foreign collaborator must have manufactured at least 20% of the specified quantities of each item of identical or similar equipment.

(c) Turn Over

The firm/manufacturer should have minimum annual turn over of Rs. Five Hundred Corors. in last three consecutive (each) financial years .

1.2.3 Testing Facilities:

The tenderer must have all necessary facilities at their works for carrying out such routine and acceptance tests as prescribed in the relevant ISS and any other routine and acceptance test as specified in the specification. Documentary evidence of existence of such facilities will be filed along with the tender.

1.2.4. Type Test :

(A) For indigenous bids or fully imported bids :

The offered equipment / similar higher capacity equipment must have been fully type tested as per relevant ISS and/or any other specified International Standards during the last 5 year period to be

reckoned from the date of opening of tender. However Type Test report of the offered equipment will have to be submitted before commencement of supply of the equipment. Photocopy of type test reports/certificates must be submitted along with tender bid. The type test certificates of proto type manufactured and tested by foreign collaborators of the tenderer at their works shall not be acceptable for indigenously manufactured equipment.

(B) For indigenous bids under valid foreign collaboration:

(i) The offered indigenously manufactured or collaborator's manufactured equipment should have been type tested and report submitted with the tender.

(ii) The Collaborator's equipment shall have three years operating experience under tropical climate.

1.2.5 For those indigenous manufacturers who have neither manufactured 20% quantity, indigenously and nor got their equipment type tested but are qualifying because of his foreign collaborator's manufacturing experience and type testing, the maintenance period shall be 54 months from the date of receipt of material at site or 48 months from the date of commissioning, which ever is earlier, instead of 18 months and 12 months respectively as provided under clause 30 of Form- (B).

1.2.5 The purchaser at his discretion may consider to award a trial order of small qty. to those bidders who have proven design and meet the requirements of clause 1.2.1, 1.2.3 and 1.2.4 (A). Such suppliers shall continue to be eligible for trial orders under this clause till their equipment has given Trouble free operational service for 3 years.

1.2.7 DATE OF CONSIDERATION:

The above cited experience and manufactured quantities shall be counted as on the date of opening of the tender.

All statements and claims should be duly supported by authenticated copies of documents, without which the tender is liable to be rejected summarily.

1.3 SUBMISSION OF TENDER:

1.3.1 The tenderer shall submit his tender in triplicate in two separate parts. Each part shall be kept in double covers, inner once being sealed. All envelopes must also show on the outside the name of bidder and his address.

(i) TENDER BID PART-I:

This part shall contain the earnest money and a confirmation of validity of offer of 180 days. This part shall also contain Technical & Commercial Particulars and other terms & Conditions except prices. The cover of this part shall be superscribed Tender Bid Part-I (Earnest Money, Validity, Technical & Commercial Bid) against Specification No. _____.

(ii) TENDER BID PART-II:

This part shall contain prices and financial incidence of deviations only and the cover shall be superscribed "Tender Bid Part-II (Prices Bid)" against specification No. _____. The envelopes of both the parts shall be kept in another envelope which shall also be sealed and superscribed on Top as under.

"Tender for supply of _____ against specification No. _____ due for opening on _____"

(iii) In case tenders are not submitted in separate parts and superscribed as above, the same may not be considered.

1.3.2 TENDER BID PART-I (Earnest Money, Validity, Technical & Other terms):

1.3.2.1 Tenderer is required to deposit earnest money as specified in the tender notice for full tendered quantity. In case any tenderer wishes to quote lesser quantity, the amount of earnest money may be reduced proportionately. In case any Tender deposits earnest money of a lesser amount, his offer shall be considered for the proportionate quantity only unless specified otherwise in special instructions. There shall be no exemption from earnest money, even if the tenderer is registered with DGS & D, Store Purchase Section of U.P. or U.P. Small Scale Industries. The earnest money shall be accepted in any of the following forms only.

- (a) Demand Draft of any schedule bank payable at Lucknow of FDR or CDR pledged / drawn in favour of " **Executive Engineer (Payment) , Electricity Store Circle, Lucknow** ".

OR

- (b) Bank guarantee from a schedule Bank in India, executed on a non-judicial stamp paper of requisite value as per U.P. Stamps Act STRICTLY on the specified proforma appended with form 'B' (only applicable when amount of earnest money exceeds Rs. 5000/-). The validity of the Bank guarantee would not be less than 270 days from the date of tender opening plus claim period of 6 months. Any deviation or addition / deletion from the text of the specified proforma of a Bank Guarantee / inadequate value of stamp paper shall render the Bank guarantee invalid for the purpose of opening of tender Bid Part-II.

1.3.2.2 Offer without proper earnest money and/or letter conforming the validity for 180 days shall not be considered under any circumstances. The earnest money shall be refunded after, award is finalised. The earnest money of successful tenderer shall however be retained till such time he deposits security.

1.3.2.3 Beside Earnest Money & Validity offer, this Bid shall also contain all Technical, Commercial and other terms and conditions. The following documents duly filled in, must also accompany the Tender Bid Part-I.

1. Schedule-A Tender Form.
2. Schedule-B Documents regarding pre-qualification details of the tender.
3. Schedule-C Declaration.
4. Schedule-D Proforma for joint undertaking by collaborator / associates and the tenderer.
5. Schedule-E General Particulars.
6. Schedule-F List of drawing/literature enclosed with the tender.
7. Schedule-G Schedule of deviation from Technical specification.
8. Schedule-H Schedule of deviation from Instructions of Tenderer.
9. Schedule-I Schedule of deviation from General requirement of specifications.
10. Schedule-J Schedule of deviation from General conditions of contract Form B.
11. Schedule-K Schedule of quoted guaranteed delivery.
12. Schedule-L Schedule of quantities (not applicable)
13. Schedule-M Statement giving details of proprietorship / partnership of tendering firm.
14. Schedule-P1 Schedule of quantities and price for main equipment.
15. Schedule-P2 Financial incidence of deviations from technical specification.
16. Complete Technical details, specification & literature/drawing of equipment offered.
17. Income Tax Clearance

Note - No price is to be indicated in any form in any of the above schedules for any item in Tender Bid Part-I whatsoever.

1.3.3 Tender Bid Part-II (Prices):

The following documents, duly filled in, must be submitted in Part-II Bid:

- Schedule P₁ : Schedule of quantities and prices of main equipment.
Schedule P₂ : Financial incidence of Technical deviations if any.

1.3.4 Procedure for opening and processing of Tenders:

Part-I: 'Earnest Money', validity & Technical/Commercial Pre-qualifying conditions of the offer shall be publicly opened first on the due date as specified/notified. Part-I of the tenders accompanied with the required earnest money & validity shall be scrutinised and processed in this office to ensure whether the same are conforming to the technical requirements of the specification. Queries as raised by the-purchaser on the technical matters as may be necessary shall be referred to the tenderers to give them a chance to clarify only technical details furnished or any wanting information, in order to ensure whether the Tenderer can supply the equipment strictly in accordance with the technical specification. Such queries when raised from this office should be replied in triplicate within the time stipulated from the date of dispatch of such letters

from this office failing which, tenders shall be finalised on the basis of the information as may be available. It shall be, therefore in the best interest of the tenderers to give complete and comprehensive technical particulars/ description and details of the equipment offered by them conforming to the technical

requirement. However, in case, it becomes necessary for the Tenderer to make any addition or subtractions in their original price as listed in part-II of the tender on account of technical clarifications on deviations etc. against the queries raised by the purchaser to bring the equipment in line with the requirement of the specification, such adjustment should be sent separately along with the technical clarifications in sealed cover. Envelope containing prices of such adjustment should be marked as '**Supplementary price bid**' against specification No. _____ which shall be opened along with main price bid part-II. Tenderers are specifically requested to ensure that corresponding price details of the equipment should be sent in separated sealed cover in the same envelope containing technical details otherwise such tenders are liable to be summarily rejected without assigning any reason. After the scrutiny of technical and commercial terms and condition, the date of opening of the price part shall be intimated later on.

- 1.3.5** Any action on the part of the Tenderers to revise the price/prices and/or change the structure of price(s) at his own instance after the opening of the tender may result in rejection of the tender and/or debarring the Tenderer from participation in purchase by the M.V.V.N.L. for one year in the first instance.

In such cases, earnest money submitted in Part-I shall also be forfeited.

- 1.3.6** Tenderer shall ensure to put initials on each and every page of the tender. Last page of each document forming part of the tender shall bear full signature under official seal fully disclosing the name, designation and relationship with the firm of the signatory. In case of partnership concern, the tender may be signed by all the partners of the firm or one of them holding power of attorney (copy of power of Attorney of signatory of the bid shall be submitted with the bid). In case of corporation/company, tender may be signed either by the president or secretary of such authority to be furnished along with the offer. Besides this, the tenderer shall ensure to furnish the following information.

- (i) Name, designation, profession with postal address of all the partners/directors and other persons authorised to conduct business in respect of this tender.
- (ii) Postal addresses of the firm's works, Registered and Head offices, Sales offices and Local office etc.
- (iii) Names and postal address of their authorised local representative/Liaison officers.

1.4 VALIDITY:

The tenders shall be valid for a period of 180 calendar days from the date of opening. Tenders with, lesser validity are liable to be rejected.

1.5 PRICE & PRICE STRUCTURE :

- 1.5.1** The bidder shall quote VARIABLE (Base Date 01.06.2012) prices without ceiling limit on either sides as per schedule.

- 1.5.2** The equipment shall be installed at different places in M.V.V.N.L. hence the Tenderer must, quote unit F.O.R. destination price of all the items (along with ex-works prices) for dispatch to any Railway Station in M.V.V.N.L. The unit F.O.R. destination price shall comprise of the following components.

- (a) Ex-works Prices.
- (b) Packing, forwarding, freight and insurance charges against all risks including insurance charges for 30 days storage after receipt of equipment at destination stores/substation against all risks. The tenderers must clearly specify these components individually besides the F.O.R. destination prices.

1.5.3 TAXES & DUTIES :

The prices quoted should be exclusive of all taxes duties octroi charges etc. on finished products which will be paid at actual on production of relevant original vouchers. Excise duty will be leviable on ex-works prices only. However, the Tenderer must indicate the rate of various taxes/duties leviable as on the date of tender opening in Schedule P. Form C/D for those having their establishment outside UP and form III 'D' for those

having their establishment in UP will be obtained by the contractor from the concerned consignee and VAT shall be charged extra as legally applicable for those having their establishment in U.P. In no case form C/D or form III 'D' shall be demanded through Bank. Whenever Central Excise/Sales Tax and other statutory levies are not applicable, or the bidder is exempted at the time of tendering from payment of such duties/levies, he should clearly indicate whether he would charge the same or not at the time of supply. In the event of applicability at the time of supply (where there is possibility of charging) he should specify the maximum rates which may become applicable based on the present tax structure at the time of tendering.

Where firm (s) has/have quoted ambiguous or contradictory terms or have not categorically committed regarding charging of the amount of Excise duty at the time of supply, their offer shall be loaded by the maximum rate of Excise duty applicable to tendered item among all bidders.

1.6 EVALUATION OF TENDER :

1.6.1 In comparing tenders and in making awards, the Purchaser may consider such factors as, compliance with

specifications, relative quality and adaptability of services of suppliers, experience, record of integrity in dealing, ability to furnish repairs and maintenance services, the time of delivery, capability to perform and available facilities such as adequate shops, plant equipment, technical organisation etc.

1.6.2 In case Prices of some items are given in lump sum where unit prices are required purchaser reserves the right to evaluate unit prices on the basis of the quoted lump sum prices.

1.6.3 In case, where a Tenderer does not quote F.O.R. destination price asked for, their quoted unit prices shall be loaded by appropriate additional factors on ex-works prices as below :

- (a) Packing charges @ 0.75% (b) Forwarding charges @ 0.25%
- © Freight for 1st 500 kms. @ 2% (d) Freight for every next 250 kms. @ 0.5% or part there of
(For this purpose, distance shall be taken from supplier's works to Lucknow and in case the distance is less than 500 kms, loading shall be done for a minimum distance of 500 Km.)
- (e) Transit Insurance @ 0.5%
- (f) Insurance for 30 days storage after receipt @ 0.5%
equipment at destination station

However, while placing order on such firms (who have not quoted various elements of freight insurance etc.) The order shall be awarded to them taking minimum of the charges as quoted by the Tenderers.

Where Tenderer quotes only F.O.R. destination prices without break-up as Schedule 'P-I', the required ex-works prices shall be computed by deducting the minimum of the packing, forwarding, freight and insurance rates quoted by other Tenderers. However, while placing the order on such firms, the maximum of the packing and forwarding, freight & insurance (combined) quoted by other Tenderers in

the tender shall be provided, in the purchase order and the ex-works prices for order shall be worked out from quoted F. O. R. destination price.

1.6.4 Where the tenderers have been asked to quote unit FIRM, (ex-works) prices only without any ceiling limit on either side, no advantage shall be given to those tenderer who quote either FIRM price or Variable price WITH CEILING.

1.6.5 If any Bidder quotes payment terms, which amount to advance and/or payment which is in deviation from payment terms given in Form 'B' and General requirement of specification annexed with this Bid document, the Bid shall be loaded @ 20% interest per annum on the amount and for period of advance payment involved.

In the case of tender (s) demanding payment in excess of 90% against R/R through Bank admissible as per tender specification, loading in the rate of 20% (twenty percent) per annum on the amount demanded in excess of 90% for a period of one month shall be done irrespective of the fact that the tenderer, has offered to submit a Bank Guarantee and irrespective of the quantum of the Bank Guarantee.

1.6.6 Any rebate/discount Linked with quantity, terms of payment, any other conditions shall not be considered for the purpose of evaluation and comparison of such offer vis-à-vis others.

However, the same may be availed while placing orders with such successful Tenderers. Where slab rates are quoted, each slab will be treated as separate offer.

1.6.7 If the Tenderer fails to quote prices for any of the item (s) /component (s) as asked for or confirms its supply free of cost, the highest prices as quoted by other tenderer (s) for the same shall be added to arrive at F.O.R. destination computed prices of such tenderer for comparison purposes only.

1.6.8 The price shall be compared based on Ex-Works but exclusive of excise duty and Sales Tax /VAT.

1.6.9 Loading on any account as may be deemed necessary in the opinion of the purchaser to bring the various offers at par to each for comparison purpose may be done at the discretion of the Purchaser.

1.7 SPLITTING OF ORDER:

The Purchaser reserves the right to split the order among various successful tenderers in any manner he chose without assigning any reasons what-so-ever.

1.8 AWARD OF CONTRACT:

1.8.1 The Purchaser is not bound to accept the lowest or any tender and may reject any or all the tenders without assigning reason.

1.8.2 The successful Tenderer, if required to do so, may have to enter in to a contract/rate contract agreement with the Purchaser as per General Conditions of Form-B and other Conditions attached with the tender specification. However, the rate contract shall be for one year which may be extended for on other one year with mutual consent.

1.8.3 For signing the contract, a duly authorised representative of the successful Tenderer shall be required to sign and accept the contract at Lucknow within the time specified in the letter of intent, failing which it shall be considered that he is not interested in accepting the offer and actions as deemed fit shall be taken by purchaser without making any further correspondence with successful Tender.

1.9 INCOME AND SALES TAX CLEARANCE CERTIFICATE:

The Tenderer shall furnish with the tender, Income Tax and Sales Tax clearance certificate to current, as well of the preceding year from the competent authority. Alternatively, the Tenderer shall give valid reasons for his inability to furnish such a certificate. The Purchaser reserves the rights to reject any tender if income tax/sales tax clearance certificates are not furnished or the reasons for the Tenderer's inability to furnish such certificates are not given in the tender.

1.10. DEVIATIONS:

The offer should be strictly in line with the conditions, specifications and other requirements mentioned in this tender specification document. No deviations are permitted except under special circumstances. Should the Tenderer wish to depart from the General requirements of Technical specification or General Conditions of Contract form 'B' in any way, he must draw specific attention to such departure(s). All such deviations shall specifically be filled up in the relevant deviation schedule. If deviations are not

pecifically recorded in these schedules and submitted along with the tender documents, it will be presumed that there are no deviations and this interpretation will be binding upon the Tenderer. Purchaser is, however, not bound to accept all or any deviations as mentioned in such schedule. Tenderers are also advised not to enclose their own standard or printed terms and conditions for sale etc as the same shall not be considered.

1.11. CANVASSING:

No tenderer shall canvass any Nigam's official or the Engineer, with respect to his own or other tender. Contravention of this condition will result in rejection of the tender, this clause shall not be deemed to prevent the Tenderer, from supplying to the Engineer any further information/clarification asked for by Engineer.

1.12. SPECIAL NOTE:

It may very clearly be noted by all that no modification in price reduction clause No. 27 of contract form 'B' shall be accepted i.e. broadly a price reduction of ½ % per week subject to a maximum of 10 % shall be applicable.

1.13. STANDARD :

1.13.1 Except as modified by this tender specification, all materials and equipment shall conform to the requirement of the latest editions of relevant ISS/IEC.

1.13.2 However in the event of the tenderer offering equipment conforming to standards other than ISS/IEC standards, the salient point of comparison between the standards adopted and relevant ISS/IEC standards shall be indicated clearly in the proposal.

1.13.3 Should the Tenderer wish to depart from the provisions of the specifications, either on account of manufacturing practices or for any other reason, he shall clearly mention the departure and submit complete justification supported by information, drawings etc, as will enable to assess the suitability of equipment(s) offered.

In the event of the Tenderer's specifications, drawing, forms and tables etc. being found to disagree with the requirement of this specification at any stage, these specifications shall be binding unless the departures have been duly approved in writing by the Purchaser.

1.14. DEVIATION FROM SPECIFICATION:

This specification is mainly for the guidance of the Tenderer/manufacturer. These requirements of necessity included same specific elements of construction and materials but are not intended to preclude ingenuity or improvement.

