

ANDREW YULE & COMPANY LIMITED
(A Government of India Enterprise)
Chennai (Operation), Electrical Division
5/346 OLD MAHABALIPURAM ROAD
PERUNGUDI, CHENNAI: 600 096

TENDER DOCUMENTS FOR SUPPLY OF 20 MVA (66/11 KV) POWER TRANSFORMER.

ANDREW YULE & CO. LTD. invites e-Tender under single stage two part system **(Part I: Techno-Commercial Bid and Part II: Price Bid)** for supply of 20 MVA Power transformer "**Scope of Work / Technical Specification**" as specified in this tender document.

Tender document may be downloaded from MSTC website www.mstcecommerce.com/eprochome/aycl. Corrigenda or clarifications, if any, will be hosted on the above-mentioned websites only.

We request you to submit your offer for the supply of 20 MVA Power transformer as per our specification as detailed below,

1. 20 MVA- (66/11KV) Power Transformer along with Nitrogen Injection Fire Protection System and Micro processor based numerical RTCC panel as per our specification(FO:3687) Qty-1 No

DELIVERY: within 3 months from the placement of our P/Order

Any clarification or additional information if required, the tenderer should call on us to get those things clarified.

The rate quoted should be firm.

VALIDITY: Your offer should be valid for acceptance for a minimum period of 90 days from the date of tender opening.

The buyer reserves the right to accept or reject any or all the tenders or to waive any informality, minor deviation or omission without assigning any reasons whatsoever.

AYCL reserves the right to accept or reject any tender.

Schedule of Tender

1.	TENDER NO.	<u>T-03/2019-20</u>
2.	MODE OF TENDER	e-Procurement System Online submission of Part I - Techno-Commercial Bid and Part II - Price Bid through www.mstcecommerce.com/eprochome/aycl The intending bidders are required to submit their offer electronically through this e-tendering portal. No physical tender is acceptable by AYCL/MSTC
3.	E-Tender No. / Event No.	AYCL/Electrical Division CO/11/19-20/ET/42
4.	Date of publication of e-Tender through publication MSTC/AYCL websites and Central Public Procurement Portal	10.05.2019
5.	Date of availability of NIT to the Vendors for downloading	10.05.2019
6.	Earnest Money Deposit	<ul style="list-style-type: none"> • Earnest Money Deposit” of Rs.50,000 (Rupees Fifty Thousand only)should be paid by thro’ NEFT/RTGS • Other document as described in Annexure II& III
7.	Date of Starting of e-Tender for submission of Online Techno-Commercial Bid and Price Bid at www.mstcecommerce.com/eprochome/aycl	10.05.2019-02.30 PM
8.	Date of closing of Online e-tender for submission of Techno-Commercial Bid & Price Bid at www.mstcecommerce.com/eprochome/aycl	25.05.2019-12.00 PM
9.	Last date of submission/ uploading details of EMD & other documents at www.mstcecommerce.com/eprochome/aycl	25.05.2019-12.00 PM
10.	Date & time of opening of Part-I (Techno-Commercial Bid)	25.05.2019-12.05 PM
11.	Date & time of opening of Part-II (Price Bid)	To be intimated to the eligible vendor separately by email.

List of Annexure

Important Instructions for E-procurement	Annexure-I
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General Terms& Conditions	Annexure-III
Online Techno commercial terms	Annexure-IV
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Specification& Bill of Materials	Annexure –VII
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Important Instructions for E-procurement

This is an e-procurement event of ANDREW YULE & COMPANY LTD Ltd.

You are requested to read the Terms & Conditions (Annexure- II,III,IV) of this tender before submitting your online tender. Tenderers who do not comply with the Conditions with documentary proof (wherever required) will not qualify in the Tender for opening of Price Bid.

1. Process of E-tender:

A) **Registration:** The process involves vendor's registration with MSTC e-procurement portal which is free of cost. Only after registration, the vendor(s) can submit his/their bids electronically. Electronic Bidding for submission of Techno-Commercial Bid as well as Price Bid over the internet will be done. The Vendor should possess Class III signing type Digital Signature Certificate. Vendors are to make their own arrangement for bidding from a PC connected with Internet. MSTC is not responsible for making such arrangement. (Bids will not be recorded without Digital Signature).

SPECIAL NOTE: THE PRICE BID AND THE COMMERCIAL BID HAS TO BE SUBMITTED ON-LINE AT www.mstcecommerce.com/eprochome/aycl

1) Vendors are required to register themselves online with www.mstcecommerce.com → e-Procurement → PSU / Govt. depts. → Register as Vendor under AYCL- Filling up details and creating own user id and password → Submit.

2) Vendors will receive a system generated mail confirming their registration in their email which has been provided during filling the registration form.

In case of any clarification, please contact MSTC/AYCL (before the scheduled time of the e-Tender).

Contact person (ANDREW YULE & COMPANY LTD):

1. Mr. A T E Pandian
Manager (Materials)
Ph. No: (044) 2496-0793
Email: atepandian@andrewyule.com

2. Mr Kingsley Rueben
Technical Assistant (EDP)
Mobile No: 91 9884446378
Email: reuben@andrewyule.com

3. Mr. R.Tamilselvan
Assistant Manager (Materials)
Mobile. No: 91 9788520864
Email: tamilselvan@andrewyule.com

Contact person (E-Commerce, MSTC Ltd):

1. Mr. Vikash Kumar Jaiswal

Regional Manager (ERO)

Mobile No: 9903042449

Email: vikash@mstcindia.co.in

2) Mr. Pritambiswas

Assistant Manager (ERO)

Mobile- 9903248755

Email: pbiswas@mstcindia.co.in

3) Mr. Mayank Jain

Assistant Manager (ERO)

Mobile- 9721277969

Email: mhjain@mstcindia.co.in

Help Desk No.: 033 22901004, will operate on all working days from 10 AM to 6 PM for online support to the vendors.

