

Volume – I

Tender Notification for

Supply of 1600 kVA Oil Type Distribution Transformer in BRPL

CMC/BR/22-23/RB/PR/RJ/1005

Due Date for Submission of Bids: 01.04.2022

BSES RAJDHANI POWER LTD (BRPL)

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SECTION – I REQUEST FOR QUOTATION

Tender Notification: CMC/BR/22-23/RB/PR/RJ/1005

Supply of 1600 kVA Oil Type Distribution Transformer in BRPL



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SECTION – I: REQUEST FOR QUOTATION

1.0 Event Information

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BRPL invites sealed tenders against Supply of 1600 kVA Oil Type Distribution Transformers in BRPL from the manufacturers. The bidder must qualify the technical requirements as specified in Clause 2.0 stated below. The sealed envelopes shall be duly superscribed as — "BID FOR SUPPLY 1600 KVA OIL TYPE DISTRIBUTION TRANSFORMER IN BRPL, TENDER NOTICE/CMC/BR/20-21/RB/RJ/1005 DUE FOR SUBMISSION ON DT. 01.04.2022".

Sl. No.	Item Description	Specification	Estimated Cost							
	BRPL, DELHI									
1	Supply of 1600 KVA Oil Type Distribution Transformers in BRPL			7.70 Cr						

Note: Quantity may vary to any extent of +/- 30% of above mentioned total quantity.

The schedule of specifications with detail terms & conditions can be obtained from address given below against demand draft/ Pay Order of Rs.1180/- with GST-, drawn in favour of BSES RAJDHANI POWER LTD, payable at New Delhi. The sale of tender documents will be issued from 11.03.2022 onwards on all working days upto 25.03.2022. The tender documents can also be downloaded from the website "www.bsesdelhi.com".

In case tender papers are downloaded from the above website, then the bidder has to enclose a demand draft covering the cost of bid documents as stated above in a separate envelope with suitable superscription —"Cost of Bid Documents: Tender Notice Ref: CMC/BR/21-22/RB/RJ/1005". This envelope should accompany the Bid Documents.

Offers will be received upto 1530 Hrs. on dt. 01.04.2022 as indicated earlier and will be opened at the address given below dt. 01.04.2022 at 1600 Hrs. in the presence of authorized representatives of the bidders. The schedule of specifications with detail terms & conditions are enclosed. It is the sole responsibility of the bidder to ensure that the bid documents reach this office on or before the due date.

HEAD OF THE DEPARTMENT, 1st FLOOR, 'C' BLOCK,
CONTRACTS & MATERIALS DEPARTMENT, BSES RAJDHANI POWER LTD,
BSES BHAWAN,
NEHRU PLACE, NEW DELHI-110019.



BRPL reserves the right to accept/ reject any or all Tenders without assigning any reason thereof and alter the quantity of materials mentioned in the Tender documents at the time of placing purchase orders. Tender will be summarily rejected if:

- i) Earnest Money Deposit (EMD) @ 1% (One percent) of the Tender value i.e. **Rs. 7,70,000**/- is not deposited in shape of Bank Draft in favour of BSES RAJDHANI POWER LTD, payable at New Delhi or Bank Guarantee executed on favour of BSES RAJDHANI POWER LTD.
- ii) The offer does not contain "FOR, NEW DELHI price indicating break-up towards all taxes & duties".
- iii) Complete Technical details are not enclosed.
- iv) Tender is received after due time due to any reason.

BRPL reserves the right to reject any or all bids or cancel/ withdraw the invitation for bids without assigning any reason whatsoever and in such case no bidder/ intending bidder shall have any claim arising out of such action time of placing purchase orders.

Qualification Criteria:-

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QUALIFICATION CRITERIA FOR 1600 KVA OIL TYPE DT'S-

The prospective bidder must qualify all of the following requirements to participate in the bidding process. Bidder who meet following requirements will be considered as successful bidder and management has the right to disqualify those bidders who do not meet these requirements.

- 1. The bidders must have the manufacturing/Assembly base/Workshop/Repairing Base in India for Distribution Transformers. The bidders must be a manufacturer of 1000 kva Distribution transformer or higher Capacity transformers (including Power Transformers) and must possess valid Type test report carried out at ERDA/CPRI/Other reputed international lab with in last 5 Years from the date of bid opening. In case type test reports are older than five (5) years from the date of bid opening, bidder shall submit the undertaking that there is "since the last type test, the product has not undergone any change in design and the materiel used and the dimensions of the product are the same as the one on which the type test was conducted". Non submission of type test reports will lead to rejection of the offer. Type test older than ten (10) years shall not be acceptable and bid is liable for rejection.
- 2. The bidder shall have servicing, repairing, testing & refurbishment facility in INDIA with necessary spares and testing equipment for providing prompt after sales service for 1600 kVA Distribution Transformer. Details of the set-up available shall be brought out in the offer, failing which the offer will be rejected. The bidder shall submit undertaking along with the bid confirming compliance to



- 3. The bidder should have qualified technical and dedicated QA personnel at various stages of manufacture & testing, documentary proof –Quality Mannual, Charts and Undertaking shall be furnished.
- 4. The bidder should have plant installed capacity to supply of minimum 15-20 nos of hermatically sealed distribution transformer of 1600 kVA or higher capacity each per month.
- 5. The Bidder should have supplied at least 50 Nos of transformers of 1000kVA or higher to any major utilities/SEB's/other reputed firms in last 5 years (including Power Transformers),

Total supplied in last 5 years-- 50nos Total supplied in last 2 years-- 20 nos Two (02) Performance Certificate for last 2 years -- within the same Industry

- 6. Bidder should have Average Annual Sales Turnover of Rs 30 Crores or more in last 3 financial Years. Balance sheet shall be submit by Vendor.
- 7. Incase bidder is 100% owned subsidiary of their parent organization, credential of the parent organization shall be considered as a compliance to the QR requirements as listed , subjected to the fulfillment of the conditions as specified as (a) and (b):
 - a) The submission of Additional 5% contract performance bank Guarantee (CPBG) from the parent company (whose credential has been submitted against the QR requirement) This bank Guarantee shall be over and above the 10% CPBG as per NIT conditions.
 - Parent organization shall submit the additional BG from Indian Bank only.
 - Additional BG shall be given by Parent company on behalf of the 100% Indian subsidiary company to M/s. BRPL against the said tender, against which Parent company credential have been submitted to BRPL for the purpose of vendor qualification of 100% Indian subsidiary Company.
 - Incase of any default in the performance of the contract in terms of supplies/timely execution/ performance of the equipment /contract, BRPL shall raise the invocation notice to Indian subsidiary company only for both BGs i.e one submitted by the bidder (Indian Subsidiary) and the other submitted by the parent company and parent company shall have "NO Objection" in this regard.
 - b) Extended warranty of two (2) years from the bidding Company for the supplied transformers.

In case bidder is a 100% owned subsidiary of their parent company then the credentials of the parent organization shall be considered as compliance to the

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Bidders seal & Signature



QR requirement as listed below. The QR parameters against which the bidder can submit the credential of their parent company are as below:

7.1 The Bidder should have supplied at least 50 Nos of transformers of 1000kVA or higher to any major utilities/SEB's/other reputed firms in last 5 years (including Power Transformers),

Total supplied in last 5 years-- 50nos Total supplied in last 2 years-- 20 nos Two (02) Performance Certificate for last 2 years -- within the same Industry

- 7.2 Bidder should have Average Annual Sales Turnover of Rs 30 Crores or more in last 3 financial Years. Balance sheet shall be submit by Vendor
- 8. The Bidder must posses valid ISO 9001:2015 certification and must posses valid BIS Licence.
- 9. In case of new bidders (not enlisted in BSES), Factory Inspection & evaluation shall be carried out to ascertain bidders manufacturing capabilities and quality procedures. BRPL reserves the right to assess the capabilities /installed capacity
- 10. The Bidder shall submit an undertaking "No Litigation" is pending with the BRPL and other Group Company.
- 11. An undertaking (self-certificate) that the bidder has not been blacklisted/debarred by any central/state government institution/ electricity utilities.
- 12. The bidder must have valid PAN No., GST Registration Number, in addition to other statutory compliances. The bidder must submit the copy of registrations and submit an undertaking that the bidder shall comply all the statutory compliances as per the applicable laws/rules etc. before the start of the work.



Bidding and Award Process

Bidders are requested to submit their questions regarding the RFQ or the bidding process after review of this RFQ. BRPL response to the questions raised by various bidders will be distributed to all participating bidders through website.

a. Time schedule of the bidding process

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The bidders on this RFQ package should complete the following within the dates specified as under:

S.No.	Steps	Activity description	Due date
1	Technical Queries	All Queries related to RFQ	On or before 25.03.2022 1500 Hrs.
2	Technical Offer	Documentary evidence in support of qualifying criteria. Technical Literature/ GTP/ Drawings/ Type test report, if any, etc., Testing facilities, any other relevant document, acceptance to commercial terms & conditions viz. delivery Schedule/ Period, Payment terms, PBG etc. Quality assurance plan, Deviation from the specification, list of plant & machinery and testing equipments Unpriced items.	01.04.2022, 1530 HRS
3	Commercial Offer	Prices for RMU and Break up regarding basic price and taxes. Delivery commitment	01.04.2022, 1530 HRS
4	Opening of technical bid	As per RFQ	01.04.2022, 1600 HRS



This is a two part bid process. Bidders are to submit the bids (a) Technical Bid (b) Price Bid. Both these parts should be furnished in separate sealed covers superscribing with specification no., validity etc, with particulars as **Part-I** "**Technical Particulars & Commercial Terms & Conditions**" and **Part-II** "**Financial bid**" and these sealed envelopes should again be placed in another sealed cover which shall be submitted before the due date & time specified.

Bidders are requested to submit the bid in one original plus one copy in duplicate.

- <u>The Part-I (Technical Bid)</u> Technical Bid should not contain any cost information whatsoever. In case of Bids where the qualification requirements, technical suitability and other requirements are found to be inadequate, Part-II "Financial Bid" will be returned unopened.
- The Part-II (Financial Bid) Qualified bidders will be intimated after technical evaluation of all the bids is completed. The date and time of same shall be intimated in due course to the qualified bidders. Notwithstanding anything stated above, the Purchaser reserves the right to assess bidder's capability to perform the contract, should the circumstances warrant such assessment in the overall interest of the purchaser. In this regard the decision of the purchaser is final.

Award Decision

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Purchaser intends to award the business on a lowest bid basis, so suppliers are encouraged to bid competitively. The decision to place Purchase Order / Letter of acceptance solely depends on purchaser on the cost competitiveness across multiple lots, quality, delivery and bidder's capacity, in addition to other factors that Purchaser may deem relevant.

The purchaser reserves all the rights to award the contract to one or more bidders so as to meet the delivery requirement or nullify the award decision without any reason.

BSES reserves the right to split the tender quantity amongst techno commercially qualified bidders on account of delivery requirement in tender, quantity under procurement etc.

Splitting of tender quantity amongst more than one bidder shall be governed by below mentioned guidelines:



- If the quantity is to be split among 2 bidders, it will be done in the ratio of 70:30 on L1 price.
- If the quantity is to be split among 3 bidders, it will be done in the ratio of 60:25:15 on L1 price.
- In case quantity needs to be distributed and order splitting is required, distribution of quantity shall be maximum among three (03) bidders.

In the event of your bid being selected by purchaser (and / or its affiliates) and your subsequent DEFAULT on your bid; you will be required to pay purchaser (and / or its affiliates) an amount equal to the difference in your bid and the next lowest bid on the quantity declared in RFQ.

In case any supplier is found unsatisfactory during the delivery process, the award will be cancelled and BRPL reserves the right to award other suppliers who are found fit.

Quantity Variation: The purchaser reserves the rights to vary the quantity by +/- 30% of the tender quantity.

Repeat Order: BRPL reserves the right to place repeat order at the same rates & terms and conditions as per this tender against additional requirement subject to mutual agreement between BRPL & supplier.

Market Integrity:

We have a fair and competitive marketplace. The rules for bidders are outlined in the Terms & Conditions. Bidders must agree to these rules prior to participating. In addition to other remedies available, we reserves the right to exclude a bidder from participating in future markets due to the bidder's violation of any of the rules or obligations contained in the Terms & Condition. Bidders who violate the marketplace rules or engage in behavior that disrupts the fair execution of the marketplace restricts a bidder to length of time, depending upon the seriousness of the violation. Examples of violations include, but are not limited to:

- Failure to honor prices submitted to the marketplace.
- Breach of the terms of the published in Request For Quotation.

6.0 Supplier Confidentiality

All information contained in this RFQ is confidential and may not be disclosed, published or advertised in any manner without written authorization from BRPL. This includes all bidding information submitted.

All RFQ documents remain the property of BRPL and all suppliers are required to return these documents to BRPL upon request.

Suppliers who do not honor these confidentiality provisions will be excluded from participating in future bidding events.

7.0 Contact Information

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All communication as regards this RFQ shall be made (i) in English, (ii) in writing and (iii) sent by mail, facsimile to:



	Technical	Commercial
Contact Name	Mr. Amit Tomar	Ms Rachna Jain
	Copy to Mr. Sheshadri Krishnapura	Copy to Mr. Pankaj Goyal
Address	BSES RAJDHANI POWER LTD,	C&M Deptt. 1st floor, D- Block,
	2nd Floor, B Block, Nehru Place, New	BSES Rajhdhani Power Limited,
	Delhi – 110019	BSES Bhawan, Nehru Place,
		New Delhi -110019
Email-ID	amit.as.tomar@relianceada.com	rachna.jain@relianceada.com
	sheshadri.krishnapura@relianceada.com	pankaj.goyal@relianceada.com



SECTION – II

INSTRUCTION TO BIDDERS (ITB)

SUPPLY OF 1600 KVA OIL TYPE DISTRIBUTION TRANSFORMER IN BRPL

CMC/BR/22-23/RB/PR/RJ/1005



1.0 BSES Rajdhani power Ltd, hereinafter referred to as the Purchaser are desirous of implementing the various Systems Improvement/ Repair & Maintenance works at their respective licensed area in Delhi The Purchaser has now floated this tender for procurement of 1600 kVA DT's as notified earlier in this bid document.

2.0 SCOPE OF WORK

The scope shall include Design, Manufacture, Testing at works conforming to the Technical Specifications enclosed along with Packing, Forwarding, Freight and Unloading and proper stacking at Purchaser's stores.

3.0 DISCLAIMER

This Document includes statements, which reflect various assumptions, which may or may not be correct. Each Bidder/ Bidding Consortium should conduct its own estimation and analysis and should check the accuracy, reliability and completeness of the information in this Document and obtain independent advice from appropriate sources in their own interest.

Neither Purchaser nor its employees will have any liability whatsoever to any Bidder or any other person under the law or contract, the principles of restitution or unjust enrichment or otherwise for any loss, expense or damage whatsoever which may arise from or be incurred or suffered in connection with anything contained in this Document, any matter deemed to form part of this Document, provision of Services and any other information supplied by or on behalf of Purchaser or its employees, or otherwise a rising in any way from the selection process for the Supply.

Though adequate care has been taken while issuing the Bid document, the Bidder should satisfy itself that Documents are complete in all respects. Intimation of any discrepancy shall be given to this office immediately.

This Document and the information contained herein are Strictly Confidential and are for the use of only the person(s) to whom it is issued. It may not be copied or distributed by the recipient to third parties (other than in confidence to the recipient's professional advisors).

4.0 COST OF BIDDING

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The Bidder shall bear all cost associated with the preparation and submission of its Bid and Purchaser will in no case be responsible or liable for those costs. Further the purchaser has the right to get sample of Panel tested by any reputed independent test lab (approved by BRPL) at the cost of bidder.



B. BIDDING DOCUMENT

5.0 BIDDING DOCUMENTS

The Scope of Work, Bidding Procedures and Contract Terms are described in the Bidding Documents. In addition to the covering letter accompanying Bidding Documents, the Bidding Documents include:

Volume -I

a)	Request for Quotation (RFQ)	- Section – I
b)	Instructions to Bidders (ITB)	- Section – II
c)	General Conditions of Contract	- Section - III
d)	Quantity and delivery requirement	- Section –IV
e)	Technical Specifications (TS)	- Section –V

Volume - II

a)	Bid Form	- Annexure – I
b)	Bid Format	- Annexure – II
c)	Price Schedule	- Annexure – III
d)	Commercial Terms & Conditions	- Annexure - IV
e)	No Deviation Sheet	- Annexure - V
f)	Qualification Criterion	- Annexure - VI

The Bidder is expected to examine the Bidding Documents, including all Instructions, Forms, Terms and specifications. Failure to furnish all information required by the Bidding documents or submission of a Bid not substantially responsive to the Bidding Documents in every respect will may result in the rejection of the Bid.