If the Tenderer proposes any deviation from this specification these will be considered provided, they are necessary either to improve the utility, performance and efficiency or to secure overall economy. This will be clearly and explicitly explained in the tender. Such deviations shall also be brought out clause in the prescribed schedule.

1.15. VARIATION IN QUANTITY OF MATERIAL/EQUIPMENT:

The requirement indicated in this specification can vary to the extent of 50 % on either side.

1.16 DELIVERY SCHEDULE :

The delivery shall be quoted specifically and explicitly for each complete item separately in Schedule 'K' and shall be guaranteed under price reduction clause 27 of General condition of form 'B' annexed.

.17 ERECTION SUPERVISION:

1.17.1 The tenderer shall quote for the services of an Erection Engineer who shall assume full responsibility for the erection, testing and commissioning of the equipment offered. Skilled and unskilled labour and tools of General use would be provided by the Purchaser.

1.17.2 The tenderer shall submit a list of all special tools and instruments required for erection testing and commissioning and shall include the same in the tender.

1.17.3 The tenderer shall indicate per item and per menses rates for the services of the Erection Engineer. Tenderer shall also indicate the estimated time for the erection, testing and commissioning to the equipment offered.

1.18 DRAWINGS & MANUALS:

Along with tender, the Tenderer shall submit the following drawings:-

- (a) General arrangement drawings of the equipment offered.
- (b) Detailed dimensional drawings and descriptive literature of all the components supplied.
- (c) Basic Electrical diagram.

1.19 SPARE PARTS:

The Tender shall recommend a set of spare parts required for normal maintenance of the equipment offered for a period of five years.

1.20 FOREIGN EXCHANGE:

Tenderer offering equipment without involving any foreign exchange and commitment on the part of purchaser will be considered.

SCHEDULE 'A'

PART-1

TENDER FORM From:-

Tender Specification No

To,
The Superintending Engineer,
Electricity Stores Circle,
B-21, "H" Road, Mahanagar Extension,
Lucknow

Sir

With reference to your invitation to tender for the above I/We hereby offer to the Madhyanchal Vidyut Vitran Nigam Ltd. the items in the schedule of the prices and delivery annexed or such portion thereof as you determine in strict accordance with the annexed condition of contract Form 'B' Specification and schedule of rate, to the satisfaction of the purchaser or in default thereof to forfeit and pay to the Madhyanchal Vidyut Vitran Nigam Ltd. the sum of money mentioned in the said conditions.

The rates quoted are inclusive prorata and in full satisfaction of all claims.

I/We agree to abide by this tender for the period of 180 days from the date fixed for opening of the same.

A sum of Rs. in the form of

in favour of the Executive Engineer(P) Electricity Stores Circle, Lucknow is enclosed with part-I of the offer as earnest money.

I/We hereby undertake and agree to execute a contract in accordance with the conditions of the contract

End.: As above.

witness

Your faithfully

Date Day of 2012

(Signature of tenderer in full)

(Name & Signature)

Name

Address :

Seal

Occupation :

SCHEDULE 'B'

(PART-I)

PRE-QUALIFICATION DETAILS OF TENDERER

Tender Specification No.....
For Supply of.....

1. **Manufacturer or accredited representative:**

- (a) For manufacturer, registration with industries Deptt. permitting manufacture is to be enclosed.
- (b) For accredited representative, letter of authorisation from manufacturer of being accredited representative to be enclosed.

2. **Operational Experience:**

The following details are to be furnished ONLY in respect of Tendered item(s) for last five financial year

- {a) Sl. No.
- (b) Complete postal address including designation of the authority placing order.
- (c) Order No. & date
- (d) Quantity ordered
- (e) Period of Supply
- (f) Station where the equipment installed and the period from which in actual service.

3. **Manufacturing Experience**

The following details are to be furnished only in respect of Tendered item(s)

Sl. No.	Complete postal address including designation of authority placing order	Quantity ordered	Quantity manufactured during last five financial years *
1.			2007-2008
2.			2008-2009
3.			2009-2010
4.			2010-2011
5.			2011-2012 (Upto date of tender opening)

*In case the quantity manufactured in less than the qualifying figures, previous year may also be included.

4. Testing Facilities:

Sl. No.	Name of test	Details of testing equipments required and available	Range up to which tests can be performed	Place of testing
1.	Routine test			
	a)			
	b)			
	c)			
	...			
2.	Acceptance test			
	c			
	b)			
	c)			
	...			
3.	Type test			
	a)			
	b)			
	c)			
			

- Note:** (i) In case facility of test not available at works place, where such test would be carried out, be specified.
- (ii) The tenderer is required to give the details of testing facilities available in works against Column 2, he is to essentially mention the name of test and corresponding in column 3 he is to specify the instruments which will be employed to perform that tests.

5. Type testing Product :

It is required that a Xerox copy of complete type test report of the product is enclosed with Part- I of the tender document failing which it will be presumed that the product is not type tested.

Seal of Company

Signature
Name
Designation
Date

SCHEDULE 'C'

(PART-I)

DECLARATION

(To be executed on a non judicial stamp paper of Rs. 100/- with a revenue stamp of Rs. 1/- price affixed)

Tender Invited by
Tender for:
Name of Tenderer:
Specification No. & date of opening:

Superintending Engineer, Electy. Store Circle, MVVN, B-21, "H" Road, Mahanagar Extension Lucknow
--

IN CONSIDERATION of the M.V.V.N.L.. having treated the Tenderer to be an eligible person whose tender may be considered, the Tenderer hereby agrees to the condition that the proposal in response to the above invitation shall not be withdrawn within 180 days (or any extension there of) from the date of opening of the tender, also to the condition that if there after the Tenderer does withdraw his proposal within the said period, the Earnest Money deposited by them may be forfeited by the Madhyanchal Vidyut Vitran Nigam Ltd. Lucknow and at the discretion of the Purchaser, the purchaser may debar the tenderer from tendering for a minimum period of one year reckoned from the date of opening the tender.

Signed thisday of _____, 2012
Place:

(Signature)
Signed by:
State title (whether proprietor / partner):
Name of the firm
Address of the firm
Seal

Witness :

(Name & Signature)
Address:

SCHEDULE 'D'

(PART-I)

PROFORMA FOR JOINT UNDERTAKING BY THE COLLABORATOR / ASSOCIATE AND THE TENDERER

(To be stamped in accordance with U. P. State Act.)

To,

Superintending Engineer,
Electy. Store Circle,
B-21, 'H' Road,
Mahanagar Extension,
Lucknow-226 006

Dear Sir,

(In terms of "Instruction to Tenderers" in the specification on _____ for the design manufacture, testing, delivery, erection & commissioning as specified) of _____ (Name of Equipment)

It is condition that tenderer as well as their collaborator / associate shall jointly and severally undertake the responsibility for the successful performance of the Contract (here in after referred to as contract) which is qualified for the award on the basis of the expertise of collaborator/ associate).

We _____ having our registered office at _____ (here in after referred to as a collaborator/ Associate) which in turn shall include our successor, administrator, recuter and assign and we _____ having our registered office at _____ (hereinafter called as Tenderer or Contractor) are held jointly and severally liable and bound upto M.V.V.N.L. (here in after referred to as Purchaser) which expression shall include its successor, administrator and assigns for successful performance of the contract, including the overall responsibility for the design, manufacturer, testing, delivery, performance etc of _____ (Name of equipment) in accordance with the contract.

The Collaborator / Associated hereby agree to depute their technical experts from time to time to Contractor's works/ project site as mutually agreed upon between the Purchaser and the contractor in order to discharge the contract obligations as stipulated in the contract. The Tenderer and the Collaborator / Associate hereby agree that this undertaking shall be irrevocable and it shall form an integral part of the contract.

In witness there of the Collaborator / Associate and the Tenderer have through their authorised representative, set their hand and seal on this _____ day of _____ 2012__.

Witness
1.

(OfficialAddress)

Collaborator/Associate
Signature
Name
Designation
Seal

Witness
1.

(OfficialAddress)

Tenderer
Signature
Name
Designation
Seal

SCHEDULE 'E'

(PART-I)

SCHEDULE OF GENERAL PARTICULARS

Tender Specification No. _____

1. Name of the Tenderer
 - (a) Head Office address
 - (b) Registered office address
 - (c) Postal address of tenderer
 - (d) Telegraphic address
2. Name and address of manufacturer, if any
3. Works
 - (a) Location with full Postal Address
 - (b) Total Space occupied in sq. meters (approximate within 5%)
 - (c) Constructed area in sq. meters (approximate within 5%)
4. Name & Address of local representative and his Telephone Number.
5. Name & Address of the officer of the tenderer/ manufacturer to whom all reference shall be made for expeditious coordination.
6. Whether the tenderer is sole proprietor/partnership concern / Private Ltd. Company / public Undertaking.
7. Name of foreign collaborator, if any.
8. Whether the designs are their own or obtained from other sources, if from other sources, the same may be indicated.
9. The name, designation, qualification and experience of the engineer employed by the tenderer in design, development and manufacturing of the quoted equipment.
10. Authorised capital of the company
11. Total annual turnover of the firm during last five financial years.
 - 2007-08
 - 2008-09
 - 2009-10
 - 2010-11
 - 2011-12
12. Actual production per year of the equipment quoted during last five financial years giving quantity and bill value rounded off to two decimal place of Rs. lacs excluding Central Excise.

2007-08
2008-09
2009-10
2010-11
2011-12
13. Manufacturing capacity per month of the quoted equipment
14. State the name and designation of your relative(s) if any, working in Madhyanchal Vidyut Vitran Nigam Ltd.

15. 2% security deposit in terms of clause-3 of Form 'B' is to be deposited within 30 days of placement of order. Whether or not willing to deposit. If no state reasons.
16. Whether certificates for satisfactory performance of offered equipment enclosed or not If yes, give the quantity to which it refers. Enclosed / Not Enclosed
17. (a) Whether quoted ex-works prices are firm / variable
- (b) In case of variable prices, have you noted?
- (i) The prices are variable as per IEEMA/ Specified formula enclosed without any ceiling on either side. Yes / No
- (ii) Have you mentioned base price indices prevailing as on the first day of one month before tender opening. Yes / No
18. Whether ex-works prices quoted or not Yes / No
19. Whether packing, forwarding freight & insurance cover (for transit plus 30 days storage thereafter) has been quoted beside ex-works prices (All these charges are to be clubbed) Yes / No
20. Whether the quoted prices are also applicable for any reduced quantity of order. Yes / No
21. Terms of payment as mentioned in relevant clause are acceptable or not. Yes / No
22. Give Sales Tax registration Number (Enclose last clearance certificate)
- (i) Central
- (ii) State
23. Income Tax Clearance certificate of current and the proceeding year enclosed or not. Yes / No
24. Whether the Tenderer is agreeable to supply the equipment Yes /
No
in case the deviations stipulated by him are not acceptable to the purchaser.
25. Give two references (Name, designation and complete postal address) who can certify Tenderers financial status and capacity to under-take such supply orders. One of the references should be from any scheduled nationalised bank in India
26. Have you submitted a sealed sample (s) required in the specification (non-returnable) and delivered the same to the office Superintending Engineer, Electy. Store Circle, M.V.V.N.L., Mahanagar Lucknow
27. Have you offered any discount and if so, then what is the rebate/ discount in Rs. per unit.

Seal of Company

**Signature
Name
Designation
Date**

SCHEDULE 'F'

(PART-I)

Tender Specification No. _____

LIST OF DRAWINGS AND LITERATURE ENCLOSED WITH THE TENDER

Sl. No	Drawing / Literature No.	Title

Seal of Company

**Signature
Name
Designation
Date**

SCHEDULE 'G'

(PART-I)

Tender Specification No. _____

DEVIATION FROM "TECHNICAL SPECIFICATION"

All deviations from the "TECHNICAL SPECIFICATION" shall be filled in clause by clause, in this schedule. Compliance with the specification will be taken as granted if the deviations are not specifically mentioned in this schedule. In case there are no deviation (s) the 'NIL' information should be furnished.

Sl. No.	Page No.	Clause No. and stipulation in M.V.V.N.L.. specification	Deviation

The tenderer hereby certifies that the above mentioned details are the only deviations from the "TECHNICAL SPECIFICATION"

Seal of Company

**Signature
Name
Designation
Date**

SCHEDULE 'H'

(PART-I)

Tender Specification No. _____

DEVIATION FROM "INSTRUCTION TO TENDERS"

All deviations from the "INSTRUCTION TO TENDERS" shall be filled in clause by clause, in this schedule. Compliance with the specification will be taken as granted if the deviations are not specifically mentioned in this schedule. In case there are no deviation (s) the 'NIL' information should be furnished.

Sl. No.	Page No.	Clause No. and stipulation in M.V.V.N.L.. specification	Deviation

The tenderer hereby certifies that the above mentioned details are the only deviations from the "INSTRUCTION TO TENDERS"

Seal of Company

**Signature
Name
Designation
Date**

SCHEDULE '1'

(PART-I)

Tender Specification No. _____

DEVIATION FROM "GENERAL REQUIREMENTS OF SPECIFICATION"

All deviations from the "GENERAL REQUIREMENTS OF SPECIFICATION" shall be filled in clause by clause, in this schedule. Compliance with the specification will be taken as granted if the deviations are not specifically mentioned in this schedule. In case there are no deviation (s) the 'NIL' information should be furnished.

Sl. No.	Page No.	Clause No. and stipulation in M.V.V.N.L.. specification	Deviation

The tenderer hereby certifies that the above mentioned details are the only deviations from the "GENERAL REQUIREMENTS OF SPECIFICATION"

Seal of Company

**Signature
Name
Designation
Date**

SCHEDULE 'J'

(PART-I)

Tender Specification No. _____

DEVIATION FROM "GENERAL CONDITIONSS OF CONTRACT FORM-B"

All deviations from the "GENERAL CONDITIONSS OF CONTRACT FORM-B" shall be filled in clause by clause, in this schedule. Compliance with the specification will be taken as granted if the deviations are not specifically mentioned in this schedule. In case there are no deviation (s) the 'NIL' information should be furnished.

Sl. No.	Page No.	Clause No. and stipulation in M.V.V.N.L. specification	Deviation

The tenderer hereby certifies that the above mentioned details are the only deviations from the "GENERAL CONDITIONSS OF CONTRACT FORM-B"

Seal of Company

**Signature
Name
Designation
Date**

SCHEDULE 'K'

(PART-I)

Tender Specification No. _____

SCHEDULE OF QUOTED GUARANTEED DELIVERY

(Guaranteed delivery will be reckoned from the date of issue of letter of intent or date of detailed order as the case may be.)

(For transport by rail, the date of R/R and for transport by road, the date of material at purchaser's warehouse shall be considered as date of delivery.)

Sl. No.	Item	Offered Quantity	Delivery period (in months stating completion with monthly rate)

Seal of Company

**Signature
Name
Designation
Date**

SCHEDULE 'M'

(PART-I)

Tender Specification No. _____

STATEMENT GIVING DETAILS OF PROPRIETOR / PARTNERS / DIRECTORS / EXECUTIVES / PRESIDENT / SECRETARY OF TENDERING FIRM

Sl.	Full Name	Designation	Full Address		Phone no.	Full specimen signature	Relationship with firm's proprietor
			Permanent home address	Office Address			
1	2	3	4	5	6	7	8
a) FOR PERSONS SIGNING TENDERS							
1. 2. 3.							
b) PROPRIETOR							
1. 2. 3.							
c) PARTNERS							
1. 2. 3.							
d) DIRECTORS							
1. 2. 3.							
e) EXECUTIVES							
1. 2. 3.							
f) PRESIDENT / SECRETARY (as the case may be)							
1. 2. 3.							

Note: In each case the persons who have signed the tender document must enclose the attested photo copy of power of attorney for signing the tender (To be marked as Schedule – M)

Seal of Company

**Signature
Name
Designation
Date**

SCHEDULE 'P₁'

(PART-II)

Tender Specification No.

SCHEDULE OF QUANTITIES AND PRICES FOR MAIN EQUIPMENT

SI No	Equipment	Quantity Offered	Unit quoted prices in Rs.		Total unit price for delivery F.O.R. destination (Rs.)	Present rate of taxes and duties		ED chargeable during currency of the contract
			Ex-Works Variable	Packing, forwarding, freight & transit cum 30 days storage insurance charge Inclusive of service tax		Excise duty + Cess %	Sales Tax / VAT %	
	TENDER DOCUMENTS FOR PROCUREMENT OF 10 MVA COOPER WOUND POWER TRANSFORMER							

Seal of Company

Signature
Name
Designation
Date

Note: The Ex-Works prices are Variable (Base date 01.06.2012). The component of Packing, forwarding, freight & transit cum 30 days storage cover shall be "firm" in all respect during currency of contract.
Rates of individual items should be quoted separately in sealed envelop quoting specification no of the cover.

SCHEDULE 'P₂'

(PART-II)

Tender Specification No. _____

FINANCIAL INCIDENCE OF DEVIATIONS FROM TECHNICAL SPECIFICATION

In case the tenderer is not agree to the standard clause of the specification then they may indicate the amount by which the tender price will thereby be increase or decrease.

Sl. No.	Page No.	Clause No. and stipulation in M.V.V.N.L. specification	Deviation	Price incidence (increase / decrease)

Seal of Company

**Signature
Name
Designation
Date**

SCHEDULE-P3

COST ANALYSIS OF- 10 MVA POWER TRANSFORMER

S.No	ITEM	TOTAL QUANTITY	RATE	AMOUNT
1	Core lamination (KG)			
2	Alumunium/Copper weight (KG) a) H.V b) L.V			
3	Insulation (KG)			
4	Transformer oil (lbs)			
5	Tank and fixures			
6	Insulation			
7	HV bushing with metal parts(Sets)			
8	LV bushing with metal parts(sets)			
9	Neutral bushing with metal parts(sets)			
10	Drain valve			
11	Filter valve			
12	Breather			
13	Conservator			
14	Oil level gauge			
15	Other materials			
16	Labour charge			
17	Profit			
18	Total			

In case the above ecost analysis is not furnished by the tenderer then on the basis or cost analysts done by the purchaser the offer may be declared economically not viable and may may not be taken into consideration for award of contract.