System Requirement:

- i) Windows XP-SP3 or above / Windows 7 Operating System
- ii) IE-7 or above Internet browser.
- iii) Signing & Encryption type digital signature
- iv) JRE 7 update 79 software to be downloaded and installed in the system. Security level should be medium
- v) To enable ALL active X controls and disable 'use pop up blocker' under Tools → Internet Options → custom level (Please run IE settings from the page www.mstcecommerce.com once)

2. Part-I: Uploading of EMD & other Documents:

Within specified Date & time the vendor must submit the documents as per the Annexure. (Annexure II)

Bidding in e-Tender:

- a. No interest will be paid on EMD. EMD of the unsuccessful bidder(s) will be refunded by ANDREW YULE & COMPANY LTD. EMD to be paid along with the Document within the last date as mentioned in SOT.
- b. The process involves Electronic Bidding for submission of Techno Commercial Bid as well as Price Bid.
- c. The bidder(s) should submit their Techno Commercial Bids, upload payment details of EMD & other documents and Price Bid through online in MSTC website www.mstcecommerce.com → e-procurement → Psu / Govt depts. → Login under AYCL → My Menu → Auction Floor Manager → live event → Selection of the live event.

- d. The bidder should allow to run an application namely enApple by accepting the risk and clicking on run. This exercise has to be done twice immediately after opening of Bid floor. Then they have to fill up Common terms /Commercial specification and save the same. After that clicking on the Techno-Commercial bid, if this application is not run then the bidder will not be able to save / submit his Techno-Commercial bid.
- e. After filling the Techno-Commercial Bid, bidder should click 'save' for recording their Techno-Commercial bid. Once the same is done, the Price Bid link becomes active and the same has to be filled up and then bidder should click on "**Save**" to record their Price Bid. Then once both the Techno-Commercial bid & Price Bid has been saved, the bidder can click on the "**Submit**" button to register their bid.
- f. Vendors are instructed to use link in **My Menu** to **Upload Documents** in document library. Multiple documents can be uploaded. Maximum size of single document for upload is 5 MB.
- g. Once documents are uploaded in the library, vendors can attach documents through *Attach Document* link against the particular tender. For further assistance please follow instructions of vendor guide.
- h. In all cases, bidder should use their own ID and Password along with Digital Signature at the time of submission of their bid.
- i. During the entire e-tender process, the bidders will remain completely anonymous to one another and also to everybody else.
- j. The e-tender floor shall remain open from the pre-announced date & time and for as much duration as mentioned above.
- k. Techno-Commercial bid will be opened electronically on specified date and time as given in the NIT. Bidder(s) can download Technical Comparative statement.
- l. Price bid will be opened electronically on specified date and time given in the NIT. Bidder(s) can download Price Comparative statement.
- m. All entries in the tender should be entered in online Technical & Commercial Formats without any ambiguity.
- n. All electronic bids submitted during the e-tender process shall be legally binding on the bidder. Any bid will be considered as the valid bid offered by that bidder and acceptance of the same by the Buyer will form a binding contract between Buyer and the Bidder for execution of supply. Such successful tenderer shall be called hereafter **SUPPLIER**.
- o. It is mandatory that all the bids are submitted with Digital Signature Certificate otherwise the same will not be accepted by the system.
- p. Buyer reserves the right to cancel or reject or accept or withdraw or extend the tender in full or part as the case may be without assigning any reason thereof.
- q. No deviation of the terms and conditions of the tender document is acceptable. Submission of bid in the e-tender floor by any bidder confirms his acceptance of terms & conditions for the tender.

- s. Unit of Measure (UOM) is indicated in the e-tender Floor. Rate to be quoted should be in Indian Rupee as per UOM indicated in the e-tender floor/tender document.

E-tender cannot be accessed after the due date and time mentioned in NIT.

All notices / corrigendum and correspondence to the bidder(s) shall be sent by email only during the process till finalization of tender by ANDREW YULE & COMPANY LTD/MSTC LTD. Hence the bidders are required to ensure that their corporate email I.D. provided is valid and updated at the stage of registration of vendor with MSTC. Bidders are also requested to ensure validity of their DSC (Digital Signature Certificate).

Any order resulting from this open e-tender shall be governed by the terms and conditions mentioned therein.

No deviation to the technical and commercial terms & conditions are allowed.

ANDREW YULE & COMPANY LTD has the right to cancel this e-Tender without assigning any reason thereof.

The online tender should be submitted strictly as per the terms and conditions and procedures laid down in the website www.mstcecommerce.com/eprochome/aycl of MSTC Ltd.

The bidders must upload all the documents required as per terms of NIT. Any other document uploaded which is not required as per the terms of the NIT shall not be considered.

The bid will be evaluated based on the filled-in technical & commercial formats.

Bidders are requested to read the vendor guide and see the video in the page www.mstcecommerce.com/eprochome/mstc of MSTC Ltd. to familiarize them with the system before bidding.

**ANDREW YULE & COMPANY LIMITED
Chennai Operation, Electrical Division**

General Information

Ref. Tender No: T-03/19-20

(This document should be uploaded along with EMD)

Those bidders who had participated and qualified in our earlier tender or bidders in AYCL-Chennai approved vendor list need not submit the documents.

The applicants are required to furnish full information to the queries included in this form. In giving the particulars, the supporting documents/certificates as called for per queries at places, must be tagged with the application for evidencing the information furnished in the application.

1. Name of the firm in full :

2. Address, Telephone No.,

Fax No. & E-mail :

a) Address :

b) Telephone No. :

c) Fax No. :

d) E-mail ID :

3. Status of the organization :

4. Trade License No.

**(Please attach a photo
copy of the license) :**

5. Banker's name

(a) Name of the Bank :

(b) Name of the Branch :

(c) Account No. :

6. GST Registration No.

7. I. T. Permanent Account No.:

8. Financial Capacity : Year (2017-2018)

(a) Fixed capital :

(b) Working capital :

I/we hereby certify that the particulars furnished by me/us above are true to the best of my / our knowledge and belief and mis-representations of facts will render me/us liable to my/our action as may be deemed fit by Andrew Yule & Co. Ltd. (Chennai Operation) & have the sole discretion to reject or accept my/our candidature.

