

TENDER DOCUMENT
FOR
SUPPLY & INSTALLATION OF 995 KVA 33/0.415 KV
TRANSFORMER

(Tender no. MPSEDC/ACGM/2010/586)

(All pages of this document except for Commercial-bid to be submitted in original duly signed on each page along with the technical bid envelope. The Commercial bid in original is to be enclosed in a separate sealed envelope)

M. P. State Electronics Development Corporation Ltd.
(A Govt. of M.P. Undertaking)
147, Zone-I, M. P. Nagar, Bhopal-462011 (M.P.)
Ph. 0755-2769816, Fax: 0755-2769824
www.mpsedc.com

INVITATION FOR BIDS

MPSEDC Ltd., Bhopal invites sealed bids, under two envelopes system, from bidders for **Supply & Installation of 995 KVA 33/0.415 KV transformer**. Interested bidders may obtain further information from the office of MPSEDC Ltd., Bhopal. Bids are invited for the work mentioned hereunder:

| Sl.No | Items | Description |
|-------|---|--|
| 1 | Scope of Work | Supply & Installation of 995 KVA 33/0.415 KV transformer at our Indore Office MPSEDC Ltd., Electronic Complex , Pardesipura, Indore |
| 2 | Cost of bid document | Rs.2500/- (non-refundable) by Demand Draft/Cash |
| 3 | Sale of Bid Documents | 01.01.11 to 20.01.11 (Between 10.30 a.m. to 5.30 p.m.) |
| 4 | Last date of submission of Bid Document | 21.01.11 up to 3.00 p.m. |
| 5 | Date of opening of technical bid | 21.01.11 at 4.00 p.m. |
| 6 | EMD | Rs.20,000/- (Rupees Twenty Thousand Only) in the form of Demand Draft payable to MPSEDC Ltd. at Bhopal |
| 7 | Place of opening of Bids | MPSEDC Ltd., 147, Zone-1, Maharana Pratap Nagar, Bhopal (M.P.) |
| 8 | Address for communication | MPSEDC Ltd., 147, Zone-1, Maharana Pratap Nagar, Bhopal (M.P.) |

Note: Tender can be downloaded from the website www.mpsedc.com. In case tender form has been downloaded from the website, the tenderer will have to enclose a Demand Draft of Rs.2500/- (Rupees Two thousand Five Hundred only) of any scheduled bank in favor of MPSEDC Ltd. payable at Bhopal along with the tender.

***Any future Corrigenda/Information shall be posted only on our website www.mpsedc.com**

ELIGIBILITY CRITERIA

The following are the conditions, which are to be necessarily fulfilled, to be eligible for bidding. Only those interested bidders who satisfy the following eligibility criteria should respond to this Tender:

1. The products offered must be of high quality and manufactured by nationally/internationally reputed manufacturer having a minimum turnover of Rs.50 Crore (Attach copy of the audited balance sheet) and ISO 9001 (Services and Manufacturing) and ISO 14001 certifications.
2. In case of the representative/dealer, the representative/dealer must attach tender specific authorization letter (in the enclosed format in the tender form) from respective manufacturer for all the products/service quoted by him.
3. The Bidder must have working office and service center in the state of Madhya Pradesh for at least three years (attach copy of MPST/CST/TIN and Service Tax Registration issued by M.P.

Note : The Bidders should submit the documentary proof and information in support of each of the criteria listed above. If desired Madhya Pradesh Electronic Development Corporation Ltd would carry out inspection of the development centre to assess the capacity. Bidders not meeting the above criterion shall out rightly be rejected and their financial bid shall not be opened.

1. INSTRUCTIONS TO BIDDERS

a. Amendments To Tender

Any changes, additions or deletions in the tender will be available on the website www.mpsedc.com. No written communication will be circulated.

b. Sealing and Marking of Bids

The bidders shall submit EMD, technical bid (containing the technical specifications offered, literature leaflets etc and the technical and commercial deviation if any) and one original copy of commercial bid in separate, envelopes should be sealed in one main envelope. All the envelopes should be distinctly marked EMD, Technical Bid, and Commercial Bid.