The above rate shall be inclusive of all taxes/duies as statutorily applicable.			
SCHEDULE-P4			
A. Optional rates for 10 MVA Power Transformer for preventive maintenance after expiry of guarantee period			
S.NO	ITEM FOR PREVENTIVE MAINTENANCE	RATE	AMOUNT
1	Transformer Oil		
2	HV bushing with metal parts		
3	LV bushing with metal parts		
4	Neutral bushing with metal parts		
5	Gaskets		
6	Fittings		
7	Any other item(s)		
8	Explosion Vent Diaphragm		
9	Labour charge		
10	Total		
The above rate shall be inclusive of all taxes/duies as statutorily applicable.			
The rate of taxes/duties during the maintenance period as statutorily applicable shoul also be quoted.			
B. Optional rates for 10 MVA Transformer for initial installation fo transformers			
S.NO	WORK FOR INITIAL INSTALLATION OF TRANSFORMERS	RATE	AMOUNT
1	Cartage of transformer From store to side (maximum distance up to 30 Km)		
2	Installation of transformers		
Note: All T&Ps, material and labour shall provided by the tender.			

FORM 'B'

General Conditions of contract for the supply of Plant and Machinery for Works
pertaining to Madhyanchal Vidyut Vitran Nigam Ltd., Lucknow

<p>1. In construing these General Conditions and the annexed specification, the following words shall have the meanings herein assigned to them unless there is anything in the subject or context inconsistent with such construction:</p> <p>The "Purchaser shall mean the Madhyanchal Vidyut Vitran Nigam Ltd.Lucknow and shall include his successors and assigns.</p> <p>The "Contractor" shall mean the Tenderer whose tender shall be accepted by the purchaser and shall include such Tenderer's heirs, legal representatives, successors and assigns.</p> <p>The "Sub-contractor" shall mean the person named in the contract for any part of the work or any person to whom any part of the Contract has been sublet with the consent in writing of the Engineer and the heirs, legal representative, successors and assigns of such person.</p> <p>The "Engineer" shall mean the officer placing the order for work with the contractor and such other officers as may be duly authorised and appointed in writing by the Purchaser to act as Engineer for the purposes of the contract and in case where no such officer has been so appointed, the Purchaser or his duly authorised representative.</p> <p>"Plant" shall mean the plant and materials to be provided by the Contractor under the contract.</p> <p>The "Contract" shall mean and include the General Conditions, Specifications, Schedules, Drawings. Form of Tender, Covering letter, Schedule of prices or the final General conditions, specifications and Drawings and the Agreement to be entered into under Clause 3 of these "General conditions".</p> <p>The "Specification" shall mean the Specification annexed to these "General conditions" and the schedule thereto (if any).</p> <p>The "Site" shall mean the site of the proposed work as detailed in the Specification or any other place in Uttar Pradesh where work is to be executed under Contract.</p> <p>"Month" shall mean calendar month.</p> <p>"Writing" shall include any 'manuscript', typewritten or printed statement under or over signature or seal, as the case may be.</p> <p>Words importing persons shall include Firms, Companies, Corporations and other bodies whether incorporated or not.</p> <p>Words importing the singular only shall also include the plural and vice versa the context requires.</p>	<p>Definition of terms</p>
<p>2. The contractor shall be deemed to have carefully examined the General Conditions, Specifications, Schedules and Drawings. If he shall have any doubt as to the meaning of any portion of these General Conditions or of the Specifications he shall before signing the Contract, set forth the particulars thereof and submit them to the Engineer, in order that such doubt may be removed.</p>	<p>Contractor to inform himself fully</p>

<p>3. A formal agreement shall, if required by the Purchaser, be entered into between the Purchaser and the Contractor for the proper fulfillment of the Contract. Further if, required by the Purchaser, the Contractor shall deposit with the Purchaser as a security for the due and faithful performance of the contract such sum not being less than one percent of the total value of the Contract as may be fixed by the Purchaser either in cash or any other form approved by the Purchaser. The security deposit shall be refunded to the Contractor on the delivery and check of the plant at the site of the work.</p> <p>The charges in respect of vetting and execution of the contract document shall be borne by the Contractor. The contractor shall be furnished with an executed stamped counter part of the agreement.</p> <p>After the tender has been accepted by the Purchaser all orders or instructions to the Contractor shall, except as herein otherwise provided be given by the Engineer on behalf of the purchaser.</p>	<p>Contract</p>
<p>4. The Contractor shall submit, in duplicate, to the Engineer for his approval drawing of the General Arrangement of the plant to be provided and such detailed drawing, other than shop drawings, as may be reasonably necessary.</p> <p>Within fourteen days of the receipt of such drawings the Engineer shall signify his approval or otherwise of the same, and in the event of disapproving the drawings, the Contractor shall submit further drawing for approval.</p> <p>Within a reasonable period of the notification by the Engineer to the Contractor of his approval of such drawings, three sets in ink on tracing cloth or ferrogallic prints mounted on cloth of the drawings as approved shall be supplied to him by the Contractor and be signed by him and the Contractor, respectively and be thereafter deemed to be the "Contract Drawing:.</p> <p>These drawings when so signed shall become the property of the Purchaser and be deposited with the Engineer, and shall not be departed from any way whatsoever except by the written permission of the Engineer as hereinafter provided.</p> <p>In the event of the Contractor desiring and to process a signed set of drawing, he shall supply four sets instead of three sets and in this case the Engineer shall sign the fourth set and return the same to the contractor.</p> <p>The Contractor if required by the Engineer, shall supply, in addition, copies of any drawing other than shop drawing, which may reasonably be required for the purpose of the Contract and make a reasonable charge for such copies.</p> <p>The Engineer or his authorised representatives, whose name shall have previously been communicated in writing to the Contractor, shall have the right, at all reasonable times, to inspect, at factory of the Contractor, drawing of any portion of the plant.</p>	<p>Contract drawing</p>
<p>5. The Contractor shall be responsible for and shall pay for any alterations or the plant due to any discrepancies, errors or omissions in the drawings and other particulars, supplied by him, whether such drawing of particulars have been approved by the Engineer or not, provided that if such discrepancies, errors or omissions are due to inaccurate information or particulars furnished to the Contractor by the Engineer any alternations in the plant necessitated by reason of such inaccurate information or particulars shall be paid for by the purchaser.</p> <p>If any dimensions figured upon a drawings or a plan differ from those obtained by scaling the drawing of plant, the dimensions as figured upon</p>	<p>Mistakes in drawing</p>

the drawing or plan shall be taken as correct.	
6. The Contractor shall not without consent in writing of the Engineer or Purchaser, which shall not be unreasonably withheld, assign or sublet his Contract, or any substantial part thereof other than for raw materials, for minor details, or for any part of the plant, of which the makers are named in the Contract, provided that any such consent shall not relieve the contractor from any obligation, duty or responsibility under the Contract.	Subletting of contract
7. In the event of any claim or demand being made or action being brought against the Purchaser for infringement or alleged infringement of latter's patent, in respect of any machine, plant or things used or supplied by the Contractor under this contract or in respect of any method of using or working by the purchaser of such machine, plant, or thing, the Contractor will indemnify the Purchaser against such claim or demand and all costs and expenses arising from or incurred by reason of such claim or demand provided that the Purchaser shall notify the Contractor immediately any claim is made and that the Contractor shall be at liberty, if he so desires, with the assistance of the Purchaser, if required, but at the Contractor's own expense, to conduct all negotiations for the settlement of the same or any litigation that may arise there from and provided that no such machine, plant, or thing shall be used by the purchaser for any purpose or in any manner other than that for which they have been supplied by the Contractor and specified under this contract.	Patent rights
8. The plant shall be manufactured and constructed in the best and most substantial and most workmanlike manner and with materials of the best or of approved qualities for their respective uses.	Quality of material
9. The Contractor shall be responsible for security protecting and packing the plant so as to avoid damage under normal conditions of transport.	Packing
10. The cost of delivering the whole of the material F.O.R., at the Railway stations specified shall be borne by the Contractor. The import License fee for the import of equipment or component parts of raw materials, if required, shall be paid by the Contractor even when the import License may have to be taken in the name of the Purchaser.	Delivery and import license fee
11. No alterations, amendments, omissions, additions, suspensions, or variations of the plant (hereinafter referred to as "Variation") under the Contract as shown by the contract drawings or the Specifications shall be made by the Contractor except as directed in writing by the Engineer, but the Engineer shall have full power, subject to the provision hereinafter contained, from time to time during the execution of the Contract by notice in writing to instruct the Contractor to make such variations without prejudice to the Contract, and the Contractor shall make such variations, and be bound by the same conditions, as far as applicable, as though the said variations occurred in the specification. If any suggested variations would, in the opinion of the Contractor, if carried out, prevent him from fulfilling any of his obligations or guarantee under the contract, he shall notify the Engineer thereof in writing, and the Engineer shall decide forthwith whether or not the same shall be carried out, and if the Engineer confirms his instructions, the Contractor's obligations and guarantee shall be modified to such an extent as may be justified. The difference of cost, if any, occasioned by any such variations shall be added to, or deducted from, the contract price as the case may require. The amount of such deference, if any, shall be ascertained and determined in accordance with the rates specified in Schedules of Prices, so far as the same may be applicable and where the rates are not contained in the said Schedules, or are not applicable, they shall be settled by the Engineer and Contractor, jointly, as far as possible, before such variations are carried out provided that that the Purchaser shall not become liable for the	Power to vary or omit work

<p>payment of any charge in respect of any such variations, unless the instructions for the performance of the same shall have been given in writing by the Engineer.</p> <p>In the even of the Engineer requiring any variations, such reasonable and proper notice shall be given to the Contractor as will enable him to make his arrangement accordingly, and in case where goods or materials have already been prepared, or any design, drawings or patterns have been made or work done that required to be altered, the Engineer shall allow such compensation in respect there of as he shall consider reasonable.</p> <p>Provided that no such variations shall, except with the consent in writing of the Contractor, be such as will include an increase or decrease of the total price payable under the contract by more than 10 percent thereof.</p> <p>In every case in which the Contractor shall receive instructions from the Engineer for carrying out any work which either then or later, will, in opinion of the Contractor, involve a claim for additional payment, the Contractor shall as soon as reasonably possible after the receipt of such instructions inform the Engineer of such claim for additional payment.</p>	
<p>12. If the Contractor shall neglect to manufacturer or supply the plant with due diligence and expedition, or shall refuse or neglect to comply with any reasonable orders given to him in writing by the Engineer in connection with the manufacturer or supply, or shall contravene any provision of the Contract, the Purchaser may give seven day's notice in writing to the Contractor, to make good the failure, neglect or contravention complained of, and if the contractor shall fail to comply with the notice within a reasonable time from the date of service thereof, in the case of a failure, neglect or contravention capable of being made good within that time then and in such case if the Purchaser shall think fit, it shall be lawful for him to take the manufacturer or supply of plant wholly, or in part, out of the Contractor's hands and give it to another person on contract at a reasonable price and the purchaser shall be entitled to retain and apply any balance which may be otherwise due on the Contract by him to the Contractor or such part thereof as may be necessary, for the payment of the cost of manufacture or supply of such plant as aforesaid.</p>	<p>Negligence</p>
<p>13. If the Contractor shall die or commit any act of Bankruptcy, or being a corporation commence to be a wound up except for reconstruction purpose or carry on its business under a receiver, the executors, successors, or other representative in law of the estate of the Contractor of any such receiver, liquidator or any person in whom the contract may become vested shall forthwith give notice thereof in writing to the purchaser and shall for one month, during which he shall take reasonable steps to prevent stoppages of the manufacturer of plant, have the option of carrying out the contract subject to his or their providing such guarantee as may be required by the Purchaser, but not exceeding the value of the plant, for the time being remaining unexecuted. In the event of stoppage of the manufacturer of the plant the period of the option under this clause shall be fourteen days only, provided that, should the above option not be exercised, the contract may be determined by the Purchaser by notice in writing to the Contractor, and the Purchaser may exercise the same power which he could exercise and will have the same rights which he would have under the last preceding clause if work had been taken out of the Contractor's hand under that clause.</p>	<p>Deaths, Bankruptcy etc.</p>
<p>14. The Engineer, and his duly authorised representative shall have at all reasonable times access to the Contractors premises and shall have the power at all reasonable times to inspect and examine the materials and workmanship of the plant during its manufacture there, and if part of the plant is being manufactured on other premises, the Contractor shall obtain</p>	<p>Inspection & testing</p>

<p>for he Engineer and for his duly authorised representatives permission to inspect it as if the plant manufactured on the Contractor's premises.</p> <p>The Engineer shall, on giving seven day's notice in writing to the Contractor setting out any grounds of objections which he may have in respect of the work, be at liberty to reject all or any plant or workmanship connected with such work which, in his opinion, are not in accordance with the Contract, or are in his opinion, defective for any reason whatsoever: Provided that, if such notice be not sent to the Contractor within reasonable time after the grounds upon which such notice is based have come to the knowledge of the Engineer, he shall not be entitled to reject the said plant or workmanship on such grounds. Unless specifically provided otherwise all tests shall be made at Contractor's works before shipment.</p> <p>The Contractor shall, if required, give the Engineer notice of any material being ready for testing, and the Engineer, or his said representative, if so desired, shall on giving twenty four hours previous notice in writing to the Contractor, attend at the Contractor's premises within seven days of the date of which the material is notified as being ready; failing which visit the Contractor may proceed with the test, which shall be deemed to have been made in Engineer's presence, and he shall forthwith forward to the Engineer due certified copies of the tests in duplicate.</p> <p>In all cases where the Contractor provides for tests, whether at the premises of the Contractor, or of any subcontractor, the Contractor, except where otherwise specified, shall provide, free of charge, such labour, materials, electricity, fuel, water, stores, apparatus and instruments as may reasonably be demanded to carry out efficiently such test of the plant in accordance with the Contract and shall give facilities to the Engineer or to his authorised representative to accomplish such testing.</p> <p>If special tests other than those specified in the Contract are required they shall be paid for by the Purchaser as variations, under clause 11.</p> <p>When the tests have been satisfactorily completed at the Contractor's work the Engineer shall issue a certificate to that effect.</p> <p>In all cases where the Contractor provides for test on the site, the Purchaser, except otherwise specified, shall provide, free of charge, such labour, materials, electricity, fuel, water, stores, apparatus and instruments as may be requisite from time to time and as may reasonably be demanded efficiently to carry out such test of the plant or workmanship in accordance with the Contract.</p> <p>In the cases of Contractor requiring electricity for test on site such electricity shall be supplied to contractor in the most convenient form available.</p>	<p>Test at contractor's premises</p> <p>Test on site</p>
<p>15. The plant or material shall not be forwarded until shipping/ dispatch instructions shall have given to the Contractor.</p> <p>Notification of delivery or dispatch in regard to each and every consignment shall be made to the Purchaser immediately after dispatch or delivery. The supplier shall further supply to the consignee a priced invoice and packing account of all stores delivered or dispatched by him. All packages, containers, bundles and loose materials forming part of each and every consignment shall be described in fully in the packing account, and full details of the contents of packages and quantity of materials shall be given to enable the consignee to check the stores on arrival at destination.</p>	<p>Delivery of plant</p>
<p>16. The manufacture and supply of plant shall be carried out under the direction and to the reasonable satisfaction of the Engineer.</p>	<p>Engineer's supervision</p>

<p>17. In respect of all matters which are left to the decision of Engineer, including the granting or withholding certificates, the Engineer shall, if required so to do by the contractor, give in writing the decision thereon, and his reasons for such decision. If the decision is not accepted by the Contractor, the matter shall, at the request of the Contractor, be referred to arbitration under provision of arbitration hereinafter contained, but subject to the right of reference to arbitration. Such decisions shall be final and binding on the contractor.</p>	<p>Engineer's decisions</p>
<p>18. The Contractor shall be responsible for loss, damage of depreciation to goods upto the delivery at site.</p>	<p>Liability for accidents and damage</p>
<p>19. If during the progress of manufacture or supply of plant, the Engineer shall decide and notify in writing to the Contractor that the Contractor has manufactured any plant or part of unsound or imperfect, or has supplied and plant inferior in quality to that specified, the contractor on receiving the details of such defects of deficiency shall, at his own expenses, within such time as may be reasonably necessary for the purpose proceed to alter, reconstruct or remove such plant or part of plant, supply fresh material upto the standard of specification and in case the Contractor shall fail to do so the Purchaser may, on giving the Contractor seven day's notice in writing of his intention so to do proceed to alter, reconstruct or remove such plant or part of plant of supply of such materials at the Contractor's cost provided that nothing in this clause shall be deemed to deprive the purchaser of or affect any right under the contract which he may otherwise have in respect of such defects or deficiencies.</p>	<p>Replacement of defective plant or material</p>
<p>20. All costs, damages or expenses, which the Purchaser may have paid, for which under the contract, the Contractor is liable, may be deducted by the Purchaser from any moneys due or which may become due by him to the Contractor under this Contract, or may be recovered by suit or otherwise from the Contractor.</p> <p>Any sum of money due and payable to the contractor (including security, deposit returnable to him) under this contract may be appropriated by the Purchaser and set off against any claim of the Purchaser for the payment of a sum of money arising out of or under any other contract made by the Contractor with the Purchaser.</p>	<p>Deduction from contract price</p>
<p>21.(1) Subject to any deduction which the Purchaser may be authorised to make under the contract, or subject to any addition or deduction provided for under clauses 11, the Contractor shall, on the certificate of the Engineer be entitled to payment as follows:</p> <p>(a) Ninety percent of the F.O.R contract value of the plant along with 100% sales/Trade tax and Excise duty as applicable on the finished material/equipment shall be made through bank, intimated by the Purchaser in rupees on receipt by the Purchaser of the Contractor's invoice giving the number and date of the railway receipt covering the dispatch of the plant from the Indian Port and of the advice note giving case number and contents, together with a certificate by the Contractor to the effect that the plant detailed in the said advice note has actually been dispatched under the said railway receipt and that the Contract value of the said plant so dispatched is not less than the amount entered in the invoice.</p> <p>(b) Ten percent of the F.O.R contract value on presentation of the contractor's invoice when each commercially useable section of the plant is complete and the last portion of such section has been dispatched and the whole material has been delivered at the place fixed for delivery and checked at the site of the work or, within one month or such delivery, whichever is earlier.</p>	<p>Terms of payment</p>