(Signature of the Applicant)
Office Stamp/Seal.

Place :

Date ;

List of attachments:

The following documents are to be uploaded online at

www.mstcecommerce.com/eprochome/aycl

1. EMD : Rs. 50,000/= *
- * Bidders may request for exemption from submitting EMD (Refer details given in General terms & conditions)
2. Tender fee Rs: 200 /= should be paid by way of RGTS/ NEFT *
- * Bidders participating in the tender should upload the UTR details towards cost of tender document.
3. Present customer Profile to be uploaded.
4. Should have experience in design, manufacture, testing and supply of Power transformers including after sales service activities.
5. The bidder shall have supplied 10 Nos. of oil filled transformers of assorted range& type up to 16 MVA, 110/132 KV class type within last 5 years (2013-14 to 2017-18)
6. Should have minimum 2 nos of transformer of rating 8 MVA or above in Service for minimum 2 years. Bidders are requested to submit the Performance certificate for their highest rating of transformer.
7. Should be ready to demonstrate the capability of design &manufacture strength by conducting type test and short circuit test as per the contractual requirement.
8. Shall have a minimum turnover of Rs. 15 crores in transformer Manufacturing in the last three financial years. (2015-16, 2016-17 &2017-18)
9. The bidder should submit the documents as detailed below for Assessment of the supplier,
 - a) Company profile
 - b) Credentials along with details of execution of various rating of Power Transformer
 - c) Copy of type and special test certificates
 - d) List of technical competent person with specialization in related field
 - e) Balance sheet for last three years (2015-16, 2016-17 & 2017-18)

*AYCL technical team will visit the bidder for assessment.

OFFERS RECEIVED WITHOUT ANY OF THE ABOVE WILL BE REJECTED

****Note:** Bidders who are in the AYCL empaneled list of suppliers for transformers up to 16 MVA, 110/132 KV need not submit the above documents.(Sl.no 3 to 9& Annexure II).Proof of turnover for year 2017-18 alone needs to be submitted.

GENERAL& TERMS AND CONDITIONS

1) EMD: Rs. 50,000.00 (Rupees Fifty thousand only), should be paid by way of RGTS/NEFT.

For bidders already enlisted with AYCL- Chennai Operation, having outstanding amount more than the EMD amount or who have already submitted the EMD against our earlier tenders or those who have security deposit with Andrew Yule may apply for adjustment of the same.

Bidders who are MSMED units may apply for exemption from furnishing EMD by making a specific request in writing and enclosing the necessary document in support of the same.

Bidders whose turnover is more than Rs: 50 crores may apply for exemption from furnishing EMD by making a specific request in writing and enclosing the necessary document in support of the same

If reason for non-submission of EMD or adjustment against the outstanding balance for EMD is not mentioned in Techno-commercial bid of tender, the tender will be rejected.

2) THE RIGHTS OF THE COMPANY

Bidders who have quote other payment terms & condition having financial implication will be loaded as per Andrew Yule's norms.

We reserve the right to accept or reject any or all the tenders or to waive any informality, minor deviation or omission without assigning any reasons whatsoever.

Our Bank details for making RTGS payment.

Bank Name and Address	ALLAHBAD BANK CHENNAI ADYAR BRANCH 19,1ST STREET, PADMANABHA NAGAR CHENNAI 600 020
IFSC Code	ALLA0211103
Account No	20276303182
Account Name	ANDREW YULE & COMPANY LIMITED

TECHNO-COMMERCIAL TERMS FOR SUPPLY OF 20 MVA (66/11 KV) POWER TRANSFORMERS

(**To be filled online in mstc portal**).

SL NO	TERMS & CONDITIONS	VENDOR RESPONSE
1	<p>REQUIREMENT <i>-Tender offers are invited for supply of 20 MVA Power transformers as detailed below.</i></p> <p>1. 20 MVA- (66/11KV) Power Transformer along with Nitrogen Injection Fire Protection System and Micro processor based numerical RTCC panel as per our specification (FO:3687) Qty-1 No</p>	AGREE
2	<p>Validity period of the offer: Your offer should be valid for acceptance for a minimum period of 90 days from the date of tender opening.</p>	AGREE
3	<p>Security Deposit–</p> <p>a) The EMD amount of the successful Bidder will be retained as security deposit towards the execution of the contract and the same will be released after completion of contract.</p> <p>b) If the bidder is exempted from paying EMD vide clause no 1 of Annexure III then on being awarded the contract ,</p> <p>1) The bidder should execute the bank guarantee /DD in favor of Andrew Yule & Co .Ltd for Rs.50,000/=.</p> <p>2) For bidders already enlisted with AYCL- Chennai Operation, having outstanding amount more than the Security deposit amount then it will be adjusted towards Security Deposit.</p>	AGREE
4	<p>ARBITRATION If any dispute arises between the company and the contractor, as to the terms and conditions of the agreement or method of compliance thereof, the procedure as laid down in Indian Arbitration & Consolidation Act 1996 will be adhered to.</p>	AGREE
5	<p>RIGHTS OF THE COMPANY Bidders who have quote other payment terms & condition having financial implication will be loaded as per Andrew Yule's norms.</p> <p>The company reserves the right to accept any tender irrespective of whether it is lowest or otherwise or to reject any or all tenders without assigning any reason thereof. Affordability of the rates is also a criterion in finalizing the offer.</p>	AGREE
6	<p>FORCE MAJEURE In case of strike, accident, natural calamity, acts of god and other unforeseen contingencies causing stoppage of production at Andrew Yule Factory, Andrew Yule reserves the right to cancel and/or modify this contract without liability for compensation and/or claim of any description.</p>	AGREE