The bid will consist of the following:

- i. The bidder should have service support network in Madhya Pradesh for after sales services. (Details of which to be submitted along with the bid).
- ii. Technical deviations if any, from the terms, conditions and specifications as specified in the bid document.
- iii. Bid form duly filled in, signed and complete in all respects
- iv. The price should be firm, inclusive of all taxes and local levies if any. On FOR destination basis.

- v. The rates should be free from all escalation. However, all Tax and duty benefits if applicable should be passed on to us.
- vi. The inner and outer envelopes shall be addressed to the competent authority at the following address:

Additional Chief General Manager
M.P. State Electronics Development Corporation Ltd.
147, Zone-I, Maharana Pratap Nagar, BHOPAL-462011
- vii. The inner envelopes shall also indicate the name and address of the Bidder to enable the bid to be returned unopened in case it is declared "late."
- viii. If the outer envelope is not sealed and marked, the competent authority will assume no responsibility for the bids, misplacement or premature opening.
- ix. Telex; cable facsimile or fax bids will be rejected.
- x. Conditional bids are liable to be rejected.

c. Deadline for Submission of Bid

Bids must reach to the competent authority at the address specified but not later than the time and date specified in the invitation of Bids. In the event of the specified date for the submission of bids being declared a holiday for the office of the competent authority, the bids will be received up to the appointed time on the next working day.

d. Late Bid

Any bid received after the deadline for submission of bids prescribed by the competent authority, will not be accepted and returned unopened to the bidder.

e. Modifications and Withdrawal of Bid

The bidder may modify or withdraw its bid after bid's submission, provided that written notice of the modification or withdrawal is received by the competent authority prior to the deadline prescribed for submission of bids.

f. Bid Process

i. Opening of Bids

Since it is a Two-bid system, Technical and EMD envelope will be opened first by the Committee constituted for this purpose. If the technical bid specifications offered, EMD and deviations asked (if any) are found in order, the Committee will open commercial bid only for the eligible bidders.

The Committee will open the bids, in the presence of Bidders' representatives who choose to attend on the date specified at the following location:

Addl. Chief General Manager
M.P. State Electronics Development Corporation Ltd.
147, Zone-I, Maharana Pratap Nagar, BHOPAL-462011

Prospective Bidder representatives shall sign a register evidencing their attendance. In the event of the specified date of Bid opening being declared a holiday for the office the Competent Authority, the bids shall be opened at the specified time and location on the next working day.

In case, the commercial bid is not opened on the same or next day of opening of technical bid the Committee may decide to open the commercial bid on subsequent dates. In such case the date, time and place of opening of commercial bid will be intimated to the bidders or their representatives.

ii. Preliminary Examination

Before starting evaluation, the bids will be examined to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order. In case of computational error the basic price will prevail. In case of error in totals and grand total, the sub total will prevail.

If bid is determined as not substantially responsive, the competent authority will reject it and only the substantially responsive commercial bids will be considered. The process of evaluation of commercial bid is as follows:

- The Committee, appointed by the Corporation, will first verify that the Bank Draft for Bid Security is in order and as per requirement of the bid. The Committee will examine the bid on Eligibility Criteria as specified. The scrutiny of technical proposals will be based on the Evaluation Criteria determined.
- The Commercial bid will be opened only for the proposals, which are found eligible and technically acceptable by the Committee and approved. On the day specification for the opening of bid, the Committee, appointed by the Corporation, will open the commercial bids of eligible bidders and scrutinize the same minutely.
- The bidder is required to quote for all the items mentioned in price schedule. Therefore any bid, which does not indicate price for all the items, and any item have been left blank, it will be considered that the cost of item has been included in the other items and the total of the price quoted include for all the required items. In case complete product is left blank it will be considered as non-responsive bid and thus liable for rejection.
- After scrutiny, the Corporation after having examined the proposal may accept the same or accept the bid price of any other bidder found suitable or reject all or any proposal. The decision of the Corporation in this regard shall be final and binding.
- The corporation reserves the right to negotiate the prices with bidder/ bidders.
- **Commercial bid will be evaluated on the basis of Transformer losses claimed by the Bidder and weightage will be given in the price for lower transformer losses. The weightage for losses shall be as follows :**

