



Government of West Bengal  
U.D & M.A. Department  
Office of the Executive Engineer  
Central Mechanical Division  
Nirman Bhawan, Salt Lake, Kolkata-700091

### **Notice Inviting Quotation**

**NIQ NO.:UD/e-NIQ/CMD/03(2<sup>nd</sup> call)/2019-20 OF EXECUTIVE ENGINEER , Central Mechanical Division**

Memo No:1567

Dated: 09.07.2019

Notice Inviting Quotation are invited by the Executive Engineer, Central Mechanical Division on behalf of the Governor of West Bengal for the works mentioned below, through electronic tendering (e-Tendering) from eligible **Manufacturer or resourceful contractors having OEM responsibility and Manufacturer authorization certificate & also E.S.I & P.F. Registration including sufficient credential and financial capability for execution of works of similar nature.**

Intending bidders desirous of participating in the tender are to log on to the website [www.wbtenders.gov.in](http://www.wbtenders.gov.in) .

Bidders willing to take part in the process of e-Tendering are required to obtain Digital Signature Certificate (DSC) from any authorized Certifying Authority (CA) under CCA, Government of India (viz. NIC, nCode Solution, Safescrypt, e-Mudhra, TCS, MTNL, IDRBT). DSC is given as a USB e-Token. After obtaining the Class 2 or Class 3 Digital Signature Certificate (DSC) from the approved CA they are required to register the fact of possessing the Digital Signature Certificates through the registration system available in the website.

NIQ are to be submitted online and intending bidders are to download the documents from the website stated above, directly with the help of the e-Token provided. This is the only mode of collection of documents. Details of submission procedure are given below under "General terms and conditions and information".

**Name of Work:- SITC of 11/0.415 KV 750 KVA Dry cast resin type indoor distribution Transformer at Nagaryan.**

**Last date & time of submission of bids online is 24.07.2019, 14.00 Hrs**

The intending bidder must read the terms and conditions of the NIQ carefully. He should particularly go through the eligibility criteria required and satisfy himself of the requirements for eligibility. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.

All information posted on the website consisting of NIQ and related documents, Form 2911(ii), BOQ, Corrigendum etc. and Drawings, if any, shall form part of the tender document.

# **General Terms & Conditions and Information**

## **1. (A) Eligibility for participation**

**Manufacturer or resourceful contractors having OEM responsibility and Manufacturer's authorization certificate & also E.S.I & P.F. Registration including sufficient credential and financial capability for execution of works of similar nature.**

Firm should holder of **electrical HT workman & supervisory licence** and registered with the State Government and contractors of equivalent Grade / Class registered with Central Government / MES / Railways for execution of similar works having credential of Rs. 08 lac or more in last five years ( Described elaborately ) are eligible to participate, depending on the criteria as detailed below. Joint venture firms are not eligible to participate.

**Note:** *In case of consortiums, maximum number of constituents shall be restricted to 5 (five) and each constituent must have at least some credential and also at least 10% turnover in contracting business. Individual constituent of a consortium cannot be another consortium.*

## **2. SCOPE OF WORK:**

The scope of the work is **Supply Installation, Testing & Commissioning of 11/0.433 KV 750 KVA Dry Transformers, by replacing the existing Transformer at Nagaryan.**

**INTENDING PARTICIPANTS ARE REQUESTED VISIT THE SITE ON ANY WORKING DAYS PRIOR TO SUBMITTING BID BY CONTACTING EXECUTIVE ENGINEER, CENTRAL MECHANICAL DIVISION, NIRMAN BHAVAN (1<sup>ST</sup>. FLOOR), SALT LAKE, KOLKATA- 700 091 (PHONE NO. 033-2337-0318).**

**Please note that the total schedule will be considered a single work. Hence lowest in total rate offered will be considered as L1 offer.**

## **3. Submission of NIQ**

### **3.1 General process of submission**

Participants are to be submitted online through the website stated above. All the documents uploaded by the NIQ Inviting Authority form an integral part of the contract. Participants are required to upload all the documents along with the other documents, as asked for in the NIQ, through the above website within the stipulated date and time as given in the EOI. Participants are to be submitted in two folders for the work, First one Technical Proposal. Qualified participants only can fill up the second proposal i.e. Financial Proposal. The Participant shall carefully go through the documents and prepare the required documents, and upload the scanned documents in Portable Document Format (PDF) to the portal in the designated locations of Technical Bid. He needs to fill up the rates of items individually in the BOQ, downloaded for the work, in the designated Cell and upload the same in designated location of Financial Bid. The documents uploaded are virus scanned and digitally signed using the Digital Signature Certificate (DSC). Participants should specially take note of all the addendum / corrigendum related to the NIQ and upload the latest documents as part of the NIQ.

### **3.2 Technical Proposal**

The Technical Proposal should contain scanned copies and/or declarations in the following standardised formats in two covers (folders). **All bidders are requested to attend the pre-bid meeting to be held at the chamber of the Special Engineer, SLR&D Circle, Nirman Bhavan 1<sup>st</sup> floor, Salt Lake Kolkata 70091 on 17<sup>th</sup> July 2019 at 1130 hrs.**

#### **A. Technical File (Statutory Cover) containing,**

- i. **E.S.I. P.F & HT Electrical Licence in PDF formatted to be submitted in "Licence" folder**
- ii. **OEM responsibility and Manufacturer authorization certificate to be submitted in "Authorisation & Tech" folder. Technical specification for**

Transformer also to be uploaded in this folder. *The OEM certification should be done by an official not below the rank of regional head of the manufacturer for this region or country head of that company (for bidders of other regions) clearly mentioning the name, designation, e-mail ID, office phone number and address on manufacturing company's letterhead and official seal.*

- iii. **Tender Form No.2911(ii)** (to be submitted in "2911" folder)
- iv. **Notice Inviting Quotation (NIQ)** (to be submitted in "NIT" folder)
- v. **Addenda / Corrigenda** : If published.  
**Note:** Contractors are to keep track of all the Addendum / Corrigendum issued with a particular tender and upload all the above digitally signed along with the NIQ. Bidders submitted without the Addendum / Corrigendum will be treated as informal and liable to be rejected.
- v. **Earnest Money Deposit (EMD)**