<p>Provided that each of the payments under this clause shall be due on the last day of the month in which the invoice for the amount due together with the necessary documents is received by the purchaser, provided also that the Purchaser shall not be bound to make any payment under sub-clause (a) unless the amount of such payment represent at least 8 percent of the total contract value of the plant.</p> <p>(2) If at the time at which the last installment becomes payable there are minor defects in the plant which are not of such importance as to affect the full commercial use of the plant, then the Purchaser shall be entitled to retain such part of the installments as represents the cost of making good such minor defects, and any sum so retained shall, subject to the provisions of clause 30, become due upon such minor defects being made good.</p> <p>(3) If the Purchaser desires that the plant or any portion should not be dispatched by the Contractor when it is due for dispatch, the Contractor shall store such plant or portion at his works and be responsible for all risk. For such storage the Purchaser shall pay the Contractor at a rate to be mutually agreed upon between the parties, but no exceeding 5s (five shillings) per ton per week payable quarterly plus interest at 1 percent per annum above the current rate of the State Bank of India, on 80 percent of the contract value of the plant or portion thereof so stored, for the period from the date on which the said plant or portion become due and is ready for shipment upto the date on which it is actually shipped.</p>	
<p>22. In any case where the contract price includes a provisional sum to be provided by the contractor for meeting the expenses of extra work or for work to be done or materials to be supplied by the sub-contractor, such sum shall be expended or used either wholly or in part, or be not used at the discretion of the Engineer, and entirely as he may decide and direct. If no part or only a part there of be used, then the whole or the part not used, as the case may be, shall be deducted from the contract price. If the sum used is more than such provisional sum the Contractor shall pay the excess. In the case of materials supplied or work done by a sub-contractor, the total of the net sum paid to the sub-contractor on account of such materials or works and a sum equal to 10% of such net sum allowed as Contractor's profit shall be deemed to be the sum used. None of the work or articles to which such sum of money refers shall be done or purchased without the written order of the Engineer. The Contractor shall allow the sub-contractors every facility for the supply of materials or execution of their several works simultaneously with his own, and shall within fourteen days after the Engineer has requested him in writing so to do, pay the dues of such sub-contractors on account of such materials or work; PROVIDED ALWAYS that the contractor shall have no responsibility with regards to such works or articles unless he shall have previously approved the sub-contractor and or the material or plant to be supplied.</p>	<p>Provisional sums</p>
<p>23 (1) Every application to Engineer for a certificate must be accompanied by a detailed invoice (in duplicate) setting fourth in the order of the Schedule of price, particulars of the plant supplied and the certificates as to such plant as is the reasonable opinion of the Engineer, in accordance with the Contract shall be issued within fourteen days of the application for the same.</p> <p>(2) The Engineer may, be any certificates make any correction or modification in any previous certificate which shall have been issued by him and payments shall be required and adjusted accordingly.</p>	<p>Certificates of Engineer</p>
<p>24. No certificate of Engineer on account, nor any sum paid on account by the Purchaser, nor any extension of time granted under clause 26 shall affect</p>	<p>Certificate not to effect</p>

<p>or prejudice the rights of the Purchaser against the Contractor either under this agreement or under the law, or relieve the Contractor of his obligations for the due performance of the contract; or be interpreted as approval of the plant manufactured or supplied; and no certificate of the Engineer shall create liability on the Purchaser to pay for any alteration, amendments, variations or additions not ordered in writing by the Engineer or absolve the Contractor of his liability for the payment of damages whether due, ascertained or certified or not or of any sum against the payment of which he is bound to indemnify the Purchaser, nor shall any such certificates nor the acceptance by him of any sum, paid on account or otherwise affect or prejudice the rights of the Contractor against the Purchaser, either under this agreement or under the law.</p>	<p>rights of the purchaser of contractor</p>
<p>25. The Purchaser shall pay to the Contractor all reasonable expenses, incurred by the Contractor by reason of suspension of the manufacture of plant or delay in shipment by order in writing of the purchaser or the Engineer. Unless such suspension or delay shall be due to some default on the part of the Contractor or sub-contractor.</p>	<p>Suspension of works</p>
<p>26. The time given to the Contractor for dispatch or delivery shall be reckoned from the date of receipt by the Contractor of the order, together with all necessary information and drawings, to enable the work to be put in hand.</p> <p>In all cases in which progress shall be delayed by strikes, lockouts, fire, accidents defective materials, delays in approval of drawings or any cause whatsoever beyond the reasonable control of the Contractor, and whether such delays or impediment shall occur before or after the time or extended time, for dispatch or delivery, a reasonable extension of time shall be granted.</p>	<p>Extension of time of completion</p>
<p>27. If the Contractor shall fail in the due performance of his Contract within the time fixed by the Contractor any extension thereof, the Contractor agrees to accept the reduction of the Contract price by half percent per week reckoned on the contract value of such portion only of the plant as cannot, in consequence of the delay be used commercially and efficiently during each week between the appointed and extended time, as the case may be and the actual time of acceptance under clause 29, and such reduction shall be full satisfaction of the Contractor's liability for delay but shall not in any case exceed 10% of the Contract value of such portion of the plant.</p>	<p>Price reduction clause</p>
<p>28. If the completed plant of any portion thereof, before it is taken over under clause 29, be found to be defective, or fails to fulfill the requirement of the contract, the Engineer shall give the Contractor notice setting forth particulars of such defects or failure, and the Contractor shall forthwith make the defective plant good, or alter the same to make it comply with the requirements of Contract. If the Contractor fails to do so within a reasonable time, the Purchaser may reject and replace, at the cost of contractor, the whole or any portion of the plant as the case may be, which is defective or fails to fulfill the requirement of the Contract. Such replacement shall be carried out by the Purchaser within a reasonable time, and at a reasonable price and where possible to same specification and under competitive conditions. In case of such replacement by the Purchaser, the Contractor shall be liable to pay to the Purchaser the extra cost, if any, of such replacement delivered and / or erected as provided for in the original contract, such extra cost being the ascertained difference between the price paid by the Purchaser, under the provisions above-mentioned, for such replacement and the contract price for plant, so replaced and also to repay any sum paid by the purchaser to the Contractor in respect of such defective plant. If the purchaser does not so</p>	<p>Rejection of defective plant</p>

<p>replace the rejected plant within a reasonable time, the Contractor shall be liable only to repay to the purchaser all moneys paid by the Purchaser to him in respect of such plant.</p> <p>In the event of such rejection the Purchaser shall be entitled to use of the plant in a reasonable and proper manner for a time reasonably sufficient to enable him to obtain other replacement plant. During the period the rejected plant is used commercially, the Contractor shall be entitled to a reasonable sum as payment for such use.</p>	
<p>29. Where the specification calls for performance test before shipment and these have been successfully carried out, the plant shall be accepted and taken over and the Engineer shall notify the Contractor to that effect. When the specification calls for tests on site the plant shall be taken over immediately after such tests have been satisfactorily carried out and the Engineer shall notify the contractor to that effect.</p> <p>Such notification shall not be unreasonably withheld, nor shall the Engineer delay giving such notification on account of minor omissions and defects, which does not necessarily delay shipment nor affect the commercial use of plant without any serious risk: PROVIDED ALWAYS that the Contractor undertakes to make good such omissions and defects at the earliest possible moment.</p>	Taking over
<p>30. For a period of 36 (Thirty Six) calendar months commencing immediately upon the setting to work of the plant or on 42months from the date of receipt of equipment by the purchaser at site whichever is earlier called the "Maintenance Period", the Contractor shall remain liable to replace any defective parts that may develop in plants of his manufacture or those of his sub-contractor approved under clause 6, under conditions provided for by the Contract under proper use and arising; solely, from faulty design, materials or workmanship: PROVIDED ALWAYS that such defective parts as are not repairable at site and are not essential in the mean time to the maintenance in commercial use of the plant, are promptly returned to the Contractors' work at the expense of the Contractor unless otherwise arranged.</p> <p>If it becomes necessary for the contractor to replace or renew any defective part of the plant under this clause, the provisions of the first paragraph of this clause shall apply to the parts of the plant, so replaced or renewed until the expiration of six months from the date of such replacement or renewal or until the end of the above mentioned period of 12 months, whichever may be later.</p> <p>If any defect be not remedied with a reasonable time, the purchaser may proceed to do the work at the Contractor's risk and expense, but without prejudice to any other rights which the Purchaser may have against the Contractor in respect of such defects.</p> <p>The repaired or new parts will be delivered in accordance with clause 10. The Contractor shall bear reasonable cost of minor repair carried out on his behalf at site.</p> <p>At the end of maintenance period, the contractor's liabilities shall cease. In respect of goods not covered by first paragraph of this clause, the Purchaser shall be entitled to the benefit of any guarantee given to the contractor by the original supplier or manufacturer of such goods.</p>	Maintenance
<p>31. If any dispute, difference of controversy shall at any time arise between the contractor on the one hand and the Madhyanchal Vidyut Vitran Nigam Limited and the Engineer of the contract on the other hand touching the contract, or as to the true construction, meaning and intent or any part of condition of, or payment for the same, or as to the true intent, meaning, interpretation, construction or effect of the clauses of the contract,</p>	Arbitration

<p>specifications or drawings or any of them, or as to any thing to be done committed or suffered in pursuance of the contract or specifications, or as to the mode of carrying the contract into effect, or as to the breach or alleged breach, or as to obviating or compensating for the commission of any such breach, or as to any other matter or thing, whatsoever connected with or arising out of the contract, and whether before or during the progress or after the completion of the contract, such question difference or dispute shall be referred for adjudication to the M.D., Madhyanchal Vidyut Vitran Nigam Limited ., Lucknow or to any other person nominated by him in this behalf and his decision in writing shall be final, binding and conclusive. This submission shall be deemed to be a submission to arbitration within the meaning of the Indian Arbitration Act, 1940 or statutory modification thereof. The Arbitrator may from time to time with consent of the parties enlarge the time for making and publishing the award.</p> <p>Upon every or any such reference, the costs of, an incidental to, the reference and awards respectively shall be in the discretion of the arbitrator, who shall be competent to determine the amount thereof or direct the same to be taxed as between solicitor and client or as between parties and to direct by whom and to whom and in what manner the same shall be borne and paid.</p> <p>Work under the contract shall, if reasonable possible, continue during the arbitration proceedings and no payments due to payable by the Corporation shall be withheld on account of such proceedings. In case of refusal/neglect by such nominee, M.D., Madhyanchal Vidyut Vitran Nigam Ltd. Lucknow may nominate another person in his place.</p> <p>Any action taken or proceedings initiated on any of the terms of this agreement shall be only in the court of competent jurisdiction under the High Court of Judicature at Allahabad.</p>	
<p>32. The Contract shall in all respect be construed and operate as a Contract as defined in the Indian Contract Act, 1872, and all payments there under shall be made in rupees unless otherwise specified.</p>	<p>Construction of contract</p>
<p>33. The marginal note to any clause of this Contract shall not affect or control the construction of such clause.</p>	<p>Marginal notes</p>

FORM OF AGREEMENT

(REFERRED TO IN CLAUSE 3)

THIS AGREEMENT made on the ____ day of 200 BETWEEN _____ (hereinafter referred to as "The Contractor") of the one part and Madhyanchal Vidyut Vitran Nigam Limited (hereinafter called "Purchaser") of the other part.

WHEREAS the Purchaser is about to erect and maintain the _____ Hereinafter called the "work") and for the purpose requires the plants and machinery mentioned and specified in certain General Conditions, specifications, Schedules, Drawings, Forms of Tender, Covering Letter and Schedule of Prices which, for the purpose of identification, has been signed by _____ on behalf of the Contractor and _____ (the Engineer of the Purchaser) on behalf of the Purchaser all of which are deemed to form part of this Contract as though separately set out herein and are included in the expression "Contract" whenever herein used.

AND WHEREAS the Purchaser has accepted the Tender of the Contractor for the supply and delivery of the said Plant and Machinery for the sum of Rs. _____ upon the terms and subject to the conditions hereinafter mentioned.

NOW THESE PRESENT WITNESS and the parties hereto hereby agree and declare as follows, that is to say, in consideration of the payments to be made to the Contractor by the Purchaser as hereinafter mentioned "the Contractor" shall and will duly provide the said Plant and Machinery for the said works on the terms and conditions mentioned in the Contract.

AND in consideration of the due provisions of the said Plant and Machinery by Contractor and due performance of this part of the Contract, the Purchaser, does here by for himself, his successor or assigns covenant with the Contractor that he (the Purchaser) his successor or assigns will pay to the contractor the said sum of _____ or such other sum as may become payable to the Contractor under the provision of the Contract, such payments to be made at such time and in such manner as is provided by this contract.

IN WITNESS WHEREOF the parties, hereto have signed this Deed hereunder on the dates respectively mentioned against the signature of each.

Signed
By _____
(for and on behalf of the Purchaser)
(Date)

Signed
By _____
(Contractor)
(Date)

In the presence of

(Date)

and of

(Date)

In the presence of

(Date)

and of

(Date)

FORM OF BANK GUARANTEE

(For depositing Earnest money in case the amount of for deposit exceeds Rs. 5,000/- Bank guarantee should be on a non-judicial Stamp Paper of requisite value as per present Act and should be checked by the Tenderer at the time of issuing the bank guarantee for any change in the stamp value)

To,

EXECUTIVE ENGINEER (PAYMENT),ELECTRICITY STORE,CIRCLE,LUCKNOW

Sir,

WHEREAS, M/s. _____ a company incorporated under the Indian Companies Act, its registered office at _____ /a firm registered under the Indian Partnership Act and having its business office at _____ son of _____ resident of _____ carrying on business under the firm's name and style of M/s _____ at _____ Shri _____ son of _____ resident of _____, at _____ Shri _____ son of _____ resident of _____ partners carrying on business under the firm's name and style of M/s _____ at _____ which is unregistered partnership (hereinafter "the Tenderer") has/have in response to your Tender Notice _____ against Specification Number _____ for _____ offered to supply and/or execute the works as contained in The Tenderer's Letter No. _____.

AND WHEREAS the Tenderer is required to furnish you a Bank Guarantee for the sum of Rs _____ as Earnest Money against the Tenderer's offer as aforesaid.

AND WHEREAS _____ (Name of the Bank), have at the request of the Tenderer agree to give you Guarantee as hereinafter contained:

NEW THEREFORE, in consideration of the promise we, the undersigned, hereby covenant that the aforesaid Tender of the Tenderer shall remain open for acceptance by you during the period of validity as mentioned in the Tender or any extension thereof as you and the Tenderer may subsequently agree and if the Tenderer shall for any reason back out, whether expressly or impliedly, from his said Tender during the period of its validity or any extension there of as aforesaid, we hereby Guarantee to you the payment of the sum of Rs. _____ on demand, not withstanding the existence of any dispute between the Madhyanchal Vidyut Vitran Nigam Ltd, LUCKNOW and the Tenderer in this regard AND we hereby further agree as follows:

- (a) That you may without affecting this guarantee grant time or other indulgence to or negotiate further with the Tenderer in regard to the conditions contained in the said Tender and hereby modify these conditions or add thereto any further conditions as may be mutually agreed upon between you and Tenderer.
- (b) That the Guarantee herein before contained shall not be affected by any change in the constitution of our Bank or in the constitution of the Tenderer.
- (c) That any account settled between you and the Tenderer shall be conclusive evidence against us of the amount due hereunder and shall not be questioned by us.
- (d) That this Guarantee commences from the date here of and shall remain in force till the Tenderer, if his Tender is accepted by you, furnishes the security as required under the said Specifications and executes a formal

- (e) Agreement as therein provided or till four months after the period of validity or the extended period of validity, as the case may be, of the Tender whichever is earlier.
- (f) Notwithstanding any thing contained above the liability of the Guarantor hereunder is restricted to the said sum of Rs. _____ and this Guarantee shall expire on the _____ day of _____ 200__ unless a claim under the Guarantee is filed with the Guarantor within six months of such date all claims shall lapse and the Guarantor shall be discharged from the Guarantee.
- (g) That the expressions "the Tenderer", "the Bank" and "the Madhyanchal Vidyut Vitran Nigam Limited" herein used shall, unless such interpretation is repugnant to the subject or context, include their respective successors and assigns.

Yours faithfully,

Note: The bank guarantee should be exactly in this proforma without making any change or deletion.

FORM OF GUARANTEE BOND FOR 10% SECURITY

1. In consideration of the Mdhyanchal Vidyut Vitran Nigam Limited, Lucknow (hereinafter called ('M.V.V.N.L.)) having agreed to exempt _____ (hereinafter called 'the contractors') from the demand under the terms and conditions of an Agreement _____ dated _____ made between _____ and _____ for _____ thereinafter called "the said agreement") of the security deposit for the due fulfillment by the said contractor(s) of the terms and conditions in the said agreement, on production of a Bank Guarantee for Rs. _____ (Rupees _____ only) we _____ Bank Ltd., (hereinafter referred to as "the Bank") do hereby undertake to pay to M.V.V.N.L. an amount not exceeding Rs. _____ against any loss or damage caused to or suffered or would be caused to or suffered by M.V.V.N.L. by the reason of any breach by said Contractor(s) of any of the terms and conditions contained in the said agreement.