For this purpose, a capitalization cost will be added to each transformer quoted. The Total cost will be calculated as follows:

$$A = B + 43800 \times C (D + 0.4E)$$

- A = Capitalization Cost**
- B = Landed cost of Transformer**
- C = Power Cost per KWH**
- D = No load loss at rated voltage and frequency**
- E = Load loss at rated current & frequency at 75 degrees**

Since, weightage is being given to low loss transformers; the Bidder has to ensure that the measured transformer losses are as per specifications provided by the Bidder. In case the successful bidder is not able to supply transformers within specified losses appropriate deduction shall be made from the payment at the discretion of MPSEDC.

g. Rejection of Bids

The Competent Authority reserves the right to reject bids which are non responsive, including without limitation, bids which contain or involve the following:

- I. Late or incomplete Tenders
- II. Failure to conform to the rules or requirements contained in the Tender
- III. Failure to sign the Tender as an authorized representative
- IV. Proof of collusion among bidders, in which case all Tenders involved in the collusive action will be rejected
- V. Non compliance with applicable law, unauthorized additions or deletions, conditional bids, incomplete bids or irregularities of any kind which may tend to make the bid incomplete, indefinite or ambiguous as to its meaning.
- VI. Any exclusion of requirement within the Tender.

h. Contacting the Competent Authority

No Bidder shall contact on its own, the Competent Authority on any matter relating to its bid, from the time of the bid opening to the time the contract is awarded.

Any effort on part of a Bidder to influence the Competent Authority or members or Technical/Monitoring committee, in its decisions on bid evaluation; bid comparison or contact award may result in rejection of the bidder's bid.

The Bid Security may be Forfeited

If a Bidder withdraws its bid during the period of bid validity specified by the bidder on the bid Form or In case of a successful Bidder, if the Bidder fails:

- I. To accept the order
- II. To furnish performance security
- III. If the Vendor, after accepting the purchase order fails to deliver the material/services as per the order.

i. Bid Price

The prices should be F.O.R. destination i.e. M P State Electronics Development Corporation, Electronics Complex, Pardeshipura, Indore (M.P.) The Prices should be inclusive of packing, forwarding & transit insurance charges. However the breakup of basic price, Taxes & duties (exact percentage as per prevailing rates), packing & forwarding, transportation and transit insurance should be clearly mentioned.

Terms and Conditions

1. **ORDER ACCEPTANCE**
Order acknowledgement copy duly signed, confirming to the material specifications, quantity, quality, prices, delivery schedule etc. as specified in purchase order should be sent within seven days of the receipt of the purchase order by the supplier. Once the quoted price is accepted, no revision in the price shall be entertained.
2. **DELIVERY PERIOD**
Delivery period to be clearly mentioned in the offer and the same has to be strictly adhered to as agreed in the order.
3. **INSURANCE**
For purchase order place on F.O.R. destination basis, the supplier shall be responsible for damages, shortages during transit. For all other order necessary particulars of dispatches must be intimated to the purchaser immediately for arranging insurance, failing which transit damages shall be to the supplier's account.
4. **PACKING**
Material should be securely packed and a copy of packing list should be placed inside the packing which should bear the purchase order no. and supplier's full name and address.
5. **DESPATCH OF MATERIAL**
 - a) All relevant documents should be dispatched immediately after dispatch of the material so the same reach to the purchaser in advance, failing which demurrage if any incurred will be to the supplier's account.
 - b) All relevant documents required with the consignment also should be accompanied in form of appropriate certificates necessary under sales tax registration.
6. **INSPECTION**
 - a) At manufacturer's work**
The manufacturer shall give inspection call minimum 7 days in advance of testing date. The testing shall be carried out in presence of representative's of client. Deviation observed during testing/inspection shall be immediately rectified. In case inspection is waived, complete set of test reports as prescribed in technical specifications shall have to be sent to the client for approval has to be obtained in writing before dispatch of equipment to the purchaser.
 - b) Inspection at client side**
The material is subject to inspection at purchaser's works & decision of the purchaser's inspection department will be final. However, if asked by the purchaser, the manufacturer shall have to send his representative at the time of testing & Commissioning of the equipment at purchaser's site.
 - c) Removal of rejected goods**
On receipt of the intimation regarding rejection, supplier shall remove the rejected goods from the purchaser's work within fifteen days at his own cost the purchaser shall not be responsible for or be held liable for any loss or deterioration of the rejected goods.
7. **GUARANTEE**
All material /equipment should be free from Defects, arising from faulty materials,