Rupees Thirty THOUSAND ( Rs.30000.00) to be deposited as EMD in favour of the undersigned payable in Kolkata

**Earnest money to be deposited as directed below.**

**Earnest Money Deposit (EMD) Procedure:**

Traditional procedure of depositing EMD through off-line instruments like Bank Draft, Payorder, Bankers Cheque etc. has been completely dispensed with for all e-tenders/e-procurements of the State Government, w.e.f 1<sup>st</sup> September, 2016. Intending bidders desiring to make payment of earnest money (EMD) on-line, should beforehand read the instructions carefully, particularly in the challan generated in the system of e-tender/e-procurement, if opted for EMD payment through RTGS/NEFT

**A. Login by bidder:**

- a. A bidder desirous of taking part in a e-tender invited by a State Government shall login to the e-Procurement portal of the Government of West Bengal using his/her login ID and password by using valid DSC.
- b. He/she will select the e-tender to bid and initiate payment of pre-defined EMD for that e-tender by selecting from either of the following payments modes:
  - i. Net-Banking (any of the banks listed in the ICICI Bank Payment Gateway) in case of payment through ICICI Bank Payment Gateway;
  - ii. RTGS/NEFT in case of off-line payment through bank accounts in any Bank approved by RBI in India.

**B. EMD payment procedure:**

**a. Payment by Net Banking (any listed bank) through ICICI Bank Payment Gateway:**

- i. On selection of net banking as the payment mode, the bidder will be directed to ICICI Bank Payment Gateway webpage (along with a string containing a Unique ID) where he/she will select the Bank through which he/she wants to do the EMD on-line transaction.
- ii. Bidder will make the payment after entering his Unique ID and password of the bank to process the transaction.
- iii. Bidder will receive a confirmation message regarding success/failure of the transaction.
- iv. If the transaction is successful, the amount paid by the bidder will get credited in the respective Pooling account of the State Government maintained with the Focal Point Branch of ICICI Bank at R.N Mukherjee Road, Kolkata for collection of EMD against unique codes for identification of the tendering authority.
- v. If the transaction is failure, the bidder will again try for payment by going back to the first step.

**b. Payment through RTGS/NEFT:**

- i. On selection of RTGS/NEFT as the payment mode, the e-procurement portal will show a prefilled challan having the details to process RTGS/NEFT transaction.
- ii. The bidder will print the challan and use the pre-filled information to make RTGS/NEFT payment using his/her own Bank account.
- iii. Once payment is made, the bank would provide an "UTR remittance number" for successful transaction with which the bidder will come back to the e-Procurement portal after expiry of 2 to 3 bank working days to enable the NEFT/RTGS process to complete, in order to verify the payment made and continue with his/her bidding process.
- iv. If verification is successful, the fund get credited to the respective Pooling account of the State Government maintained with the Focal Point Branch of ICICI Bank at R.N Mukherjee Road, Kolkata for collection of EMD.

v. Hereafter, the bidder will go to e-Procurement portal for final e-submission of his/her bid within pre-assigned last date of submission of e-tender.

vi. If the payment verification is unsuccessful, the amount will be returned automatically by the system to the bidder's account.

**Note: EMD payment made through RTGS/NEFT would require additional 2 to 3 bank working days after date of transaction in the bank before the procedure is completed for enabling the bidder to continue with the bidding process in the on-line e-tender final bid submission. Thus, the bidder is to take precaution in case of RTGS/NEFT transfers so that the entire process of submission of e-tender is completed within last date of online submission of his/her tender. However, Net-banking transaction through ICICI bank payment Gateway would be on real time basis.**

**C. Refund/Settlement Process for EMD:**

i. After opening of his/her bids and technical evaluation of the same by the Tender Inviting Authority through electronic processing in the e-Procurement portal of the State Government, the tender inviting authority will declare the status of the bid as successful or unsuccessful which will be made available along with the details of the unsuccessful bidders to ICICI Bank by the e-Procurement portal through web services.

ii. On receipt of the information from the e-Procurement portal, the Bank will refund through an automated process the EMD of the bidders disqualified at the technical evaluation to the respective bidders' bank accounts from which they made the EMD on-line transaction. Such refund will take place within T+2 Bank working days where T will mean the date on which information on rejection of bid is uploaded to the e-Procurement portal by the Tender Inviting Authority.

iii. Once the financial bid evaluation is electronically processed in the e-Procurement portal, EMD of the technically qualified bidders other than that of the L1 and L2 bidders will be refunded, through an automated process, to the respective bidders' bank accounts from which they made the payment transaction. Such refund will take place within T+2 Bank working days where T will mean the date on which information on rejection of financial bid is uploaded to the e-Procurement portal by the tender inviting authority. However, the L2 bidder should not be rejected till the LOI process is successful.

iv. If the L1 bidder accepts the LOI and the same is processed electronically in the e-Procurement portal, EMD of the L2 bidder will be refunded through an automated process, to his/her bank account from which he/she had made the payment transaction. Such refund will take place within T+2 Bank working days where T will mean the date on which information on Award of Contract (AOC) to the L1 bidder is uploaded to the e-Procurement portal by the Tender Inviting Authority.

v. As soon as the L1 bidder is awarded the contract (AOC), the same is processed electronically in the e-Procurement portal for transfer to Government Receipt under Public Accounts through GRIPS where under the security deposit will also be collected in connection with the work.

vi. All refunds will be made mandatorily to the Bank account from which the payment of EMD and Tender Fees (if any) were initiated.

vii. If the e-tender is cancelled, then the EMD would be reverted to the original bidders account automatically after such cancellation order is affected online by the Tender Inviting Authority

**Note: NIQ will be summarily rejected if any item in the Statutory Cover is missing.**

**Authorization of manufacturer and responsibility of OEM for major items in BOQ of this tender must be uploaded within the stated folder otherwise bid will be rejected. All bidders have to attend the pre-bid meeting as stated above.**

**B. My Document (Non-Statutory Cover) containing,**

**i. Certificates**

1. Professional Tax (PT) submission Challan and PAN Card details. Application for such

addressed to the competent authority may also be considered.