7	<p>Legal condition: Any contract entered against this tender will be as per the following legal condition</p> <p>It is recorded that this purchase order / contract / agreement is executed and concluded by and between the parties hereto at premises No.5/346, Old Mahabalipuram Road, Perungudi, Chennai 600 096 and in the event any dispute arises out of this agreement between the parties only the appropriate Civil Court in the City of Kolkata shall have the exclusive jurisdiction to entertain, try and determine the said proceedings in exclusion of all other courts.</p>	AGREE
8	<p>Risk purchase clause:</p> <p>The company reserve the right to impose risk purchase clause as " For delay in execution / supply we shall have every right to do the same through some other agency/s which shall deemed fit and the additional cost of the same (Incidental/Consequential) shall be to your account which with respect to our intimation or observation whatsoever.</p>	AGREE
9	<p>Liquidated damage :</p> <p>If the delivery is delayed beyond the date of scheduled date of dispatch in the purchase order, penalty will be levied @ 0.5% per week subject to a maximum of 10%</p>	AGREE
10	<p>If there is any variation in the techno commercial terms as entered/agreed in the online bid and uploaded documents, then the details entered/agreed in the online bid will be the final.</p>	AGREE
11	<p>Performance Bank Guarantee:</p> <p>As a guarantee towards performance of the transformer, the buyer will retain 10% of the invoice value for 18 months from the date of supply.</p> <p>Alternatively, the tenderer can execute a bank guarantee in the format of the buyer for 10% of invoice value (Including GST) which shall be valid throughout the guarantee period of 18 months from the date of supply with a claim period of another 3 months counted from the date of expiry of the guarantee period .</p>	AGREE
12	<p>Guarantee:</p> <p>The transformer should be guaranteed for 18months from the date of receipt of transformer or 12months from the date of commissioning whichever is earlier. During the period if the product is found defective due to any of the above reason you shall undertake to repair the same at FREE OF COST.</p>	AGREE
13	<p>Non-Disclosure Agreement: The bidder on being awarded the contract has to execute a Non-disclosure Agreement as per the buyers prescribed format.</p>	AGREE
14	<p>Any reworks at site including leak and replacement/repair of failed components are in supplier scope.</p>	AGREE
15	<p>Any major failure at site, which requires the transformer to be brought back to works for rectification, will be to supplier account. This will also include taking back the transformer and installing at site after rectification. Any defect during guarantee period due to inferior materials or faulty workmanship will be rectified or replaced by the supplier at free of cost.</p>	AGREE

16	The transformer after testing at supplier premises will be brought to AYCL Chennai works for carrying out routine test and any other tests as specified by the customer. The supplier has to consider the cost of transportation of the same including assembling and dismantling for the above tests. AYCL will provide crane facility. Any failure on the above tests due poor workmanship will be to supplier account.	AGREE
17	The transformer will be dispatched with Andrew Yule name plate only.	AGREE
18	The rate quoted should be F.O.R. Chennai (Inclusive of Packing, Forwarding and Insurance)	AGREE
19	The credit period will start from the date of receipt of material at Andrew Yule, Perungudi, Chennai.	AGREE
20	Transformer should be manufactured as per our Production process as mentioned in Annexure VI	AGREE
21	Transformer should be supplied as per our specification & Bill of materials as mentioned in Annexure VII	AGREE
22	Transformer will be inspected & Tested as per our QAP as mentioned in Annexure VIII	AGREE
23	PAYMENT TERMS: -Direct Credit In case it is agreed fill 24 with number of days of direct	Remarks Filed
24	Please indicate the number of days of direct credit. a) 90 % within 90 days from the date of receipt of Transformer. b) 10% after guarantee period (Andrew Yule payment terms is minimum 90 days direct credit. If the offered payment terms is less than 90 days , bids will be opened at the sole discretion of Andrew Yule & price will be loaded as per Andrew Yule norms)	Remarks Filed
25	PAYMENT TERMS: - Against L/c Bidders, who wish to quote with L/c, enter AGREE IN 25 and fill 27 with number of days of credit. Bidders, who have entered agreed in 23 and filled credit days in 24 should enter Disagree in 25 and fill 27 with 0	Remarks Filed
26	If L/c payment term is selected then the L/c opening charges will be to the bidders account.	AGREE
27	Please indicate the number of days of credit against L/c a) 90 % within 90 days from the date of receipt of Transformer. b) 10% after guarantee period (Andrew Yule payment term is minimum 90 days direct credit. For bidders offering L/c payment terms, bids will be opened at the sole discretion of Andrew Yule & price will be loaded as per Andrew Yule norms)	Remarks Filed
28	If a bidder select AGREE in both 23 and 25, their payment terms will be considered as direct credit.	AGREE
29	Qualifying Requirement: Should have experience in design, manufacture, testing and supply of Power transformers including after sales service activities. *Proof should be uploaded. **Those who are in the AYCL empaneled list of suppliers for transformers up to 16 MVA, 110/132 KV need not submit the above documents.	Remarks Filed

30	<p>The bidder shall have supplied 10 Nos. of oil filled transformers of assorted range& type up to 16 MVA, 110/132 KV class type within last 5 years (2013-14 to 2017-18) *Proof should be uploaded.</p> <p>**Those who are in the AYCL empaneled list of suppliers for transformers up to 16 MVA, 110/132 KV need not submit the above documents</p>	Remarks Filed
31	<p>Should have minimum 2 nos of transformer of rating 8 MVA or above in Service for minimum 2 years. Bidders are requested to submit the Performance certificate for their highest rating of transformer. *Proof should be uploaded.</p> <p>**Those who are in the AYCL empaneled list of suppliers for transformers up to 16 MVA, 110/132 KV need not submit the above documents</p>	Remarks Filed
32	<p>Should be ready to demonstrate the capability of design & manufacture strength by conducting type test and short circuit test as per the contractual requirement.</p> <p>**Those who are in the AYCL empaneled list of suppliers for transformers up to 16 MVA, 110/132 KV need not submit the above documents</p>	Remarks Filed
33	<p>Shall have a minimum turnover of Rs. 15 crores in transformer Manufacturing in the last three financial years. (2015-16, 2016-17 & 2017-18) *Proof should be uploaded.</p> <p>**Those who are in the AYCL empaneled list of suppliers for transformers up to 16 MVA, 110/132 KV, Proof of turnover for year 2017-18 alone needs to be submitted</p>	Remarks Filed
34	<p>The bidder should submit the documents as detailed below for Assessment of the supplier,</p> <p>a) Company profile</p> <p>b) Credentials along with details of execution of various rating of Power Transformer</p> <p>c) Copy of type and special test certificates</p> <p>d) List of technical competent person with specialization in related field</p> <p>e) Balance sheet for last three years (2015-16, 2016-17& 2017-18)</p> <p>*AYCL technical team will visit the bidder for assessment.</p> <p>**Those who are in the AYCL empaneled list of suppliers for transformers up to 16 MVA, 110/132 KV need not submit the above documents.(Sl.no 34 a to e). Proof of turnover for year 2017-18 alone needs to be submitted.</p>	Remarks Filed
35	<p>EMD : Rs. 50,000/= * UP LOADED</p> <p>* Bidders may request for exemption from submitting EMD (Refer details given in General terms & conditions)</p>	Remarks Filed
36	<p>Tender fee Rs: 200 /= should be paid by way of RGTS/ NEFT * UP LOADED</p> <p>* Bidders participating in the tender should upload the UTR details towards cost of tender document.</p>	Remarks Filed