design or workmanship and should be guaranteed for quality/ satisfactory performance for a minimum period of 12 months from the date of commissioning or 18 months from the date of dispatch which ever is earlier. During this guarantee period, the supplier shall rectify such defects and if necessary supplier should replace material/equipment as a whole without implication of any charges towards service/material.

8. TERMS OF PAYMENT

a. Unless other wise specifically agreed to all payments will be made directly with in 30 days after inspection, and acceptance of the material at purchaser's works. Bill with commissioning reports in triplicate completed in all respects should be forwarded directly to the purchaser immediately on installation & commission of the materials.

b. Retention – 10% of the equipment cost shall be retained for guarantee period of one year. The same can be released against performance bank guarantee of equal amount for a period of one year from the date of commissioning.

9. APPROPRIATION

The purchaser shall be entitled to appropriate and recover all outstanding, dues from this order or any other orders, amount due to them.

10. INDEMNITY

The supplier shall at all times indemnify the purchaser against all claims which may be made in respect of materials for infringement of any right protected by patents/copyrights.

11. SAMPLE, DRAWINGS ETC.

a. all particulars furnished by the purchaser to the supplier such as a sample, drawings, models etc., shall be returned to the purchaser immediately on execution of the order and in no circumstances must these be shown in any form to a third party.

b. The drawings to be submitted by the manufacturer and their approval shall be governed by the details give in technical specification sheet.

12. FORCE MAJEURE

Under force major conditions such as war, riots, civil commotion disturbances, strikes, lockouts etc. or any other unforeseen contingencies causing stoppage of production, the purchaser reserves the right to cancel and/or modify the purchase order without liability for any compensation and/or claim of any description.

13. ORDER CONDITIONS

No interest will be payable on over due accounts.

The security deposit if any, submitted by the supplier for due fulfillment of contract will bear no interest and will be returned only after the contract has been completed to the entire satisfaction of the purchaser.

14. PERFORMANCE SECURITY

The project will carry a performance guarantee for one year. This guarantee may be invoked on violation of any of the condition (s) given below:

If any of the goods supplied does not perform satisfactorily.

The observed output/deliverables of the project is not in accordance with the approved specification.

In order to take care of the concerns outlined above, the tenderer is required to furnish Performance Guarantee worth of 10% of the value of project, valid up to a period of one year. Performance security should be submitted within 15 days of receiving the work order. The Performance Security can be in the form of Bank Guarantee or FDR Pledged in favour of MPSEDC Ltd., Bhopal

15. **INSTALLATION VERIFICATION & QUALITY CHECK**

Checking will be conducted by the officer/agency appointed by the Competent Authority.

16. **PENALTY**

Delay in time line – A delay in supply, installation & commissioning of Hardware & Software would invite a penalty of 0.5 % of the value of order per week. A delay of more than 4 weeks may result in cancellation of contract & forfeiture of Performance Guarantee.

5. GENERAL INFORMATION AND EMD DETAILS

| | | |
|----|---|--|
| 1 | EMD Details DD No and date: Amount in Rs. Name of the Bank: | |
| 2 | Name and Address of the Tenderer: | |
| 3 | Contacts: | |
| 4 | Telephones: | |
| 5 | Fax: | |
| 6 | E-mail: | |
| 7 | Mobile No: | |
| 8 | Category of the tenderer (Whether company, partnership firm or Proprietary concern) | |
| 9 | Name of Chief Executive Officer and Telephone No. | |
| 10 | Year of Establishment | |
| 11 | Sales Tax/Commercial Tax/CST nos. | |
| 12 | Income Tax PAN/GIR No. | |
| 13 | Yearly Turn over of the Last 2 years. | |
| 14 | Name and Address of the Banker | |
| 15 | List of major Clients and the size of orders executed | |

Note: Separate sheets may be attached wherever necessary.

