BSES Yamuna Power Limited

NOTICE INVITING TENDER (NIT)

SUPPLY AND SUPERVISION FOR E/T/C

OF

66/33 KV, 40/50 MVA AUTO TRANSFORMER

NIT NO: CMC/BY/25-26/RS/SkS/SV/26
[RFx Number: 2200000154]

Due Date for Submission: 21.11.2025, 15:00 HRS

BSES YAMUNA POWER LIMITED (BYPL)
CONTRACTS & MATERIALS DEPT.,
SHAKTI KIRAN BUILDING, KARKARDOOMA,
DELHI-110032
CIN: U40109DL2001PLC111525
WEBSITE: www.bsesdelhi.com

BSES Yamuna Power Limited

NIT INDEX

BSES Yamuna Power Limited

VOLUME – I: INFORMATION TO BIDDER (ITB)

BSES Yamuna Power Limited

SECTION – I: REQUEST FOR QUOTATION

1.00 EVENT INFORMATION

1.01 BSES Yamuna Power Ltd (hereinafter referred to as **"BYPL"**) invites **Open Tender** in the E-Tender Bidding Process on a "Single Stage: Two Parts" from interested Bidders as detailed below:

Table 1: Package Details

Tender Description	Tender Fee (₹)	Estimated Cost (₹)	EMD Amount (₹)	BYPL Project Site Location
Supply and Supervision for E/T/C of 66/33 kV, 40/50 MVA Auto Transformer	1,180	4.26 Crore	8.52 Lakh	Delhi Store(s)/Site(s)

The bidder must qualify the requirements as specified in clause 2.0 stated below.

1.02 The tender document can be downloaded from our website www.bsesdelhi.com **by navigating to → BSES YAMUNA POWER LTD → Tender → Open Tenders** or access our e-tendering portal directly at https://srmprdportal.bsesdelhi.com/irj/portal to view and participate in the tender.

1.03 **Tender Fee**: The bidder must compulsorily submit the non-refundable tender fee of ₹ 1,180/- either as a demand draft or via online transfer through IMPS, NEFT, or RTGS to cover the cost of bid documents. Bids submitted without the Tender fee will be rejected.

1.04 **Earnest Money Deposit (EMD)** as specified in Table 1, must be valid for 120 days from the bid submission due date. It should be submitted in the form of BG, FD, or online transfer of the required amount through IMPS, NEFT, or RTGS. Bids submitted without the EMD will be rejected.

1.05 **Time Schedule**

The bidders should complete the following events within the dates specified as under:

S. No.	Events	Due date & Time
1	Date of availability of tender documents from BYPL Website & SRM	up to 21.11.2025, 15:00 Hours
2	Date & Time of Pre-Bid Meeting Pre-Bid Meeting will be done online, Register in advance for this meeting via, the Zoom Meeting link: https://zoom.us/j/97175681785?pwd=sxgQdgdPU7qza2UzzDpcvgUSPYtcnG.1 After registering, you will receive a confirmation email containing information about joining the meeting.	07.11.2025, 15:00 Hours
3	Last Date of receipt of pre-bid queries, if any (Queries to be submitted via e-mail)	07.11.2025 up to 18:00 Hours
4	Last Date of replies to all the pre-bid queries as received	12.11.2025 up to 17:00 Hours
5	Last date and time of receipt of Complete Bids (Tender Fees, EMD, Part A & Part B)	21.11.2025, 15:00HRS
6	Date & Time of Opening of PART A – EMD and Technical Bid	21.11.2025, 16:00HRS
7	Date & Time of opening of Price/RA of qualified bids	Will be notified to the qualified bidders through our website/e-mail

Note: In the event of the last date specified for submission of bids and the date of opening of bids is declared as a closed holiday for the BSES office, the last date of submission of bids and date of opening of bids will be the following working day at the appointed times.

1.06 The Bid shall be submitted online in two (02) parts as detailed below:

- **Part A - Techno Commercial Bid**
- **Part B - Financial (Price) Bid**

Bids have to be mandatorily submitted only through the e-procurement portal of BSES Delhi. Bids submitted through any other form/ route shall not be admissible.