37	<u>Andrew Yule Scope of Supply</u> 1. Name Plates	AGREE
38	Delivery: within 3 months from the placement of our P/Order	Remarks Filed

PRICE FORMAT FOR SUPPLY OF 20MVA POWER TRANSFORMER

SI. NO	DESCRIPTION	Quantity	BASIC PRICE PER NO (Rs)	CGST (In %) (If not applicable please enter Zero)	SGST (In %)(If not applicable please enter Zero)	IGST (In %)(If not applicable please enter Zero)	Landed cost per No (In Rs)
		Nos	A	B	C	D	Landed Cost = a
1	20 MVA 66/11 KV Power Transformer along with Nitrogen Injection Fire Protection system and Micro processor based numerical RTCC panel as per our specification	1					


a) PRODUCTION PROCESS

1. Core assembly to be done as per the drawing/Specification.
2. Core loss to be checked after core building and compared with design specifications.
3. Coil winding to be done as per the winding sheet and winding diagram.
4. In case of tapping, binding of conductors to be done in such a way that two consecutive tapping should not come in the same bay/division.
5. Continuity check to be done for all the coils.
6. Brazing of conductor to be done with proper care, Cleaning of Carbon deposits thoroughly and insulation of Conductor to be done properly.
7. Coils to be Pre-shrunked and the heights to be compared with design specifications. Continuity check to be done for all coils before taking up for assembly.
8. Core coil assembly to be done as per the drawing and Ratio test to be carried out
9. Lead termination to be done as per the drawing.
10. Lead out points to be done with due care in such a way that no scissoring effect should come between the tap leads.
11. Send for processing
12. Refer **Process** table below:-
13. Assembling of accessories as per OGA drawing.
14. Offer for Testing/Inspection.
15. Dismantling of accessories as per drawing.
16. Painting & Wiring as per drawing.
17. Packing & Dispatch.

(Production Process for 66KV to 132 KV)

FITTING	CHAMBER	REMARKS
1	Heating - 15hrs at 115°C Vacuum Pump - 3 hrs Heating - 6 hrs Vacuum Pump- 3 hrs Condensation to be recorded.	Fitting All fasteners tightening uniformly, Yoke bolt checking for 2KV, Looseness of coil- Check and Pack accordingly
2	Heating - 12 hrs at 115°C Vacuum Pump - 3 hrs Heating - 6 hrs Vacuum Pump - 3 hrs Condensation to be recorded.	Fitting All fasteners tightening uniformly, Yoke bolt checking for 2KV, Looseness of coil- Check and Pack accordingly
3	Heating - 12 hrs at 115°C Vacuum Pump - 3 hrs Condensation to be recorded.	Fitting All fasteners tightening uniformly, Yoke bolt checking for 2KV, Looseness of coil- Check and Pack accordingly A . P Testing, Proceed for Tanking
4	With Tank Heating - 18hrs at 115°C Vacuum Pump - 8 hrs Condensation to be recorded.	See for Condensation 100ml for 3(i.e. every 1 hrs) consecutive hrs oil filling under vacuum.

TECHNICAL SPECIFICATIONS & BILL OF MATERIALS

 ANDREW YULE & COMPANY LTD	<u>BILL OF MATERIALS LIST</u>		RATING : 16/20 MVA	
			VOLTAGE: 66/11 KV	
			TAPPINGS: +5% to -15% in steps of 1.25% (OLTC)	
			Impedance : 10% (IS tol)	
			Vector Group : Dyn11	
			Rev – R0	Quantity :

A) Major Materials

1) Core (Make: POSCO / NLMK / KRYFS / Eqlt.)

Core Weight : 18736.2 kgs

Core frame : 561 ϕ / 1215 (cc) / 1670 (LL)

Max. Steel width : 550

Min. steel width : 245

No. of steps : 12

Core building type : Vertical step lap with 5 blades

Thickness of steel : 0.27mm

Guide Hole : 16 ϕ hole Yoke and limbs

Core loss : 0.74W/Kg 1.5T

Core insulation Kit (2mm, 1mm, 0.5mm PB with 12mm listed): 1 set

Core clamps: 2051 Kgs [10&12 mm thick plate]

Core Belt:

For Yoke : Resi glass Tape (Thick = 0.3mm; Width = 40mm)

For Limb : Petstrap (Thick = 1.27mm; Width = 19mm)

2. COPPER: (Make: COPRAL/ NSR / SHREE CABLES)1. Max. Specific resistance at 20°C: 0.017241 Ω /cm³

2. Grade of paper : 1.2 – 2M / 5B2 – 2H1 / 5A2 – 1M3

H.V : 5815 Kgs (3Bunched Copper)

H.V tap : 1435 Kgs

L.V : 4651 Kgs

3. Connection Copper : (Make: GIC / SHERATRAN)HV Main (Bare / Covered Dia) : 500 Strands ϕ 0.5mm, ϕ 15 / 21.5mm – 17.5 Kgs.HV Tap (Bare / Covered Dia) : 19 Strands ϕ 0.072inch, ϕ 9.2 / 15.5 mm - 110 Kgs.