6.0 AMENDMENT OF BIDDING DOCUMENTS

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At any time prior to the deadline for submission of Bids, the Purchaser may for any reasons, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Documents by Amendment.

The Amendment shall be part of the Bidding Documents, pursuant to Clause 5.01, and it will be notified in writing by Fax/e-mail to all the Bidders who have received the Bidding Documents and confirmed their participation to Bid, and will be binding on them.

In order to afford prospective Bidders reasonable time in which to take the Amendment into account in preparing their Bids, the Purchaser may, at its discretion, extend the deadline for the submission of Bids.



C PREPARATION OF BIDS

7.0 LANGUAGE OF BID

The Bid prepared by the Bidder, and all correspondence and documents relating to the Bid exchanged by the Bidder and the Purchaser, shall be written in the English Language. Any printed literature furnished by the Bidder may be written in another Language, provided that this literature is accompanied by an English translation, in which case, for purposes of interpretation of the Bid, the English translation shall govern.

8.0 DOCUMENTS COMPRISING THE BID

The Bid prepared and submitted by the Bidder shall comprise the following components:

- a) Bid Form ,Price & other Schedules (STRICTLY AS PER FORMAT) and Technical Data Sheets completed in accordance with Clause 9.0, 10.0, 11.0 and Technical Specification;
- b) All the Bids must be accompanied with the required EMD as mentioned in the Section-I against each tender.
- c) Power of Attorney or Authorization letter indicating that the person(s) signing the Bid have the authority to sign the Bid and thus that the Bid is binding upon the Bidder during the full period of its validity, in accordance with clause 12.0.

9.0 BID FORM

The Bidder shall complete an "Original" and another one "Copy" of the Bid Form and the appropriate Price & Other Schedules and Technical Data Sheets.

EMD

Pursuant to Clause 8.0 (b) above, the bidder shall furnish, as part of its bid, a EMD amounting to 1% of the total bid value (FOR Destination) i.e. Rs. **7,70,000**/-. The EMD is required to protect the Purchaser against the risk of Bidder's conduct which would warrant the security's forfeiture.

The EMD shall be denominated in the currency of the bid, and shall be in the following form:

- a) A bank guarantee issued by any scheduled bank strictly as per the form at enclosed and shall be valid for a period of thirty (30) days beyond the validity of the bid.
- b) Bank Draft in favour of BSES RAJDHANI POWER LTD, payable at New Delhi.

Unsuccessful bidders' EMD will be discharged or returned as promptly as possible as but not later than thirty (30) days after the expiration of the period of bid validity.

The successful bidder's EMD will be discharged upon furnishing the performance security. The EMD may be forfeited:

a) If the Bidder:



- i) withdraws its bid during the period of bid validity specified by the Bidder in the Bid Form; or
- b) in the case of a successful Bidder, if the Bidder fails:
 - i) to sign the Contract, or
 - ii) to furnish the required performance security.

10.0 BID PRICES

Bidders shall quote for the entire Scope of Supply with a break-up of prices for individual items. The total Bid Price shall also cover all the Supplier's obligations mentioned in or reasonably to be inferred from the Bidding Documents in respect of Design, Supply, Transportation to site, all in accordance with the requirement of Bidding Documents The Bidder shall complete the appropriate Price Schedules included herein, stating the Unit Price for each item & total Price.

The prices offered shall be inclusive of all costs as well as Duties, Taxes and Levies paid or payable during execution of the supply work, breakup of price constituents, should be there. Prices quoted by the Bidder shall be—Firm "and not subject to any price adjustment during the performance of the Contract. A Bid submitted with an adjustable price quotation will be treated as non -responsive and rejected.

11.0 BID CURRENCIES

Prices shall be quoted in **Indian Rupees (INR) only**.

12.0 PERIOD OF VALIDITY OF BIDS

Bids shall remain valid for 120 days post bid date.

Notwithstanding Clause 12.01 above, the Purchaser may solicit the Bidder's consent to an extension of the Period of Bid Validity. The request and the responses thereto shall be made in writing by Fax/e-mail.

13.0 ALTERNATIVE BIDS

Bidders shall submit Bids, which comply with the Bidding Documents. Alternative Bids will not be considered. The attention of Bidders is drawn to the provisions of Clause 22.03 & 22.04 regarding the rejection of Bids, which are not substantially responsive to the requirements of the Bidding Documents.

14.0 FORMAT AND SIGNING OF BID

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The original Bid Form and accompanying documents (as specified in Clause 9.0), clearly marked "Original Bid", plus one copy must be received by the Purchaser at the date, time and place specified pursuant to Clauses 15.0 and 16.0. In the event of any discrepancy between the original and the copies, the original shall govern.



The original and copy of the Bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to sign on behalf of the Bidder. Such authorization shall be indicated by written Power-of-Attorney accompanying the Bid.

The Bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such corrections shall be initialed by the person or persons signing the Bid.

D SUBMISSION OF BIDS

15.0 SEALING AND MARKING OF BIDS

Bid submission: One original & one Copy (hard copies) of all the Bid Documents shall be sealed and submitted to the Purchaser before the closing time for submission of the bid.

The Technical Documents and the EMD shall be enclosed in a sealed envelope and the said envelope shall be superscribed with —**Technical & EMD**. The Financial bid shall be inside another sealed envelope with superscription — **Financial Bid**. Both these envelopes shall be sealed inside another big envelope. All the envelopes should bear the Name and Address of the Bidder and marking for the Original and Copy. The envelopes should be superscribed with —"**Tender Notice No, Due date of submission, Tender opening date**".

The Bidder has the option of sending the Bids in person. Bids submitted by Telex/ Telegram/ Fax will not be accepted. No request from any Bidder to the Purchaser to collect the proposals from Airlines/Cargo Agents etc shall be entertained by the Purchaser.

16.0 DEADLINE FOR SUBMISSION OF BIDS

The original Bid, together with the required copies, must be received by the Purchaser at the address specified not later than 1530 HRS on 01.04.2021.

The Purchaser may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Documents in accordance with Clause 9.0, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

17.0 ONE BID PER BIDDER

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Each Bidder shall submit only one Bid either by itself, or as a partner in a Joint Venture. A Bidder who submits or participates in more than one Bid will cause all those Bids to be rejected.

18.0 LATE BIDS

Any Bid received by the Purchaser after the deadline for submission of Bids prescribed by the Purchaser, pursuant to Clause 16.0, will be declared "Late" and rejected and returned unopened to the Bidder.



19.0 MODIFICATIONS AND WITHDRAWAL OF BIDS

19.01 The Bidder is not allowed to modify or withdraw its Bid after the Bid's submission.

E. EVALUATION OF BID

20.0 PROCESS TO BE CONFIDENTIAL

Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process. Any effort by a Bidder to influence the Purchaser's processing of Bids or award decisions may result in the rejection of the Bidder's Bid.

21.0 CLARIFICATION OF BIDS

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To assist in the examination, evaluation and comparison of Bids, the Purchaser may, at its discretion, ask the bidder for a clarification of its Bid. All responses to requests for clarification shall be in writing and no change in the price or substance of the Bid shall be sought, offered or permitted.

22.0 PRELIMINARY EXAMINATION OF BIDS / RESPONSIVENESS

Purchaser will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order.

Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price per item that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price per item will be corrected. If there is a discrepancy between the Total Amount and the sum of the total price per item, the sum of the total price per item shall prevail and the Total Amount will be corrected.

Prior to the detailed evaluation, Purchaser will determine the substantial responsiveness of each Bid to the Bidding Documents including production capability and acceptable quality of the Goods offered. A substantially responsive Bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviation.

Bid determined as not substantially responsive will be rejected by the Purchaser and/or the Purchaser and may not subsequently be made responsive by the Bidder by correction of the non-conformity.



23.0 EVALUATION AND COMPARISON OF BIDS

The evaluation of Bids shall be done based on the delivered cost competitiveness basis.

The evaluation of the Bids shall be a stage-wise procedure. The following stages are identified for evaluation purposes: In the first stage, the Bids would be subjected to a responsiveness check. The Technical Proposals and the Conditional ties of the Bidders would be evaluated. Subsequently, the Financial Proposals along with supplementary Financial Proposals, if any, of Bidders with Techno-commercially Acceptable Bids shall be considered for final evaluation.

The Purchaser's evaluation of a Bid will take into account, in addition to the Bid price, the following factors, in the manner and to the extent indicated in this Clause:

- (a) Supply Schedule
- (b) Deviations from Bidding Documents

Bidders shall base their Bid price on the terms and conditions specified in the Bidding Documents. The cost of all quantifiable deviations and omissions from the specification, terms and conditions specified in Bidding Documents shall be evaluated. The Purchaser will make its own assessment of the cost of any deviation for the purpose of ensuring fair comparison of Bids.

Any adjustment in price, which results from the above procedure, shall be added for the purposes of comparative evaluation only to arrive at an "Evaluated Bid Price". Bid Prices quoted by Bidders shall remain unaltered.

F. AWARD OF CONTRACT

NIT No.: CMC/BR/22-23/RB/PR/RJ/1005

24.0 CONTACTING THE PURCHASER

From the time of Bid submission to the time of contract award, if any Bidder wishes to contact the Purchaser on any matter related to the Bid, it should do so in writing.

Any effort by a Bidder to influence the Purchaser and/or in the Purchaser's decisions in respect of Bid evaluation, Bid comparison or Contract Award, will result in the rejection of the Bidder's Bid.

25.0 THE PURCHASER 'S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS

The Purchaser reserves the right to accept or reject any Bid and to annul the Bidding process and reject all Bids at anytime prior toward of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Purchaser's action.



26.0 AWARD OF CONTRACT

The Purchaser will award the Contract to the successful Bidder whose Bid has been Determined to be the lowest-evaluated responsive Bid, provided further that the Bidder has been determined to be qualified to satisfactorily perform the Contract. Purchaser reserves the right to award order other bidders in the tender, provided it is required for progress of project & provided he agrees to come to the lowest rate.

27.0 THE PURCHASER'S RIGHT TO VARY QUANTITIES

The Purchaser reserves the right to vary the quantity i.e. increase or decrease the numbers/quantities without any change in terms and conditions during the execution of the Order.

28.0 LETTER OF INTENT/ NOTIFICATION OF AWARD

The letter of intent/ Notification of Award shall be issued to the successful Bidder whose bids have been considered responsive, techno-commercially acceptable and evaluated to be the lowest (L1). The successful Bidder shall be required to furnish a letter of acceptance within 7 days of issue of the letter of intent/Notification of Award by Purchaser.

29.0 PERFORMANCE BANK GUARANTEE

The successful Bidder shall furnish the Performance Bank Guarantee for an amount of 10% (Ten percent) of the Contract Price in accordance with the format provided. The Performance Bond shall be valid for a period of twenty four months (24) from the date of the commissioning or thirty months (30) from the date of receipt of material (last consignment) at site/stores whichever is earlier plus 3 months towards claim period. Upon submission of the performance security, the EMD shall be released.

30.0 CORRUPT OR FRADULENT PRACTICES

NIT No.: CMC/BR/22-23/RB/PR/RJ/1005

The Purchaser requires that the Bidders observe the highest standard of ethics during the procurement and execution of the Project. In pursuance of this policy, the Purchaser:

- (a) Defines, for the purposes of this provision, the terms set forth below as follows:
- i) "Corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and/or those close to them ,or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving, or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and
- "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Purchaser, and includes collusive practice among Bidders (prior to or after Bid submission) designed to establish Bid prices at artificial non-competitive levels and to deprive the Purchaser of the benefits of free and open competition.



- (b) Will reject a proposal forward if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;
- (c) Will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a contract.

Furthermore, Bidders shall be aware of the provision stated in the General Conditions of Contract.



SECTION – III GENERAL CONDITIONS OF CONTRACT (GCC) SUPPLY OF 1600 KVA OIL TYPE DISTRBUTION TRANFORMER IN BRPL

CMC/BR/22-23/RB/PR/RJ/1005



GENERAL TERMS AND CONDITIONS

1.0 General Instructions

All the Bids shall be prepared and submitted in accordance with these instructions.

Bidder shall bear all costs associated with the preparation and delivery of its Bid, and the Purchaser will in no case shall be responsible or liable for these costs.

The Bid should be submitted by the Bidder in whose name the bid document has been issued and under no circumstances it shall be transferred/ sold to the other party.

The Purchaser reserves the right to request for any additional information and also reserves the right to reject the proposal of any Bidder, if in the opinion of the Purchaser, the data in support of RFQ requirement is incomplete.

The Bidder is expected to examine all instructions, forms, terms & conditions and specifications in the Bid Documents. Failure to furnish all information required in the Bid Documents or submission of a Bid not substantially responsive to the Bid Documents in every respect may result in rejection of the Bid. However, the Purchaser's decision in regard to the responsiveness and rejection of bids shall be final and binding without any obligation, financial or otherwise, on the Purchaser.

2.0 Definition of Terms

NIT No.: CMC/BR/22-23/RB/PR/RJ/1005

"Purchaser" shall mean BRPL Limited, on whose behalf this bid enquiry is issued by its authorized representative / officers.

"Bidder" shall mean the firm who quotes against this bid enquiry issued by the Purchaser. "Supplier" or "Supplier" shall mean the successful Bidder and/or Bidders whose bid has been accepted by the Purchaser and on whom the "Letter of Acceptance" is placed by the Purchaser and shall include his heirs, legal representatives, successors and permitted assigns wherever the context so admits.

"Supply" shall mean the Scope of Contract as described.

"Specification" shall mean collectively all the terms and stipulations contained in those portions of this bid document known as RFQ, Commercial Terms & Condition, Instructions to Bidders, Technical Specifications and the Amendments, Revisions, Deletions or Additions, as may be made by the Purchaser from time to time.

"Letter of Acceptance" shall mean the official notice issued by the Purchaser notifying the Supplier that his proposal has been accepted and it shall include amendments thereto, if any, issued by the Purchaser. The "Letter of Acceptance" issued by the Purchaser shall be binding on the "Supplier" The date of Letter of Acceptance shall be taken as the effective date of the commencement of contract.



"Month" shall mean the calendar month and "Day" shall mean the calendar day.

"Codes and Standards" shall mean all the applicable codes and standards as indicated in the Specification.

"Offer Sheet" shall mean Bidder's firm offer submitted to BRPL in accordance with the specification.

"Contract" shall mean the "Letter of Acceptance" issued by the Purchaser.

"Contract Price" shall mean the price referred to in the "Letter of Acceptance".

"Contract Period" shall mean the period during which the "Contract" shall be executed as agreed between the Supplier and the Purchaser in the Contract inclusive of extended contract period for reason beyond the control of the Supplier and/or Purchaser due to force majeure.

"Acceptance" shall mean and deemed to include one or more of the following as will be stipulated in the specification:

- a) The written acceptance of material by the inspector at suppliers works to ship the materials.
- b) Acceptance of material at Purchaser site stores after its receipt and due inspection/ testing and release of material acceptance voucher.
- c) Where the scope of the contract includes supply, acceptance shall mean issue of necessary equipment / material takeover receipt after installation & commissioning and final acceptance.

3.0 Contract Documents & Priority

Contract Documents: The terms and conditions of the contract shall consist solely of these RFQ conditions and the offer sheet.

Priority: Should there be any discrepancy between any term hereof and any term of the Offer Sheet, the terms of these RFQ shall prevail.

4.0 Scope of Supply - General

NIT No.: CMC/BR/22-23/RB/PR/RJ/1005

The "Scope of Supply" shall be on the basis of Bidder's responsibility, completely covering the obligations, responsibility and supplies provided in this Bid enquiry whether implicit or explicit.

Bidder shall have to quote for the Bill of quantities as listed in Section – IV of this RFQ.

Quantity variation and additional requirement if any shall be communicated to successful bidder during project execution.

All relevant drawings, data and instruction manuals.