Signature of the Tenderer
With stamp and date

LETTER OF SUBMISSION OF TENDER

Date

Addl. Chief General Manager
M. P. S. E. D. C. Ltd.,
147, Zone – 1
M.P. Nagar,
Bhopal – 462 011

Subject : **Supply & Installation of 995 KVA 33/0.415 KV transformer**

Dear Sir,

Having examined the tender document for Supply & Installation of 995 KVA 33/0.415 KV transformer comprising of the Tender Notice, Terms & Conditions, Technical Specifications, Schedule of Quantities etc., and having understood the provisions and requirements relating to supply, I/we hereby submit our offer for supply and installation of the proposed equipment in accordance with the terms and conditions and within the time period specified in the tender document, at the rates quoted by me/us in the accompanying Schedule of Quantities.

1. I/We have successfully carried out various supplies of similar equipment and I/We have vast experience in similar equipments of this size & capacity.
2. The Quoted rates shall be valid up to the completion of the supply.
3. I/We further confirm that all chapters of the tender documents have been read, understood and signed and there is no deviation/discrepancy in our offer with respect to the tender.

Signature of Tenderer

Name of firm:

Seal of firm:

Annexure - Manufacturers Authorization Form

Ref No:

Dated:

To,
Additional Chief General Manager
M.P. State Electronics Development Corporation Limited
147, Zone-I, Maharana Pratap Nagar, Bhopal-462011

Tender No: Due Date:

Dear Sir,

We _____ who are established and reputed
Manufacturers of _____ having factories at
_____ (address of
the factory) do hereby authorize M/s
_____(Name & Address of the Bidder) to
submit a bid, and subsequently negotiate and sign the contract with you against the
above tender.

We hereby extend our full guarantee, warranty and support and also in meeting
warranty obligations by providing necessary spares in time for the goods & services
offered by the above firm against this tender, as per standard as well as MPSEDC
warranty terms.

Yours faithfully

(Name)
(Name of the Manufacturer)

Note: This letter of authority should be on the letterhead of the manufacturer be
signed by a person competent and having a power of attorney to bind the
manufacturer. The bidder in its bid should include it.

Scope of Work

The Scope of Work includes the following jobs:

- 1) Supply of Transformer as per the Technical Specifications.
- 2) Dismantling of existing 750 KVA Transformer
- 3) Strengthening of Transformer foundation if required
- 4) Installation of new Transformer including earthing by connecting suitable earth strips to the existing earth pits, terminating the transformer on HT as LT side and all associated jobs.
- 5) Terminating four numbers of existing 185 Sq. mm, 3½ Core, Aluminium Armoured cable and 1 new Armoured cable.
- 6) Terminating and cable laying of one 185 Sq. mm, 3½ Core, Aluminium Armoured cable and terminating the same at both ends.
- 7) Wiring of existing control cable at Transformer as well as enunciator end.
- 8) Energising the Transformer and testing with connected load in the building.
- 9) Obtaining approval from Electrical Inspectorate if required
- 10) Any other associated jobs.

NOTE : The successful bidder has to ensure that the existing Transformer is replaced with the new Transformer and the electric supply is restored within a period of 12 Hrs. Any accessories or material required except 185 Sq. mm, 3½ Core, Aluminium Armoured cable for completing the job including expenses required to be incurred for obtaining approval including preparation of drawings etc. from Electrical Inspectorate must be included in the installation cost of the Transformer. The rates for 185 Sq. mm, 3½ Core, Aluminium Armoured cable are being asked for separately in the Price Bid. The statutory charges towards approval from Electrical Inspectorate shall be paid by MPSEDC. The Bidders are advised to visit the site at Electronics Complex, Pardesipura, Indore and make an actual assessment of the job.