2. GST Registration Certificate.

ii. **Company Details**

1. Registered Deed for Partnership Firm / Consortiums from Registrar of Assurances having office at Todi Mansion, Kolkata. Mere application for registration will not be considered. However, in cases where the applicant is yet to receive registration certificate from Todi Mansion, the applicant is to submit an affidavit in Non-Judicial Stamp Paper along with the application pledging that *"the registration certificate of the Consortium / Partnership Firm would be submitted to the Tender Inviting Authority before making agreement with the Tender Accepting Authority in case he is found lowest."* In case of inordinate delay in submitting the document, his bid is liable to be rejected and his EMD deposited will stand forfeited to Government. Any change in the constituents of the Consortium / Partnership Firm should also be registered from the Office at Todi Mansion, Kolkata, prior to the date of application of tender otherwise his application will be rejected.

**Note:** *An affidavit regarding authorized user of DSC for Consortiums and a declaration regarding such authorization for Limited Companies is to be submitted.*

2. Trade Licence for Proprietorship Firms.
3. Memorandum of Articles for Limited Companies.
4. Society Registration and Bye-Laws for Cooperative Societies.

iii. **Credential**

Bill of Quantities (BOQs) to be submitted under Statutory Cover above.

*(In cases, bidders submitting Completion Certificates of 100% completed work(s) issued by the competent authority which should be supported by the Bill of Quantities (BOQs) for the said completed work).*

- iv. **Others** :If any relevant document to be submitted felt by the bidder.

**Note:** *Failure of submission of any one of the above mentioned documents will render the tender liable to summary rejection.*

### 3.3 Financial Proposal

The financial proposal should contain the following document in one cover (Folder). **Please note that financial proposal will be opened for those who are qualified in Technical proposal.**

i. **Bill of Quantities (BoQ):**

The contractor is to quote the rate online through computer in the space marked for item rate in the BOQ. *(Only downloaded copies of the above documents are to be uploaded, virus scanned and digitally signed by the contractor).*

### 4. Submission of Earnest Money Deposit

No document about submission of EMD is required.

### 5.1 Completion Certificate

- i. Completion Certificates for fully (100%) completed works of 8 lac or above similar in nature during the current year and last five financial years will only be accepted. Certificates issued for partly completed works will not be considered.

- ii. Completion Certificate of work executed in Irrigation & Waterways Department will be considered. Completion Certificate of works executed in other Departments of State/ Central Government or organizations, like Public Works & Public Works (Roads) Department, Public Health Engineering Department, Sundarban Affairs Department and various other State/Central Government Departments, Zilla Parishads, West Bengal Housing Infra-structure Development Corporation Limited (WBHIDCO), West Bengal State Electricity Distribution Company Limited (WBSEDCL), Kolkata Metropolitan Development Authority (KMDA), Kolkata Metropolitan Water Sanitation Authority (KMWSA), Kolkata Municipal Corporation (KMC), Hooghly River Bridge Commissioner (HRBC), Engineering Departments of Central Government and Organizations like Farakka Barrage Project (FBP) Authority, Railways, Kolkata Port Trust (KoPT), and companies owned or managed by the State Government, i.e. Mackintosh Burn Ltd., Westinghouse Saxby Farmer Limited & Britannia Engineering Ltd. may also be considered. Such Completion Certificates are to be issued by an officer not below the rank of Executive Engineer / Divisional Engineer / District Engineer / Project Manager of the other State / Central Government Departments / Organisations. Such certificates are further to be countersigned by immediate superior authority of the Issuing Authority for all cases other than direct State / Central Government Departments and Railways.

## **5.2 PAYMENT TERMS:**

Payment will be made as per the availability of fund.

## **5.3 Conditional and incomplete tender**

Conditional and incomplete tenders are liable to summary rejection

## **5.4 Wages of Labour & Enhancement of Tender Rate**

The minimum rates of wages & variable dearness allowance if any, both constitute the minimum rates of wages and shall be enforceable under the Minimum Wages Act, 1948. In no circumstances the tendered rate will be enhanced after acceptance of the tender.

## **6. Opening and evaluation of tender:-**

### **6.1 Opening of Technical Proposal**

- i. Technical proposals will be opened by the Tender Inviting Authority or his authorised representative electronically from the website stated above, using their Digital Signature Certificate.
- ii. Intending tenderers may remain present if they so desire.
- iii. Cover (Folder) for Statutory Documents (vide Clause 3.2.A) will be opened first and if found in order, Cover (Folder) for Non-statutory Documents (vide Clause 3.2.B) will be opened. If there is any deficiency in the Statutory Documents, the tender will summarily be rejected.
- iv. Decrypted (transformed into readable formats) documents of the Non-statutory Cover will be downloaded, and handed over to the Tender Evaluation Committee.

### **6.2 Uploading of summary list of technically qualified tenderers (1st round)**

- i. Pursuant to scrutiny and decision of the Technical Evaluation Committee (TEC), the summary list of eligible tenderers for the work whose Technical & Financial Proposals will be considered will be uploaded in the web portals.
- ii. While evaluation, the Committee may summon of the tenderers and seek clarification / information or additional documents or original hard copy of any of the documents already submitted and if these cannot be produced within the stipulated timeframe, their proposals will be liable for rejection.

### **6.3 Provision for appeal and its disposal**

- i. Intending tenderer not satisfied with the decision of the Tender Evaluation Committee (TEC) may prefer an appeal to the concerned Chief Engineer within two working days after the date of uploading of the summary list of the successful tenderers.
- ii. The Appellate Authority of the Urban Development Department (Salt Lake Project) will dispose such appeals by hearing the aggrieved tenderers as well as consulting the Tender Evaluation

Committee (TEC) within next three working days and the tenderer will be communicated accordingly.

#### **6.4 Final publication of summary list of qualified tenderers**

In case, the Appellate Authority asks the Tender Inviting Authority to consider tender of any of the aggrieved tenderers, who may have preferred appeal, the process of uploading of qualified tenderers will be re-done. Date of opening of financial bid is to be intimated after publication of the final list of technically qualified tenderers.