LV Main (Inner) : 65 x 6 mm 3 Mts - 11 Kgs.

LV Neutral (Inner): 50 x 6 mm 7 Mts - 18 Kgs

LV Neutral (Outer) Earthing : 100 x 10 mm - 72 Kgs

4. Insulating Materials:Base wood (Density 1.2kg/m³): ϕ 561 / 1194 mm, 50mm Thick, = 3 Nos.

Make: Peramalli Wallace / WIP / Lamtuff)

Angle ring 1 - TIII PCB (Make: Raman Boards): ϕ D1-811, D2-1180mm, T=3mm,
L=120mm - 6NosAngle ring 2 - TIII PCB (Make: Raman Boards): ϕ D1-1079, D2-1180mm, T=3mm,
L=120mm - 6Nos

Angle washer – TIII PCB (Make: Raman Boards): L=1410mm, B=1430mm, T=3mm – 3 Nos.

Clamping Ring (PWR): ϕ 591/1180 mm, 50mm Thick, = 3 Nos.

Winding Kit : Spacers (Edge rounded), Dovetail runner, Packing Strip

Distance piece : 1 set

Coil Assy Kit : Blocks (Edge rounded), Cylinder, Rectangular runner,

Common Block (edge rounded), Washer, Segment, Switching

Connection pad & Flitch plate insulation. – 1set

Condenser Ring :HV- ID:845mm, OD:1045mm = 6 Nos.

HV Tap- ID: 1109mm, OD: 1169mm = 6 Nos.

(Wood Thick = 10mm; Density 1.2kg/cm³ With aluminum crepe paper wrapping)

Total Insulation: 1250Kgs.(core kit ,winding kit & coil assembly kit)

B) Winding Details: -

SL.NO	DESCRIPTION	L.V WINDING	H.V MAIN	H.V TAPP
1)	Type	Single Layer Double Helical	Continuous Disc Winding	Continuous Disc Winding
2)	ID	587mm	843mm	1107mm
3)	OD	775mm	1047mm	1171mm
4)	Height	1446mm (Incl Spiral Effective)	1430mm	1216mm
5)	No. of Parallel Cond.	2N 32A	2 Above	2 Above
6)	Size of conductor(mm)	5.7 x2.4 (0.5) (PICC)	10.3 x 1.4 (0.25, 0.65) (3 Bunched)	11.3 x 1.6 (1.0) (PICC)
7)	Spacer	Turn 1-51 = 3 mm Turn 51-92 = 4 mm	Sec 1 - 34 = 5 mm Sec 34 - 59 = 4 mm Sec 59 - 92 = 5 mm	All - 7 mm
8)	Connection	STAR	DELTA	
9)	No Of Sections / Turns	92	92 Disc	64 (32 top+32 bot)
10)	No. Layer / Turns / Disc	1	9	6

C) Tank and fittings:

Tank : L = 5370mm; W = 1550mm; H =2910mm

Plate Thickness: [Bottom =12mm; Side Wall = 8mm; Cover = 10mm;

Curb : 16mm

Conservator : 5 thick plates

Total weight : 8020 Kgs[Tank, cover, cons & under base]

5. OLTC : D III. 200: 110/80. 18.17.0.
Easun M.R make

6. Bushings:

A) H.V line end (HP):

Rating : 72.5 KV/800A
BCT dimension : 120mm
Creepage distance : 1825mm 3 nos
Lead type : Solid Stem
Make : M/S GE/CGL/ABB

B) L.V line side and neutral (H.P) : .

Rating : 36 KV/2000A
Creepage distance : 900 mm 4 Nos
Make : CJI/GENESYS
Metal Part : Length=817, M42x3
WITHOUT TOP CONNECTING LUG

C) CT TERMINAL BOX

Make : Sukrut/ Hindustan Engineers
4 Terminals - 2nos

7. WTI CT:

Type : cotton tape insulation

A) LV WTI C.T : 1No

Ratio : 1050/1A
Burden : 10VA
Accuracy class : 3
ID : 160mm min
OD : 210mm max
HT : 40mm max

B) H.V WTI C.T : 1 No

Ratio : 175/1A
Burden : 10 VA
Accuracy class : 3
ID : 200mm min
OD : 260mm max
HT : 40mm max

8. Fittings:

A. Oil temperature indicator with RRD of RTD, 4-20 mA D.C dual output for SCADA purpose

Make : Precimeasure
Quantity : 1 Set
Size : 150mm
No of contacts : 2 (alarm & trip)
Capillary length : 6 mts
Model : Rectangular
i) Dial type indicator: 1 No (Model: 1007)
ii) PT100 sensor : 1 No

- iii) CCU With Dual 4-20 mA output : 1 NO
- iv) Remote Indicator with dual 4-20mA output : 1 NO

B. Winding temperature indicator with RRD of RTD, 4-20 mA D.C dual output for SCADA purpose

Make : Precimeasure
Quantity : 2 Set
Size : 150mm
No of contacts : 4 (alarm &trip)
Capillary length : 6 mts
Model : Rectangular

- i) Dial type indicator : 1 No (Model: 1007)
 - ii) PT100 sensor : 1 No
 - iii) CCU With Dual 4-20 mA output : 1 NO
 - iv) Remote Indicator with dual 4-20mA output : 1 NO

The above WTI should have a below heater suitable for 1A rated WTI CT for 18° C gradient.