However, documents that require original submission, such as the Tender Fee (in the form of DD), Earnest Money Deposit (EMD) (in the form of BG/FD/DD as applicable), samples (where applicable), and any other documents specified in the tender documents, must be delivered to the BYPL office at the address below on or before the bid submission deadline:

Head of Department
Contracts & Materials Deptt.
BSES Yamuna Power Ltd
Reception, Ground Floor
Shaktikiran Building, Karkardooma
Delhi 110032

Opening of Bids:

- **Part A (Techno-Commercial Bid):** Shall be opened online.
- **Part B (Financial Bid):** Shall be opened online only for Techno-Commercially qualified bidders. The date and time of opening Part B will be communicated separately in due course.

It shall be the sole responsibility of the bidder to ensure that the bid documents are submitted online and/or reach the above office on or before the last date and time specified.

All envelopes shall be duly superscribed "**Supply and Supervision for E/T/C of 66/33 kV, 40/50 MVA Auto Transformer" "NIT NO: CMC/BY/25-26/RS/SkS/SV/26 [RFx Number: 2200000154] DUE ON 21.11.2025, 15:00 Hr.**"

1.07 BSES Yamuna Power Ltd reserves the right to accept or reject any or all tenders without assigning any reason thereof in the event of the following:

a) Tender is received after the due date and time.
b) Tender fee of requisite value is not submitted.
c) Earnest Money Deposit (EMD) of requisite value & validity is not submitted.
d) Financial Bid, as per the prescribed Price Schedule, is not submitted.
e) The bid is incomplete in any respect.
f) The required documents in support of the Qualification Requirements mentioned in Section 1, Clause 2.0 of this Tender Document are not furnished.
g) Complete documents and details as per the Bid Index for Part-A (Technical Bid) at Appendix I – Annexure 1.01 are not enclosed.
h) Filled in Schedule of Deviations as per Annexure is not submitted.

2.00 QUALIFICATION CRITERIA

The prospective bidder must qualify for all of the following requirements and shall be eligible to participate in the bidding who meets the following requirements and management has a right to disqualify those bidders who do not meet these requirements.

2.01 **Technical Criteria:**

S. No.	Criteria	Documents to be submitted by the bidder
1	The bidders should have own manufacturing facility in India for Power transformer of similar rating or higher since last 3 years.	i. OEM Valid Certificate of Incorporation & Factory (Manufacturing) Licence. ii. Detailed list of manufacturing units, their locations, and the specific works from which supplies shall be made against this tender, submitted by the OEM.
2	The Bidder should have supplied at least 20 Nos of same or higher ratings & voltage PTR in last 5 years from the date of bid opening to any Generation/ Transmission/ Distribution/ utilities/ SEB's/ PSU's/ reputed company wherein the end user shall be Utility/SEB's/PSU's.	i. Summary list of executed Purchase orders (Details to be submitted as per the format enclosed in APPENDIX I - ANNEXURE – 1.09) ii. Copies of the relevant Purchase Orders iii. Material delivery clearance certificate copy or Invoice Copies or Delivery completion/ Performance certificate
3	Performance certificate for minimum 2 year satisfactory performance for PTR of similar rating or higher ratings supplied in last 7 years from the date of bid opening from at least two utilities/ SEB's/ PSU's/ reputed company wherein the end user shall be utilities/ SEB's/ PSU's. In case of bidder has a previous association with BRPL/BYPL for similar product and service, the performance feedback for that bidder by BRPL/BYPL shall only be considered irrespective of performance certificate issued by any third organization.	Performance Certificates (Details to be submitted as per the format enclosed in APPENDIX I - ANNEXURE – 1.10)
4	The bidder should have servicing, repairing, testing & refurbishment facility in INDIA with necessary spares and testing equipments for providing prompt after sales service for PTR.	Relevant Details/certificates/Undertaking (Details of the set-up available shall be brought out in the offer. the bidder shall also submit undertaking along with the bid confirming the infrastructure details submitted)
5	The bidder must possess valid ISO 9001:2015 certification or above.	Valid copy of Certification