Technical Specifications

A. TANK

01. Transformer shall be suitable for outdoor service.
02. The transformer tank shall be made from high grade, plate steel, suitably by means of stiffeners made of structural steel section. All seams, flanges, lifting lugs, braces and other parts attached to the tank shall be welded.
03. Adequately sized inspection covers shall be provided for easy inspection and maintenance.
04. All joints which may have to be opened from time to time in the course of operation shall be of a design to permit them to be made easily oil tight in re-assembly.
05. Lifting lugs and eye bolts provided for the transformer shall be so located that a safe clearance is obtained between sling and transformer bushings without the use of a spreader.
06. The transformer tank be suitable for oil filling under full vacuum

B. RADIATOR

01. Radiator shall be detachable and made from pressed steel.
02. The radiators shall be designed taking into account the loss of thickness due to short blasting.
- 03 Radiators shall be provided with the following:-

- a. Top and bottom shut off valve.
- b. Individual radiator bank shall be provided with a drain valve.
- c. Air release plug.

C. CORE AND WINDING:

01. Maximum flux density in the core with the core excited to 110% rated Voltage shall not exceed 1.8 Wb/Sg.M.
02. Limbs and yokes shall be stepped construction with interleaved mitered joints.
03. The transformer core shall be constructed from high grade, non-ageing. Cold rolled grain oriented silicon steel laminations coated with Insulations and varnish. Core laminations shall be annealed and burrs removed and insulated after cutting.
04. The core and coil assembly shall be dried out and impregnated under Vacuum.
05. The transformer core supporting frame work shall be designed to avoid creation of pockets for oil to be trapped during drainage of oil, or for air pockets to be formed during oil filling.
06. The transformer core shall be earthed at one point by means of a tinned copper strip. At all other places a clearance of at least 12 mm in oil shall be maintained between core and winding clamping steel to prevent multiple earthing of core.
07. Conductors shall be transposed at sufficient interval in order to minimize eddy currents and equal the current and temperature distribution and along the winding. Design and arrangement of windings and of their insulation shall be such as to ensure a uniform distribution of the voltage surges among all coils of the windings.
08. The transformer core and winding assembly shall be secured against any movement of the core and coil assembly relative to the tank during transportation, installation or service.
09. High voltage end winding shall be suitably braced to withstand short circuit stresses and stresses set up by surges.
10. Windings shall be of suitably insulated copper conductor. Windings and Insulations shall be so arranged that free circulation of oil is possible between the coils, between windings and between windings and core. The windings shall be fully shrunk under vacuum before assembly.
11. All steel bolts in oil shall be cadmium plated.

D. ACCESSORIES AND CABLE BOX:

01. Transformer shall be provided with off circuit Tap Changing gear incorporating the following gestures:-
 - a) Positive acting tap position indicator showing the tap in use.
 - b) Facility for pad locking in any debuted tap position.

02. Transformer shall be provided with a conservator, complete with filling Plug, sump and drain valves, dehydrating breather and a 100 mm diameter dial type magnetic oil level gauge with low oil alarm contacts, explosion vent and Buchholz relay with alarm and trip contacts.
03. 150 mm diameter dial type winding temperature indicator, with adjustable ungrounded, alarm and trip contact, temperature detecting equipment comprising of a heating coil, a resistance coil and a current transformer shall be provided on the transformer.
04. Thermometer pocket, temperature sensing element and a 150 mm diameter dial type top oil temperature indicator with adjustable, ungrounded, alarm and trip contact shall be provided on the transformer.
05. The marshalling box shall be complete with necessary cable gland provision through a suitably size separable gland plate. The marshalling box and components shall comply auxiliary wiring from Buchholz relay, W.T.I., O.T.I. and M.O.G. etc. shall be marshaled, to a separate weather proof and vermin proof marshalling box with an independent assess cover.
06. Transformer shall be provided with two main frame earthling terminals which shall be separate from the natural of a star connected winding.