5.0 Quality Assurance and Inspection

Immediately on award of contract, the bidder shall prepare detailed quality assurance plan / test procedure identifying the various stages of manufacture, quality checks performed at each stage, raw material inspection and the Customer hold points. The document shall also furnish details of method of checking, inspection and acceptance standards / values and get the approval of Purchaser before proceeding with manufacturing. However, Purchaser shall have right to review the inspection reports, quality checks and results of suppliers in house inspection department which are not Customer hold points and the supplier shall comply with the remarks made by purchaser or his representative on such reviews with regards to further testing, rectification or rejection, etc.

Witness and Hold points are critical steps in manufacturing, inspection and testing where the supplier is obliged to notify the Purchaser in advance so that it may be witnessed by the Purchaser. Final inspection is a mandatory hold point. The supplier needs to proceed with the work past a hold point only after clearance by purchaser or a witness waiver letter from BRPL.

The performance of waiver of QA activity by Purchaser at any stage of manufacturing does not relieve the supplier of any obligation to perform in accordance with and meet all the requirements of the procurement documents and also all the codes & reference documents mentioned in the procurement document nor shall it preclude subsequent rejection by the purchaser.

On completion of manufacturing the items can be dispatched only after issue of shipping release by the Purchaser.

All testing and inspection shall be done without any extra cost.

Purchaser reserve the right to send any material out of the supply to any recognized laboratory for testing and the cost of testing shall be borne by the Purchaser. In case the material is found not in order with the technical requirement / specification, the charges along with any other penalty which may be levied is to be borne by the bidder. To avoid any complaint the supplier is advised to send his representative to the stores to see that the material sent for testing is being sealed in the presence of bidders representative.

Bidder has to sign quality agreement before supply of the material.

6.0 Packing, Packing List & Marking

NIT No.: CMC/BR/22-23/RB/PR/RJ/1005

Packing: Supplier shall pack or shall cause to be packed all Commodities in boxes and containers and otherwise in such a manner as shall be reasonably suitable for shipment by road or rail to BRPL without undue risk of damage in transit.

Packing List: The contents of each package shall be itemized on a detailed list showing the exact weight and the extreme outside dimensions (length, width and eight) of each container or box. One copy of the packing list shall be enclosed in each package delivered. There shall



also be enclosed in one package a master packing list identifying each individual package, which is part of the shipment. On any packaging where it is not feasible to place the packing list inside the container, all pertinent information shall be stenciled on the outside and will thus constitute a packing list.

7.0 Prices basis for supply of materials

Bidders require quoting their prices on Landed Cost Basis and separate price for each item. For Supply to BRPL Delhi the price shall be inclusive of packing, forwarding, GST and freights. The above supply prices shall also include unloading at site stores. Transit and storage insurance will be arranged by BRPL; however bidder to furnish required details in advance for arranging the same by BRPL.

8.0 Variation in taxes, duties & levies:

The total order value shall be adjusted on account of any variations in Statutory Levies imposed by Competent Authorities by way of fresh notification(s) within the stipulated delivery period only. However, in case of reduction in taxes, duties and levies, the benefits of the same shall be passed on to BUYER.

No other Taxes, Duties & Levies other than those specified above will be payable by BUYER except in case of new Levies, Taxes & Duties imposed by the Competent Authorities by way of fresh notification(s) subsequent to the issue of PURCHASE ORDER but within the stipulated delivery period.

Notwithstanding what is stated above, changes in Taxes, Duties & Levies shall apply only to that portion of PURCHASE ORDER not executed on the date of notification by Competent Authority. Further, changes in Taxes, Duties & Levies after due date of Delivery shall not affect PURCHASE ORDER Terms and Value.

PURCHASE ORDER value shall not be subject to any variation on account of variation in Exchange rate(s).

9.0 Taxes & Duties on raw materials & bought out components:

Taxes & Duties on raw materials & bought out components are included in Order Value and are not subject to any escalation or variation for any reason whatsoever.

Taxes & Duties on raw materials & bought out components procured indigenously are included in Order Value and are not subject to any escalation or variation for any reason whatsoever.

10.0 Terms of payment and billing

For Supply of Equipments:

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• 100% payment shall be made within 45 days from the date of receipt of material at store/ site against submission of 10 % performance bank guarantee. (Refer 10.01)



Bidder to submit the following documents against dispatch of each consignment:

- i) Consignee copy of LR
- ii) Supplier detailed invoice showing commodity description, quantity, unit price, total price and basis of delivery.
- iii) Original certificate issued by BRPL confirming receipt of material at site and acceptance of the same.
- iv) Dispatch clearance / inspection report in original issued by the inspection authority
- v) Packing List.
- vi) Test Reports
- vii) Guarantee Certificate.
- viii) Insurance policy to be obtained by supplier

11.0 Price Validity

11.01 All bids submitted shall remain valid, firm and subject to unconditional acceptance by BRPL Delhi for 120 days post bid-date. For awarded suppliers, the prices shall remain valid and firm till contract completion.

12.0 Performance Guarantee

- 12.01 Supplier shall establish a performance bond in favor of BRPL in an amount not less than Ten percent (10%) of the total price of the Contract (the "Performance Bond"). The Performance Bond shall be valid for a period of twenty four months (24) from the date of the commissioning or thirty months (30) from the date of receipt of material (last consignment) at site/stores whichever is earlier plus 3 months towards claim period. It shall be in accordance with one of the following terms:
- a) Depositing pay order /demand draft of the relevant amount directly with BRPL at the address listed above or as otherwise specified by BRPL, either of which shall constitute the Performance Bond hereunder; or
- b) Bank guarantee from any nationalized bank in favour of BSES RAJDHANI POWER LTD (BRPL). The performance Bank guarantee shall be in the format as specified by BRPL.

13.0 Forfeiture

NIT No.: CMC/BR/22-23/RB/PR/RJ/1005

Each Performance Bond established under Clause 10.0 shall contain a statement that it shall be automatically and unconditionally forfeited without recourse and payable against the presentation by BRPL of this Performance Bond to the ICICI Bank at Mumbai, or to the relevant company/ correspondent bank referred to above, as the case may be, together with a simple statement that supplier has failed to comply with any term or condition set forth in the Contract.



Each Performance Bond established under will be automatically and unconditionally forfeited without recourse if BRPL in its sole discretion determines that supplier has failed to comply with any term or condition set forth in the contract.

14.0 Release

All Performance Bonds will be released without interest within seven (7) days from the last date up to which the Performance Bond has to be kept valid (as defined in Clause 10.0) except for the case set forth in Clause 21.0.

15.0 Defects Liability Period

15.01 The bidder to Guarantee the materials / items supplied against any defect of failure, which arise due to faulty materials, workmanship or design for the entire defects liability period. The Defect liability period shall be 60 months from the date of commissioning or 66 months from the date of delivery whichever is earlier. If during the defects liability period any materials / items are found to be defective, these shall be replaced or rectified by the bidder at his own cost within 30 days from the date of receipt of intimation.

16.0 Return, Replacement or Substitution.

BRPL shall give Supplier notice of any defective Commodity promptly after becoming aware thereof. BRPL may in its discretion elect to return defective Commodities to Supplier for replacement, free of charge to BRPL, or may reject such Commodities and purchase the same or similar Commodities from any third party. In the latter case BRPL shall furnish proof to Supplier of the cost of such substitute purchase. In either case, all costs of any replacement, substitution, shipping, labour and other related expenses incurred in connection with the return and replacement or for the substitute purchase of a Commodity hereunder should be for the account of Supplier. BRPL may set off such costs against any amounts payable by BRPL to Supplier. Supplier shall reimburse BRPL for the amount, if any, by which the price of a substitute Commodity exceeds the price for such Commodity as quoted in the Bid.

17.0 Effective Date of Commencement of Contract:

17.01 The date of the issue of the Letter of Acceptance shall be treated as the effective date of the commencement of Contract.

18.0 Time – The Essence of Contract

18.01 The time and the date of completion of the "Supply" as stipulated in the Letter Of Acceptance / Purchase order issued to the Supplier shall be deemed to be the essence of the "Contract". The Supply has to be completed not later than the aforesaid Schedule and date of completion of supply.

19.0 The Laws and Jurisdiction of Contract:

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The laws applicable to this Contract shall be the Laws in force in India.



All disputes arising in connection with the present Contract shall be settled amicably by mutual consultation failing which shall be finally settled as per the rules of Arbitration and Conciliation Act, 1996 at the discretion of Purchaser. The venue of arbitration shall be at Mumbai in India

20.0 Events of Default

- 20.01 Events of Default. Each of the following events or occurrences shall constitute an event of default ("Event of Default") under the Contract:
- a) Supplier fails or refuses to pay any amounts due under the Contract;
- b) Supplier fails or refuses to deliver Commodities conforming to this RFQ/ specifications, or fails to deliver Commodities within the period specified in P.O. or any extension thereof
- c) Supplier becomes insolvent or unable to pay its debts when due, or commits any act of bankruptcy, such as filing any petition in any bankruptcy, winding-up or reorganization proceeding, or acknowledges in writing its insolvency or inability to pay its debts; or the Supplier's creditors file any petition relating to bankruptcy of Supplier;
- d) Supplier otherwise fails or refuses to perform or observe any term or condition of the Contract and such failure is not remediable or, if remediable, continues for a period of 30 days after receipt by the Supplier of notice of such failure from BRPL.

21.0 Consequences of Default.

- a) If an Event of Default shall occur and be continuing, BRPL may forthwith terminate the Contract by written notice.
- b) In the event of an Event of Default, BRPL may, without prejudice to any other right granted to it by law, or the Contract, take any or all of the following actions;
- i) present for payment to the relevant bank the Performance Bond;
- ii) purchase the same or similar Commodities from any third party; and/or
- iii) recover any losses and/or additional expenses BRPL may incur as a result of Supplier's default.

22.0 Penalty for Delay

NIT No.: CMC/BR/22-23/RB/PR/RJ/1005

If supply of items / equipments is delayed beyond the supply schedule as stipulated in purchase order then the Supplier shall be liable to pay to the Purchaser as penalty for delay, a sum of 1% (one percent) of the contract price for every week delay or part thereof for undelivered quantities.

The total amount of penalty for delay under the contract will be subject to a maximum of ten percent (10%) of the contract price for undelivered quantities.



The Purchaser may, without prejudice to any method of recovery, deduct the amount for such damages from any amount due or which may become due to the Supplier or from the Performance Bond or file a claim against the supplier.

23.0 Force Majeure

General

An "Event of Force Majeure" shall mean any event or circumstance not within the reasonable control directly or indirectly, of the Party affected, but only if and to the extent that:

- i) Such event or circumstance materially and adversely affects the ability of the affected Party to perform its obligations under this Contract, and the affected Party has taken all reasonable precautions, due care and reasonable alternative measures in order to prevent or avoid the effect of such event on the affected party's ability to perform its obligations under this Contract and to mitigate the consequences thereof.
- ii) For the avoidance of doubt, if such event or circumstance would not have materially and adversely affected the performance of the affected party had such affected party followed good industry practice, such event or circumstance shall not constitute force majeure.
- iii) Such vent is not the direct or indirect result of the failure of such Party to perform any of its obligations under this Contract.
- iv) Such Party has given the other Party prompt notice describing such events, the effect thereof and the actions being taken in order to comply with above clause.

Specific Events of Force Majeure subject to the provisions of above clause, Events of Force Majeure shall include only the following to the extent that they or their consequences satisfy the above requirements:

Mitigation of Events of Force Majeure Each Party shall:

- i) Make all reasonable efforts to prevent and reduce to a minimum and mitigate the effect of any delay occasioned by an Event of Force Majeure including recourse to alternate methods of satisfying its obligations under the Contract;
- ii) Use its best efforts to ensure resumption of normal performance after the termination of any Event of Force Majeure and shall perform its obligations to the maximum extent practicable as agreed between the Parties; and
- iii) Keep the other Party informed at regular intervals of the circumstances concerning the event of Force Majeure, with best estimates as to its likely continuation and what measures or contingency planning it is taking to mitigate and or terminate the Event of Force Majeure.

Burden of Proof In the event that the Parties are unable in good faith to agree that a Force Majeure event has occurred to an affected party, the parties shall resolve their dispute in accordance with the provisions of this Agreement. The burden of proof as to whether or not a force majeure event has occurred shall be upon the party claiming that the force majeure event has occurred and that it is the affected party.



Termination for Certain Events of Force Majeure. If any obligation of any Party under the Contract is or is reasonably expected to be delayed or prevented by a Force Majeure event for a continuous period of more than 3 months, the Parties shall promptly discuss in good faith how to proceed with a view to reaching a solution on mutually agreed basis. If a solution on mutually agreed basis cannot be arrived at within a period of 30 days after the expiry of the period of three months, the Contract shall be terminated after the said period of 30 days and neither Party shall be liable to the other for any consequences arising on account of such termination.

Limitation of Force Majeure event. The Supplier shall not be relieved of any obligation under the Contract solely because cost of performance is increased, whether as a consequence of adverse economic consequences or otherwise.

Extension of Contract Period due to Force Majeure event The Contract period may be extended by mutual agreement of Parties by way of an adjustment on account of any period during which an obligation of either Party is suspended due to a Force Majeure event.

Effect of Events of Force Majeure. Except as otherwise provided herein or may further be agreed between the Parties, either Party shall be excused from performance and neither Party shall be construed to be in default in respect of any obligations hereunder, for so long as failure to perform such obligations shall be due to and event of Force Majeure."

24.0 Transfer And Sub-Letting

24.01 The Supplier shall not sublet, transfer, assign or otherwise part with the Contract or any part thereof, either directly or indirectly, without prior written permission of the Purchaser.

25.0 Recoveries

25.01 Whenever under this contract any money is recoverable from and payable by the bidder, the purchaser shall be entitled to recover such sum by appropriating in part or in whole by detecting any sum due to which any time thereafter may become due from the supplier in this or any other contract. Should the sum be not sufficient to cover the full amount recoverable the bidder shall pay to the purchaser on demand the remaining balance.

26.0 Waiver

26.01 Failure to enforce any condition herein contained shall not operate as a waiver of the condition itself or any subsequent breach thereof.

27.0 Indemnification

NIT No.: CMC/BR/22-23/RB/PR/RJ/1005

27.01 Notwithstanding contrary to anything contained in this RFQ, Supplier shall at his costs and risks make good any loss or damage to the property of the Purchaser and/or the other Supplier engaged by the Purchaser and/or the employees of the Purchaser and/or employees of the other Supplier engaged by the Purchaser whatsoever arising out of the negligence of the Supplier while performing the obligations under this contract.



SECTION – IV: QUANTITY AND DELIVERY REQUIREMENT

Sl. No.	Item Description	Specification	Delivery Schedule	Location				
	BRPL,DELHI							
1	Supply of 1600 kVa Oil Type Distribution Transformer in BRPL	SECTION V	18 Nos	As per Requirement	Stores BRPL Delhi			



Annexure -I

BID FORM

Supply of 1600 kVA Oil Type Distribution Transformer for Various Sites In BRPL

To

Head of the Department Contracts & Materials BSES Rajdhani Power Ltd BSES Bhawan, Nehru Place New Delhi– 110019 Sir,

We understand that BRPL is desirous of procuring "Supply of 1600 kVA Oil Type Distribution Transformers for Various Sites In BRPL" in its licensed distribution network area in Delhi. Having examined the Bidding Documents for the above named works, we the undersigned, offer to deliver the goods in full conformity with the Drawings, Conditions of Contract and specifications for the sum of <u>AS PER RICE BID ENCLOSED</u> or such other sums as may be determined in accordance with the terms and conditions of the contract. The above amounts are in accordance with the Price Schedules attached herewith and are made part of this bid.

If our Bid is accepted, we undertake to deliver the entire goods as per delivery schedule given by you from the date of award of purchase order/letter of intent.

If our Bid is accepted, we will furnish a performance bank guarantee for an amount of 10% (Ten) percent of the total contract value for due performance of the Contract in accordance with the General Conditions of Contract.

We agree to abide by this Bid for a period of 120 days from the date fixed for bid opening under clause 9.0 of GCC, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

We declare that we have studied the provision of Indian Income Tax Law and other Indian Laws for supply of equipments/materials and the prices have been quoted accordingly.

Unless and until Letter of Intent is issued, this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.

We understand that you are not bound to accept the lowest, or any bid you may receive.