2.02 **Commercial Criteria:**

S. No.	Criteria	Documents to be submitted by the bidder
6	The bidder must have an Average Annual Sales Turnover of Rs 500 Crores or more in the last three (3) Financial Years (i.e. FY 2022-23, 2023-24, and 2024-25).	i. Audited Balance Sheet and Profit & Loss Account Or ii. Duly certified CA certificate having UDIN to be submitted

		(Details to be submitted as per the format enclosed in APPENDIX I - ANNEXURE – 1.14)
7	The bidder must submit an undertaking stating that no litigation is pending with BYPL or any of its group/associate companies as of the date of bid opening.	Self-Undertaking (as per the format enclosed in APPENDIX I - ANNEXURE – 1.15) (Details to be submitted as per the format enclosed in APPENDIX I - ANNEXURE – 1.14)
8	The bidder must submit an undertaking (self-certification) that they have not been blacklisted or debarred by any Central / State Government Institution or Electricity Utility in India as of the date of bid opening.	Self-Undertaking (as per the format enclosed in APPENDIX I - ANNEXURE – 1.15) (Details to be submitted as per the format enclosed in APPENDIX I - ANNEXURE – 1.14)
9	The bidder must hold a valid PAN and GST Registration Number, and shall undertake to comply with all other applicable statutory laws and regulations prior to commencement of supply/work.	i. Copies of PAN and GST registration certificates ii. Self-undertaking confirming compliance with all statutory obligations (as per the format enclosed in APPENDIX I - ANNEXURE – 1.15) (Details to be submitted as per the format enclosed in APPENDIX I - ANNEXURE – 1.14)

Notwithstanding anything stated above, BYPL reserves the right to assess the bidder's capability to perform the contract, assess the capability and installed capacity of the Bidder for carrying out the supplies, should the circumstances warrant such assessment in the overall interest of the purchaser. In this regard the decision of the purchaser is final.

3.00 BIDDING AND AWARD PROCESS

Bidders are requested to submit their offer strictly in line with this tender document. Normally, the deviations to tender terms are not admissible and the bids with deviations are liable for rejection. Hence, the bidders are advised to refrain from taking any deviations on this Tender. Still, in case of any deviations, all such deviations shall be set out by the Bidders, clause by clause in the "Annexure - Schedule of Deviations" and the same shall be submitted as a part of the Technical Bid.

3.01 BID SUBMISSION

BIDS ARE INVITED THROUGH THE E-PROCUREMENT PORTAL:
BSES will carry out E-Procurement through its e-procurement portal (https://srmprdportal.bsesdelhi.com/irj/portal).

Interested Non-registered bidders are requested to obtain the portal user name and password (if not available) for bid submission. For participating in e-Tenders of BYPL, please write a mail to
1. Mr Sumit Verma, E-mail: Sumit.Ra.Verma@@reliancegroupindia.com
2. Mr Rakesh Sharma, E-mail: Rakesh.Ku.Sharma@reliancegroupindia.com, with your details as per below:

a) Existing Vendor Code with BYPL or its Group/Associates Companies (if available): …….
b) Trade Name: ……
c) Address of Principal Place of Business: ……
d) Contact Person's Name: ……

e) Contact Person's Designation: .....
f) Contact Person's Mobile No.: .....
g) Contact Person's email ID: .....
h) Also, attach a valid copy of the Power of Attorney in favour of the above-mentioned Contact Person for being authorized to receive user ID and password on behalf of their organization.

The login ID details shall be sent through email to the email ID mentioned by you for the same.

Bids have to be mandatorily submitted only through the e-procurement portal of BSES Delhi. Bids submitted through any other form/ route shall not be admissible.

However, documents that require original submission, such as the Tender Fee (in the form of DD), Earnest Money Deposit (EMD) (in the form of BG/FD/DD as applicable), samples (where applicable), and any other documents specified in the tender documents, must be delivered to the BYPL office at the address below on or before the bid submission deadline.