E. BUSHINGS AND CABLE BOX:

01. Solid porcelain bushings with brown glaze shall be used up to 36 KV class service. Solid bushings shall have characteristics specification in IS 2099.
02. The transformer cable box shall include a disconnecting chamber mounted on the transformer tank which shall incorporate disconnecting links to facilitate removal of the transformer, and for cable testing, without necessitating disconnection of the cables. Disconnecting chamber shall have a removable cover for providing arrangement for supporting cable box shall be provided.

F. OIL

1. Transformer shall be supplied complete with insulating oil required for the first filling plus 10% excess oil for future top ups.
2. Insulating oil shall comply with the requirements of IS 335.

G. TECHNICAL RATINGS/PARTICULARS

- a. Datasheet

| S.No. | DESCRIPTION | DETAILS |
|--------------|--|----------------|
| 01 | Ref. standards specification | IS 2026/1977 |
| 02 | Installation | Out door |
| 03 | Vector Group | Dyn 11 |
| 04 | Frequency | 50 Hz |
| 05 | Winding connection -Primary -Secondary | Delta Star |
| 06 | Rated KVA | 995 |

| | | |
|----|---|--|
| 07 | Rated Primary Voltage | 33 KV |
| 08 | Short Circuit Level at 33 KVA | 55.2KA |
| 09 | Rated Secondary Voltage (at No-Load) | 415 Volts |
| 10 | Highest system Voltage for Primary | 36 KV |
| 11 | Rated full load current H.V. L.V. | To be specified by Supplier |
| 12 | Method of System Earthing | Solidly earthed |
| 13 | Tap changer and Tapings | Off load type suitable for + 7.5% to – 10% supply Variations in steps of 2.5% |
| 14 | Temp Rise - Of windings by Resistance method - - Off Top oil by Thermometer | 55 Deg. Cent 50 Deg. Cent |
| 15 | Terminal Arrangement - HV - - LV | Bushings Cable box suitable for 5 nos. 3½ C x 300 Sq mm PVC Armoured Aluminium Cables. |
| 16 | Neutral Terminal Arrangement | Full capacity LV neutral to be brought out side the tank & a fully insulated terminal for solid earthing to be provided. |
| 17 | Impedance | 5% |
| 18 | Losses - No load (KW) at rated voltage & frequency. - Load losses at a. At full load b. At 75% load | To be specified by supplier |

19. FITTINGS AND ACCESSORIES

- a. Conservator with 1 no. plain oil level gauge.
- b. Oil filling hole with cover.
- c. Drain cum sampling valve with plug.
- d. Silicate brother with silicate.
- e. Thermometer pocket for oil temperature indicator.
- f. Rating and diagram plate.
- g. 6" dial type thermometer for oil temperature indicator with MRP, RSD and alarm/trip contacts.
- h. Double float Buchholz relay with alarm/trip contacts and shut off valve.
- i. 6" dial type winding temperature indicator with CT and alarm/trip contacts.
- j. 4" dial type magnetic oil level gate with low level alarm contacts.
- k. Thermo junction box with loose cable
- l. Neutral CT.
- m. Filter valve with plug.
- n. Lifting arrangement.
- o. Earthing terminals.
- p. Plain unidirectional rollers.
- q. Explosion vent with diaphragm
- r. Air release plug. Detachable radiators. Inspection opening with covers.
- s. Off load tap changing switch

t. Marshalling Box

b. TESTING

i) Type Test Certification

The bidder shall submit all type test certificates of CPRI or equivalent testing agency, particularly –for similar and higher rating transformer

- a. Short circuit
- b. Heat run test
- c. Degree of protection (Outdoor Transformer)

ii) Routine Test at O.E.M. s Works

All routine tests as per relevant IS Standard and code of practice shall have to be performed with emphasis on-

- i) I.R. Value and polarization index test with minimum 1000 volt Megger.
- ii) Percentage impedance test.
- iii) Ratio Test
- iv) Tape changer operation.
- v) No load and load losses.
- vi) B.D.V. and one minute withstand value test of transformer oil.

c Drawings/ Documents

1) To be supplied by the manufacturer-

The manufacturer shall supply 3 sets of documents/drawings for following:

- a) Assembly & overall dimensional drawing.
- b) Civil foundation drawings for transformer.
- c) Rating plate certificates including serial number.
- d) Testing certificates for all Routine/type test carried out at transformer.