2. We _____ Bank Ltd., do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on demand from M.V.V.N.L. stating that the amount claimed is due by way of loss or damage caused or would be caused to or suffered by M.V.V.N.L. by reason of any breach by the said Contractor of any of the terms and conditions contained in the said Agreement or by reason of the Contractor failure to perform the said agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding to Rs _____.

3. We _____ Bank Ltd., further agree that the guarantee herein contained shall remain in full force, and effected during the period that would be taken for the performance of the said agreement, and that it shall continue to be enforceable till all the dues of M.V.V.N.L. under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till or their only Authorised Officer certified that the terms and conditions of the said agreement have been fully and properly carried out by the said contractor(s) and accordingly discharges the Guarantee.

4. We _____ Bank Ltd., further agree with M.V.V.N.L. that the M.V.V.N.L. shall have the fullest liberty without our consent and without effecting any manner of obligations hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by M.V.V.N.L. against the said contractor(s) and to for bearer or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension, or extension(s) being granted to the said contractors(s) or for and for bearance, act or omissions on the part of M.V.V.N.L. or any indulgence by M.V.V.N.L. to the said contractor(s) or by any such matter or thing whatsoever which, under the law relating to sureties, would but for this provision have effect of so relieving us.

5. We _____ Bank Ltd., lastly undertake not revoke this guarantee during its currency except with the previous consent of M.V.V.N.L. in writing.

6. Notwithstanding anything contained above, the liability of the guarantee hereunder is restricted to the said sum of Rs _____ and this guarantee shall expire on the ____ day of ____ 20__ unless a claim under the guarantee is filed with the guarantor or within 6 months of such date, all claims shall lapse and the guarantor shall be discharged from the guarantee.

7. We _____ (Name of Bank) lastly undertake to pay to M.V.V.N.L. any money so demanded notwithstanding any dispute or disputes raised by the contractor(s)/supplier(s) is any suit or proceeding, pending before any court or Tribunal relating to arbitration there to or liability under this present being absolute and unequivocal.

The payment so made by us under this Bond shall be valid discharge or out liability for payment there under and the contractor(s)/supplier(s) shall no claim against us for making such payment.

Date ___ day of ____ 20__

for _____ Bank Ltd.

GENERAL REQUIREMENTS OF SPECIFICATION

2.1 SCOPE:

- 2.1.1 This specification covers design, manufacture, performance, testing, inspection, packing and delivery of equipments with accessories and auxiliary equipment required for various destinations in U.P. The item and quantities required are as detailed in Technical schedule.
- 2.1.2 The equipments shall be supplied complete with all fittings/accessories, apparatus and parts that are necessary of usual for their efficient operation. Such parts shall be deemed to be within Contractor's scope whether specifically mentioned or not. Equipment in all respects shall incorporate the highest quality of modern engineering, design and workmanship.
- 2.1.3 The "General Conditions of Contract" Form 'B', copy of which is attached hereto, forms an integral part of this specification. The contractor shall supply all materials and perform all works in strict accordance there with. In the event of conflict between the "General Conditions of Contract" From 'B' and "General requirement of specification" as given here, the latter shall prevail.
- 2.1.4 The general requirement of specification comprise of this chapter and detailed technical specification. These are supplementary to each other and are essential for complete interpretation of the Purchase's requirements.

2.2 PROJECT DATA:

- i. Location various sites in Central Uttar Pradesh
- ii. Altitude not exceeding 1000 meters
- iii. Climatic conditions
 - a. Design maximum ambient air temperature 50.0 deg. C
 - b. Maximum daily average ambient temperature In Shade 47.2 deg. C
Maximum daily average ambient temperature In Sun 65.5 deg. C
 - c. Minimum ambient air temperature in shade (-) 5 deg. C
 - d. Relative humidity 100% max.
10% min.
 - e. Wind load 195 kg./sq mm
 - f. Seismic level 0.13 g.
 - g. Isokeraunic level 50
 - h. Average annual rainfall 1200 mm.
 - i. Hot & humid tropical climate conducive to rust and fungus growth

2.3 SYSTEM PARTICULARS:

- i. Rated system voltage 33 kV, 11 kV, & 0.433 kV
- ii. System frequency 50 Hz this may vary by $\pm 5\%$
- iii. Number of phases Three
- iv. Neutral Effectively earthed
- v. Auxiliary power supply
 - a) For lighting, fixtures space heaters & AC operated coils 250V, 2 wire 50 Hz. AC supply with one point grounded.

b)D. C. Alarm control and Protective devices

24 Volts un-grounded DC supply from station battery. The above supply voltage will vary as follows.
AC voltage will vary $\pm 10\%$ frequency by $\pm 5\%$ and combined voltage and frequency $\pm 10\%$ DC voltage 21.5 V to 26.5 V

2.4 DRAWINGS & MANUALS:

2.4.1 The contractor shall furnish four prints of each of the following drawing to the Engineer of the contract, within four week of the date of order.

a) General arrangement drawing of the equipment offered.

(b) Detailed dimensional drawing and descriptive literature of all the components supplied.

(c) Basic Electrical diagram. In addition, the contractor shall also submit four prints to the Engineer within 30 days of the complete bill of material with each item identifiable in the detailed drawing with references. This will also form detailed packing list of the equipment.

2.4.2 The Engineer shall return to the contractor one print of each drawing (a) stamped "APPROVED" or (b) marked up with comments.

In case of (a), no further resubmission of drawing is required for Engineer's approval. In case of (b), the Contractor shall correct his original drawings to confirm to the comments made by the Engineer and resubmit in the same manner as stated above, within two weeks after the receipt of the marked up print by him.

2.4.3. The Contractor on receipt of prints stamped "APPROVED" shall furnish to Engineer of the contract one direct reading reproducible of each drawing and bill of material within two weeks of receipt of approved set.

2.5 MANUALS:

The Contractor shall furnish three sets bound copies of erection, commissioning and Operation, maintenance manuals giving detailed instructions procedures, precautions for all the equipments supplied by him to the Engineer. The manuals shall be specific to the equipments supplied and not of general nature. One set of this manual shall also be packed with each set of equipments.

2.6 RAW MATERIAL:

The contractor shall be responsible for timely arrangement / procurement of all the raw materials required for the manufacture of all tendered items and shall furnish their test certificate to the purchaser. However depending on the policy of the Govt. of India, Purchaser may issue essentiality certificates for arrangement of such raw materials through CE, DOE, DGTD or others who may allot the same to the contractor, at their discretions directly from any of the producers of such raw materials or other source, but without any financial liability to the Purchaser of affecting / linking the delivery of the equipment with the availability of raw material against such certificates or recommendations.

2.7 INSPECTION & TESTING:

The Contractor shall intimate the quantity of material to be offered for inspection at least 4 weeks in advance to M.D.,M.V.V.N.L.,Lucknow,who shall allocate the material as per requirement of various Zones of M.V.V.N.L., Lucknow where the material is required to be supplied.

As per Clause 14 of General conditions of Contract Form 'B', the Contractor shall give 15 days notice to the M.D., Madhyanchal Vidyut Vitran Nigam Limited, Lucknow, under

intimation to Superintending Engineer, Electy. Store Circle, Madhyanchal Vidyut Vitran Nigam Limited, Lucknow, and the Purchaser of every lot of material being ready duly packed for dispatch alongwith Routine Test Result of the material offered, and details of dispatches made against last authorization for dispatch in addition to the Test specified in the technical specification. MD Madhyanchal Vidyut Vitran Nigam Limited, Lucknow, shall thereupon arrange inspection and testing of material and also issue dispatch instructions within the Nigam.

The contractor shall also render necessary assistance to the inspecting officer(s) in making random sampling. Wherever considered necessary, the material shall be marked, embossed or sealed by the inspection officer after inspection has been carried out and the material approved for dispatch.

The purchaser shall reserve the right to draw required number of samples of other major items of raw materials. These samples shall, however be drawn and sealed in the presence of Contractor or his authorised representative. The purchaser further reserves the right to get these samples tested form any Government recognised Test House/Laboratory or Government Test House/ Laboratory.

The contractor shall record either of the following certificates on the invoice/packing list (Challan) as the case may be.

“Certified that the consignment (lot) of material supplied through this invoice/packing list (Challan) has been inspected and tested by representative (s) of Managing Director, M.V.V.N.L. and has been approved for dispatch.

OR

“Certified that the inspection and testing of consignment (lot) of material supplied through this invoice/packing list (Challan) has been waived off by the purchaser vide his letter No. _____ Dated _____. It is further certified that materials have been tested and results have been found to be within the values specified in the relevant ISS/Contract as per copies of Test Certificate enclosed.”

Not with-standing the inspection carried put by the officers of DISCOMS, in case of any short defective supply of material detected by the consignee, the contractor shall be liable to make good such shortages/rectify the defects. The consignment also be subjected to joint inspection by Representative of the Contractor and the purchaser in the stores of M.V.V.N.L.. in case of any dispute regarding quality and/or quantity of the material supplied.

In case the material offered for inspection in not found ready when the inspecting party reaches the works of contractor, the cost incurred by the M.V.V.N.L.. on this account will become payable by the contractor on demand by S.E., Electricity Stores Circle. M.V.V.N.L., Lucknow within 30 days.

2.8 PRODUCTION SCHEDULE & PROGRESS REPORT :

The contractor shall furnish detailed production schedules for all major components to be supplied. The schedule shall include dates of completion of:

- (a) The Engineering work
- (b) Different phases of material procurement manufacture and fabrication
- (c) Delivery

A report on actual progress in percentage and date of completion of each of the above items shall be sent to the Purchaser every month, starting two months from the date of letter of intent or date of purchase order.

2.9 PACKING & DESPATCH OF EQUIPMENT :

- 2.9.1 All equipments / materials shall be suitably packed for transport cartage to site and outdoor storage during transit. The contractor shall be responsible for any damage to the equipment during transit due to improper and inadequate packing. The case containing fragile or material easily prone to damage shall be very carefully packed and marked with appropriate caution symbols i.e. **"FRAGILE"**; **"HANDLE WITH CARE"**; **"USE NO HOOKS"** etc. Packing of each package shall bear packing list. Packing shall provide complete protection from moisture, termites and mechanical shocks etc. Wherever necessary proper arrangements for attaching slings for lifting shall be provided. All packages shall be clearly marked with gross weight sign showing **"UP & DOWN"** side of boxes, contents of each package, Order No. and date, name of plant/equipment of which the material in package forms part and any handling and un-packing instruction considered necessary. Any material found short inside the packing cases shall be supplied by the contractor without any cost. Contractor shall ascertain prior to shipment from concerned authorities, the transport limitations like weight and maximum allowable package size for transportation. All packing cases and packing material shall become the property of the purchaser.
- 2.9.2 The equipment /material shall be dispatched as per dispatch instruction issued by S.E., Electricity Stores Circle. M.V.V.N.L., Lucknow. A telegraphic intimation shall also be given to the consignee(s) immediately after the dispatch of the equipment mentioning the specification number, name of equipment, R/R number, date of dispatch, No. of packages, wagon number and approximate weight of each package to enable him to take the delivery and unload the material in case the dispatch documents are not received by him in time.
- 2.9.3 Packing list containing details of equipment for verification at site shall be placed inside each package and shall correspond with the advice note and approved bill of materials. One set of manual as required in 2.5 5 shall also be placed inside the package.
- 2.9.4 Bill (s) dully pre-receipted in triplicate in accordance with approved terms of payment and together with all necessary dispatch document, shall be sent to consignee(s) under registered cover with additional copy to Engineer of the Contract,
- 2.9.5 Any demurrage / wharfage or other charges payable due to non implementation of any of the above instructions shall be to contractor's account.

2.10 REJECTION:

- 2.10.1 Purchaser reserves the right to reject any equipment if during the tests at works or at site, the test values achieved do not comply with the respective standards/ specifications and exceed the tolerable limits.
- 2.10.2 Contractor shall replace a rejected equipment with a new equipment complying with the guaranteed values as promptly as possible and at no extra cost to the purchaser. Purchaser reserves the right to retain any rejected equipment and take it into service until the contractor supplies the new equipment.
- 2.10.3 Rejection of any equipment will not be held as a valid reason for delay in timely completion of the work.

2.11 DESPATCH INSTRUCTIONS :

- 2.11.1 Detailed dispatch instructions shall be issued by the S.E, Electricity Stores Circle, M.V.V.N.L., Lucknow for the quantities authorised for dispatch who however reserves the right to amend the dispatch instruction at any time before the actual dispatch of the material.

It may be noted that no material is to be dispatched without satisfactory testing / inspection and clearance by representative of concerned M.V.V.N.L..

2.11.2 Telegraphic intimation shall be sent to consignee immediately after the goods are booked and following documents shall be sent by the contractor to the bankers and additional copy of each shall also be sent directly to the purchaser and to the consignee by registered mail on the same day.

- (a) Evidence of dispatch i.e. Railway receipt.
- (b) Packing list (3 copies)
- (c) Invoice (3 copies)
- (d) Test certificate (3 copies)

2.11.3 In case of transport by Road, the contractor shall deliver the material/equipment to the consignee at the specified place of delivery with the following documents and one additional copy of each sent directly to the purchaser.

- (a) Delivery Challan (2 copies)
- (b) Packing list (2 copies)
- (c) Invoice (2 copies)
- (d) Test certificate (2 copies)

2.11.4 A statement of dispatches shall be sent by the contractor on the first day of every month of dispatches made by him during preceding month in the following proforma.

DI No & date	Name of consignee	Name of material	Quantity		GR/RR No. & date	Bill No. & date	Amount	Remark
			Allotted	Dispatched				
1	2	3	4	5	6	7	8	9

2.12 INSURANCE:

2.12.1 The Contractor shall arrange, secure and maintain insurance may be necessary to protect his own interest and the interest of the Purchaser, against all risks that are to be covered under the insurance shall include, but not be limited to the loss or damage in transit, theft, pilferage/riot, civil commotion, weather conditions, accidents of all kinds, fire, war risks during ocean transportation only etc.

2.12.2 Insurance is to be taken for the F.O.R. destination value of the equipment for transit from the manufacturer's warehouse to Purchaser's warehouse plus 30 days storage there after.

2.12.3 All damages and shortages of the equipment after its delivery destination Railway station and transportation to stores and storage there after shall be notified by the consignee by registered post to contractor or his authorised representative within 30 days for making good the damage or loss by way of replacement of the equipment damage or lost.

2.12.4 The contractor shall take up the matter with insurance company for finalization of claim, and purchaser shall provide required information. All further action in connection with making and settling of claims, if any, will be carried out by the contractor for which no extra payment will be made.

The contractor shall be responsible to make good the damage or loss by way of repairs

and/or replacement of equipment free of cost irrespective of the fact whether claims are accepted by the insurance company or not without waiting for claims settlement.

2.12.5 The scope of such insurance shall cover the entire value of the contract from time to time.

2.13 TERMS OF PAYMENT:

2.13.1 The terms of payment shall be as per clause-21 of Form "B"

2.13.2 For equipment to be dispatched by road transport the payment will be made after the receipt of goods at site. For equipment dispatched by rail, the contractor can claim 90% of the contracted value of the equipment(including price variation, if any)together with 100 % of excise duty, sales/trade tax against R/R through bank of consignees choice provided that:

- a) The contractor submits a certificate along with invoice to the effect that the material detailed in the said advice note which has actually been dispatched, is under the said Railway receipt and the value of the material as dispatched is not less than the amount entered in the invoice.
- b) The Bank Commission shall be borne by the Contractor.
- c) The contractor shall be responsible for timely intimation to the consignee about R.R. etc. and in the event of this lapse; the demurrage/wharfage shall be responsibility of the contractor.

2.14 DELIVERY:

2.14.1 The commencement of delivery period shall be counted from the date of letter of indent or date of signing of detailed order, as the case may be.

2.14.2 Date of R/R shall be deemed to be the date of delivery for dispatch by rail, the date of receipt of material in purchaser's store shall be deemed to be the date of delivery for dispatch by Road.

2.14.3 The delivery should be effected in serviceable lots/sets of equipment. In case of part dispatch, the delivery shall be deemed to have been effected when last component part of the equipment of serviceable lot/set has been delivered.

2.15 SECURITY DEPOSIT :

The contractor Shall deposit security as required under Clause-3 of the "General Conditions of Contract: Form-B" @ 10% (one percent) of the F.O.R. destination price of material in the form of bank draft/F.D.R./C.D.R. of Govt. interest bearing security duly pledged in favour of Executive Engineer, (Payment), Eleccity.Store Circle, Lucknow or guarantee bond from a schedule bank of India duly executed on non-judicial stamp paper of requisite value in the enclosed proforma.

The above security shall be sent within 30 days of the award of contract. The validity of the security deposit in any of the above form shall be for a period of 18 months from the date of receipt of last lot of material with a claim period of six months thereafter. In case the supplies are delayed beyond the delivery schedule mentioned in the order, the contractor shall extend the validity of the security deposit so as to cover a period of 18

months from the day by which he anticipates to complete the supplies, failing which the purchaser shall have the right to en-cash the Bank Guarantee without making any reference to him. His order is liable to be cancelled if security is not deposited within the time specified and in that event earnest money shall be forfeited. The contractor shall not commence the supply of material till such time he deposits security as above and intimating regarding receipt and correctness of the same is received by him in writing from the Engineer of contract.

The security will be released to the contractor after expiry of the maintenance period and settlement of all the claims of the consignees against the contract.