NIT No.: CMC/BR/22-23/RB/PR/RJ/1005

There is provision for Resolution of Disputes under this Contract, in accordance with the Laws and Jurisdiction of Contract, Clause 19 of GCC.

Dated this	day of	20
		capacity of
		behalf of (IN BLOCK CAPITALS)



Signature of the witness

NIT No.: CMC/BR/22-23/RB/PR/RJ/1005

FORMAT FOR EMD BANK GUARANTEE

(To be issued in a Non Judicial Stamp Paper of Rs.50/-purchased in the name of the bank). Whereas [name of the Bidder] (hereinafter called the "Bidder") has submitted its bid dated [date of submission of bid] for the supply of [name and/or description of the goods] (hereafter called "the Bid"). KNOW ALL PEOPLE by these presents that WE [name of bank]at[Branch Name and address], having our registered office at[address of the registered office of the bank] (herein after called —"the Bank"), are bound unto BSES Rajdhani Power Ltd., with its Corporate Office at BSES Bhawan Nehru Place, New Delhi -110019, (herein after called —the "Purchaser") in the sum of for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this day of 20
THE CONDITIONS of this obligation are:
If the Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form; or
If the Bidder, having been notified of the acceptance of its Bid by the Purchaser during the period of bid validity:
fails or refuses to execute the Contract Form ,if required; or fails or refuses to furnish the performance security, In accordance with the Instructions to Bidders/GENERAL CONDITIONS.;
We undertake to pay to the Purchaser up to the above amount upon receipt of its first written demand without the Purchaser having to substantiate its demand, provided that is its demand the purchaser will note that amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.
This guarantee will remain in force up to and including thirty (30) days after the period of bid validity, and any demand in respect thereof should reach the Bank not later than the above date.
(Signature of the bank)



FORM FOR PARTICIPATION IN REVERSE AUCTION EVENT

(To be signed & stamped by the bidder along-with bid)

BSES Rajdhani Power Ltd (BRPL) intends to use reverse auction through SAP-SRM tool as an integral part of entire tendering process. All bidders who are techno-commercially qualified on the basis of tender requirements shall participate in the reverse auction.

The following terms and conditions are deemed as accepted by the bidder on participation in the bid:-

- 1. In case of bidding through Internet medium, bidders are advised to ensure availability of all associated infrastructure as required to participate in the reverse auction event. Inability to bid due to telephone glitch, internet response issues, software & hardware hangs/failures, power failures or any other reason shall not be the responsibility of BRPL.
- 2. In case bidder fails to participate in the reverse auction event due to any reason whatsoever, it shall be presumed that the bidder has no further discounts to offer and the initial bid submitted by them as a part of tender shall be considered as bidder's Final .No Regret offer.Any off-line price bids received from a bidder in lieu of non-participation in the reverse auction event shall be rejected by BRPL.
- 3. The bidder is advised to understand the auto bid process t safeguard themselves against any possibility of non-participation in the reverse auction event.
- 4. The bidder shall be prepared with competitive price quotes during the day of reverse auction event.
- 5. The prices quoted by bidder in reverse auction event shall be on FOR Landed cost BRPL Store/site basis inclusive of all relevant taxes, duties, levies, transportation charges etc.
- 6. The prices submitted by the bidder during reverse auction event shall be binding on the bidder.
- 7. The bidder agrees to non-disclosure of trade information regarding bid details e.g., purchase, identity, bid process/technology, bid documentation etc.
- 8. BRPL will make every effort to make the bid process transparent. However award decision of BRPL will be final and binding on the bidder.
- 9. The prices submitted during reverse auction event shall be binding on the bidder.
- 10. No request for Time extension of the reverse auction event shall be considered by BRPL.

Seal & Signature of Bidder



PRICE FORMAT

ENQUIRY NO & DATE: NIT: CMC/BR/22-23/RB/PR/RJ/1005

PRICE SCHEDULE

ITEM DESCRIPTION	QTY AS PER RFQ	UOM	EX- WORKS RATE/ UNIT	CGST (%)	CGST AMT	SGST (%)	SGST AMT	IGST (%)	IGST AMT	FRT	LANDED RATE/ UNIT	TOTAL LANDED COST (INR)
Supply of 1600 kVA Oil Type Distribution Transformers	18	Nos										

Note: 1. The prices received without break up of ex works, Freight, GST are liable for rejection

- 2. Pls. Indicate the exact percentage of taxes in figures and words.
- 3. If there is a discrepancy between the unit price and the total price THE UNIT PRICE shall prevail.
- 4. Bidders are requested to attach the covering letter head along with the price bid indicating reference no and date.

Bidders seal & signature



A<u>nnexure – V</u>

Enquiry No. : CMC/BR/22-23/RB/PR/RJ/1005

NIT No.: CMC/BR/22-23/RB/PR/RJ/1005

COMMERCIAL TERMS AND CONDITIONS

S/NO	ITEM DESCIPTION	AS PER BRPL	CONFIRMATION OF BIDDER
1	Validity of prices	120 days from date of offer	
2	Price basis	Firm, FOR Delhi store basis, Prices shall be inclusive of all taxes & duties, freight upto Delhi stores. Unloading at stores be in vendor's scope Transit insurance in BRPL scope	
3	Payment Terms	100% payment within 45 days after receipt of material at stores	
4	Delivery schedule	As per Section IV	
5	Defect Liability Period	60 months after commissioning or 66 months from the last date of supply, whichever is earlier.	
6	Penalty for delay	1% per week of delay of undelivered units or part thereof subject to maximum of 10% of total PO value of undelivered units	
7	Performance Bank Guarantee	10% of total PO value for 24 months after commissioning or 30 months from date of supply, whichever is earlier plus 3 months towards claim period	



ANNEXURE - VI

ENQUIRY NO: CMC/BR/22-23/RB/PR/RJ/1005

NO DEVIATION SHEET

SL NO OF TECHNICAL SPECIFICATION	DEVIATION, IF ANY
	SL NO OF TECHNICAL SPECIFICATION

SIGNATURE & SEAL OF BIDDER

NIT No.: CMC/BR/22-23/RB/PR/RJ/1005

NAME OF BIDDER



CHECK LIST

SI No	Item Description	YES/NO
1	INDEX	YES/NO
2	COVERING LETTER	YES/NO
3	BID FORM (UNPRICED) DULY SIGNED	YES/NO
4	BILL OF MATERIAL (UNPRICED)	YES/NO
5	TECHNICAL BID	YES/NO
6	ACCEPTANCE TO COMMERCILAL TERMS & CONDITIONS	YES/NO
7	FINANCIAL BIDS (IN SEALED ENVELOPE)	YES/NO
8	EMD IN PRESCRIBED FORMAT	YES/NO
9	DEMANT DRAFT OF RS 1180/- DRAWN IN FAVOUR OF	BSES RAJDHANI POWER LTD
10	POWER OF ATTORNEY/ AUTHORISATION LETTER FOR SIGNING THE BID	YES/NO



TECHNICAL SPECIFICATION FOR 1600/2000 KVA,11/0.415 KV OIL FILLED DISTRIBUTION TRANSFORMER

Technical Specification For

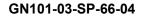
1600/2000 KVA,11/0.415 KV

Oil Filled Distribution Transformer

(Hermetically sealed Transformers)

Specification No - GN101-03-SP-66-04

PREPARED BY	REVIEWED BY	APPROVED BY	REV	DATE
SEEMA SHEKHAWAT	MEENAKSHI BANERJI	KIRAN ALLA	00	03.06.2016
SEEMA SHEKHAWAT	AMIT TOMAR	VIJAY PANPALIA	01	19.05.2017
SEEMA SHEKHAWAT	AMIT TOMAR	VIJAY PANPALIA	02	11.01.2018
VANI SOOD	AMIT TOMAR	K SHESHADARI	03	18.10.2019
VANI	AMIT TOMAR N. LA	K SHESHADARI P	04	30.12.2021
SOOD/PRONAB BAIRAGI	AMIT TOWAR	N SHESHADARI CLL	Page	01 OF 55





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Record of Revision

SI No.	Revision No	Item/Clause No.	Nature of change	Approved by
1	01	3.25 & 3.26	Losses revised	AT/VP
2	01	13	Inspection expenses added	AT/VP
3	02	4.11	WTI/OTI scanner added	AT/VP
4	02	5.27	WTI/OTI fitting added	AT/VP
5	02	6.15	WTI/OTI make added	AT/VP
6	02	6.16	DMCR make added	AT/VP
7	02	Annexure-G	CRGO & Testing Points added	AT/VP
8	03	3.30	LV Cable size revised	AT/KS
9	03	4.2.3.5	Type of LV and HV winding added	AT/KS
10	03	4.2.5.1 & 4.2.5.2	Position of bushing added	AT/KS
11	03	4.2.7.8.13	Auxiliary relay added	AT/KS
12	03	5.1.5	Rating plate revised	AT/KS
13	03	10.1.2	Core testing added	AT/KS
14	03	10.2	IR Value revised	AT/KS
15	03	Annexure – C	Properties of transformer oil revised	AT/KS
16	03	Annexure – D	Separate containers for extra oil added	AT/KS
17	03	Annexure-G	Watt/kg of core revised and core tests added Tests to be conducted on core sample added	AT/KS
18	04	10.1.5	Oil testing clause revised	AT/KS
19	04	10.3	Type test clause revised	AT/KS
20	04	Annexure D Clause 3.2	LT voltage at principle tap revised	AT/KS
21	04	Annexure G Clause 2.7	Clause for in house NABL accredited testing facility revised	AT/KS



GN101-03-SP-66-04

Technical Specification For 1600/2000 KVA,11/0.415 KV Oil Filled Distribution Transformer

22	04	Annexure G Clause 2.7	Clause for in house NABL accredited testing facility revised	AT/KS
-			•	

Vani Sood/Pronab Bairagi

Amit Tomai

K Sheshadri



1.0 Scope of supply

For scope of supply, refer annexure – A.

2.0 Codes & standards

- a) Materials, equipment and methods used in the manufacture of Distribution Transformer shall conform to the latest edition of below mentioned standards.
- b) Vendor shall possess valid BIS Certification.

IEC Standards

IEC 60034	Rotating Electrical Machines. (E.g. For Cooler Fan Motors.)	
IEC 60071	Co-ordination of Insulation.	
IEC 60076	Power transformers.	
IEC 60156	Method for Determination of the Electric Strength for Insulating Oils.	
IEC 60044	Current Transformers.	
IEC 60214	On Load Tap Changers	
IEC 60296	Specification for Unused Mineral Insulating Oils for Transformers and	
	Switchgear.	
IEC 60354	Loading Guide for Oil-Immersed Power Transformers.	
IEC 60445	Basic& Safety principles for man-machine interface, marking and identification, Identification of Equipment Terminals and conductor terminals	
IEC 60529	Degrees of Protection Provided by Enclosures (IP Code).	
IEC 60551	Determination of Transformer and Reactor Sound Levels.	
IEC 60606	Application Guide for Power Transformers.	
IEC 60616	Terminal and Tapping Markings for Power Transformers.	
IEC 60947	Low-Voltage Switchgear and Control gear.	
IEC 60947	Bushing for alternating voltage above 1000V	

British Standard

BS 148	Determination of Transformer and Reactor Sound Levels.
BS 223	Application Guide for Power Transformers.
BS 2562	Terminal and Tapping Markings for Power Transformers.



Indian Standards

IS:335	Insulating oil	
IS:1271	Thermal evaluation and classification of electrical insulation	
IS:2099	Bushing for Alternating voltage above 1000V	
IS:2705	Current Transformers	
IS:3347	Dimensions for Porcelain Transformer bushing	
IS:3637	Gas operated relays	
IS:3639	Fitting & Accessories for power transformers	
IS:4201	Application guide for CT's	
IS:6600	Guide for loading of oil immersed transformers	
IS:8478	Application guide for On-load tap changer	
IS:8468	On-load tap changer	
IS:10028	Code of practice for selection, installation & maintenance of transformers	
IS:13947	LV switchgear and Controlgear-Part1	
IS 2026	Power Transformers	
IS 1180	Outdoor type oil immersed distribution transformer up to and including	
	2.5MVA,33kV	
IS 5561	Electrical Power Connectors	
IS 5	Colors for ready mix paints	
IS 6272	Industrial cooling fans	
IS 325	Three phase induction motors	
	Indian Electricity Rules	
	Indian Electricity Act	
	CBIP manual	

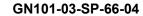
In the event of direct conflict between various order documents, the precedence of authority of documents shall be as follows -

- I. Guaranteed Technical Particulars (GTP)
- ii. This Specification
- lii Indian Standards / IEC standards
- IV Approved Vendor Drawings
- iv. Other documents



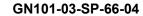
3.0 Major Design Criteria & Parameters of the Transformer

Sr. No	Description	Data by purchaser
3.1	Voltage variation on supply side	+ / - 10 %
3.2	Frequency variation on supply side	+/ - 5 %
3.3	Transient condition	- 20 % or + 10 % combined variation of
		voltage and frequency
3.4	Service Condition	Refer Annexure B
3.5	Insulation level	Class A
3.6	Location of equipment	Generally Outdoor but may be located
		indoor also with poor ventilation
3.7	Reference design ambient	50 deg C
	temperature	
3.8	Туре	Oil immersed, core type, step down
3.9	Type of cooling	ONAN
3.10	Reference standard	IS 2026/IS 1180
3.11	No. of phases	3
3.12	No. of windings per phase	2
3.13	Rated frequency (Hz)	50 Hz
3.14	Highest system voltage HV side	12 kv
3.15	Highest system voltage LV side	460 volt
3.16	Lightning Impulse withstand voltage,	
	kV peak	
3.16.1	For nominal system voltage of 11 kV	75
3.17	Power Frequency Withstand Voltage	
	kV rms	
3.17.1	For nominal system voltage of 11 kV	28
3.17.2	For nominal system voltage of 415 V	3
3.18	Clearances Phase to Phase , mm	
3.18.1	For nominal system voltage of 11 kV	180
3.18.2	For nominal system voltage of 415 V	25
3.19	Clearances Phase to Earth , mm	
3.19.1	For nominal system voltage of 11 kV	120
3.19.2	For nominal system voltage of 415 V	25



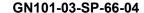


	evel , HV side	350 MVA
3.21 System Fault Le	evel , LV side	35 MVA
3.22 System earthing	J	
3.22.1 HV		Solidly earthed
3.22.2 LV		Solidly earthed
3.23 Ratings		1600/2000 KVA
3.24 Percentage Imp	edance at 75 deg C	6.25 % with IS tolerance
3.25 Max Total losse	s(No Load+ Load	
Losses at 75°C)	at 50% of the rated	
load , kW		
3.25.2 1600 KVA		4.2 [R1]
3.25.3 2000 KVA		5.05[R1]
3.26 Max Total losse	s(No Load+ Load	
Losses at 75°C)	at 100% of the rated	
load , kW		
3.26.1 1600 KVA		11.8[R1]
3.26.2 2000 KVA		15 [R1]
3.27 Phase CT Ratio	, Amp	
3.27.1 1600 KVA		2500/5
3.27.2 2000 KVA		3000/5
3.28 HV cable size for	or all sizes / Conductor	11 kV (E) grade , A2XCEWY 3C x 150
size		sqmm
3.29 Tinned Copper	Busbar size on HV	50x6
side for cable te	rmination, mm x mm	
3.30 LV cable size, 6	50 /1100 V grade ,	Cable
A2XY cable sing	gle core 1000	
[R3]sqmm unar	moured (approx cable	
dia 40 mm)		
3.30.1 1600 KVA [R3]		3 runs per phase + 2 runs in Neutral
3.30.2 2000 KVA [R3]		4 runs per phase + 3runs in Neutral
3.31 Tinned Copper	Busbar size on LV side	
for cable termina	ation, mm x mm	





3.31.1	1600KVA	
3.31.1.1	Phase	160 x 12
3.31.1.2	Neutral	160 x 12
3.31.2	2000KVA	
3.31.2.1	Phase	2 runs 100 x 12
3.31.2.2	Neutral	2 runs 100 x 12
3.32	Maximum Overall Dimension	
	Acceptable (length x width x height),	
	mm x mm x mm	
3.32.1	1600 KVA	2200 x 2200 x 2200
3.32.2	2000 KVA	2350 x 2350 x 2350
	Short Circuit withstand Capacity of the	
3.33	transformer	
3.34	Three phase dead short circuit at	For 3 secs.
	secondary terminal with rated voltage	
	maintained on the other side	
3.35	Single phase short circuit at secondary	For 3 secs.
	terminal with rated voltage maintained	
	on other side	
3.36	Overload Capability	As per IS 6600/IEC 60905
3.37	Noise Level	1600/2000 KVA-60/61 Db respectively
3.38	Radio Influence Voltage	Maximum 250 microvolt
3.39	Harmonic suppression	Transformer to be designed for
		suppression of 3rd, 5th, 7th harmonic
		voltages and high frequency
		disturbances.
3.40	Partial Discharge	Transformer to be free from partial
		discharge upto 120 % of rated voltage
		as the voltage is reduced from 150 % of
		rated voltage i.e. there shall be no
		significant rise above background level
3.41	Tappings	Off Circuit taps on HV winding , +5% to
		- 10% in steps of 2.5 % , change of
		taps by externally operated switch



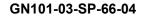


3.41.1	Rotary tap switch operating voltage	11 kV
3.41.2	Rotary tap switch current rating, Amp.	
3.41.2.1	1600/2000 KVA	150 Amp
3.42	Loss capitalization formulae	As per CBIP manual (see note)
3.43	No load Loss capitalization figure	Rs 4,09,979 per kw
3.44	Load loss capitalization figure	Rs 2,26,718 per kw

Note: The bidder shall guaranteed No load losses & load loss individually without any positive tolerance, the bidder shall also guarantee losses at 50 % and 100 % load (at rated voltage & frequency & 75 deg. C) and no positive tolerance shall be allowed on max. Total losses declared by bidder for 50 % & 100 % loading values. In the event of measured loss figures during testing exceeding the guaranteed loss figures of the successful bidder, penalty shall be applied at the rate of 1.25 times the figures mentioned Cl. 3.43 and 3.44 above.