2) Procedures for approval of Drawings-

- a. The supplier shall furnish complete assembly drawings, wiring and schematic diagrams and such detailed drawings, instructions and test reports as necessary for installation, Operation and maintenance of the equipment, for demonstrating that it complies with the requirements of specification. Drawing, Instruction and Reports shall be identified by descriptive titles indicating their application to the contract and shall be signed by the responsible representative of supplier.
- b. 2 copies of each drawing should be submitted to the client shall forward one copy to the supplier marked "Approved /Approved with correction as noted" or "Returned for correction".
- c. Prints marked "approved" authorize the supplier to proceed with the manufacturer of the equipment covered by such drawing. Upon receipt of these prints the supplier shall submit there additional prints for purchaser's distribution.

- d. Prints marked "Approved with correction as noted" authorizes the supplier to proceed with manufacture of the equipment covered by such drawings with corrections indicated thereon. Upon receipt of these prints the supplier shall make the necessary revision and submit 3 prints for purchaser's distribution. Additional approval by purchaser of such revised drawings will not be required.
- e. Prints marked "Return for correction" require the supplier to make the necessary correction and resubmit prints for approval in the routine as before.

3) General

- a. Approval by the purchaser shall not relieve the supplier of the responsibility for the correctness of the drawings furnished by the supplier nor for their compliance with the specification unless so stated at the time of approval. If at any time before the completion of work, changes are made, necessitating major revision of approved drawings, the supplier shall make such revisions and shall proceed in the same routine as for the original approval.
- b. Upon completion of the work, the supplier shall furnish the purchaser with one set of transparencies of all drawings approved by the purchaser including all corrections/revisions made upto the time of completion of the work.
- c. 3 copies of instructions for installation, operation and maintenance shall be submitted in advance of the delivery of the equipment.
- d. All the equipment offered shall be complete with all parts which are necessary for their efficient operation. Such parts shall be deemed to be within the scope of purchaser's specification whether specifically mentioned or not. No claim for any extra charge for providing such parts shall be entertained after the award of the contract.
- e. All equipment offered should comply to Indian Standard and Indian Electricity Rules and Regulations. They should withstand the atmospheric conditions as mentioned below:

| | | |
|---------------------------|--------------------------------|-----------------------------------|
| - Max ambient temperature | 50 Deg Cent | For climatic conditions of Indore |
| - Max relative humidity | 95 % During summer and winter | |
| - Winter Pressure | 100 Kg./Sq. m | |
| - Seismic Coefficient | As per IS 1893 | |
| - Atmosphere | Expected to be mildly polluted | |

f. Fire Insurance Approval

The bidder shall have TAC approval from Tariff Advisory Committee & Copy of approval shall be enclosed with bid.

Financial Bid

| | PARTICULARS | QTY. | UNIT | RATE | AMOUNT |
|----------|---|-------------|-------------|-------------|---------------|
| 1 | Supply of 33 KV 995 KVA outdoor type Transformer as per specifications including delivery at site. | 1 | No. | | |
| 2 | Installation of Transformer including all associated jobs and getting approval from Electrical Inspectorate as detailed in Scope of Work | 1 | LS | | |
| 3 | CABLE :-Providing, fixing and laying 185 Sq. mm 3 ½ Core Aluminum Armored cable, PVC/XLPE insulated cable and over all PVC sheathed heavy duty power cable (Confirming to IS:694-1990) of approved make of Finolex, Polycab, Hawells in the existing cable trench | 300 | Mtrs. | | |
| 4 | SUPPLY OF SPARES:- Supply of essential spares like D.O. Fuses, indication lamps, silica gel, cable lugs and other spares required for maintenance. – One set. | 1 | Set | | |
| 5 | Total | | | | |
| 6 | By back of 33KV, 750 KVA existing transformer in working condition on "As is were is basis" | 1 | Nos. | | |
| | Total Bid Price – Total cost at Sl. NO. 5 less buy-back price of existing Transformer | | | | |

Signature of the Tenderer
With stamp and date