2.16 TRAINING OF ENGINEERS:

- 2.16.1 The purchaser may depute his Engineers for a period as mutually agreed, at the manufacture's work for a purpose of familiarization with equipments and techniques covered under the specification, including training in commissioning, operation, maintenance and trouble shooting aspects etc. The contractor shall provided the necessary training facilities free of cost to the purchaser and also indicate suggested training programme etc. In case, this training course is being run regularly by the manufacturer or his principals, this may be indicated in the tender, along with details of training, duration, scheduled date, course content etc. The traveling expenses from UP to their place of training and back and maintenance expenses of the deputed trainees shall be borne by the purchaser.
- 2.16.2 The contractor 4depute his senior Engineer/Specialists to the training institute/ staff colleges of the purchaser for training / familiarization course when requested by the purchaser.

2.17 JUDICIAL JURISDICTION:

All the disputes arising out of and touching or relating to subject matter of agreement/ contract shall be subject to jurisdiction of local court of Lucknow and Lucknow Bench of High Court Judicature at Allahabad only.

2.18 ARBITRATION CLAUSE 31 OF FORM 'B'

The following is deemed to be added at the end of the part-1 in the Arbitration clause 31 of Form 'B'.

"In case of refusal/neglect by such nominee M.D., Madhyanchal Vidyut Vitran Nigam Ltd. may nominate another person in his place.

TECHNICAL SPECIFICATION FOR 33/11 KV 10 MVA, POWER TRANSFORMERS

1. SCOPE:

This specification covers the design, manufacture, shop testing, inspection, supply and delivery of oil immersed/ naturally air cooled 10 MVA, 33/11 KV, 3 Phase, 50 Hz. Indoor type and outdoor type power transformers required for the substations as detailed in this specification with off load tap changer suitable for local operation.

2. STANDARDS:

The transformers shall conform in all respects to ISS: 2026/1977 incorporating latest correction and modification to date except where specified otherwise, fittings and accessories shall also comply generally with latest addition of relevant Indian standards.

Equipment meeting any other authoritative standard, which ensures and equal or better quality than the standard mentioned above will also be acceptable.

3. CLIMATIC CONDITIONS:

The transformers shall be suitable for operation under climatic conditions as desired in general requirement of specification.

4. TYPE AND RATINGS:

The transformers shall have core type constructions, two winding oil immersed naturally cooled weather proof construction and shall be suitable for indoor and outdoor installation as step down transformers. The rating and electrical characteristics of the transformers shall be as given below:

i)	Continuous capacity	10 MVA
ii)	Rated Voltage (HV Winding)	33 KV
iii)	Rated voltage (LV Winding)	11 KV
iv)	Rated frequency	50 Hz.
v)	Number of phases	Three.
vi)	Connection (HV)	Delta
vii)	Connection (L.V)	Star
viii)	Vector Group	Dy-11
ix)	Type of cooling	ON-AN
x)	Polarity	Subtractive
xi)	Taps on HV side	As per Clause 25(i)
xii)	No load voltage ratio (Principal Tap)	33/11 KV
xiii)	Highest system voltage	
	a. HV	36 KV
	b. LV	12 KV

5. INSULATION:

The minimum basic impulse withstand level of winding for 1.2/50 Micro sec. full wave shall be as given below:

a.	11 KV	75 KV Peak
b.	33 KV	170 KV Peak
c.		

6. i). HV TERMINAL AGREEMENT:

HV Terminal shall be brought out into suitable solid porcelain type weather proof communicating type bushing with single gap arcing horns. Terminal Connector for HV shall be suitable for Dog/Panther conductor. Provision shall also be there for HV.

terminal, terminated in three-core cable box suitable for accommodating 3x240 sq. mm 33 KV grade aluminium conductor PILCOSTA cable.

ii) **LV TERMINAL ARRANGEMENT:**

LV winding shall be brought out into solid porcelain type weather proof bushing terminal and shall also be terminated in three core cable box suitable for accommodating two nos. 4x400 sq. mm 11 KV grade aluminium conductor PILCOSTA cable, connectors for LV shall be suitable for Dog / Panther conductor

The neutral of the transformer winding shall be brought out into separate weatherproof bushings on the body of tank for being earthed.

7. **TEMPERATURE RISE:**

The transformers shall be capable of operating continuously at their normal ratings without exceeding temperature rise limits with maximum daily average ambient temp. of 45°C as specified below:

- a. Winding- Temp. rise 50°C by resistance measurement.
- b. Oil (Hottest Layer)-45°C by thermometer measurement.

8. **FREQUENCY:**

The transformer shall be suitable for continuous operation with a frequency variation of plus/minus 5% from normal 50 Hz without exceeding the specified temperature rise.

9. **IMPEDANCE:**

The percentage impedance at 75°C at rated current (principal tapping) shall be 8.35% subject to a tolerance of $\pm 10\%$. The impedance value measured on the principal tapping by more than permissible value as per IS:2026/1981.

10. **HIGHEST SYSTEM VOLTAGE:**

The transformer shall be so designed as to operate satisfactorily with the highest system voltage as high as given in clause 4.0 (xiii).

11. **MAXIMUM FLUX DENSITY:**

The maximum flux density in any part of the core and yoke at normal voltage and rated frequency of each transformer shall be 1.5 TESLA.

12. **LOADING OF TRANSFORMERS:**

The transformer shall be capable of operation continuously in accordance with ISS: 6600/1972 at their continuous maximum rating and overload at any ratio irrespective of direction of flow of power.

13. **DUTY UNDER FAULT CONDITION:**

Transformers shall be designed and constructed to withstand without damage the thermal and dynamic effects of external short circuit under the conditions laid down in ISS: 2026/ (part- 1/ 1977).

The thermal and dynamic ability to withstand short circuit shall be demonstrated by calculations for tests or by reference to tests carried out in the transformers of same design

14. **PARALLEL OPERATION:**

The transformer shall operate satisfactorily in parallel among themselves and with similar units already installed.

15. TRANSFORMER LOSSES:

- 15.1 The no load loss in kilowatt and the load losses in kilowatt at rated full load current and frequency at 75°C shall be guaranteed to 8 KW and 50 KW respectively with no plus tolerance.
- 15.2 In case, during testing, the actual losses are found within guaranteed figures, the transformer shall be accepted without any advantage to contractor for lower loss.
- 15.3 When actual losses during testing are found in excess of maximum guaranteed figures, the transformers shall be rejected.

16. GUARANTEED TECHNICAL PARTICULARS:

The guaranteed technical particulars of the transformer shall be given by the tenderer (as per proforma enclosed) in tender bid part-I. The various technical parameters shall be subject to tolerance as per relevant ISS, however, no negative tolerance shall be allowed on weights than that of quoted and further no negative tolerance shall be allowed in weights than that of SC tested transformers.

17. TOLERANCE:

The tolerance of guaranteed performance figures shall be as specified in ISS:2026/1977(Part-I) amended from time to time except where specified otherwise.

18. MATERIALS:

The transformer shall be supplied with first filling of fresh insulation oil. The oil shall conform to ISS: 335/1972 or its latest amendment, if any. All insulating materials to be used shall be class 'A' insulation as specified in the latest edition of ISS: 1271/1958. All materials used in the manufacturer of transformers shall be of the best quality of their respective kind obtainable in the market and shall conform to relevant Indian standard.

The design and all materials including insulating materials used in construction of the transformers shall be such as to reduce to minimum the risk of the development of acidity in oil during the course of service.

19. COOLING OF TRANSFORMER:

- 19.1 The transformer shall have ON-AN cooling only.
- 19.2 The cooling arrangement shall consist of detachable radiators, which may be directly mounted on the transformers. Connection between the radiators and tank shall be made with flanges provided with gasket and an indicating sheet valve provided at both connection ends, which can be fastened in either opening or closed position.
- 19.3 The radiator shall be so arranged that these can be attached from the tank or bank without disturbing the oil in the transformer. These shall be designed to withstand the vacuum and pressures specified for the tank. Radiators shall be so designed as to be successful for clamping and painting to prevent accumulation of water on the outer surface, to completely drain off the oil from the tank or bank and to ensure against formation of gas pockets when the tank is being filled. All connections between the radiators and the tank or bank and between tank shall be provided with blank flanges when the particular item is detached. Each radiator shall have a lifting eye and oil drain.

20. CORE:

- 20.1 The core shall be built up with high-grade cold rolled non-ageing, low loss and high permeability grain oriented silicon steel laminations specially suitable for transformer cores.
- 20.2 After being sheared to size the lamination shall be treated to remove all ~~loos~~ and shall be re-annealed to remove all residual stresses. At least one side of each lamination shall be coated with an insulation coating as may be approved by ISS and in ~~the~~ ^{accordance with} modern manufacturing practice which shall be inert to the action of hot transformer ~~oil~~.

- 20.3 The design of magnetic circuit shall be such as to avoid static discharge development of short circuit path within itself to the earthed clamping structure and the production of flux components at right angles to the plane of laminations which may cause local heating. The lamination shall be flat and the finally assembled core shall be free from distortion. Oil ducts shall be provided where necessary to ensure adequate cooling.
- 20.4 The core shall be rigidly fastened to ensure adequate mechanical strength and prevent vibration during operation. The bolts used in the assembly of the core shall be suitably insulated and clamping structure shall be constructed in such a way that eddy currents will be minimum.
- 20.5 The core shall be provided with lugs suitable for lifting the complete core and coil assembly of the transformers.
- 20.6 The core and coil shall be so fixed in the tank that movement does not occur relative to the tank during lifting transport and installation.
- 20.7 The supporting framework of the core shall be so designed as to avoid the presence of pockets, which would, prevent complete emptying of the tank through the drain valves or cause trapping of air during filling.
- 20.8 **EARTHING OF MAGNETIC CIRCUIT:**
The magnetic circuit shall be earthed to the clamping structure at One point only through a link placed in an accessible position beneath the inspection opening in the tank cover. The connection to the link shall be on the same side of the core as the main earth connection.
- 20.9 **EARTHING OF COIL CLAMPING RING:**
Where coil-clamping ring are of metal at earth potential each ring shall be connected to the adjacent core clamping structure on the same side of transformer as the main earth connection.
- 20.10 **SIZE OF EARTHING CONNECTIONS:**
All earthing connection with the exception of these from the individual coil clamping rings shall have a cross section area of not less than 0.8 sq. mm. No metal component including MS bolts and nuts should be kept floating in the vicinity of high voltage coil and should be earthed.
21. **WINDINGS:**
- 21.1 The winding shall be so designed that all coil assemblies of identical voltage ratings shall be inter changeable and in field, repairs of the winding can be made readily without special equipments. The coil shall be supported between adjacent section by insulating DOVE TAIL TYPE spacers and barriers bracings and other insulator used in the assembly of the windings shall be arranged to ensure a free circulation of the oil and to reduce hot spots in the windings.
- 21.2 The coils shall be dried under vacuum and submerged in dried insulating oil to develop the full electrical strength of the winding. All material used in the insulation and assembly of the winding shall be insoluble, non-catalytic and chemically inactive in the hot transformer oil and shall not soften, ooze out, shrink, collapse or otherwise be adversely affected under the operating conditions.
- 21.3 All threaded connections shall be provided with locking facilities. All leads from the windings to the terminal board and bushing shall be rigidly supported to prevent injury from vibration. Guide tubes shall be used where practicable.
- 21.4 The windings shall be clamped securely in place so that they will not be displaced or deformed during short circuits. Tie rods shall be provided for proper clamping of winding assembled core and windings shall be vacuum dried and suitably impregnated before removal from the treating tank. The copper conductors used in the oil structure shall be best suited to the requirements and all permanent current carrying parts in the winding and the loads shall be welded or braced.

22. TANK:

- 22.1. The transformer tank and cover shall be fabricated from good commercial grade low carbon steel suitable for welding, the minimum thickness of which shall be 6 mm for the side and 10 mm for the bottom with longer sides having a horizontal length upto but not exceeding 1800 mm. In case the horizontal length exceeds 1800 mm, the min. side plate thickness shall be 10mm and the thickness of bottom plate shall be 12mm. The tank and the cover shall be of welded construction. All seams shall be welded and wherever practicable they shall be double welded. Tanks stiffeners shall be continuously welded to the tank and designed to prevent deformation.
- 22.2 The main body of the tank shall have sufficient strength to withstand a vacuum of 500 mm of mercury.
- 22.3 The tank cover shall be bolted to the tank.
- 22.4 Each tank shall be provided with the following:
- i) Lifting lugs, suitable for lifting the transformer complete with accessories & filled with oil by crane.
 - ii) A minimum of four jacking lugs, in accessible position, to enable the transformers filled with oil to be raised or lowered using hydraulic or screw jacks. The minimum heights of jacking lugs above base shall be:
 - a. Transformer upto and including 10 tones weight 300 mm.
 - b. Transformer above 10 tones weights 500 mm
 - iii) Horizontal plates with 50 mm diameter draw holes drilled therein shall be fitted adjacent to each corner or rectangular tank at more than 750mm from the case to permit hauling in any direction. On the rounded tanks the draw holes will be located on the diagonals on the rectangular formed by the overall boundaries of the tank.
- 22.5 Each tank cover shall be adequately strengthened and shall not distort when lifted. inspection opening shall be provided to give easy access to lower ends of bushings terminals etc. for changing ratio or winding connection or testing to each connection. These shall be of adequate size not less than 450 mm, x 350 mm.
- 22.6 All bolted connection to the tank shall be fitted with suitable oil tight gaskets, which shall give satisfactory service under the operating conditions. Special attention shall be given to the methods of making the hot oil tight joint between the tank and covering as also between the cover and bushing and all other outlets to ensure that the joints can be re-made satisfactorily and with care with the help of semiskilled labour. Where compressible gaskets are used steps shall be provided to prevent over compression.
- 22.7 Suitable guides shall be provided for positioning the various parts during dismantling. Adequate space should be provided between the core and winding and the bottom of tank.
- 22.8 Lifting eyes or lugs shall be provided on all part of the transformers requiring independent handling during assembly or dismantling.
- 22.9 Tank shall be engraved with the firm's name, year of manufacturer, sl. no. of transformers, iron losses and copper losses.

23. UNDER CARRIAGE:

- 23.1 The transformers tank shall be supported on a structural steel base equipped with forged steel or cast steel single flanged wheel suitable for moving the transformers completely filled with oil.
- 23.2 The transformers of 10 MVA rating shall be provided with flanged wheels suitable for use on a 1435 mm gauge track. These wheels shall be suitable for being turned through an angle of 90° and locked in that position when the tank is jacked up.

24. **CENTRE OF GRAVITY:**

The centre of gravity of the assembled transformer shall be low and as near the vertical centre line as possible. The transformer shall be stable with and without oil. The location of centre of gravity shall be shown on the outlines drawing in all other views - showing therein the position of transformer tank also.

25. **TAP AND TAP CHANGING GEAR:**

25.1 The tap changing switch shall be located in a convenient position so that it can be operated locally from ground level. The switch handle will be provided with locking arrangement along with tap position indication thus enabling the switch to be in any position. Each transformer shall be provided with voltage control equipment of the tap changing type for varying the effective transformation ratio while the transformer is on load and without producing phase displacement.

25.2 The tap which are to be provided on HV winding shall vary from plus 5% to minus 5% in equal step of 2.5% each.

25.3 The position of off load tap changer chamber should be designed to ensure that the oil of tap changer chamber does not mix-up with oil of main tank. Easy accessibility to the contact of the tap changer through inspection opening for repair/replacement should be available.

25.4 Suitable oil level gauge shall be provided in the tap changer compartment.

25.5 **MARKING:**

Tap changer device mechanism shall have separate name plates fitted in clearly visible position and shall be marked in accordance with ISS: 8468/1972. The entries shall be indelibly marked/detached, engraved or stamped.

25.6 **TAP POSITION INDICATOR:**

Suitable mechanically operated indicating device shall be provided to indicate the position of the tap. The position of the indicator shall be such that the tap position is easily visible through a window even when the motor drive cubicle is closed.

25.7 Cubicle lightning with necessary control switch shall be provided in the driving gear housing. Heater to prevent condensation of moisture shall also be provided.

26. **CONSERVATOR:**

26.1 A conservator complete with sump and drain valve shall be provided in such a position as not to obstruct the electrical connections to the transformer having a capacity between highest and lowest visible levels to meet the requirement of expansion of the total cold oil volume in the transformer and cooling equipment from the minimum ambient temperature of 0°C to 90°C.

The minimum indicated oil level shall be with the feed pipe from the tank covered with not less than 15 mm depth of oil and the indicated range of oil level shall be minimum to maximum.

If the sump is formed by extending the feed pipe inside the conservator this extension shall be for at least 25mm. The conservator shall be provided with two filter valves one at the bottom and other at the top at opposite end for filtration purposes.

One oil gauge magnetic type with provision for low level alarm shall be mounted on conservator to indicate the minimum normal and maximum level as given below:

Minimum	- 5°C
Normal	30°C
Maximum	90°C

One end of the conservator shall be bolted into position so that it can be removed for cleaning purposes.

The oil connection from transformer tank to the conservator vessel shall be arranged at a rising angle of 3° C to 8° C to the horizontal upto gas and oil actuated relay and shall consist of 50mm in side diameter pipe. Each conservator vessel shall be fitted with a breather in which a silica gel is the dehydrating agent and designed so that:

- a. The passage of air is through silica gel.
- b. The external atmosphere is continuously in contact with ailiongal.
- c. The moisture absorption indicated by a change in colour of the tinted crystals can be observed from distance.
- d. Breathers shall be mounted at approximately 1400mm above ground level.

27. **PERSUER RELIEF DEVICE:**

A safety valve of the chimney type with an equalizer pipe inter connecting the top of the, conservator and upper most part of the safety valve should be provided to prevent rise of oil in the safety valve, pipe. A stopcock should also be provided in the inter connecting pipe. An air release cock shall also be fitted in a convenient position. The safety valve pipe shall take off from side of the transformer tank near to the tank cover and not from the top of tank cover. This is with in view to prevent the gases forming in the tank from rising into the safety valve pipe and thereby passing the gas and oil actuated relay (defecting its purpose) and for avoiding the necessity for providing a bottom diaphragm for the safety valve pipe which would be necessary in case it takes off the tank cover.