#### **6.5 Opening and evaluation of Financial Proposal**

- i. Financial proposals of the tenderers declared technically eligible by the Tender Evaluation Committee will be opened electronically by the Tender Inviting Authority from the web portal stated above on the prescribed date.
- ii. The encrypted copies will be decrypted and the rates will be read out to the contractors remaining present at that time.
- iii. After opening of the financial proposal the preliminary summary result containing inter- alia, name of contractors and the rates quoted by them will be uploaded.
- iv. If the Tender Accepting Authority is satisfied that the rate obtained is fair and reasonable and there is no scope of further lowering down of rate, he may after having the comparative statement test checked by the Divisional Accountant / Divisional Accounts Officer attached to the office of the concerned Executive Engineer, instruct the Tender Inviting Authority to upload the final summary result containing the name of contractors and the rates quoted by them against each work after acceptance of the rate.
- v. However, if there is any scope for lowering down of rates in the opinion of the Tender Accepting Authority, all the tenderers will be notified through the website to attend sealed bids to be followed by open bids to be held at the office of the Tender Accepting Authority in his presence at prescribed date and time, which will be done offline, i.e. as manually, as per present procedure.
- vi. After holding such bids, final result after acceptance of the rate by the Tender Accepting Authority would have to be uploaded in the web portal.
- vii. The Tender Accepting Authority may ask any of the tenderers to submit analysis to justify the rate quoted by that tenderer. .

#### **6.6 Tender Evaluation Committee (TEC)**

Committees already constituted for issuance of tender papers for high value tenders, vide G.O. No.1496-IA dated 17th September 2004, to be read with corrigenda No.1493-IA dated 21.11.2005, No.550-IA dated 02.05.2006 and No.902-SIW dated 05.09.2007 will continue to function as Tender Evaluation Committee (TEC), for evaluation of Proposals of the tenderers, until further order.

#### **7. Bid Validity**

The Bid will be valid for 90days from the date of opening of the financial bid

#### **8. Acceptance of Tender**

Lowest valid rate should normally be accepted. However, the Tender Accepting Authority does not bind himself to do so and reserves the right to reject any or all the tenders, for valid reasons and also reserves the right to distribute the work amongst more than one tenderer.

#### **8.1 Tender Accepting Authority**

EE or Special Engineer SLRDC, Salt Lake Project, U.D& M.A..Department, Govt. of W.B.

## 8.2 Execution of Formal tender after acceptance of tender

The tenderers, whose tender is approved for acceptance, shall within 15 days of the receipt of Letter of Acceptance (LOA) to him, will have to execute 'Formal Agreement' with the Tender Accepting Authority in quadruplicate copies of W.B.F. No 2911(ii) which may be purchased on cash payment / in payment modes prescribed in Clause 4(i) from the office of the Executive Engineer concerned with the work.

## 9. Return of Earnest Money of the unsuccessful tenderer(s)

After issuance of AOC, EMD will be automatically returned back..

## 10. Payment

The payment of RA as well as final bill for any work will be made according to the availability of fund and no claim to delay in payment will be entertained.

## 11. Withdrawal of Tender

If any tenderer found lowest after opening of the financial bids withdraws his tender before acceptance or refusal within a reasonable time without giving any satisfactory explanation for such withdrawal, he shall be disqualified for making any tender to the department for a minimum period of one year. All cases in which the Tender Accepting Authority has reason to doubt the bonafide of such withdrawal should be reported to the Chief Engineer concerned in all details for issuance of such disqualification orders by the said Chief Engineer, under intimation to the other Chief Engineers, e-Tendering Cell and also this Department. Copy of such Order should invariably be communicated to the Nodal Officer, e-Governance of this Department with a request to upload the same in the Departmental website.

## 12. Schedule of Dates for e-Tendering

Sl. No.	Activity	Date & Time
1.	Publishing Date	09.07.2019 : 1400 hrs
2.	Document Download start date	09.07.2019 : 1400 hrs
3.	Bid submission start date	18.07.2019 : 1400 hrs
4.	Pre- bid meeting	17.07.2019: 1130 hrs
5.	Document Download end date	24.07.2019 : 1400 hrs
6.	Bid submission end date	24.07.2019 : 1400 hrs
7.	Technical proposal opening date	26.07.2019 : 1400 hrs
8.	Uploading of preliminary list of qualified bidders	To be notified later
9.	Uploading of final list of Technically qualified bidders	To be notified later
10.	Financial Bid opening date	To be notified later
11.	Uploading of Financial Bid evaluation sheet	To be notified later

## TECHNICAL SPECIFICATIONS FOR DRY TYPE TRANSFORMERS

### 1.1 SCOPE OF WORK :

This technical specification covers the design, manufacture, testing at manufacturer's works, and delivery & commissioning of indoor dry type transformers at site,

### 1.2 SYSTEM PARTICULARS AND TECHNICAL REQUIREMENTS

The system and technical particulars of the transformer along with the climatic conditions shall be as per ANNEXURE – 1.

### 1.3 STANDARDS :

Transformer shall be of Dry type & resin cast (ANAN) and their accessories and fittings shall conform to latest editions of IS 2026 (Part I to IV) and IS : 11171 or equivalent international standards. In case of any conflict, the requirements of this specification shall be binding.

### 1.4 ELECTRICAL CHARACTERISTICS & PERFORMANCE :

#### 1.4.1 TYPE AND RATING :

The type, rating and electrical characteristics of the transformers shall be as per Annexure – 1

#### 1.4.2 INSULATION

The insulating materials to be used shall be of Class F as per IS : 2026 and IS – 11171. The transformers shall be adequately insulated and suitably designed to permit continuous operation at highest system voltages. The dielectric strength of the winding insulation shall conform to the values given in IS – 2026 (Part – III)

#### 1.4.3 TEMPERATURE RISE :

- i) The limits of permissible temperature rise for windings, core and other parts shall be in accordance with the clause 3 of IS – 2026 (Part – II) for class F temperature class of insulation.
- ii) The maximum permissible temperature rise limits over maximum ambient temperature of 45 Deg. C shall be as below :

	Dry Type Station Transformer
a) Winding (Temp. rise measured by resistance method)	$\leq 70^{\circ}\text{C}$ ( with Class F of insulation)
b) Core, metallic parts & adjacent material.	Temperature shall in no case reach a value that will damage the core itself, other parts or adjacent material

**1.4.4 FAULT LEVEL**

The fault level on L.V. side of the transformer shall be as per Annexure – I.