4.0 Construction & Design

4.1	Туре	Double Copper wound, three phase, oil
		immersed, with ONAN cooling, with off
		circuit tap changer
4.2	Major Parts	
4.2.1	Tank	
4.2.1.1	Design	 i) Completely sealed type with corrugated fins and without conservator ii) Completely oil filled or N2 cushion at top filled with positive pressure. N2 shall be technical grade in accordance with IS:1747 iii) With bolted / welded cover iv) Type tested design
4.2.1.2	Plate / Corrugated fin / tank features	 i) Adequate for meeting mechanical & electrical withstand requirements, as per applicable standard. ii) The tank and its sealing (gaskets, orings, etc.) shall be of adequate strength to withstand positive and negative pressures built-up inside the tank while the transformer is in operation. The maximum pressure generated inside the tank shall be as per IS 1180(2014) iii) Corrugated fins shall be built up of CRCA sheets of minimum 1.2mm thick. iv) The corrugated tank wall shall ensure





4.2.1.3	Material of Construction	sufficient cooling of the transformer and compensate for the changes in the oil volume during operation. v) The transformer shall be capable of giving continuous rated output, without exceeding the specified temperature rise. vi) Internal clearance of tank shall be such that, it shall facilitate easy lifting of core with coils from the tank and HV & LV bushings mounted on Top cover. vii) All joints of tank and fittings shall be oil tight. The tank design shall be such that the core and windings can be lifted freely with cover. The tank plate shall be of such strength that the complete transformers when filled with oil may be lifted bodily by means of lifting lugs. viii) Tanks with corrugations & without conservator shall be tested for leakage at a pressure as per the applicable standard. Robust mild steel plate without pitting and low carbon content
4.2.1.4	Plate Thickness	Adequate for meeting the requirements of
		pressure and vacuum type tests as per IS
4.2.1.5	Welding features	i) All seams and joints shall be double welded ii) All welding shall be stress relieved for sheet thickness greater than 35 mm iii) All pipes, stiffeners, welded to the tank shall be welded externally
4.2.1.6	Tank features	 i) Adequate space at bottom for collection of sediments ii) Stiffeners provided for rigidity and designed to prevent accumulation of water iii) No internal pockets in which gas/air can accumulate iv) No external pocket in which water can lodge

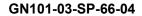
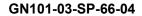


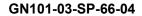


		Table bettern with walded alcid bear
		v) Tank bottom with welded skid base
		vi) Tank cover sloped to prevent retention
		of rain water
		vii) Minimum disconnection of pipe work
		and accessories for cover lifting
		viii) Tanks shall be of strength to prevent
		permanent deformation during lifting,
		jacking, transportation with oil filled.
		ix) Tank to be designed for oil filling under vacuum
		x) Tank cover fitted with lifting lug
		xi) Tank cover bent at all the ends
		xii) Minimum disconnection of pipe work
		and accessories for cover lifting
4.2.1.7	Inspection cover for bushing &	As per manufacturer standard
	Core / Wind	
4.2.1.8	Fittings and accessories on main	See under fittings and accessories.
	tank	
4.2.2	Core	
4.2.2.1	Material	High grade , non ageing, low loss, high
		permeability, grain oriented, cold rolled
		silicon steel lamination
4.2.2.2	Grade	Premium Grade minimum M3 or better
4.2.2.3	Lamination thickness	0.23 mm Max.
4.2.2.4	Design Flux Density at rated	As per Manufacturer design.
	conditions at principal tap	
4.2.2.5	Maximum Flux Density at 12.5 %	1.9 T
	over excitation / over fluxing	
4.2.2.6	Core Design Features	i) Magnetic circuit designed to avoid short
		circuit paths within core or to the earthed
		clamping structures
		ii) Magnetic circuit shall not produce flux
		components at right angles to the plane
		of lamination to avoid local heating
	I .	



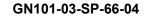


		iii) Least possible air gap and rigid
		clamping for minimum core loss and
		noise generation
		iv) Adequately braced to withstand bolted
		faults on secondary terminals without
		·
		mechanical damage and damage/
		displacement during transportation and positioning.
		v) Percentage harmonic potential with the
		maximum flux density under any
		condition limited to avoid capacitor
		overloading in the system
		vi) All steel sections used for supporting
		the core shall be thoroughly sand
		blasted after cutting , drilling, welding
		vii) Provision of lifting lugs for core coil
		assembly
		viii) Supporting framework designed not to
		obstruct complete drainage of oil from
		transformer
4.2.3	Winding	
4.2.3.1	Material	Electrolytic Copper
4.2.3.2	Maximum Current Density	3 Amp per sq mm at all taps.
	allowed	
4.2.3.3	Winding Insulating material	Class A, non catalytic, inert to transformer
		oil, free from compounds liable to ooze out,
		shrink or collapse.
4.2.3.4	Winding Insulation	Uniform
4.2.3.5	Design features	i) Type of winding [R3]:
		LV: Spiral/Helical
		HV: Crossover/Disc
		ii) Stacks of winding to receive adequate
		shrinkage treatment
		iii) Connections braced to withstand shock



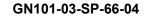


		during transport, switching, short circuit,
		or other transients.
		iv) Minimum out of balance force in the
		transformer winding at all voltage ratios.
		v) Conductor width on edge exceeding six
		times its thickness
		vi) Transposed at sufficient intervals.
		vii) Coil assembly shall be suitably
		supported between adjacent sections
		by insulating spacers + barriers
		viii) Winding leads rigidly supported , using
		guide tubes if practicable
		ix) Winding structure and major insulation
		not to obstruct free flow of oil through ducts
		x) Provision of taps as per clause 3.41
4.2.4	Transformer Oil	
4.2.4.1	Туре	Should be in accordance with specification as
		per Annex C of this document One sample of
		oil drawn from every lot of transformer offered
		for inspection should be tested from
		CPRI/ERDA[R1] for tests as listed BSES
		Standard QAP The cost of this testing should
		be included within the cost of transformer. The
		results shall be confirming to BSES
		specification Annex C
		10% extra oil to be furnished in separate
405	Duchings and Tarminations	containers with each transformer[R3]
4.2.5	Bushings and Terminations	Outdoor France Parks and advallage
4.2.5.1	Type of HV side bushing	Outdoor, Epoxy Resin cast, rated voltage
		and creepage as per 31mm/kV with voltage
		class of 12kV respectively
		Bushing to be considered on top cover for
4050	Tune of IV side broading	optimization of size.[R3]
4.2.5.2	Type of LV side bushing	Outdoor, Epoxy resin cast, rated voltage



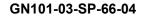


	and creepage as per 31mm/kV with voltage
	class of 1.1 kV respectively
	Additional neutral bushing shall be provided
	of porcelain.
	Bushing to be considered on top cover for
	optimization of size.[R3]
Essential provision for LV side	It shall be complete with copper palm
line bushing	complete with tinned copper busbar of size
	mentioned in clause no 3.31
Essential provision for LV side	In case of neutral bushing the stem and
neutral bushing	busbar shall be integral without bolted,
	threaded, brazed joints. Busbar size shall
	be as per clause no 3.31.
Arcing Horns	Not required
Support insulators inside HV	Epoxy resin cast, rated voltage 12 kV
cable box if provided	
Termination on HV side bushing	By bimetallic terminal connectors suitable
	for ACSR/AAAC conductor / Cable
	connection through cable box with
	disconnecting link suitable for 11kV(E)
	grade,A2XFY 3Cx 150sqmm
Termination of LV side bushing	By bimetallic terminal connectors suitable
	for LV Cable size of 650/1100VGrade,
	A2XY Cable single core 630sqmm(Approx
	dia 40mm)
Minimum creepage distance of all	31mm/KV
bushings and support insulators.	
Protected creepage distance	At least 50 % of total creepage distance
Continuous Current rating	Minimum 20 % higher than the current
	corresponding to the minimum tap of the
T. Control of the Con	
	transformer
Rated thermal short time current	transformer 25 times the rated current for 2 sec
	Essential provision for LV side neutral bushing Arcing Horns Support insulators inside HV cable box if provided Termination on HV side bushing Minimum creepage distance of all bushings and support insulators. Protected creepage distance



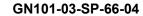


	and fitting of iron and steel	
4.2.5.12	Bushing terminal lugs in oil and	Tinned copper
-	air	
4.2.5.13	Sealing washers /Gasket ring	Nitrile cork rubber (RC70C)/ Expanded
		TEFLON (PTFE) as applicable.
4.2.6	HV & LV cable box	Required
4.2.6.1	Material of Construction	Sheet Steel min. 2.5 mm thick
4.2.6.2	Cable entry	At bottom through detachable gland plate
		with cable clamps of non magnetic material
4.2.6.3	Cable size for HV	11 kV (E) grade , A2XFY 3C x 150 sqmm
4.2.6.4	Cable size for LV	LV cable size, 650 /1100 V grade, A2XY
		cable single core 630 sqmm unarmoured
		(approx cable dia 40 mm)
4.2.6.5	Cable size for LV Neutral	LV cable size, 650 /1100 V grade ,A2XY
		cable single core 630 sqmm unarmoured
		(approx cable dia 40 mm)
4.2.6.6	Detachable Gland Plate material	MS for HV cable box
	for HV, LV, LV Neutral box	Al for LV cable box.
4.2.6.7	Gland plate thickness for HV, LV,	3 mm for HV side cable box
	LV Neutral box	5 mm for LV cable box.
4.2.6.8	Cable gland for HV cables	Nickel plated brass double compression
		weatherproof cable gland
4.2.6.9	Cable lug for HV, LV, LV Neutral	Double hole Aluminium lugs
	cables	
4.2.6.10	Essential parts	i) Flange type removable front cover with
		handles min two nos.
		ii) Tinned Copper Busbar of adequate size
		for Purchaser's cable termination with
		busbar supports
		iii) Earthing boss for the cable box
		iv) Earthing link for the gasketted joints at
		two point for each joint
		v) Earthing provision for cable Armour/



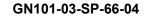


		Screen
		vi) Flanged type inspection cover on top for
		bushing inspection and maintenance
		with handle
		vii) Drain plug
		viii) Rainhood on gasketted vertical joint
		ix) Danger / caution plate
4.2.6.11	Terminal Clearances	700mm, Minimum
4.2.6.12	Termination height required for	1000mm, Minimum
	cable termination	
4.2.7	Current Transformers	
4.2.7.1	Provision	On all three phases on LV side
4.2.7.2	Mounting	On LV side bushings on all three phases
		with the help of fiber glass mounting plate
		affixed to main tank by nut bolt
		arrangement
		Replacement should be possible by
4.2.7.3	Maintenance requirements	removing fixing nut of mounting plate after
		removal of LT cable without disturbing LT
		bushing
4.2.7.4	Accuracy Class	0.5
4.2.7.5	Burden	10VA
4.2.7.6	Туре	Resin Cast Ring type suitable for outdoor
		use.
4.2.7.7	CT ratio	
	1600KVA	2500/5
	2000KVA	3000/5
4.2.7.8	CT terminal Box	
4.2.7.8.1	Size	650 mm height x 450 mm width x 275 mm
		depth.
4.2.7.8.2	Fixing of instrument / meters	On slotted channel 40 x 12 mm size,
	within box	channel fixed on vertical slotted angle 40 x
		40 mm size at two ends



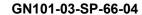


4.2.7.8.3	No of horizontal channels to be	Four
	provided	
4.2.7.8.4	Fixing of terminals within the box	On horizontal slotted channel with the help
1.2.7.0.1	Tixing of terminate within the Bex	of C channel available with the terminals
4.2.7.8.5	Location	On tank wall
4.2.7.8.6	Box door design	Openable from outside with antitheft hinge,
4.2.7.0.0	Box door design	padlock facility, door fixed by stainless steel
		allen screw M6 size , door shall have canopy
40707	T	for rain protection
4.2.7.8.7	Terminal strip	Nylon 66 material, minimum 4 sq mm, screw
		type for control wiring and potential circuit.
4.2.7.8.8	Cables and wires	PVC insulated, extruded PVC inner
		sheathed, armoured, extruded PVC outer
		sheathed 1100 V grade control cable as
		per latest edition of IS 1554 part 1
		minimum 2.5 sq mm for signals and 4 sq
		mm for CT with multi strand copper
		conductor
4.2.7.8.9	Cable Glands	Nickel plated brass double compression
		weatherproof cable gland
4.2.7.8.10	Lugs on wires	Tinned copper pre insulated Pin, Ring, Fork
		type as applicable
4.2.7.8.11	Potential signal in CT box	i)Tapped from main LV busbar
		ii)Neutral Link and Fuse to be provided by
		bidder for PT
4.2.7.8.12	Essential provision	Wiring diagram to be fixed on the back of
		door along with CT spec. on Aluminum
		engraved plate fixed by rivet.
4.2.7.8.13	Auxiliary Relay[R3]	4 separate auxiliary relay with indicators
		(220V A.C) for tripping's to be provided for
		indicating type of fault i.e. Pressure, Oil
		leakage, OTI, MOG.
4.2.8	Off Circuit tap Switch	
4.2.8.1	Range /Step	Off circuit taps on HV winding, +5% to -10%
	J - 1	,



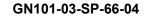


		in steps of 2.5%, change of taps by
		externally operated switch.
4.2.8.2	Туре	Rotary type, 3 pole gang operated, draw out
		type
4.2.8.3	Operating Voltage	11kV
4.2.8.4	Rated Current for tap Switch	150 Amps
4.2.8.5	Operating Handle	External at suitable height to be operated
		from ground level.
4.2.8.6	Essential provision	Tap position indicator, direction changing
		facility, locking arrangement, and caution
		plate metallic fixed by rivet.
4.2.9	Pressure Relief Device	Required
4.2.9.1	Туре	PRV
4.2.9.2	Provision on explosion vent	NA
4.3	Hardware	
4.3.1	External	Stainless Steel
4.3.2	Internal	Cadmium plated except special hardware
		for frame parts and core assembly as per
		manufacturer's design
4.4	Gasket	
4.4.1	For Transformer , surfaces	Nitrile cork rubber RC70C grade
	interfacing with oil like inspection	
	cover etc.	
4.4.2	For Cable boxes, Marshalling	Neoprene rubber based/ cork nitrile
	box, etc.	
4.5	Valves	
4.5.1	Material of construction	Brass / gun metal
4.5.2	Туре	Both end flanged gate valve / butterfly valve
		depending on application
4.5.3	Size	As per manufacturer's standard
4.5.4	Essential provision	Position indicator, locking rod, padlocking
		facility, valve guard, cover plate.
4.6	Cable routing on Transformer	Control cables for accessories on
		transformer tank shall be routed through