28. **GAS AND OIL ACTUATED RELAY:**

One gas and oil actuated relay shall be provided with alarm and tripping contacts to detect accumulations of gas and sudden, change in oil pressure. complete with shut off valves on both sides and flanges couplings and to permit easy removal without lowering oil level in the main tank or conservator a bleed valve for gas venting and a test valve.

29. **BUSHINGS:**

29.1 All bushings shall have puncture strength greater than the dry flashover value.

The electrical characteristics of bushing insulators shall be in accordance with ISS: 2099/1977 as amended from time to time. All type and routine tests shall be carried-out in accordance with ISS: 2099/1977.

The test voltage for various tests as stipulated in ISS: 2099/1977 are reproduced below:

	NOMINAL SYSTEM VOLTAGE	RATED VOLTAGE OF BUSHING	VISIBLE DISCHARGE TEST	ONE MINUTE WET & DRY WITHSTAND VOLTAGE	LIGHTING IMPULSE WITHSTAND TEST (IMPULSE TEST)
LV Side	11 KV	12 KV	9 KV	35 KV	75 KV
HV Side	33 KV	36 KV	27 KV	75 KV	170 KV

The dimensions of 12 KV bushings (11KV side) shall conform to IS: 3347/Part - II/1973 and those of 36 KV bushings 33 KV side shall conform to ISS: 3347 / Part - V/1973 and the latest versions thereof.

- 29.2 Each bushing shall be so coordinated with the transformer insulation that no flashover may occur inside the tank.
- 29.3 The insulation class of the neutral upto the neutral bushing shall be coordinated with the insulation class of the neutral of the windings.

- 29.4 Bushing shall be so located as to provide adequate electrical clearance between bushing and between the bushings and ground parts.
- 29.5 The creepage distance for 33 KV bushings shall be 900 mm. and for 11 KV bushings shall be 300 mm.

30.0 TEMPERATURE INDICATION DEVICE:

- 30.1 Minimum 150 mm. dia suitable dial type thermometer with maximum pointer and resetting device with alarm and trip contacts to read the temp. in the hottest part of oil shall be provided.
- 30.2 A dial type-winding temp. indicator shall be provided to indicate the hottest spot winding temperature with contacts for alarm and tripping to be set at will.

31.0 MARSHALLING BOX OR KIOSK:

- 31.1 The transformer shall be provided with marshalling box or kiosk in which all the leads for gas and oil actuated relays and oil winding temperature indication and alarm low oil level alarm shall be brought out to suitable terminals. This KIOSK shall be perfectly mounted on transformers.
- 31.2 Temperature indicators shall be housed in the KIOSK, so that these are clearly visible.

32.0 DIAGRAM AND RATING PLATE:

Non-detachable brass or engraved anodized aluminium plate giving particulars of transformers as per ISS: 2026 / 1977 and diagram of winding connection and tap shall be provided. The property of Paschimanchal Vidyut Vitran Nigam and specification no. shall be engraved on the plate. Guaranteed values of no load loss and load loss at 75 Deg. C without any plus tolerance alongwith measured values as well as temperature rise figures should also be inscribed on the diagram and rating plates.

The rating diagram plate shall be fixed to the transformer tank at an average height of 1750 mm. above the ground level.

33.0 FITTINGS AND ACCESSORIES TO BE PROVIDED ON EACH TRANSFORMER:

- i) Inspection cover.
- ii) Diagram and rating plate.
- iii) Terminal marking plate.
- iv) Two earthing terminals.
- v) Lifting lugs.
- vi) Jacking lugs.
- vii) Flanged wheels.
- viii) Thermometer pockets.
- ix) Oil filling hole with plug.
- x) Air release device.
- xi) Drain valve with plug and locking arrangement.
- xii) Filter valve: One suitable valve located at the top plate and one of similar size at the bottom of the tank mounted diagonally opposite to each other.
- xiii) 3 Nos. oil sampling valve for taking out samples from top middle and bottom of tank.
- xiv) Conservator.
- xv) Dehydrating breather.
- xvi) Radiators.
- xvii) Pressure relief device.
- xviii) Gas and oil actuated relay.
- xix) Magnetic type oil guage.
- xx) Dial type oil temperature indicator.

- xxi) Dial type winding temperature indicator.
- xxii) KIOSK.

34.0 Any fittings accessories or apparatus which might not have been mentioned in the specification but which are usual and necessary in the equipment of similar nature and are recommended by the manufacturer for satisfactory operation are to be provided by the contractor without extra cost. All apparatus must be complete in all details whether mentioned in the specification or not.

35.0 **CLEANING AND PAINTING:**

35.1 Before painting or filling with oil all non-galvanized parts shall be completely clean, free from rust, scale and grease and all external surface cavities shall be filled by sand deposition.

Interior of all transformers tanks and other oil filled chamber and internal structural steel work shall be cleaned of all scale and rust by shot blasting. In case the process of shot blasting is not adopted it is to be thoroughly cleaned by chipping wire brushing and sand paper etc. These surfaces shall be painted with hot oil resisting varnish or paints as per contractor's standard practice.

35.2 External surface shall be priming coat and two finishing coats of durable oil and whether resisting paint or enamel. The colour of the finishing coats shall be dark admiral grey conforming to no. 632 of ISS-colours for ready mixed paints (second revision).

36. **PACKING:**

36.1 The packing may be in accordance with tenderers standard practice so as to ensure safe-transit by goods train, which may involve transshipment. Special arrangement should be made to facilitate handling and to protect the projecting parts against damage in transit.

Although the method of packing is left to the discretion of manufacturer it should be robust enough for rough handling that is occasioned during transportation by ship/rail/road.

36.2 The transformer shall be dispatched filled with oil / insert gas as per standard practice of the manufacturer but purchaser shall be informed accordingly.

37.0 **FACTORY ASSEMBLY AND TESTS:**

The following tests shall be carried out in order to determine whether transformers and its components comply with the specification and to provide necessary data. Not less than 15 days notice shall be given to the purchaser in order that he may send his authorised representative. As many tests in the opinion of the purchaser as are possible shall be arranged by the manufacturer. The transformer shall be completely assembled and tested as per IS: 2026/1977 and any amendment thereof at the factory. All the tests are to be carried out in the presence of an authorized representative of PVVNL/third party as per direction of Engineer of Contract. Tests shall be performed in compliance with standard practice and relevant ISS.

The routine tests shall be carried out on transformer at the manufacturer's cost at their works/other institute of repute before dispatch.

37.1 **ROUTINE TESTS:**

- i) Measurement of winding resistance.
- ii) Measurement of voltage ratio in each tapping.
- iii) Check for polarity and voltage vector relationship.
- iv) Measurement of No. load current at 90%, 100% and 110% of rated voltage.
- v) Measurement of percentage impedance on principal tap and extreme taps.

- vi) Load loss at principal tap measured at rated frequency by applying on approx. Supply to one winding sufficient to produce rated current in the winding with other winding short circuited.
- vii) Measurement of insulation resistance.
- viii) Separate source voltage with stand test.
- ix) Induced over voltage withstand test.
- x) Dielectric test on transformer oil shall also include testing of oil sample drawn from transformer out of the offered lot at supplier's works for the following:
 - 1) BDV of oil (fresh from storage of tank as well as from transformer).
 - 2.) Resistivity 3.) Acidity 4.) Tan Delta
- xi) Oil leakage test: All tanks and oil filled compartments shall be tested for oil tightness by being completely filled with air/oil of a viscosity not greater than of insulating oil conforming to ISS: 335 at an amb. Temp. and subjected to pressure equal to the normal pressure plus 35 kg/M (51b/sq.) measured at the base of the tank.
- xii) Oil leakage, gas collection, oil surge and voltage test on gas and oil actuated relays.

38.0 TYPE TEST:

38.1 The offered equipment or the equipment of higher size must be of proven design through successful type testing as per IS: 2026/81 or latest amendment thereof during last 5 years counted from the date of opening of tender at CPRI, Bhopal or Bangalore or NTH, Ghaziabad ERDA, Vadoara. The type test required to be conducted on the equipment offered shall be as given below:

(i) to (x) as indicated under routine tests.

(xi) **Lightening Impulse Test:** (Impulse Volt. Withstand Test)
As per IS: 2026/81 (Pt. III) para 13 and latest amendment thereof on all limbs of HV & LV free of cost. The tapping position for each limb shall be selected as recommended in col. 6.3 of above IS.

(xii) **Temperature Rise Test:**
Temperature rise test – at guaranteed maximum. No. load loss plus guaranteed maxm. Load loss at 75 Deg. C.

(xiii) **Vacuum Test:**
Transformer tank is kept at an internal pressure of 3.33 KN/Sq. m. (25mm. of – Hg) for one hour. The permanent deflection of flat plate after the vacuum has been released shall not exceed the value specified below without affecting the performance of the transformers.

<u>Horizontal length of flat plates (MM)</u>	<u>Permanent deflection (MM)</u>
Up to and including 750	-
751 to 1250	5.0
1251 to 1750	6.5
1751 to 2000	9.5
2001 to 2250	11.0
2501 to 3000	16.0
Above 3000	19.0

(xiv) **Short Circuit Test:**
As per IS: 2026/1977 and latest amendment thereof.

(xv) **Pressure Test:**

Transformer tank together with its radiators, conservators, vessels and other fittings shall be able to withstand a pressure corresponding to 0.7 atmosphere above atmospheric pressure measured at the base of the tank and will be maintained for one hour. The permanent deflection of the flat plate after the excess pressure has been released shall not exceed the figures specified above.

(xviii) **Special Test:**

Measurement of zero sequence impedance test on one transformer. Inspection shall be carried out only after routine test results are submitted to 'Engineer of the Contract', giving serial number of transformer.

- 38.2 Copies of all above type test reports including verification of losses by test house excluding routine test (i) to (x) of clause 37.1 alongwith detailed design and drawing of the equipment certified by test house (s) shall be enclosed with tender to prove the design as successfully type tested failing with it will be presumed that the conditions of type testing for pre qualifying as per clause 1.2.4 of instructions to tenderers is not fulfilled.
- 38.3 The transformer having passed successfully through the type tests along with verification of losses by test house shall be considered as acceptable design. The physical dimensions of this transformer shall form the guidelines for subsequent supplies. In case of any variation in any dimension incorporated in the approved drawings, shall be finally got approved by the engineer of the Contract taking into consideration, the dimensions offered in GTP/drawings as per test reports and drawings finally approved by CPRI/BHEL/Govt. Test House after conduction of type test.
- 38.4 The Engineer of the contract reserves the right to select transformer out of supplies and serve it to any test house as mentioned in clause 24.o and get any/all the tests conducted. As far as possible these tests shall be got conducted in presence of the representative of "Engineer of the contract" and the supplier. The cost of the tests shall be borne initially by the supplier. In case the material fails or does not conform to the specification, the test charges shall be borne by the supplier. In addition to this following penalizing action shall also be taken by the 'Engineer of the Contract'.
- The order for the remaining supplies shall be cancelled.
 - The suppliers will be debarred for consideration in participating in three subsequent tenders of same rating counted from the date of tests resulting in to failure of designs.

In case, it is found during the joint inspection of transformers(s) by the officers of MVVNL and/or representative of the third party entrusted with the work of inspection and/or representative of the firm that the firm has supplied substandard material then also the above penal action shall be taken. If the representative of the third party and/or of supplier or both are not present at the time of above joint inspection, then the inspection report of the officers of MVVNL prejudice of the MVVNL'S right to take the penal action, as mentioned above. In the event of cancellation of orders no compensation shall be given to the firm.

TOLERANCE :

However, no negative tolerance on all the parameters including physical of dimensions tank certificated by test house/ laboratories as mentioned in respect of the equipment which has been successfully type tested shall be allowed.

A) CHALLENGE TESTING

The provision of challenge testing is included in the ambit of the tender specification and accordingly any tenderer shall be allowed to forward his request to MVVNL for testing of any transformer supplied by any of the other suppliers in this tender. The challenging tenderer shall submit complete expenses involved in the testing of the identified transformer at CPRI in advance and if the transformer fails the test, action shall be taken against the supplying firm. The challenge test shall be jointly witnessed by Challenging firm, departmental representative and the supplying firm. Provisions of challenge testing are mentioned below:

- The label contents can be challenged by any person.
- The challenge must be submitted to MVVNL in writing.

- iii MVVNL will examine the challenge within a month of the date of receipt in writing. The Standards and Labeling Implementation Committee will recon whether to conduct a challenge test or not, keeping in view the basis of the complaint and examination of past records.
- iv The decision of MVVNL will be final and will be conveyed to complainant along with justification.
- v If a challenge test is required then
 - a The complainant will deposit the expenses related to transportation (to and from the place of picking of sample to the test laboratory) and testing in advance to MVVNL.
 - b MVVNL will arrange for selection and sealing of samples. The transportation to the assigned laboratory is the task of the user of label.
 - c The testing will be conducted in an independent Test laboratory registered with MVVNL and the testing charges would be paid out of the advance by the complainant.
- vi The complainant and the user of label may witness the process of challenge testing.
- vii If the equipment fails the challenge test then the expenses paid by the complainant would be reimbursed by the user of label whose equipment has failed.
- viii If the equipment passes the challenge test then the deposit of complainant would be forfeited.
- ix If the equipment fails the challenge test the enforcement process (section) will be followed.

B) Enforcement Process

- a. If the equipment fails the verification/challenge testing, then the matter will be placed before the Standards and labeling Implementation Committee and the user of label will be informed about the failure.
- b. The user of label has the option to go in for the second test, in case the equipment fails the first verification/challenge test
- c. A second test will be carried on with twice the initial test sample size, and all the samples should pass the test.
- d. If the equipment passes the second verification/challenge test then no further action would be taken and the appliance would deem to confirm to the label.
- e. If the equipment subjected to verification/ challenge testing fails the second test the user of label will within the given time limit by MVVNL.
 - i. Correct the label level or remove the defects or deficiencies found for next equipment/models yet to be shipped out as well as for equipment/model sale in the market.
 - ii. Change particulars/information on advertising material
- f. If the user of label fails to comply with the direction issued under clause (f) the use of label for that model will be prohibited. In addition,
 - i. MVVNL will inform the consumers about the failure of the equipment by wide publicity.
 - ii. MVVNL may advise the government to debar the equipment/ model and the user of the label from participating in any public tender.

39.0 INSPECTION & TESTING OF TESTING INSTRUMENTS AND RAW MATERIALS AND STAGE INSPECTION:

All the measuring instruments i.e. Voltmeter, Avometer, CT, PT'S and other instruments used in inspection and testing shall be properly calibrated and sealed once in a year. Calibration Certification when demanded by the inspection officer shall be produced for verification purposes. In case of disputes regarding calibration of instruments, instruments shall be sealed and signed by the representative of suppliers and purchaser and will be sent to institution/lab. of repute or its own lab. for calibration at the cost of supplier. The result of such testing shall be binding on the supplier.

- 39.1 The purchaser reserves the right to draw required number of samples of raw materials. These samples shall however, be drawn and sealed in the presence of the contractors representative. The Corporation further reserves the right to get the sample tested from any Government test house/lab. Or any government recognized test house/lab. The supplier shall have to produce requisite test certificate for major raw materials/accessories used in the transformers.

- 39.2 The purchaser reserves the right to depute his representative/agency for carrying out stage inspections at any stage of manufacturing process for checking quality of manufacturing and also the raw material especially CRGO stampings for its required, quantity i.e. Prime, M4. The contractor shall offer all reasonable facilities for such inspection. The contractor shall furnish detailed production schedule including different phase of material procurement, manufacture and fabrication to facilitate the purchaser for deputing his representative/agency for carrying out stage inspection. The contractor shall inform the purchaser likely date of assembly of core and readiness of HT & LT coils enabling the purchaser to depute his officers for stage inspection or issuing waiver of stage inspection.
- 39.3 Records shall be maintained off all the test carried by the supplier on transformer offered for inspection and test shall produce when demanded by the inspection officer to satisfy that the transformer are being offered after carrying all the necessary tests by the supplier.
- 39.4 The purchaser reserves the right of having other reasonable tests carried out at his own expense either before dispatch or at site to ensure that the transformer complies with the requirements of this specification. After transformer shall be inspected for the following to verify that all the provision made in the specification and technical particulars given are being complied with.
- a) Check for dimensions of transformers.
 - b) Internal and external construction of transformer.
 - c) Workmanship.
 - d) Check for genuineness of raw material.
 - e) The inspector(s) authorized by purchaser shall have the right for checking the records pertaining to receipt and issue of all the major items of raw materials including transformer oil. The supplier shall also have to produce requisite test certificate for each and every consignment of transformer oil the other major items of material.

After all tests have been completed six certified copies of each test report shall be furnished. Each report shall supply the following information.