C) Buchholz relay :

Make : VIAT/PRESS N FORGE/Yogya
Quantity : 1 No
Size : 80mm
No of contacts : 2 (alarm &trip)

D) C.SRollers 250 mm dia flanged: 4 Nos

E) Silica gel breather

Make : Press & Forge /Yogya
Size : 4.75 Kgs (For main transformer) -2 No
Size : 0.5 Kgs (For O.L.T.C) - 1 No

F) Magnetic oil level gauge:

Make : sukrut udyog/Viat/Yogya
Size : 250mm 1 no
No of contacts : 1 (low level alarm)
Model : S010

G). Valves I.(MATERIAL:G.M)(TYPE:GATE) (As per IS 778)

(Make : Manixon/Mala/Apex)

Drain valve	: 80 mm FL/FL	1 NO
Isolating valve	: 80 mm FL/FL	2 NOS
Isolating valve for OLTC	: 25 mm FL/FL	2 NOS
Filter valve	: 50 mm FL/FL	2 NOS
Sampling valve (Top,Mid&Bot)	: 20 mm FL/FL	3 NOS
Main cons. drain valve	: 25 mm FL/FL	1 NO
OLTC Cons. drain valve	: 25 mm FL/FL	1 NO.
OLTC suction valve	... 20 mm FL/FL	1 NO
OIL Drain valve (FPS)	.. 80 MM FL/FL	1 NO
For Nitrogen injection	.. 25 mm FL/FL	4 NOS

(II. MAERIAL: C. I) TYPE: BUTTERFLY (Make : Petson/Viat)

Radiator valve (std. size : 80 mm 12 NOS

10) PRESSED STEEL RADIATORS: (1.2mm Thick Sheet)

Quantity: 6 Nos.

NA :2200mm

Width :520mm

No. of sections/ Radiators : 15

11) PAINT (Polyurethane):15 LTS/coat

Touchup Paint : 5 Ltrs

Light grey as per s. no 631 of IS 5

12) TRANSFORMER OIL – As per IEC 60296

Up to Transport Level : 14500 LTS (Approx)

Top up oil including 10 % extra in Barrel-21 Barrels (4410 LTS Approx)

13) TERMINAL CONNECTORS

A) HV: 3 NOS (Suitable for : Alu.,ACSR/ Brass Spade With Alu., ACSR)

B) LV: 3 NOS(Suitable for : Alu.,ACSR/ Brass Spade With Alu., ACSR)

14) **PRESSURE RELIEF VALVE:**

Make: SUKRUT UDYOG/VIAT

Type: Model **T 6** (FOR TFR) : 1 NO

Model **T 3** (FOR OLTC) : 1 NO

Operating pressure: **0.49** Kg/sq.cm

15) SUPPORT INSULATOR (EPOXY) (11 KV) : 6 NOS

16) CRIMPING LUG (Material: Copper) : 51 NOS

17) WIRING CABLES:

2 Core, 2.5mm² PVC Cable:30MTS (APPROX)

3Core, 2.5mm² PVC Cable:20MTS (APPROX)

4 Core, 2.5mm² PVC Cable: 7 MTS (APPROX)

2 Core; 4.0mm² PVC Cable:14MTS (APPROX)

18) **CABLEGLAND:**

SIBG 1619 :18 NOS.

SIBG 2125 : 2 NOS.

19) FANS: 24 inches; 700 RPM;0.24 Kw;3phase,415V6Nos (4main+ 2standby)

Make : MARATHON

20)FIRE PROTECTION SYSTEM including Supply ,Installation & Commissioning (AS per the Annexure-IX)

Make : CTR/Easun - MR

Quantity : 1 No

21) Microprocessor Based Numerical RTCC (AS per the Annexure-II)

Make : Pradeep Sales
Model : Fx8000A,
AS per the enclosed specification 1 NO
Binary Inputs (minimum 32 Nos.)
Binary outputs (minimum 8 Nos.)
4-20mA Input (minimum 8 Nos.)

22) Gaskets: 1 set

- 1) 6 mm Thick Sheet – 7 Nos
- 2) 12mm Thick Sheet – 5 Nos

23) Hardware's: 1 set

HDG – External; SS with Spring Washer – Internal

24) ANNUNCIATOR: 12 Window

Quantity : 1 No

25) Aluminum crepe paper (for condenser ring) as per their catalogue K-71-1E (1)

Make : M/s Weidman, Switzerland
Quantity : 3 Roll (Approx)
Specification: 135 g/m²
Width - 50 mm
Inner dia – 50 mm
Outer dia – 135 mm

26) Milinex Paper

Quantity : 2 Roll (Approx)

27) Crepe paper Type 55/85 mm as per their catalogue K-51-E (1)

Make : M/s .Weidman, Switzerland
Quantity : 25 Roll (Approx)

28) MS Yoke Washer 24 x 62mm = 32 Nos

29) Brazing Rod as per EUTECROD 1805 - 5 Kgs

Make : L&T
Size : 1/8"

30) Pressure Disc: 28 Nos

Size : Ø60mm

31) Pressure Screw: 28 Nos

Size : M36x4, 220mm Long

32) Permawood Listel

Size : 2440 x 60 x 45
Quantity : 10 Nos

33) Toughened Glass (Prismatic)

- a) 310 x 52 x 8 = 2 Nos
- b) 424 x 52 x 8 = 2 Nos

34) MS Fan Guard 24" = 6 Nos

35) Firefly Gasket 85 x 120 x 3mm = 48 Nos

36) Brass Washer 3/8" for OLTC = 102 Nos

37) Brass Hex Nut M42

a) Full Nut : 1 No

b) Check Nut : 1 No

c) Washer : 2 Nos

38) Gas Collection for Buchholz relay:

a) Copper Tube : 1/4" x 3/8" x 3.25 Mtr Long. = 1no.

b) Brass Nipple : 1/4" x 3/8" BSP. = 1no.

c) Brass Nut : 3/8" BSP with 9.7mm Hole. = 2nos.