**1.5 IMPEDANCE**

The percentage impedance at 75°C shall be as per Annexure – I

**1.6 FREQUENCY**

The transformer shall be suitable for continuous operation at rated output and permissible over loads with a frequency variation of  $\pm 3\%$  from normal 50 Hz without injurious heating.

**1.7 INTERCHANGEABILITY :**

The transformers of same rating and voltage ratio and its parts and accessories shall be interchangeable with each other.

**DUTY UNDER FAULT CONDITIONS :**

The transformers shall be capable of withstanding an external short circuit without damage according to IS – 2026

- 1.7.1 The transformers under exceptional circumstances due to sudden disconnection of load should be capable of operating at a voltage approximately 25% above normal rated voltage for a period not exceeding one minute and 40% above normal voltage for a period of 5 seconds.

**1.8 RATING PLATES :**

Each transformer shall be provided with rating plate as per clause 15 of IS – 2026 (Part – I) of weather proof material fitted in visible position showing the appropriate items as given below :

- a) Type of Transformer
- b) No. of Year of Manufacture
- c) Manufacturer's name
- d) Manufacturer's serial number
- e) Year of Manufacture
- f) No. of phases
- g) Rated power
- h) Rated Frequency
- i) Rated Voltage
- j) Rated Current
- k) Impedance Voltage at rated current.
- l) Type of Cooling
- m) Connection diagram
- n) Insulation Level
- o) Total weight & dimensions
- p) Temperature class of insulation.
- q) Type of Tap changer
- r) No. of steps on Tap changer

**1.9 COOLING**

The transformer shall be suitable for working in a well ventilated protective enclosure with natural air cooling inside/outside the enclosure and shall conform to IS-2026 (Part – II) ANAN Type.

## 1.10 CORE

- 1.10.1 The core shall be built up with high-grade non-ageing low-loss and high permeability cold rolled grain oriented silicon steel laminations with double sided insulation. After being sheared the laminations shall be treated to remove all burrs and shall be re-annealed to remove all stresses. The material shall conform to the latest edition of relevant Indian Standard.
- 1.10.2 The core shall be rigidly clamped and bolted to ensure adequate mechanical strength and to prevent vibration/noise during operation. The bolts used in the assembly of the core shall be so constructed that eddy current flow is minimum.
- 1.10.3 The core shall be provided with lugs suitable for lifting the complete core and coil assembly of the transformers.
- 1.10.4 The core of the transformers shall be coated with resin coat not less than 1 mm thick for protection against corrosion.
- 1.10.5 All iron parts of the transformer except the core shall be hot dip galvanized. The zinc coating shall not be less than 610 gms of zinc per square meter of surface.

## 1.11 WINDINGS

- 1.11.1 The windings shall be pre-shrunk during manufacture so that it is extremely unlikely that any further shrinkage takes place.
- 1.11.2 **Nomex insulated round 'Cu' conductor with Nomex inter layer insulation to achieve best short circuit withstand capacity or conventional spiral winding multiple rectangular strips insulated with Nomex paper and resin impregnated upto 11 KV may be considered.**
- 1.11.3 The windings shall be so designed that all coil assemblies of identical voltage ratings shall be interchangeable and at site repair to the winding can be made readily without special equipment.
- 1.11.4 The windings shall not absorb any moisture and shall be suitable for tropical climate and 100% humidity. The coils shall be hardly inflammable and self-extinguishing.
- 1.11.5 The windings shall be clamped securely in place so that they will not be displaced or deformed during short circuits. The assembled core shall be vacuum dried & suitably impregnated .  
**Finally entire winding shall be properly resin casted**
- 1.11.6 The windings and connections of all transformers shall be braced to withstand shocks which may occur during transportation or due to switching and other transient conditions during service.

### 1.11.7 TEMPERATURE CONTROL

Thermal control of coils shall be affected via two separate signal systems for warning and tripping. Thermistor sensors shall be provided in the low voltage winding inside the cast coils for measurement of temperature. The temperature protection equipment shall be suitable for use with 230V AC voltages as per Annexure – I.

### 1.12 TERMINAL CONNECTIONS

The H.V terminals of transformer shall be suitable for connections to XLPE cable & the L.V terminals of the transformer shall be suitable for connections to L.T busduct or XLPE / PVC cable. The connection requirement is specified in Annexure – I.

### 1.13 EARTHING TERMINALS

1.13.1 Two earthing terminals each capable of carrying short circuit current of the transformer for 2 seconds shall be provided at bottom at two corners of the transformer enclosure. The earthing terminals shall be suitable for bolted connection to the grounding system provided by the purchaser.

### 1.14 TRANSFORMER CHASIS :

1.14.1 Each transformer shall be mounted on hot dip galvanized chassis with bi-directional rollers.

1.14.2 Pulling /lifting eyes shall be provided on the chassis to facilitate moving / lifting of the transformers.

### 1.15 BUSHINGS

The bushings used on the transformers shall comply with latest edition of IS-2099 or equivalent international standard.

### OVERFLUXING

The transformer shall be suitable for over fluxing upto 12.5% without injurious heating. The maximum flux density in any part of the core under such conditions shall not exceed 1.9 Tesla.

### 1.16 VIBRATION AND NOISE

Special care shall be taken in the design and construction of transformer cores to ensure highest degree of silence in operation. The average sound level of the transformer in decibel should not exceed the values specified for respective transformers in NEMA standard publication TR – 1.

### 1.17 TAPPING :

1.17.1 Tapping will be provided for voltage adjustment on the HV winding with adjustment of high voltage of +10% to –10% in steps of 2.5% or as specified in Annexure – I for sub-station transformer.