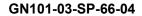


		perference CI trave
		perforated GI trays
4.6.1	Control cable specification	PVC insulated, extruded PVC inner
		sheathed, armoured, extruded PVC outer
		sheathed 1100 V grade control cable as per
		latest edition of IS 1554 part 1 minimum 2.5
		sq mm for signals and 4 sq mm for CT with
		multi strand copper conductor
4.6.2	Specification of wires to be used	PVC insulated multi-strand flexible copper
	inside marshalling box , OLTC	wires of minimum 2.5 sq mm size, 1100 V
	drive mechanism	grade as per latest edition of relevant IS
4.7	Terminal Blocks to be used by	Nylon 66 material, minimum 4 sq mm, screw
	the vendor	type for control wiring and potential circuit.
4.7.1	Essential provision for CT	Sliding link type disconnecting terminal
	terminals	block screwdriver operated stud type with
		facility for CT terminal shorting material of
		housing melamine/ Nylon66
4.8	Cable glands to be used by the	Nickel plated brass double compression
	vendor	weatherproof cable gland
4.9	Cable lugs to be used by the	
	vendor	
4.9.1	For power cables	Long barrel medium duty Aluminum lug with
		knurling on inside surface.
4.9.2	For Control Cable	Tinned copper pre insulated Pin, Ring, Fork
		type as applicable
4.10	Painting of transformer,	
	Radiator, marshalling box for	
	CT, cable boxes etc.	
4.10.1	Surface preparation	By 7 tank pretreatment process or shot
		blasting method
4.10.2	Finish on internal surfaces of the	Bright Yellow heat resistant and oil resistant
	transformer	paint two coats. Paint shall neither react nor
		dissolve in hot transformer insulating oil.
4.10.3	Finish on inner surface of the CT	White Polyurethane paint anti condensation
4.10.3		I Write I divaretialle paint anti condensation
4.10.3	terminal box, HV/LV/LVN cable	type two coats , minimum dry film thickness





	box	80 microns
4.10.4	Finish on outer surface of the	Battle ship Grey shade 632 Polyurethane
	transformer, radiator, CT terminal	paint two coats , minimum dry film thickness
	box, HV/LV/LVN cable box	80 microns
4.10.5	Frame parts	Battle ship grey shade 632 IS 5, 80 micron
		minimum insulating oil resistant paint. Paint
		shall neither react nor dissolve in hot
		transformer insulating oil.
4.11	Winding Temperature scanner [R2]	Required
4.11.1	No. of RTD inputs	Five (Three for windings, one for enclosure
		& one shall be spare) RTD for enclosure
		temperature monitoring shall be fixed at
		enclosure Top from inside to give max.
		Enclosure temp reading & shall be wired up
		to temp. Scanner to indicate the reading.
4.11.2	Location of winding RTD	At location of winding where maximum
		temperature is expected.
4.11.3	No of potential free trip contacts	Two
4.11.4	No of potential free Alarm	Two
	contacts	
4.11.5	Auxiliary Supply	240 V AC, 1 phase, 50 Hz. Tapped from LV
		side busbar through a MCB located inside
		box.
4.11.6	Winding Temperature Scanner	Required
	terminal Box	
4.11.7	Size	As per manufacturers standard
4.11.8	Fixing of instrument within box	On side wall of enclosure
4.11.9	Fixing of terminals within the box	On C channel available with the terminals
4.11.10	Location	Within enclosure frame such that
		Marshalling Box & WTI on same side & free
		access to all LV side doors.
4.11.11	Terminal Strip	Nylon 66 material, minimum 4 sq mm,
1		screw type for control wiring and potential
		1





		circuit.
4.11.12	Cables & Wires	PVC insulated, extruded PVC inner
		sheathed, armoured, extruded PVC outer
		sheathed 1100 V grade control cable as per
		latest edition of IS 1554 part 1 minimum 2.5
		sqmm for signals and 4 sqmm for CT with
		multistrand copper conductor & PVC
		insulated multistrand flexible copper wires of
		minimum 2.5 sqmm size, 1100 V grade as
		per latest edition of relevant IS
4.11.13	Cable Glands	Nickel plated brass double compression
		weatherproof cable gland
4.11.14	Lugs on wires	Tinned copper preinsulated Pin, Ring, Fork
		type as applicable
4.11.15	Auxiliary supply in box	Tapped from main LV busbars, taken via
		MCB for isolation and protection of scanner,
		MCB to be fixed on DIN rail with clamps on
		two sides.
4.11.16	Essential provision	Wiring diagram to be fixed on the back of
		door along with brief details of scanner, HV
		side, LV side door limit switches to be wired
		up-to Terminal Block, Service socket to be
		provided with switch, fuse and link.

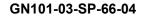
5.0 Fittings and Accessories on Transformer

5.1	Rating and Diagram Plate	Required
5.1.1	Material	Anodized aluminum 16SWG
5.1.2	Background	SATIN SILVER
5.1.3	Letters, diagram & border	Black
5.1.4	Process	Etching
5.1.5	Rating and Diagram Plate details	Following details shall be provided on rating and diagram plate as a minimum i) Type/kind of transformer with winding material



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ii) Standard to which it is manufactured iii) Manufacturer's name; iv) Transformer serial number; v) Month and year of manufacture vi) Rated frequency in Hz vii) Rated voltages in kV viii) Number of phases ix) Rated power in KVA x) Type of cooling (ONAN) xi) Rated currents in A xii) Vector group connection symbol xiii) 1.2/50µs wave impulse voltage withstand level in kV xiv) Power frequency withstand voltage in kV xv) Impedance voltage at rated current and frequency in percentage at principal, minimum and maximum tap xvi) Max. Total losses at 50 % rated
iv) Transformer serial number; v) Month and year of manufacture vi) Rated frequency in Hz vii) Rated voltages in kV viii) Number of phases ix) Rated power in KVA x) Type of cooling (ONAN) xi) Rated currents in A xii) Vector group connection symbol xiii) 1.2/50µs wave impulse voltage withstand level in kV xiv) Power frequency withstand voltage in kV xv) Impedance voltage at rated current and frequency in percentage at principal, minimum and maximum tap
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in kV xv) Impedance voltage at rated current and frequency in percentage at principal, minimum and maximum tap
xv) Impedance voltage at rated current and frequency in percentage at principal, minimum and maximum tap
and frequency in percentage at principal, minimum and maximum tap
principal, minimum and maximum tap
tap
xvi) Max. Total losses at 50 % rated
7,
load
xvii) Max. Total losses at 100 % rated
load
xviii)Load loss at 50% & 100% rated
load
xix) No-load loss at rated voltage and
frequency
xx) Energy efficiency level.
xxi) Continuous ambient temperature at
which ratings apply in deg C
xxii) Top oil and winding temperature
rise at rated load in deg C;
xxiii) Winding connection diagram with
taps and table of tapping voltage,





		current and power
		xxiv) Transport weight of transformer
		xxv) Weight of core and windings
		, ,
		xxvi) Weight of core[R3]
		xxvii) Weight of winding[R3]
		xxviii)Total weight
		xxix) Volume of oil
		xxx) Weight of oil
		xxxi) Name of the purchaser
		xxxii) PO no and date
		xxxiii)Guarantee period
5.2	Terminal marking Plate for Bushing,	Required
	anodized aluminium black lettering on	
	satin silver background both inside	
	cable boxes near termination and on	
	cable box cover (all fixed by rivet)	
5.3	Company Monogram Plate fixed by	Required
	rivet	
5.4	Lifting Lug to lift complete transformer	Required
	with oil	
5.5	Lifting lug for top cover	Required
5.6	Lashing Lug	Required
5.7	Jacking Pad with Haulage hole to raise	Required
	or lower complete transformer with oil	
5.8	Detachable Bidirectional flat roller	Required
	Assembly	
5.8.1	Roller center to center distance	Required
5.8.2	Essential provision	Roller dia 150 mm min., roller to be fixed
	·	in such a way so that the lowermost part
		of the skid is above ground by at least
		100 mm when the transformer is installed
		on roller.
5.9	Pockets for ordinary thermometer on	Required
3.0	tank cover with metallic identification	
	Tank oover with metallic identification	

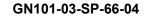
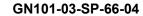




	plate fixed by rivet.	
5.10	Drain valve (gate valve) for the main	Required
	tank with cork above ground by 150mm	
	minimum with padlocking and valve	
	guard with metallic identification plate	
	fixed by rivet.	
5.11	Filter valve (gate valve) at top with	Required
	padlocking and valve guard with	
	metallic identification plate fixed by	
	rivet.	
5.12	Air Release Plug on tank cover with	Required
	metallic identification plate fixed by	
	rivet.	
	Oil level indicator with low level switch	Required
5.13	Earthing pad on tank for transformer	Required
	earthing complete with non-ferrous nut,	
	bolt, washers, spring washers etc. with	
	metallic identification plate fixed by rivet	
5.14	Rainhood for vertical gasketted joints ,	Required
	in cable boxes	
5.15	Earthing bridge by copper strip jumpers	Required
	on all gasketted joints at least two	·
	points for electrical continuity	
5.16	Skid base welded type with haulage	Required
	hole	·
5.17	Core , Frame to tank Earthing	Required
5.18	Danger plate made of Anodized	Required
	aluminum with white letters on red	
	background on Transformer, cable	
	boxes (all fixed by rivet)	
5.19	Caution plate for Off Circuit tap	Required
	changer fixed by rivet.	
5.20	Pressure Relief Device	Required
5.21	Gas-inlet valve of non-return type	Required (for transformers with nitrogen

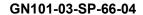




		blanket above oil)
5.22	User manual for Hermetically Sealed Transformers must be provided for review as a part of the technical proposal. The manual must be provided with, but not limited to, maintenance schedule, frequency & method of oil- sampling, procedures for oil-filling & oil-filtration, etc.	Required
5.23	Oil filling hole having(1-1/4" nominal size thread) with cover	Required
5.24	An extended pipe connection on upper end with welded cover. Pipe shall be suitably threaded over a sufficient length to enable use of refilling/siphon connection after removing the welded connection or any other similar arrangement capable of reuse.	Required
5.25	Nitrogen/Air filling device/pipe with welded cover capable of reuse	Required
5.26	Protection relay for internal parameters that is pressure, temperature, Oil level and gas detection(DMCR Relay)	Required
5.27	WTI/OTI Scanner [R2]	Required

6.0 Approved make of components

6.1	СТ	Pragati / ECS / Kappa?Continental
6.2	Bushings	Baroda Bushing/CJI/JP
6.3	Tap Changer	Alwaye /Paragon
6.4	MOG	Sukrut/Atvus
6.5	Valves	Newman
6.6	CRGO	Nippon/JFE/Posco
6.7	Copper	Birla copper/Sterlite
6.8	Pre compressed Pressboard	Raman Board, Mysore/ Senapathy
		Whiteley
6.9	Laminated Wood	Permalli Wallance / Rochling
		Engineers
6.10	Oil	Apar/Savita/Raj Petro
6.11	Steel	TATA/Jindal/SAIL
6.12	Lugs/Glands	Jainson/Dowells/Comet
6.13	Radiators	CTR/Hi-Tech Radiators /Tarang



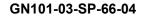


		Engineers
6.14	Corrugated Tank	MPP/BSES approved make
6.15	WTI/OTI [R2]	Pecon/Precimeasure
6.16	DMCR [R2]	IDEF

Note – Any other make of component to be approved by purchaser

7.0 Quality assurance

7.1	Quality Assurance program	To be submitted before contract award.
		Program shall contain following
		 i) The structure of the organisation ii) The duties and responsibilities assigned to staff ensuring quality of work.
		iii) The bidder should have qualified technical & dedicated QA personnel at various stages of manufacture & testing.
		iv) Factory inspection of bidder may be carried out to ascertain the quality system and process in place at manufacturing facility. The same is applicable to bidders not approved with BSES.
		v) The system for purchasing, taking delivery and verification of materials
		vi) The system for ensuring quality of workmanship
		vii) The system for control of documentation
		viii) The system for the retention of records
		ix) The arrangements for the Supplier's internal auditing
		x) A list of the administration and work procedures required to achieve and
		verify Contract's quality
		requirements. These procedures shall be made readily available to
		the Purchaser for inspection on request





7.2	Quality Plan	To be submitted by the successful
		bidder for approval. Plan shall contain
		following as a minimum
		An outline of the proposed work and programme sequence
		ii) The structure of the Supplier's organization for the contract
		iii) The duties and responsibilities assigned to staff ensuring quality of work for the contract
		iv) Inspection Hold and notification points mutually agreed.
		v) Submission of engineering documents required by the specification
		vi) The inspection of materials and components on receipt
		vii) Reference to the Supplier's work procedures appropriate to each activity
		viii) Inspection during fabrication/construction
		ix) Final inspection and test
		x) Successful bidder shall include submittal of Mills invoice, Bill of
		lading, Mill's test certificate for
		grade, physical tests, dimension,
		specific watt loss per kG for the
		core material to the purchaser for verification in the quality plan suitably

8.0 Progress Reporting

8.1	Outline Document	To be submitted for purchaser approva		
		for outline of production, inspection,		
		testing, packing, dispatch,		
		documentation programme		
8.2	Detailed Progress report	To be submitted to Purchaser once a month containing i) Progress on material procurement ii) Progress on fabrication iii) Progress on assembly iv) Progress on internal stage		
		inspection		



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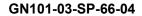
v) Reason for any delay in total
programme
vi) Details of test failures if any in
manufacturing stages
vii) Progress on final box up
viii) Constraints
ix) Forward path

9.0	Submittals	
9.1	Submittals required with bid	i) Completed technical data schedule
		 ii) Descriptive literature giving full technical details of equipment offered;
		iii) Outline dimension drawing for each major component, general arrangement drawing showing component layout and general schematic diagrams;
		iv) Type test certificates, where available, and sample routine test reports;
		v) Detailed reference list of customers already using equipment offered during the last 5 years with particular emphasis on units of similar design and rating;
		vi) Details of manufacturer's quality assurance programme and ISO 9000 series or equivalent national certification;
		vii) Deviations from this specification. Only deviations approved in writing before award of contract shall be accepted;
		viii) Recommended spare parts and consumable items for five years of operation with prices and spare parts catalogue with price list for future requirements
		ix) Transport / Shipping dimension and weights, space required for handling parts for maintenance



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		x)	Write up on oil preservation system
		xi)	Write up on OLTC
		xii)	Quality Assurance Program
9.2	Submittals required after award for Approval (A), Reference (R), and	i)	Programme for production and testing (A)
	subsequent distribution	ii)	Guaranteed Technical Particulars (A)
		iii)	General description of the equipment and all components, including brochures (R)
		iv)	Calculations to substantiate choice of electrical, structural, mechanical component size/ratings (A)
		v)	Detailed loading drawing to enable the Purchaser to design and construct foundations for the transformer (R)
		vi)	Transport / shipping dimensions with weights, wheel base details, untanking height etc (R)
		vii)	Terminal arrangements and cable box details (A)
		viii)	Flow diagram of cooling system showing no of cooling banks (A)
		ix)	Drawings of major components like Bushing , CT etc (A)
		x)	PT fixing arrangement
		xi)	List of makes of all fittings and accessories (A)
		xii)	Statement drawing attention to all exposed points in the equipment at which contact with or in close proximity to other metals and stating clearly what protection is employed to prevent corrosion at each point (A)
		xiii)	Detailed installation and commissioning instructions
		xiv)	Quality Plan.
9.3	Submittals required at the final hold	i)	Inspection and test reports carried out in manufacturer's works (A)

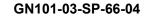




	point prior to dispatch	ii) Test certificates of all bought out items
		iii) Operation and maintenance Instruction as well as trouble shooting charts/ manual
9.4	Drawing and document sizes	Standard size paper A1, A2, A3, A4
9.5	No of drgs /Documents required at different stages	As per Annexure A Scope of Supply