39) MARSHALLING BOX as per below table (Size: 850x403x1500- 3.15Thick (LXBXH))

– 1 No

21	R1	CONTACTOR	230VAC (2NO+2NC AUX)
20	CSS4-CSS7	CONTROL SELECTOR SWITCH (ON/OFF/TEST) FOR MAIN FANS	415 V
19	TS	THERMOSTAT	230V 0-100 Deg C , 230V
18	CSS2-CSS3	CONTROL SELECTOR SWITCH (AUTO/OFF/MANUAL) FOR STANDBY FANS	230V,16A
17	HS	KIOSK HEATER SWITCH	230V;5A;TOGGLE SWITCH
16	KH	KIOSK HEATER	40W,230V
15	LS	KIOSK LAMP	60W,230V
14	LS	KIOSK LAMP SWITCH	230V;5A;TOGGLE SWITCH
13	TB1 & TB2	TERMINAL BLOCKS	650V/M4CAT/CBT
12	SFA1 to SFA2	STANDBY FANS	700R.P.M.;240W;415V;24" SIZE
11	FA1 to FA4	COOLING FANS	700R.P.M.;240W;415V;24" SIZE
10	LK1 to LK2	LINKS	TYPE : NS
9	FS19-FS22	FUSES FOR AUXILLIARY SUPPLY	4A
8	FS1-FS18	FUSES FOR FANS	2A
7	CSS1	CONTROL SELECTOR SWITCH AUTO/OFF/MANUAL (FOR GROUP FANS)	230V;25A
6	T1 & T2	TIME DELAY RELAYS	230V; 0-30 SEC.
5	SFCU1 TO SFCU2	STANDBY FAN CONTROL UNIT WITH BI-METAL OVERLOAD RELAYS(2NO+2NC AUX.)	415V;10A,Relay: 0.56-0.84A
4	FCU1 TO FCU4	FAN CONTROL UNIT WITH BI-METAL OVER LOAD RELAYS (2NO+2NC AUX.)	415V;10A,Relay: 0.56-0.84A
3	C1	MAIN SUPPLY CONTROL CONTACTOR (2NO+2NC AUX.)	415V;16A
2	CR1	CONTROL RELAY FOR SINGLE PHASING PROTECTION	415V;10A
1	MCB	MINIATURE CIRCUIT BREAKER FOR MAIN	415V;16A
SL. NO.	REFERENCE	DESCRIPTION	RATING

40) RTCC as per below table (Size610x610x2312 – 3thk): 1 Set

	TCPB	TAP CHANGER PROGRESS BUZZER 110V AC	
13	D1-D3	DC CONTACTOR (2NO)110V DC	
12	SOS	SOCKET OUTLET SWITCH	ACHOR
11	HOOT	HOTTER (SUITABLE FOR ANNUNCIATOR)	
10	QSR	OUT OF STEP RELAY	BQ-1
9	IDR2	TIME DELAY RELAY FOR OUT OF STEP	BCH/ELECTRON
8	TH	THERMOSTAT	SURYA
7	DS	DOOR SWITCH 240V	STD
6	FS,LK	FUSE & LINK	STD
5	HS	SWITCH FOR HEATER 240V,5A	ELITE
4	H	HEATER 240V,40W	SURYA
3	L	LAMP 240V,40W	PHILIPS
2	DCMGB	DC SUPPLY MINIATURE CIRCUIT BREAKER 6A,2P	PHILIPS
1	TB	TERMINAL BLOCK WITH SHROUD STUD TYPE NICKEL COATED BRASS	STD
SLNO	REF.	INTERNALLY MOUNTED EQUIPMENT DESCRIPTION	MAKE

32	TCS	MICRO PROCESSOR BASED NUMERICAL RELAY(TCS)
31	TCPL	TAP CHANGER PROGRESS LAMP (AMBER)
30	ANNUN	ANNUNCIATOR(370X130)
29	SHL	SIGNALING LAMP FOR 415V OLTC SUPPLY 'ON'
28	SL9	SIGNALING LAMP FOR COOLER SUPPLY 'ON'
27	SL8	SIGNALING LAMP FOR FAN CONTROL LOCAL MANUAL 'ON'
26	SL7	SIGNALING LAMP FOR FAN CONTROL LOCAL AUTO 'ON'
25	SL6	SIGNALING LAMP FOR FAN 6 'ON'
24	SL5	SIGNALING LAMP FOR FAN 5 'ON'
23	SL4	SIGNALING LAMP FOR FAN 4 'ON'
22	SL3	SIGNALING LAMP FOR FAN 3 'ON'
21	SL2	SIGNALING LAMP FOR FAN 2 'ON'
20	SL1	SIGNALING LAMP FOR FAN 1 'ON'
19	SCSL	SIGNALING LAMP FOR TAP CHANGER IN SCADA OPERATION
18	SSS	SEQUENCE CONTROL SELECTOR SWITCH (IND/OFF/MAN/FOL)
17	VSS	VOLTMETER SELECTOR SWITCH
16	TCSIS	TAP CHANGER SUPPLY ISOLATED SWITCH
15	CSS2	RTCC/SCADA SELECTOR SWITCH
14	RPB	RAISE PUSH BUTTON (RED)
13	ACPB	ALARM CANCEL PUSH BUTTON (GREEN)
12	REPB	REMOTE EMERGENCY PUSH BUTTON
11	LPB	LOWER PUSH BUTTON (BLUE)
10	TCLL	SIGNALING LAMP FOR TAP CHANGER IN LOCAL(YELLOW)
9	LLR	INDICATION LAMP FOR LOWER LIMIT OF OLTC REACHED
8	ULR	INDICATION LAMP FOR UPPER LIMIT OF OLTC REACHED
7	TCRL	SIGNALING LAMP FOR TAPCHANGER IN REMOTE RTCC(GREEN)
6	OTIRR	OTI REMOTE REPEATER
5	WTIRR1	WTI REMOTE REPEATER 1
4	WTIRR2	WTI REMOTE REPEATER 2
3	V	AC VOLTMETER (0-15kv for 11kv REF)
2	TPI	TAP POSITION INDICATOR (20mA OUTPUT) SUITABLE FOR SCADA
1	PIL	PANEL IDENTITY LABEL(RTCC 16/20 MVA 66/11KV TRANSFORMER)
SLNO	REF.	PART DENOMINATIONS