1.17.2 Tap changing shall be possible with the transformer off circuit and the system should be as specified in Annexure – I

1.17.3 For off load Tap changing either link arrangement system or rotating type with geared arrangement Tap changer has to be considered as specified in Annexure - I

### 1.18 ENCLOSURE :

1.18.1 The sub station and the station transformer shall be provided with enclosure of IP : 22 protection class as per IS – 2147 for indoor installation and shall be fabricated from sheet steel of minimum 2.5 mm thick. Double leaf access door shall be provided with concealed hinge and neoprene gaskets for easy access to H.V links and also for withdrawal of core and coil assembly if required. The enclosure door shall have provision of padlocking in closed position.

### 1.18.2 SAFETY INTERLOCK

A safety interlock shall be provided to ensure that the enclosure door can be opened only when transformer is de-energised.

### GUARANTEE ON LOSS :

The no load losses in KW at rated voltage and rated frequency and load losses (Total losses – no load losses) in kilowatts at rated output, rated voltage and rated frequency shall be guaranteed under penalty for each transformer. For the purpose of penalty computations, the test figures of the no load and the load losses will be compared with the corresponding guaranteed values / figures.

### 1.19 SUPPRESSION OF HARMONICS :

The transformers shall be designed with particular attention to the suppression of harmonics voltage so as to eliminate wave form distortion and any possibility of high frequency disturbances, inductive effects of circulating currents between neutral points of different transformers reaching such a magnitude so as to cause influence with communication circuits.

### 1.20 FITTINGS AND ACCESSORIES :

The transformers in addition to any other fittings/accessories recommended by manufacturer shall be provided with the following :-

Rating plates bearing the data as per Clause No.1.9

- (i) A diagram plate showing the internal connections and also the vector relationship of the windings in addition to the plan view of the transformer giving the correct physical relationship of transformer.
- (ii) Suitable HV & LV terminals as per Annexure – I
- (iii) Winding temperature indicator (RTD – PT – 100)
- (iv) Bi-directional rollers.
- (v) Inspection Cover/doors
- (vi) Jacking lugs
- (vii) Eye bolts and lugs in all parts for ease of handling.
- (viii) Suitable weather proof cubicle for housing the temperature sensing relay, winding temperature indicator, terminal blocks for current transformer secondaries and other cable etc.
- (ix) Temperature sensors and relay suitable for giving alarm and trip commands.

These alarm and trip signals will be used as digital input signal to the RTU. Over temperature alarm and trip signals shall be provided for HV & LV windings independently.

### 1.21 PAINTING

All metal parts shall be thoroughly cleaned to remove dust scale grease etc. and paints with two loads of approve color shade over one coat of rust resisting primer. The Paint shall not scale off wrinkle or remove due to normal handling. All metal surfaces not accessible for painting shall be made of corrosion resistant material.

## 1.22 CO-ORDINATION WITH THE OTHER SUPPLIERS

For dry type Transformer, the supplier shall co-operate with supplier of low voltage side bus duct and high voltage side cable Supplier so as to ensure proper co-ordination of all related aspects. Copies of all applicable drawings and correspondences exchanged between the suppliers shall be furnished simultaneously to the purchaser for information and in case there is any difference of opinion between the suppliers, decision of the purchaser shall be final and binding on the respective supplier.

### TESTS

The transformers shall be tested at manufacturer's works in presence of purchaser's authorized representative (s) as per latest edition of IS – 2026 / Part I & III or equivalent International standard.

#### 1.22.1 FACTORY ACCEPTANCE TESTS (FAT)

Transformer shall comply with requirements of following tests/reports as per Govt./NABL (National Accreditation Board for Laboratories) approved shall be carried out during the inspection.

The following shall constitute the Factory Acceptance Test :

- a) Measurement of winding resistance.
- b) Measurement of voltage ratio and check of voltage vector relationship.
- c) Measurement of impedance voltage (principal tapping), short circuit impedance and load losses.
- d) Measurement of no load losses and current.
- e) Measurement of insulation resistance.
- f) Separate source voltage withstand test.
- g) Induced over voltage withstand test.
- h) Polarisation Index
- i) Measurement of acoustic sound level.

#### 1.22.2 SPECIAL TESTS :

The following tests are also required to be carried out during FAT particularly for 11 KV system.

- a) Partial discharge measurement.
- b) Measurement of acoustic sound level.
- c) Measurement of harmonics / no load current.

The supplier may indicate separate cost for carrying out the above special tests.

#### 1.22.3 SITE ACCEPTANCE TEST (SAT) :

The following shall constitute Site Acceptance test :

- a) Measurement of winding resistance.
- b) Measurement of voltage ratio and check of voltage vector relationship..
- c) Measurement of no load losses and current.
- d) Separate source voltage withstand test.
- e) Induced over voltages withstand test.
- f) Measurement of insulation resistance.
- g) Magnetic balance.

The purchaser reserves the right to having other reasonable tests carried out at his own expense either before dispatch or at site to ensure that the transformer complies with the requirement of the specification.

#### 1.22.4 TYPE TEST :

The manufacturer should produce along with their offer the copies of Test Certificates on the following TYPE TESTS, which were already carried out at CPRI or at any other NABL accredited Govt. testing house for similar rating of Transformer.

- I. Lightning Impulse Test
- II. Temperature Rise Test.
- III. Short circuit withstand test

Manufacturer should separately indicate the cost for carrying out the above test which should not be considered for evaluation of bid.

### 3.0 INFORMATIONS REQUIRED WITH BIDS / TENDER

- Clause wise deviations to this specifications and to the specific technical particulars as per Annexure – I of the same are to be furnished. If it is not furnished it will be assumed that the offered equipment meet the enquiry specifications.
- GA drawing of the equipment with plan and elevation of HV/LV boxes, base channels marking all dimensions.  
If bus duct arrangement is specified at LV side, all dimensions showing flange details should be submitted.

Connection diagram at Marshalling Box marking make of terminal block, terminal withstand capacity etc.