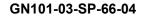
10.0 Inspection & testing

10.1	Inspection and Testing dur	ng Only type tested equipment shall be
	manufacture	acceptable
10.1.1	Tank	 i) Check correct dimensions between wheels demonstrate turning of wheels through 90 deg and further dimensional check. ii) Check for physical properties of materials for lifting lugs, jacking pads etc. All load bearing welds, including lifting lug welds shall be subjected to Required load tests. iii) Certification of all test results. iv) Oil leakage test. v) Vacuum and Pressure test on tank as type test as per IS
10.1.2	Core	 i) Sample testing of core material for checking specific loss, bend properties, magnetization characteristics and thickness. ii) Check on the quality of varnish if used on the stampings. a) Measurement of thickness and hardness of varnish on stampings. b) Solvent resistance test to check that varnish does not react in hot oil. c) Check overall quality of varnish by sampling to ensure uniform hipping colour, no bare spots. No ever burnt varnish layer and



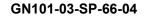


		no bubbles on varnished
		surface.
		iii) Check on the amount of burns.
		iv) Bow check on stampings.
		v) Check for the overlapping of
		stampings. Corners of the sheet
		are to be apart.
		vi) Visual and dimensional check
		during assembly stage.
		vii) Check on complete core for
		measurements of iron-loss and
		check for any hot spot by exciting
		the core so as to induce the
		designed value of flux density in the
		core.
		viii) Check for inter laminar insulation
		between core sectors before and
		after pressing.
		ix) Visual and dimensional checks for
		straightness and roundness of
		core, thickness of limbs and
		suitability of clamps.
		x) High voltage test (2 KV for one
		minute) between core and clamps.
		xi) Certification of all test results.
		xii) One sample of CRGO to be sealed for
		testing at ERDA/CPRI. Tests to be
		conducted in accordance with
		annexure G [R3]
10.1.3	Insulating Materials	i) Sample check for physical
	5 -	properties of materials.
		ii) Check for dielectric strength.
		iii) Visual and dimensional checks.
		iv) Check for the reaction of hot oil on
		insulating materials.
		v) Certification of all test results.
10.1.4	Windings	i) Sample check on winding
		conductor for mechanical
		properties and electrical
		conductivity.
		ii) Visual and dimensional check on
		conductor for scratches, dept.
		mark etc.
		iii) Sample check on insulating paper
		for PE value, Bursting strength,
		ioi re value, buisting strength,



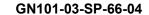


		1	Floatric atronath
		i, .\	Electric strength.
		iv)	Check for the reaction of hot oil on
			insulating paper.
		v)	Check for the bending of the
			insulating paper on conductor.
		vi)	Check and ensure that physical
			condition of all materials taken for
			winding is satisfactory and free of
			dust.
		vii)	Check for absence of short circuit
			between parallel strands.
		viii)	Check for Brazed joints wherever
			applicable.
		ix)	Measurement of voltage ratio to
			be carried out when core/ yoke is
			completely restocked and all
			connections are ready.
		x)	Certification of all test results.
10.1.4.1	Checks before drying process	i)	Check conditions of insulation on
			the conductor and between the
			windings.
		ii)	Check insulation distance
			between high voltage connection
			distance between high voltage
			connection cables and earthed
			and other live parts.
		iii)	Check insulation distance between
			low voltage connection and
			earthed and other parts.
		iv)	Insulation test of core earthing.
		v)	Check for proper cleanliness
		vi)	Check tightness of coils i.e. no
			free movement.
		vii)	Certification of all test results.
10.1.4.2	Checks during drying process	i)	Measurement and recording of
			temperature and drying time
			during vacuum treatment.
		ii)	Check for completeness of drying.
		iii)	Certification of all test results.
10.1.5	Oil	Oil	testing to be done twice in
			ordance with the following[R9]:
			s per IS 335:2018- Sample shall be
			vn from oil storage tank before filling
		into	transformer at CPRI/ERDA during
		stag	e inspection, which is one time per



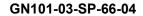


		order
		2. As per IS 1866:2017- Oil sample
		drawn after filling into transformer and
		after completion of acceptance test &
		Temp. rise test at CPRI/ERDA during
		stage/ final inspection, one time per
		order In case of oil testing, if testing
		facility for any test is not available in
		CPRI and ERDA , those tests shall be
		waived off 4
10.1.6	Test on fittings and accessories	As per manufacturer's standard
	Routine tests	The sequence of routine testing shall be
		as follows
		i) Visual and dimension check for
		completely assembled transformer
		ii) Measurements of voltage ratio
		iii) Measurements of winding
		resistance at principal tap and two
		extreme taps.
		iv) Vector Group and polarity test
		v) Measurements of insulation
		resistance*
		vi) Separate sources voltage
		withstand test.
		vii) Measurement of iron losses and
		exciting current at rated frequency
		and 90%, 100% and 110% rated
		voltage.
		viii) Induced voltage withstand test.
		ix) Load losses measurement at 50
		% & 100 % of load.
		x) Impedance measurement of
		principal tap (HV and LV) of the
		transformer.
		x) Routine test of tanks
		xi) Induced voltage withstand test (to
		be repeated if type tests are
		conducted).
		xii) Measurement of Iron loss (to be
		repeated if type test are
		conducted).
		xiii) Measurement of capacitance and
		Tan Delta for transformer winding
		and Tan Delta for transformer oil
		and ran Delia 101 transionnel 011





		(for all transformers).
		xiv) Ratio of CT
		xv) Oil leakage test on completely
		assembled transformer
		xvi) Magnetic balance test
		xvii) Power frequency voltage
		withstand test on all auxiliary
		circuits
		xviii) Certification of all test results.
		xix) Temperature Rise Test #
		a) Insulation resistance measurement
		shall be carried out at 5kV for HV and
		1kV for LV. Value of IR should not be
		less than 2000 Mohms [R3].
		Polarization Index (PI =
		IR _{10min} /IR _{1min}) should not be less than
		1.5 (If one minute IR value is above
		5000 Mohms and it is not be possible to obtain an accurate 10 minutes
		reading, in such cases polarization
		index can be disregarded as a
		measure of winding condition.)
		,
		b) #Temperature rise test may be
		necessary to be carried one unit/lot.
		Purchaser's engineer, will at its discretion, select transformer for temp.
		rise test from any lot offered for
		inspection at manufacturer's works and
		witness the same for comparison with
		ERDA/CPRI type test results
10.3	Type Tests	In case of award of P.O., bidder need to
		conduct type tests from CPRI/ERDA lab
		(on one transformer of each rating and
		type) without any cost implication to
		BRPL, same type test report shall be
		valid for next 5 years [R4]:
		i) Impulse withstand test on all three
		HV limbs of the transformers for
		chopped wave as per standard
		ii) Temperature rise test as per IS
		2026
		iii) Dissolved gas analysis before and
		after Temperature Rise Test
		iv) Air pressure test for sealed
		transformers
		v) Pressure and Vacuum test on tank
1		v/ i rossure and vacuum test on tank





10.3.2	Notification to bidders	Note – Purchaser may choose to carry out short circuit (mentioned in clause 10.4), impulse & temperature rise test on one unit from a lot offered from inspection at CPRI/ERDA The product offered must be of type tested quality. In case the product offered is never type tested the same as per above list to be conducted by bidder at his own cost at CPRI/ERDA. The test report shall not be more 5 years old
10.4	Special Tests	On one transformer of each rating and type i) Dynamic & Thermal (3 sec) Short Circuit Test as per IS 2026 ii) Measure of zero seq. impedance (Cl. 16.10 IS 2026 Part I). iii) Measurement of acoustic noise level (Cl. 16.12 of IS 2026 Part I). iv) Measurement of harmonic level on no load current. v) Paint adhesion test. vi) High voltage withstand test shall be performed on the auxiliary equipment and wiring after complete assembly. Cost of such tests, if extra, shall be quoted separately by the Bidder.
10.4.1	Note for special test	In case the product offered is never tested for short circuit (Dynamic & Thermal) same to be conducted by bidder at his own cost at CPRI/ERDA. The test report shall not be more 5 years old.
10.5	Customer Hold Point	 i) GTP & Drawings approval ii) Core Inspection(See Cl No 10.1.2) Sample to be tested at CPRI/ERDA for each lot. iii) Tank Pressure & vacuum Test iv) Core & Coil Stage inspection of each lot to be offered for final testing.



11.0 Packing, Shipping, Handling and Storage

11.1	Packing		
11.1.1	Packing protection	Against corrosion, dampness, heavy rains,	
		breakage and vibration	
11.1.2	Packing for accessories and	Robust wooden non returnable packing case	
	spares	with all the above protection	
11.1.3	Packing details	On each packing case details required as follows	
		 i) Individual serial number; ii) Purchaser's name; iii) PO number; iv) Destination; v) Supplier's name; vi) Name and address of supplier's agent vii) Description and quantity viii) Manufacturer's name ix) Country of origin x) Case measurements xi) Gross and net weights in kilograms xii) All necessary slinging and stacking instructions. 	
11.2	Shipping	instructions. The bidder shall ascertain at an early date and definitely before the commencement of manufacture, any transport limitations such as weights, dimensions, road culverts, overhead lines, free access etc. from the manufacturing plant to the project site; and Furnish to the Purchaser confirmation that the proposed packages can be safely transported, as normal or oversize packages, upto the plant site. Any modifications required in the infrastructure and cost thereof in this connection shall be brought to the notice of the Purchaser	
11.3	Handling and Storage	As per manufacturer's instruction	

12.0 Deviations

Deviations from this Specification shall be stated in writing with the tender by reference to the Specification clause/GTP/Drawing and a description of the alternative offer. In absence of such a statement, requirements of the Specification shall be met without exception.



13.0 Inspection Expenses

Inspection (i.e. routing test, acceptance test, type test, factory visit etc.) shall be done any time by BSES on the basis of PO or may involve 3rd party as per BSES requirement. Inspection expenses like accommodation, fooding, local transport, air fare, train fair, taxi (NCR) etc shall be borne by seller.

Any kind of test (routine/type test/acceptance test if any) at 3rd lab (i.e. CPRI/ERDA/NABL approved lab) shall be carried out by seller at their own cost. BSES may witness the test and the expenses like accommodation, fooding, local transport, air fare, train, taxi etc. shall be borne by seller.

Above expenses shall be applied at each and every inspection and shall stand till closing of PO/WO/Rate contracts etc.

Annexure A Scope of supply

1.0 The scope of supply shall include following

1.1 Design, manufacture, assembly, testing at stages of manufacture as per Cl. 10 of this specification, final testing at manufacturer works on completely assembled transformer before dispatch, packing, transportation, delivery and submission of all documentation for the Distribution transformer with all accessories as below

Sr. No	Description	Scope of Supply
1.1.1	Fully assembled transformer with all major parts like CT box,	YES
	Fittings and accessories as per Clause 5.0 of this specification	
1.1.2	Off circuit tap changer as per this specification	YES
1.1.3	HV, LV, cable boxes	YES
1.1.4	Support steel material for support of cable boxes from ground	YES
1.1.5	Foundation Bolts for complete transformer	YES
1.1.6	Support structure to support of cable from the transformer tank	YES
1.1.7	Nickel Plated brass double compression glands for HV and LV,	YES
	LVN cables (in case of termination by cable)	
1.1.8	Long barrel heavy [R3]duty Aluminum lugs for power cables (in	YES



Sr. No	Description	Scope of Supply
	case of termination by cable	
1.1.9	Nickel Plated brass double compression glands and tinned copper lugs for control cable termination in CT box for vendor's cables	YES
1.1.10	Cables and wires for transformer accessories and internal wiring of CT box	YES
1.1.11	Touch up paint, minimum 2 litres	YES
1.1.12	Extra Transformer oil 10 % in non returnable drums	YES
1.1.13	One spare complete set of gaskets	YES
1.1.14	Routine testing as per Cl. 10.2 of this specification	YES
1.1.15	Type testing as per Cl. 10.3 of this specification	YES
1.1.16	Special testing as per Cl. 10.4 of this specification	YES
1.1.17	Submission of Documentation as detailed below	YES

2.0 Submission of documents

Submission of drawings, calculations, catalogues, manuals, test reports shall be as follows

	Along with offer	For Approval	Final after	Remarks
		after award of	approval	
		contract		
Drawings	3 copies	4 copies	12 copies + 1	See Clause 9 for
	(Typical drgs)		soft copy in CD	various
				drawings
				required
Calculations	3 copies	4 copies	6 copies + 1 soft	See Clause 9 for
	(Typical)		copy in CD	details
Catalogues	1 copy		12 copies + 1	
			soft copy in CD	
Instruction	1 copy		12 copies + 1	
manual for the			soft copy in CD	
transformer				
Test Report	2 copies (Type		12 copies + 1	Type test and



GN101-03-SP-66-04

Technical Specification For 1600/2000 KVA,11/0.415 KV Oil Filled Distribution Transformer

test and sample	soft copy in CD	sample	routine
Routine Test)		test repo	rts

- 3.0 Delivery schedule
- 3.1 Delivery period start date
- 3.2 Delivery period end date -
- 3.3 Material dispatch clearance after inspection by purchaser & written

Dispatch clearances from purchaser



Annexure B Service Conditions

1.0.0	Delhi Atmospheric conditions	
a)	Average grade atmosphere :	Heavily polluted, dry
	Maximum altitude above sea	1000 M
	level	
b)	Ambient Air temperature	Highest 50 deg C, Average 40 deg C
	Design ambient temperature	50 deg C
c)	Relative Humidity	90 % Max
d)	Seismic Zone	4
e)	Rainfall	750 mm concentrated in four months



Annexure – C Technical Particulars of transformer Oil

Transformer oil shall be new and conform to the following requirements:

1.0 Codes & standards

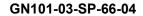
Latest revision of following codes & standards with all amendments -

	Standard no	Title
1.1	IS 335-2018	New insulating oils
1.3	IS 1783	Drums for oils

2.0 Properties

The insulating material shall have following features –as per IS 335:2018 [R3]

Sr No	Item description	Specification requirement
2.1	Appearance of oil	Clear, free from sediment and
	Appearance of oil	suspended matter
	\	15 mm ² /s at 40 ⁰ C
2.2	Viscosity Max.	1800 mm ² /s at 0 ⁰ C
2.3	Pour Point, Max	- 10 ⁰ C
2.5	•	
	Water content, Max	30 mg/Kg
2.4	Breakdown voltage	
	i) New unfiltered oil. Min.	30 kV
2.5	ii) After filtration Min.	70 kV
2.6	Density Max.	0.895 g/ml at 20 ⁰ C
2.7	Dielectric dissipation factor Max	0.005 at 90 ⁰ C,
2.8	Particle Content	Value to be provided by the vendor
2.9	Acidity Max	0.01 mg KOH/g
2.10	Interfacial tension at 27°C Min	40 mN/m
2.11	Total sulphur content	Value to be provided by the vendor
2.12	Corrosive sulfur	Not-corrosive
2.13	Potentially Corrosive sulfur	Not-corrosive
2.14	DBDS	Not detectable (<5 mg/kg)
2.15	Inhibitor	Not detectable (<0.01%)
2.16	Metal Passivator	Not detectable (<5 mg/kg)
2.17	Other addivites	Type and concentration of additives to be provided by the vendor
2.18	2-furfural and related Compounds content	Not detectable (<0.05 mg/kg) for each individual compound
2.19	Oxidation stability	
a)	Total acidity, Max	1.2 mg KOH/g
b)	Sludge Max	0.8%
	DDF at 90 ⁰ C, Max	
c)	DDF at 90 °C, Max	0.5

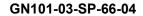




Sr No	Item description	Specification requirement
2.20	Gassing Tendency	Value to be provided by the vendor
2.21	ECT	Value to be provided by the vendor
2.22	Flash point Min.	135 ⁰ C,
2.23	PCA content Max	3%
2.24	PCB content	Not detectable (<2 mg/Kg)

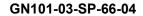
Annexure D Guaranteed Technical Particulars (Data by Seller)

Sr.	Particulars	Specified / Ro	Offered	
1.0	General			
1.1	Make			
		Oil immersed,	core type, step	
		down located	generally outdoor	
1.2	Tuna	but may be lo	cated indoor also	
	Туре	with poor vent	ilation. Bidder	
		shall confirm f	ull rating available	
		in indoor locat	ion also	
2.0	Nominal Continuous Rating, KVA			
2.1	HV winding	1600 KVA	2000 KVA	
2.2	LV winding	1600 KVA	2000 KVA	
3.0	Rated voltage (kV)			
3.1	HV Winding	,	11 kv	
3.2	LV Winding	4	15 volt	
4.0	Rated current (Amps)	1600 KVA	2000 KVA	
4.1	HV Winding			
4.2	LV Winding			
5.0	Connections			
5.1	HV Winding	1	Delta	
5.2	LV Winding	Star with neutral		
5.3	Vector Group reference)yn11	
	Impedance at principal tap rated			
6.0	current and frequency, ohm @75			
	deg C			