- i) Complete identification data including serial number of the transformer.
 - ii) Method of application, where applied, duration and interpretation of results for each test.
 - iii) Temperature data corrected to 70 Deg. C including ambient temperature.
- 40.0 DRAWING/ INSTRUCTIONS BOOKS/ MAINTENANCE MANUAL ETC TO BE FURNISHED BY THE TENDERERS:
- 40.1 As soon as possible after the award of the contract the manufacturer shall supply four copies of drawing which will describe the equipments in details for approval and shall subsequently provided seven complete sets of final drawing one of which shall be in INK on tracing cloth for taking out good quality prints.
- 40.2 The following drawings shall be required to be supplied:
- a. Outline dimension drawings of transformer and accessories giving details of main components parts and transportation details showing dimension and weight of each package.
 - b. Name plate diagram with tap changing details and guaranteed max. load and no load losses without any plus tolerance.
 - c. Schematic control and wiring diagram of all auxiliary equipment including marshalling box with terminals no. of various accessories.
 - d. Bushing, drawing porcelain portion drawings and terminal connector drawing with their electrical and mechanical characteristics in a tabular form.
 - e. Drawing giving the weight for foundations of transformers.
- 40.3 The successful tenderers shall be required to supply the drawing and six copies of instruction books, operation and maintenance manuals and spare Para booklets alongwith descriptive literature and data of transformer construction, winding bushing, heat changer tap changing gear etc to each consignee and to the Superintending Engineer (Store) Madhyanchal Vidyut Vitran Nigam Ltd., Lucknow.
- 41.0 DEVIATION FROM THESE SPECIFICATION:**
Should be clearly listen and brought out separately alongwith explanatory notes.
- 41.1 **EXPERIENCE:**
List of reference of similar transformers already in service with complete details shall be furnished with the tender.

42.0 SPARES:

Tenderers shall quote separately for any special tools required during erection and maintenance and the spares as given below:

- a. H.V. bushing.
- b. L.V. cable box complete with bushing.
- c. Neutral bushing.
- d. Set of gaskets.
- e. Oil temp. indicator.
- f. Winding Temp. indicator.
- g. Magnetic oil level gauge.
- h. Silicagel charge for breather.
- i. Explosion Ve diaphragm.
- j. Set of coils for one limb of winding.

42.1 The tenderers shall also quote for any other item of spares recommended for five years normal operation. The purchaser will decide the actual spares to be ordered, on the basis of the list and the item wise prices of spare parts.

42.2 The cost of spare tools and accessories will not be taken in to consideration for bid evaluation purposes.

43.0 DELIVERY:

The transformers are required at the earliest as per desired delivery schedule. Tenderers are required to note their earliest possible delivery.

SCHEDULE OF GUARANTEED TECHNICAL PARTICULARS

1. Name of Manufacturer :
2. Type of transformer :
3. Rating:
 - a) Rated output (MVA) :
 - b) Rated voltage - HV & LV (KV) :
 - c) Rated Current -HV & LV (A) :
 - d) No load voltage ratio (V) :
 - e) Number of Phases :
 - f) Frequency Hz :
4. Connections:
 - a) High Voltage :
 - b) Low Voltage :
 - c) Vector Group Symbol :
5. Cooling Arrangement:
 - a) Type of Cooling :
 - b) No. of cooling tubes /fin per radiator & No. of radiators :
 - c) Size of radiator fins :
 - d) Thickness of sheet :
 - e) Horizontal distance between radiators :
 - f) Vertical distance between core centre line and radiator centre line :
6. Dimension of inside of tank (mm)
 - a) Length (mm) :
 - b) Breadth (mm) :
 - c) Height (mm) :
 - d) Weight of tank without fitting (Kg.) :
7. Thickness of Transformer Tank Plates:
 - a) Sides (mm) :
 - b) Bottom (mm) :
 - c) Cover (mm) :
8. Overall Dimension of Tank with fittings (mm):
 - a) Length (mm) :
 - b) Breadth (mm) :
 - c) Height (mm) :
9. Details of Oil:
 - a) Standard of Oil :
 - b) Quantity of Oil (Ltrs. & Kgs.) :

10. Details of Core:

- a) Material of core lamination & grade :
- b) Thickness of core plate :
- c) Insulation of core lamination :
- d) Window height mm :
- e) Leg center mm :
- f) Core diameter(Approx.) mm :
- g) Core cross sectional area (gross) cm^2 :
- h) Core cross sectional area (net) cm^2 :
- i) maximum flux density in core at normal voltage, frequency and ration :
- j) Weight of Stamping used in core and yoke separately in kg. |
 - i) Core (Kg) :)
 - ii) Yoke (Kg) :)
- k) Size and No. of clamping channels :
- ii) Weight of clamping channels with stiffeners :
- k) Size and No. of tie rod (if used) :
- l) Size & No. of core bolt :

11. WEIGHT OF TRANSFORMER(Approx.) Kg:

- a) Weight of core only :
- b) Weight of Core assembly excluding HV & LV coils :
- c) Weight of Transformer Oil :
- d) Weight of insulated conductor in HV :
- e) Weight of insulated conductor in LV :
- f) Tank and fittings(Kgs) :
- g) Total weight of transformer with oil :

12. DETAILS OF WINDING:

- a) Type of winding & material :
- b) Conductor size (bare) :
- c) Cross sectional area $(\text{mm})^2$:
- d) Type of insulation of conductor :
- e) Size of insulated conductor :
- f) number of disc/coil per limb :
- g) No. of coil per disc :
- h) Internal dia of coil :
- i) Outer dia of coil :
- j) Axial length :
- k) Mean length of turns (mm) :
- l) No. of turns :
- m) Inter turn insulation :
- n) End turn insulation :
- o) Type of axial coil supports :

- p) Details of end clamping rings
- q) Weather windings are inter leaved :
- r) Size of cooling ducts :
- s) Weight of bare conductor used in one leg (kg) :
- t) Weight of insulated conductor used in one leg(kg) :
- u) I²R loss at 75°C (per phase) :
- v) maximum current density in winding at :
CMR-Amp/sq cm.
13. Thermal time constants - Hrs. :
14. Terminal arrangement of HV side :
15. Terminal arrangement of LV side :
16. Regulation at full load at 75° C:
- a) Unity Power Factor % :
- b) At 0.8 power factor (lagging) % :
17. Percentage efficiency at normal ratio, rated voltage & at 75° C average winding temp:
- a) Full load % :
- b) ¾ full load % :
- c) ½ full load % :
- d) ¼ full load % :
18. No load current as % of full load current at rated voltage and frequency in % :
19. Power factor of no load current at normal voltage and frequency in % :
20. RMS value of symmetrical short time current Rating as per ISS which the transformer can Withstand and its duration :
- a) HV Winding :
- b) LV Winding :
21. Maximum out balance force in winding on Short circuit at the terminals. :
22. Clearance between Phases in Air (mm) :
- a) HV Side (mm) :
- b) LV Side (mm) :
- c) LV to Earth (mm) :

23. Clearance in oil in mm:
- a) Internal clearance between inner walls of tank & core coil assembly unit :
 - b) On length side :
 - c) On breadth side :
 - d) Radial clearance between HV & LV winding :
 - e) Phase to phase clearance between LV limb :
 - f) Radial clearance of LV coil from core :
 - g) Minimum clearance between LV pole to earth :
 - h) Horizontal duct between HT disc :
 - i) End clearance of HV coil from yoke (with angle shaped end rings) :
 - j) Minimum clearance between core & tank bottom :
 - k) Angular ducts between LT & HT winding :
24. INSULATION DETAILS:
- a) End spacing of LV :
 - b) End spacing of HV :
 - c) LV winding to core :
 - d) Between HV & LV Winding :
 - e) Inter phase barrier :
 - f) End phase barrier :
25. Insulation Level:
- a) Separate source power frequency voltage withstand (KV) :
 - b) Induced over voltage withstand (KV) :
 - c) 1.2/50 MS full wave lightning impulse withstand voltage:
 - 1. Impulse :
 - 2. Power frequency (dry & wet) :
 - d) Voltage to earth for which the star point will be insulated:
 - 1. Impulse :
 - 2. Power frequency (dry & wet) :
26. Performance reference temperature ° C :
27. Volts per coil of HV winding (volts) :
28. Approx. volts per layer of HV winding :
29. Impedance voltage at rated full load and transformation :
30. % reactance ratio at rated voltage & frequency at 75°C :
31. Percentage resistance at 75° C :

32. Impedance voltage at principal tapping and at 75°C average winding temp. expressed as % of rated voltage between HV & LV winding-% :
33. Permissible duration of overload following continuous furnishing at normal rated load in an ambient temperature of 50° C:
 - a) 10% overload)
 - b) 20% overload)
 - c) 30% overload)
34. Maximum temperature rise at full load (above Max. average ambient temperature of 45° C:
 - a) Of top oil by thermometer Deg. C :
 - b) Of winding by resistance method Deg. C :
 - c) By hot spot temperature indicator Deg. C :
35. Limit for hot spot temp. for which designed :
36. Temperature gradient between winding and oil :
37. Max. No Load Loss at rated voltage principal tapping at rated frequency (Guaranteed without any + tolerance) including 25% stray No Load Loss for considering in consistencies of B-H Characteristics of core material & workmanship :
38. Max. Load Loss at rated current on principal tapping at 75° C (Guaranteed without any plus tolerance) including 10% stray load loss :
39. Resistance voltage drop at rated current for principal tapping at 75° C average winding temperature at % of rated voltage :
40. Reactance voltage drop expressed as % for rated voltage :
41. Temperature Indicators:
 - i) Make and type :
 - ii) Permissible setting range for alarm & trip :
 - iii) Number of contacts :
 - iv) Current rating of each contact :
42. Gas & oil actuated relay description date & range of settings schematic diagram :

43. Type of pressure relief device and pressure at which it operates :
44. Details of magnetic oil gauge
45. Weight of silicagel (Grm)
46. Particulars of Bushing:
- a) Name of manufacturer :
 - b) Type :
 - c) Voltage rating KV :
 - d) Visible power frequency voltage discharge test :
 - e) Dry power frequency withstand voltage for one minute :
 - f) Wet power frequency withstand voltage for 30 minute :
 - g) Dry standard lightning impulse withstand volt-KV :
 - h) Creepage distance in air (mm) (protected and total) :
 - i) Recommended Gap setting-mm :
 - j) Weight of assembled bushing Kg. :
47. Free space required at the top for removal of Bushing-mm
48. Minimum clearance height for lifting core and winding from tank :
49. Details of Tap Changer:
- a) Make :
 - b) Type :
 - c) Rating:
 - i) Rated voltage :
 - ii) Rated current :
 - iii) Step Voltage :
 - iv) No.of steps :
50. Shipping Details:
- a) Parts detached for transport :
 - b) Approximate weight of heaviest package (Kg) :
 - c) Approximate dimension of largest package:
 - i) Length (mm) :
 - ii) Breadth (mm) :
 - iii) Height (mm) :
51. Type Testing:
- a) Whether the transformer of the offered design has been type tested during last 5 years from the date of opening of tender

- b) If yes, when and where was it type tested? :
Short Circuit Test :
Impulse Test :
- c) Is there any deviation in the Technical Specn. :
of offered 10 MVA,33/11 KV Power Transformer :

52. Details of test reports:

Sl.No. Name of test

-
- | | |
|-----|--------------------------------|
| 8. | Temperature Rise Test |
| 9. | Vacuum Test |
| 10. | Pressure Test |
| 4. | Impulse Voltage Withstand Test |
| 5. | Short Circuit Test |
| 6. | Thermal Ability Test |
| 7. | Zero Sequence Impedance Test |

**PRICE VARIATION CLAUSE FOR COPPER WOUND DISTRIBUTION
TRANSFORMERS COMPLETE WITH ALL
ACCESSORIES AND COMPONENTS (of rating up to 10 MVA and voltage up
to 33 kV supplied against domestic contracts)**

This price variation clause is applicable for "Copper Wound Distribution Transformers" with rating up to 10 MVA and voltage up to 33 kV. The clause is to be used for domestic contracts. A separate price variation clause IEEMA/PVC/DIST-CU/DE/2003 has been evolved for above types of Transformers supplied against export/deemed export contracts under special import licensing scheme.

the price quoted/confirmed is based on the input cost of raw materials/components and labour cost as on the data of quotation and the same is deemed to be related to price of raw materials and all India average consumer price index number for industrial workers as specified in the price variation clause given below. In case of any variation in these prices and index numbers, the price payable shall be subject to adjustment, up or down in accordance with the following formula:

$$P = P_0 / 100 (13 + 23C/C_0 + 27 ES/ES_0 + 9 IS/IS_0 + 5 IM/IM_0 + 11TB/TB_0 + 12 W/W_0)$$

Where in,

P = Price payable as adjusted in accordance with the above formula.

P₀ = Price quoted/ confirmed.

C₀ = Average LME settlement price of copper wire bars (refer notes)

This price is as applicable for the month two months prior to the date of tendering.

ES₀ = C&F price of CRGO Electrical Steel Sheet (refer notes)

This price is as applicable on the 1st working day of the month, one month prior to the date of tendering.

IS₀ = Wholesale price index number for 'Iron & Steel (Base: 1993-94=100)' (refer notes)

This index number is as applicable for the week ending 1st Saturday of the month, three months prior to the date of tendering.

IM₀ = Price of Insulating Materials (refer notes)

This price is as applicable on the 1st working day of the month, one month prior to the date of tendering.

TB₀ = Price of Transformer Oil Base Stock (refer notes)

This price is as applicable on the 1st working day of the month, two months prior to the date of tendering.

W_0 = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of labour, Govt. of India (Base 1982=100)

This index number is as applicable on the first working day of the month, three months prior to the date of tendering

For example, if date of tendering falls in May 2004, the application prices of Copper Wire Bars (C_0) and Transformer Oil base Stock (TB_0) should be for the month March 2004, where as the applicable price of CRGO Steel Sheets (ES_0) and insulating material (IM_0) should be as on 1st April 2004 and Wholesale price index number for 'Iron & Steel' (IS_0) should be for the week ending first Saturday of February 2004, and all India average consumer price index no. (W_0) should be for the month of February 2004.

The above prices and indices are as published by IEEMA vide circular reference number IEEMA(PVC)/TRF/___ prevailing as on first working day of the month..... i.e. one month prior to the date of tendering.

C = Average LME settlement price of copper wire bars (refer notes).

This price is as applicable for the month, two months prior to the date of delivery.

ES = C&F price of CRGO Electrical Steel Sheets (refer note)

This price is as applicable on the 1st working day for the month, one month prior to the date of delivery.

IS = Wholesale price index number for 'Iron & Steel (Base: 1993-94=100)' (refer notes)

This index number is as applicable for the week ending 1st Saturday of the month, three months prior to the date of delivery.

IM = Price of insulating Materials (refer notes)

- This price is as applicable on the 1st working day of the month, one month prior to the date of delivery.

TB = Price of Transformer Oil Base Stock (refer notes)

This price is as applicable on the 1st working day of the month, two months prior to the date of delivery.

W = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt of India (Base 1982= 100)

This index number is as applicable on the first working day of the month, three months prior to the date of delivery.

For example, if date of delivery in terms of clause given below falls in December 2004, the applicable prices of Copper Wire Bars (C) and Transformer Oil Base Stock (TB) should be for the month October 2004; where as applicable prices of CRGO Steel Sheets (ES) and Insulating material (IM) should be as 1st November 2004 and Wholesale price index number for 'Iron & Steel'(IS) should be for the week ending first Saturday of September 2004 and all India average consumer price index no. (W) should be for the month of September 2004.

The date of delivery is the date on which the transformer is notified as being ready for inspection/ dispatch (in absence of such notification the date of manufacturer's dispatch note is to be considered as the date of delivery) or the contracted delivery date (including any agreed extension thereto), whichever is earlier.

Notes:

- (a) All prices of raw materials are exclusive of modvatable excise/CV duty amount and exclusive of any other central, state or local taxes, octroi etc transformers manufacturers import major raw material like Copper, CRGO Steel Sheets, TOBS and Insulating pressboards etc. The landed cost of these imported raw material includes applicable custom duty but exclusive of modvatable CVD.
- (b) All prices are as on first working day of the month.
- (c) The details of prices are as under :
 - 1) The LME price of Copper Wire Bars (in Rs./MT) is the LME average settlement price of Copper Wire Bars for one month prior to the month of the circular converted into Indian Rupees with applicable exchange rates prevailing as on 1st working day of the subsequent month. This price is the landed cost, inclusive of applicable custom duty only but exclusive of countervailing duty.
 - 2) The price of CRGO Electrical Steel Sheets suitable for Transformers of rating up to 10 MVA and voltage up to 33 kV (in Rs./MT) is the average C&F price in US \$ per MT converted into Indian Rupees with applicable exchange rate prevailing as on 1st working day of the month as quoted by primary producers. This price is the landed cost, inclusive of applicable customs duty only but exclusive of countervailing duty.
 - 3) The wholesale price index number for 'Iron & Steel' is as published by the Office of Economic Advisor, Ministry of Industrial, Govt. of India, New Delhi with base 1993-94=100. This wholesale price index number is being published weekly on provisional basis. However, the same gets finalized after eight weeks and is normally available after two months. Therefore, we are considering in our calculations this final index for the first Saturday of the month two months prior to the date of which the price of other raw materials such as AI, IM are published for the corresponding month.
 - 4) The average price of Insulating materials (in Rs./Kg) of pre-compressed pressboards of size 3 mm and 10 mm thick, 3200 mm x 4100 mm C&F price in free currency per MT converted into Indian Rupees with applicable

exchange rates prevailing as on 1st working day of the month as quoted by primary suppliers. The price is the landed cost, inclusive of applicable customs duty only but exclusive of countervailing duty.

- 5) The price of TOBS is C&F price (in Rs./K.Ltr) for N-60 grade Oil as published in ICIS-LCR bulletin for the 1st week of the previous month. This price is normally published in US\$ per US Gallon, which is converted in Rs./K Ltr. with applicable exchange rate prevailing on 1st working day of the subsequent month. This price is the landed cost, inclusive of applicable customs duty only but exclusive of countervailing duty.

- (d) Some purchases are purchasing oil immersed Transformers from manufacturers without first filling of oil. Oil for first filling is procured and filled by the purchasers. For such supplies PVC formula, exclusive Oil will apply as under:

$$P = P_0/89(13+23 C/C_0+27 ES/ES_0+9 IS/IS_0+5 IM/IM_0+12 WW_0)$$

Where description of P, P₀, C, ES, IS, IM, W etc. remains same as mentioned earlier.