- Name Plate details.
- Complete details as asked for in Annexure – II (Guaranteed Technical Parameters).
- Make and type of various accessories / fitments and protective devices shall be furnished with the quotation.
- Recommended / Mandatory spares with itemized unit rates for two years trouble free / Normal operation.
- Type Test Certificates for each rating mentioned in Annexure – I

**NOTE :** The offer is likely to be rejected if the informations sought above is not furnished along with the tender.

#### 4.0 SPARE PARTS

- 4.1 Spare parts recommended for two years of trouble free operation of the transformers shall be listed in the tender with item wise prices. All parts shall be inter-changeable and shall be of the same material and workmanship as the corresponding parts furnished with the main equipment.
- 4.2 The bidder shall, however, quote the item wise prices of the following mandatory spare parts in the schedule of requirement and prices and the rates will be considered for evaluation.

(i)	H.V. Terminal	1 No
(ii)	L.V. Terminal	1 No
(iii)	Set of H.V and L.V windings and insulation for one limb in steel container. – NA in this case	1 No
(iv)	Winding temperature relay with contacts for alarm and tripping	1 No

#### ANNEXTURE – I (Specific Technical Particulars for Dry Type Transformers)

1	Rating	750 KVA
2	Voltage Ratio	11000 KV/415V
3	Frequency	50 Hz $\pm$ 3%
4	Vector Group	Dyn 11
5	Type	Dry, ANAN, indoor
6	Insulation Class (Minimum)	F
7	Impedance Voltage	Min. 5% on principal tap at rated KVA, 75 degree C
8	No of Phases	3
9	Fault Level at HV Side	26.2 KA for 3 Sec.
10	Insulation Level	

i)	Impulse withstand	
	a) H.V	75Kvp
	b) L.V	8Kvp
ii)	Power Frequency with stand Voltage	
	a) H.V	28 KVrms
	b) L.V	2.5 KVrms
11	System Ground	Solidly earthed.
12	Tapping	Off circuit tap changer at H.V size.
		Taps : - 10% to + 5% at 2.5% steps 7 positions
13	Aux. Suppliers	For Space heater - 230V, 1Ph, 50 Hz AC. For alarm & trip circuits - 110V DC from DC Power Pack , For Temp. Controller – 230V AC Supply.
14	Tap Changer	
a)	Manually	
	i) Link Type	Link Type
	ii) Gear Driven	NA
b)	Remote Motorised	NA
15	i) H.V side termination arrangement	Cable – 1 no. 3C x 185 sq.mm XLPE Cable
	ii) LV side termination arrangement	Cable – 4 nos. 3.5C x 300 sq.mm XLPE Cable
16	H.V & L.V side disposition	

17	Special /Customized accessories /fittings necessary over and above the General Specification.	
18	Polarisation Index	Insulation resistance on HV/LV windings shall be measured at the end of one minute as also at the end of ten minutes as per relevant standard and the polarisation index shall be more than 2.5,
19	Ambient Conditions a) Max Temp/Min, Temp b) Altitude w.r.t. M.S.L c) Humidity	50°C MAX Less than 1000m 99%
20	Current Transformer 1) At Neutral – Rating 2) At H.V Terminal – Rating 3) At L.V Terminal – Rating	400/1 A, 15VA, 5P15, for stand by E/F N.A N.A
21	Transformer losses	As per ECBC – Table 8.1. Max.loss ( at 50% Load ) – less than 3.88 KW Max.loss ( at 100% Load ) – less than 10.24 KW Total.loss ( at 50% Load ) – less than 5.30 KW Total.loss ( at 100% Load ) – less than 12.80 KW
22	Quantity	1 No.
23	Make	Voltamp(Bhuj) / Universal Magnetics / RPG Raychem/ Crompton Graves

## **Additional Terms & Conditions**

1. The Executive Engineer of the Division concerned will be the Engineer-in-Charge in respect of the contract and all correspondences concerning rates, claims, change in specification and/or design and similar important matters will be valid only if made by the Engineer-in-Charge. If any correspondence of above tender is made with Officers other than the Engineer-in-charge for speedy execution of works, the same will not be valid unless copies are sent to the Engineer-in-Charge and approved by him. The instruction given by the Sub-Divisional Officer and the Sub-Assistant Engineer on behalf of the Engineer-in-Charge shall also be valid (who have been authorized to carry out the work on behalf of the Engineer-in-Charge) regarding specification, supervision, approval of materials and workmanship. In case of dispute, the decision of Engineer-in-Charge shall be final and binding.
2. The acceptance of the tender including the right to distribute the work between two or amongst more than two bidders will rest with the Tender Accepting Authority without assigning reason thereof. The accepting authority reserves right to reject any or all tenders without assigning any reason thereof.
3. The Bidder shall have to comply with the provisions of (a) Contract labour (Regulation & Abolition) Rules, 1970, and (b) Minimum Wages Act, 1948 or the modification thereof or any other laws relating thereto as will be in force from time to time.
4. Department shall not entertain any claim whatsoever from the contractor for payment of compensation on account of idle labour on any ground including non-possession of land.
5. The Government shall not be held liable for any compensation due to machines becoming idle for any circumstances including untimely rains, other natural calamities, strike, etc.
6. Imposition of any duty / tax / royalty etc. whatsoever of its nature (after work order / Commencement and completion of the work) is to be borne by the bidder. Original Challans of those materials, which are procured by the bidder, may be asked to be submitted for verification.
7. Cess @ 1% of the cost of construction works shall be deducted from the Gross Value of the Bill in terms of Finance Department Order No.853-F dated 01.02.2006. Also it is instructed to register his Establishment under the Act, under the competent registering authority, i.e. Assistant Labour Commissioner / Deputy Labour Commissioner of the region concerned.
8. No mobilization / secured advance will be allowed unless specified otherwise.
9. VAT/Sales Tax, Cess, Royalty of sand, stone chips, stone metal gravel, boulders, forest product etc, Toll Tax, Income Tax, Ferry Charges and other Local Taxes, if any, are to be paid by the contractor. No extra payment will be made for these. The rates of supply and finished work items are inclusive of these.
10. All working tools and plants, scaffolding, construction of vats and platforms will have to be arranged by the contractor at his own cost.
11. The contractor shall supply mazdoors, bamboos, ropes, pegs, flags etc. for laying out the work and for taking and checking measurements for which no extra payment will be made.
12. The contractor should see the site of works and tender documents, drawings, etc. before submitting tender and satisfy himself regarding the condition and nature of works and ascertain difficulties that might be encountered in executing the work, carrying materials to the site of work, availability of drinking water and other human requirements and security etc.
13. A machine page numbered Site Order Book (with triplicate copy) will have to be maintained at site by the contractor and the same has got to be issued from the Engineer-in-charge before commencement of the work. Instructions given by inspecting officers will be recorded in this book and the contractor must note down the action taken by him in this connection as quickly as possible.
14. The work will have to be completed within the time mentioned in the tender notice. A suitable work programme is to be submitted by the contractor within 7 (Seven) days from the date of receipt of Work Order which should satisfy the time limit of completion. The contractor should inform in writing the name of his authorized representative at site within 7 (Seven) days from the date of receipt of Work Order who will receive instruction of the work, sign measurement book, bills and other Government papers, etc.
15. No compensation for idle labour, establishment charge or on other reasons such as variation of price index etc. will be entertained.
16. All possible precautions should be taken for the safety of the people and workforce deployed at worksite as per safety rule in force. Contractor will remain responsible for his labour in respect of his liabilities under the Workmen's Compensation Act etc. He must deal with such cases as promptly as possible. Proper road signs as