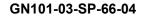


Sr.	Particulars	Specified / Required	Offered
6.1	Impedance	6.25% with IS tolerance	
6.2	Reactance		
6.3	Resistance		
6.4	Impedance at lowest tap at rated		
0.4	current and frequency		
6.5	Impedance at highest tap at rated		
0.5	current and frequency		
7.0	Resistance of the winding at 75° C		
7.0	in ohm		
7.1	a) HV		
7.2	b) LV		
8.0	Zero sequence impedance in ohm		
8.1	a) HV		
8.2	b) LV		
0.0	Guaranteed maximum Total		
9.0	losses at principal tap at 75°C, kW		
9.1	50 % of Load	as per Spec Cl 3.25	
9.2	100% of Load	as per Spec Cl 3.26	
9.3	No Load Loss (Max)		
0.4	Total I ² R losses of windings @ 75		
9.4	deg C, KW		
9.5	Total stray loses @ 75 deg C, KW		
9.6	Total Load losses (Max.), KW		
	No load loss at maximum		
9.7	permissible voltage and frequency		
	(approx.),kW		
40.0	Temperature rise over reference		
10.0	ambient of 40 °C		
10.1	Top oil by thermometer ⁰ C	40 °C	
10.2	Winding by resistance ⁰ C	45 °C	
11.0	Efficiency		



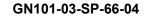


Sr.	Particulars	Specified / Required	Offered
44.4	Efficiency at 75°C and unity power		
11.1	factor %		
11.1.1	at 110% load		
11.1.2	at 100% load		
11.1.3	at 80% load	Not Less than 99.5%	
11.1.4	at 60% load		
11.1.5	at 40% load		
11.1.6	at 20% load		
11.2	Efficiency at 75°C and 0.8 power		
11.2	factor lag %		
11.2.1	at 110% load		
11.2.2	at 100% load		
11.2.3	at 80% load		
11.2.4	at 60% load		
11.2.5	at 40% load		
11.2.6	at 20% load		
11.3	Maximum efficiency at 75°C %		
11.4	Load and power factor at which it		
11.4	occurs		
12.0	Regulation (%)		
12.1	Regulation at full load at 75° C		
12.1.1	at unity power factor		
12.1.2	at 0.8 power factor lagging		
12.2	Regulation at 110% load at 75° C		
12.2.1	at unity power factor		
12.2.2	at 0.8 power factor lagging		
13.0	Tappings		
13.1	Туре		
13.2	Capacity		
13.3	Range-steps x % variation		
13.4	Taps provided on HV winding (Yes / No)		



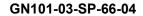


Sr.	Particulars	Specified / Required	Offered
13.5	Rated current of rotary switch		
14.0	Cooling system		
14.1	Type of cooling	ONAN	
14.2	No. of cooling unit Groups		
14.3	Capacity of cooling units		
14.4	Mounting of radiators		
14.5	Number of Radiators		
14.8	Total radiating surface , sqmm		
14.9	Thickness of radiator tubes, mm	Minimum 1.2 mm	
15.0	Details of Tank		
15.1	Material	Robust mild steel plate without	
15.1	Material	pitting and low carbon content	
15.2	Thickness of sides mm		
15.3	Thickness of bottom mm		
15.4	Thickness of cover mm		
	Confirmation of Tank designed		
15.5	and tested for Vacuum, Pressure		
	(Yes/ No)		
15.5.1	Vacuum mm of Hg. /	As per IS	
13.3.1	(kN/m ²)	As per 10	
15.5.2	Pressure mm of Hg.		
15.6	Is the tank lid sloped?	Yes	
15.7	Inspection cover provided (Yes /	as per spec	
10.7	No)	do per opec	
15.8	Location of inspection cover (Yes		
13.0	/ No)		
	Min. dimensions of inspection		
15.9	cover (provide list of all		
10.0	inspection cover with dimension),		
	mm x mm		
16.0	Core		
16.1	Туре:	Core	
16.2	Core material grade	Premium grade minimum M3 or	



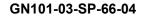


Sr.	Particulars	Specified / Required	Offered
		better	
16.3	Core lamination thickness in mm		
16.4	Insulation of lamination	With insulation coating on both	
10.4	insulation of lamination	sides	
16.5	Design flux density at rated		
10.0	condition at principal tap, Tesla		
16.6	Maximum flux density at 12.5 %	1.9 Tesla Max allowed	
.0.0	over excitation /over fluxing, Tesla	The Feela Max allewed	
16.7	Equivalent cross section area		
. •	mm²		
16.8	Guaranteed No Load current at		
	100% rated voltage , Amps		
16.8.1	HV		
16.8.2	LV		
16.9	Guaranteed No Load current At		
	110% rated voltage, Amps		
16.9.1	HV		
16.9.2	LV		
17.0	Type of Winding[R3]		
17.1	HV	Crossover/Disc	
17.2	LV	Spiral/Helical	
17.3	Conductor material	Electrolytic Copper	
17.4	Current density (HV/LV)	Maximum allowed 3.0 A per sq	
		mm.at all taps	
17.5	Gauge/area of cross section of		
	conductor		
17.5.1	a) HV		
17.5.1	b) LV		
17.6	Insulating material		
17.6.1	HV Turn		
17.6.2	LV Turn		
17.6.3	LV Core		



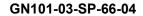


Sr.	Particulars	Specified / Required	Offered
17.6.4	HV - LV		
17.7	Insulating material thickness, mm		
17.7.1	HV Turn		
17.7.2	LV Turn	-	
17.7.3	LV to Core		
17.7.4	HV to LV		
18.0	Minimum design clearance, mm		
18.1	HV to earth in Air		
18.2	HV to earth in oil		
18.3	LV to earth in Air		
18.4	LV to earth in oil		
18.5	Between HV & LV in Air		
18.6	Between HV & LV in oil		
18.7	Top winding and yoke		
18.8	Bottom winding and yoke		
19.0	Insulating oil		
19.1	Quantity of oil Ltrs		
19.1.1	In the Transformer tank		
19.1.2	In each radiator		
19.1.4	Total quantity		
19.2	10% excess oil furnished?	To be furnished in separate containers with each transformer[R3]	
19.3	Type of Oil	As per cl 4.2.4	
20.0	Bushing / Support Insulator		
20.1	Make	-	
20.2	Туре		
20.2.1	HV side	As per Cl. 4.2.5.1 of the spec	
20.2.2	LV side	As per Cl. 4.2.5.2 of the spec	
20.3	Reference Standard		
20.4	Voltage class, kV		
20.4.1	HV side Bushing/ Support	12 kV	



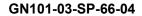


Sr.	Particulars	Specified / Required	Offered
	Insulator		
20.4.2	LV side line and neutral bushing/	1.1 kV	
20.4.2	Support Insulator	1.1 KV	
20.5	Creepage factor for all bushing /	31 mm / kV	
20.5	Support Insulator mm/KV	OT IIIII / KV	
20.6	Rated thermal short time current		
20.6.1	HV bushing	25 times rated current for 2	
20.0.1	zasimig	secs.	
20.6.2	LV line and neutral bushing	25 times rated current for 2	
		secs.	
20.7	Weight, Kg		
20.7.1	HV bushing		
20.7.2	LV line and neutral bushing		
20.8	Free space required for bushing		
20.0	removal, mm		
20.8.1	HV bushing		
20.8.2	LV line and neutral bushing		
21.0	Terminal connections		
21.1	HV	Cable size as per Cl no 3.28	
21.2	LV	Cable size as per Cl no 3.30	
21.3	LV Neutral	Cable size as per Cl no 3.30	
22.0	HV cable box	Required	
22.1	Suitable for cable type, size	Cable size as per Cl no 3.28	
22.2	Termination height	750 mm min.	
22.3	Gland plate dimension, mm x mm		
22.4	Gland plate Material	MS	
22.5	Gland plate thickness	3 mm min.	
22.6	Phase to phase clearance inside	190 mm	
22.6	box,mm	180 mm	
22.7	Phase to earth inside box,mm	120 mm	
23.0	LV Cable box	Required	



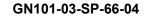


Sr.	Particulars	Specified / Required	Offered
23.1	Suitable for cable type , size	Cable size as per Cl no 3.30	
23.2	Termination height	1000 mm, min.	
23.3	Gland plate dimension, mmxmm		
23.4	Gland plate material	Aluminum	
23.5	Gland plate thickness	5 mm min.	
23.6	Phase to phase	25 mm	
23.7	Phase to earth	25 mm	
24.0	L.V neutral Cable termination arrangement	Separate cable box not required (LV-N to be provided in LV cable box.)	
25.0	Current Transformer on LV phases		
25.1	Туре		
25.2	Make		
25.3	Reference Standard		
25.4	CT Ratio		
25.5	Burden, VA		
25.6	Class of Accuracy		
25.7	CT terminal box size		
26.0	Pressure release device		
26.1	Minimum pressure the device is set to rupture		
26.1.1	For Main Tank		
27.0	Fittings Accessories Each Transformer furnished as per Clause No 5. (Bidder shall attach		
	separate sheet giving details, make and bill of materials)		
27.1	WTI/OTI Scanner details [R2]		
27.1.1	Make		
27.1.2	Model no.		
27.1.3	Manual submitted		





Sr.	Particulars	Specified / Required	Offered
27.2	DMCR Relay details [R2]		
27.2.1	Make		
27.2.2	Model no.		
27.2.3	Manual submitted		
	Painting: as per clause for the		
28.0	transformer, cable boxes, radiator,		
	Marshalling box (Yes/No)		
29.0	Max over all transformer	As per Clause 3.32	
29.0	dimensions	As per Clause 3.32	
29.1	Length, mm		
29.2	Breadth, mm		
29.3	Height, mm		
30.0	Transformer Tank Dimensions		
30.1	Length, mm		
30.2	Breadth, mm		
30.3	Height, mm		
31.0	Weight data		
31.1	Core, kG		
31.2	Frame parts, kG		
31.3	Core and frame, kG		
31.4	Total Winding, kG		
31.5	Core , Frame, Winding, kG		
31.6	Tank, kG		
31.7	Tank lid, kG		
31.8	Empty conservator tank, kG	NA	
31.9	Each radiator empty, kG	NA	
31.10	Total weight of all radiators empty,	NA	
31.10	kG	INA	
31.11	Weight of oil in Tank, kG		
31.12	Weight of oil in Conservator, kG	NA	
41.13	Weight of oil in each Radiators, kG	NA	





Sr.	Particulars	Specified / Required	Offered
31.14	Total weight of oil in Radiators, kG	NA	
31.16	Total Transport weight of the		
31.10	transformer, kG		
32.0	Volume Data		
32.1	Volume of oil in main tank, litres		
	Volume of oil between highest		
32.2	and lowest levels of main	NA	
	conservator, litres		
32.4	Volume of oil in each radiator,	NA	
32.4	litres	INA	
32.5	Total volume of oil in radiators,	NA	
32.3	litres	INA	
32.7	Transformer total oil volume, litres		
33.0	Shipping Data		
33.1	Weight of heaviest package, kG		
33.2	Dimensions of the largest		
33.2	package (L x B x H) mm		
34.3	Tests		
34.1	All in process tests confirmed as		
34.1	per Cl. (Yes/ No)		
34.2	All Type Tests confirmed as per		
34.2	Cl. (Yes / No)		
34.3	All Routine Tests confirmed as		
J4.J	per Cl. (Yes/ No)		
34.4	All Special Tests confirmed as per		
34.4	Cl. (Yes/ No)		



Annexure E Guaranteed Technical Particulars of Transformer Oil

Bidder to submit hard copy duly filled & signed along with techno commercial offer. Bidder to submit separate GTP for each type of insulating oil -

Sr No.	Item description	Specification requirement	Data by vendor
1.1	Appearance of oil	Clear, free from sediment and suspended matter	
1.2	Viscosity Max.	15 mm ² /s at 40 ⁰ C	
		1800 mm ² /s at 0 ⁰ C	
1.3	Pour Point, Max	- 10 ⁰ C	
1.4	Water content, Max	30 mg/Kg	
1.5	Breakdown voltage		
	i) New unfiltered oil. Min.	30 kV	
	ii) After filtration Min.	70 kV	
1.6	Density Max.	0.895 g/ml at 20 ⁰ C	
1.7	Dielectric dissipation factor Max	0.005 at 90 ⁰ C,	
1.8	Particle Content	Value to be provided by the vendor	
1.9	Acidity Max	0.01 mg KOH/g	
1.10	Interfacial tension at 27°C Min	40 mN/m	
1.11	Total sulphur content	Value to be provided by the vendor	
1.12	Corrosive sulfur	Not-corrosive	
1.13	Potentially Corrosive sulfur	Not-corrosive	
1.14	DBDS	Not detectable (<5 mg/kg)	
1.15	Inhibitor	Not detectable (<0.01%)	
1.16	Metal Passivator	Not detectable (<5 mg/kg)	
1.17	Other addivites	Type and concentration of additives to be provided	
1.18	2-furfural and related	Not detectable (<0.05 mg/kg)	
	Compounds content	for each individual compound	
1.19	Oxidation stability		
a)	Total acidity, Max	1.2 mg KOH/g	
b)	Sludge Max	0.8%	
c)	DDF at 90 ⁰ C, Max	0.5	
1.20	Gassing Tendency	Value to be provided by the vendor	
1.21	ECT	Value to be provided by the vendor	
1.22	Flash point Min.	135 ⁰ C,	
1.23	PCA content Max	3%	
1.24	PCB content	Not detectable (<2 mg/Kg)	



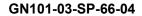
Annexure - F Recommended Spares (Data by Supplier)

List of recommended spares as following -

Sr No	Description of spare part	Unit	Quantity
1		No	
2		No	
3		No	
4		No	
5		No	
6		No	

Anexure G - CRGO & Testing Points [R2]

In addition to the BSES specification following points to be verified during manufacturing/inspection.		
1	Transformer core shall be low loss, non-ageing, high permeability PRIME GRADE CRGO with M3 Grade or better with max thickness of 0.23mm and with max core loss of 0.8 [R3]W/Kg, perfectly insulated and clamped to minimize noise and vibrations.	
2	Following stage inspections will be carried out by purchaser or by third party engineers appointed by BSES:	
2.1	Verification & inspection of the mother coil at port & putting stamp & seal may be inspected by BSES.	
2.2	Reconciliation of mother coil by checking stamp & seal at factory before slitting. One sample of CRGO to be sealed for testing at ERDA/CPRI. Following Tests shall be conducted on the sample [R3]: 1) Specific core loss measurement 2) Magnetic polarization 3) Magnetic permeability 4) Specific core loss measurement after accelerated ageing test 5) Surface insulation resistivity 6) Electrical resistivity measurement 7) Stacking factor 8) Ductility(Bend test) 9) Lamination thickness 10) Magnetization characteristics (B-H curve)	





2.3	Bidder should have in house core cutting facility for proper monitoring & control on quality. In case it is done outside cutting shall be done in presence of BSES.
2.4	Following documents to be submitted during the stage inspection :
2.4.1	Invoice of supplier
2.4.2	Mills test certificates
2.4.3	Packing list
2.4.4	Bill of lading
2.4.5	Bill of entry certificates by customs
2.4.6	Core material shall be directly procured either from the BSES approved manufacturer or through their authorized service centre/distributor and not through any contractor.
2.5	Bidder should have hydraulic core lifting facility to avoid any jerk at the time of core building.
2.6	BSES may appoint recognized testing authority like CPRI /ERDA with their instruments & engineer's team and measure no load loss, load loss and percentage impedance of the transformer at supplier's works at our own cost. Bidder shall agree and give them full cooperation during their stay & testing at shop floor. The losses & impedance values so obtained will be considered as final.
2.7	Bidder should have in-house NABL accredited testing facility. 1. Prospective bidders whose NABL accreditation is in process, Team of BRPL (NABL certified Engineers) may visit prospective bidder's works and may give their inputs to take NABL accreditation {R4} 2. Based on bidder's status of NABL accreditation ongoing process, it may be qualified (by submission of undertaking that in defined time bidder shall get NABL accreditation certification) {R4}