per P.W.D. practice will have to be made by the contractor at his own costs while operating a public thoroughfare.

17. The contractor will have to maintain qualified technical employees and/or Apprentices at site as per prevailing Apprentice Act or other Departmental Rules & Orders circulated from time to time.
18. The contractor will have to accept the work programme and priority of work fixed by the Engineer-in-charge so that most vulnerable reach and/or vulnerable items be completed before the date needed by the Department due to impending monsoon or rise of water level or for other reasons.
19. The quantities of different items of work mentioned in the tender schedule or in Work Order are only tentative. In actual work, these may vary considerably. Payment will be made on the basis of works actually done in different items and no claim will be entertained for reduction of quantities in some items or for omission of some items. For execution of quantitative excess in any item beyond 10% or supplementary works, approval of the Superintending Engineer / Chief Engineer would be required depending on whoever be the Tender Accepting Authority, before making payment.
20. Any materials brought to site by contractor must be subject to approval of the Engineer-in-charge. The rejected materials must be removed by the contractor from the site at his own cost within 24 hours of issue of the order to that effect. The rates in the schedule are inclusive of cost and carriage of all materials to worksite. The materials will have to be supplied in phase with due intimation to the Sub-Divisional Officer concerned in conformity with the progress of the work. For special type of materials, i.e. Geo Synthetic Bags, HDPE Bags, Geo Textile Filter, Geo Jute Filter, etc. if any, relevant Data Sheet containing the name of the Manufacturers, Test Report, etc. will also be submitted in each occasion. Engineer-in-charge may conduct independent test on the samples drawn randomly before according approval for using the materials at site. In this regard decision of Engineer-in-charge is final and binding.
21. **Penalty for non compliance of work:**

Penalty will be imposed in geometric progression for non compliance of proportionate work. Amount will be deducted from bill of work straight way.

Executive Engineer  
Central Mechanical Division

Memo No.:1567/3

Date: 09.07.2019

Copy submitted for favour of kin information and necessary action to the:-

- 1) Joint Secretary, U.D & M.A.Deptt. Nagarayan Bhawan, Kolkata – 700091
- 2) Special Engineer, Salt Lake Recl. & Dev. Circle, Nirman Bhawan, Kolkata – 700091
- 3) Chief Engineering Advisor, U.D & M.A. Deptt.(Salt Lake Project), Nirman Bhawan, Kolkata – 700091

Executive Engineer  
Central Mechanical Division

Memo No.: 1567/3/8

Date: 09.07.2019

Copy forwarded for information to:-

- 1) Executive Engineer, B.M.S Division, Nirman Bhawan, Kol-91
- 2) Executive Engineer, Salt Lake Construction Division, Nirman Bhawan, Kol – 91
- 3) Executive Engineer, Salt Lake Reclamation Division, Nirman Bhawan, Kol – 91
- 4) S.D.O/ Salt Lake Mechanical Sub-Division, Nirman Bhawan, Kol – 91
- 5) S.D.O/ Salt Lake Electrical Sub-Division, Nirman Bhawan, Kol – 91
- 6) Accounts Section, Central Mechanical Division, Nirman Bhawan, Kol - 91
- 7) Computer Section ,U.D. Department, Nagaryan Bhawan, Kol - 91
- 8) Notice Board, Central Mechanical Division, Nirman Bhawan, Kol - 91

Executive Engineer  
Central Mechanical Division

FORM - 1

APPLICATION FOR TENDER

To  
The Executive Engineer  
Central Mechanical Division  
Nirman Bhawan, 1<sup>st</sup> Floor  
Kolkata-700091

NIQ NO. : \_\_\_\_\_  
Name of work : \_\_\_\_\_

Dear Sir,

Having examined the Statutory, Non statutory & NIT documents, I/We hereby like to state that I/We wilfully accept all your conditions and offer to execute the works as per NIQNo. -----  
----. stated above. I/We also agree to remedy the defects after/during execution of the above work in conformity with the conditions of contract, specifications, drawings, bill of quantities and addenda.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 201\_\_

Full name of applicant: \_\_\_\_\_

Signature: \_\_\_\_\_

In the capacity of: \_\_\_\_\_

Duly authorized to sign bids for  
and on behalf of (Name of Firm):  
(In BLOCK CAPITALS or typed)

\_\_\_\_\_

Office Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone No.(s) (Office): \_\_\_\_\_

Mobile No. \_\_\_\_\_

Fax No. \_\_\_\_\_

E mail ID \_\_\_\_\_

FORM - 2

Declaration against Common Interest

I/We, Sri/Smt. \_\_\_\_\_, the authorized signatory on behalf of \_\_\_\_\_ do hereby affirm that I/We/any of the member of \_\_\_\_\_ bidding against NIT No. \_\_\_\_\_ do not have any common interest either as a partner on any Partnership Firm / Consortium as a Proprietor / Owner of any other firm in the same serial for the work I / We want to participate.

Date:

\_\_\_\_\_  
Signature of bidder

Signature valid