Please clearly mention the NIT Number: ..... on the outer envelope and drop the same in the Tender Box placed at the **Reception, Ground Floor, BSES Yamuna Power Ltd., Shaktikiran Building, Karkardooma, Delhi–110032.**
The bids documents and the outer envelope shall be addressed to the following:
Head of Department
Contracts & Materials Deptt.
BSES Yamuna Power Ltd, Shaktikiran Building, Karkardooma, Delhi 110032

Kindly Note:
- The bidder has to ensure that the tender documents is dropped in the correct box designated for tender submission only.
- BYPL shall not be responsible for any wrong placement of tender documents by the bidder.

This is a two-part bid process. Bidders must submit their bids online in two parts - Part-A: Technical Bid & Commercial Terms & Conditions, and Part-B: Financial Bid - on the designated folder of the e-procurement portal before the due date and time specified in the tender. For detailed instructions, please refer to the user manual available at https://srmprdportal.bsesdelhi.com/irj/portal and enclosed with the tender documents.

PART A:: TECHNICAL BID comprising of the following, do not contain any cost information whatsoever and shall be submitted within the due date:

S. No.	Descriptions	Type of Documents/Format
A.1	**Bid Details**	
1	**Bid Index for Part-A (Technical Bid)**	In the prescribed format enclosed at APPENDIX I ANNEXURE – 1.01
2	**Cover Letter, if any**	Standard Format
3	**Bid Form (Unpriced) Duly Signed**	Duly Signed Bid Form as per enclosed format at APPENDIX I ANNEXURE – 1.02
4	**Tender Fee**	Non-refundable demand draft or online transfer of the requisite amount through IMPS/NEFT/RTGS for Rs 1,180/-, Duly filled and signed as per enclosed format at APPENDIX I ANNEXURE – 1.03
5	**EMD**	Online transfer of the requisite amount through IMPS/NEFT/RTGS or FD or BG in the prescribed stamp paper & format enclosed at APPENDIX I ANNEXURE – 1.05, EMD Details Duly filled and signed as per enclosed format at APPENDIX I ANNEXURE – 1.04
6	**Power-of-Attorney/ Authorization Letter**	In the standard stamp paper/letter

A.2	**Technical Bid**	
7	**Communication Details of the Bidder**	Duly filled and signed as per enclosed format at APPENDIX I ANNEXURE – 1.06
8	**Manufacturer Authorization Form (as applicable)**	Duly filled and signed as per enclosed format at APPENDIX I ANNEXURE – 1.07
9	**Technical Qualifying Criteria Compliance Index & Documents**	Documentary evidence in support of qualifying criteria mentioned in Section 1 Clause 2.00. Duly filled and signed as per enclosed format at APPENDIX I ANNEXURE – 1.08, ANNEXURE – 1.09 & ANNEXURE – 1.10
10	**Schedule of Deviations - Technical**	Duly filled and signed as per enclosed format at APPENDIX I ANNEXURE – 1.11
11	**Technical Details/ Filled in Guaranteed Technical particulars (GTP) as per specification**	Bidder shall submit duly filled GTP with all Technical documents
12	**Technical Drawings as per specification**	Bidder shall submit all Drawings as per the specification
13	**Type Test Reports**	Bidders shall submit a copy of type test reports in their technical bids in support of technical specifications. Duly filled and signed as per enclosed format at APPENDIX I ANNEXURE – 1.12
14	**Sample Submission Details (if applicable as per specification)**	Duly filled and signed as per enclosed format at APPENDIX I ANNEXURE – 1.13
15	**Product Catalogue (If applicable)**	Bidders shall submit a copy of the product catalogue in their technical bids in support of technical specifications
16	**Manufacturer's Quality Assurance Plan**	Bidders shall submit a copy of MQP in their technical bids in support of technical specifications
17	**Other drawings/ documents mentioned in technical specification**	Bidders shall submit a copy of documents in their technical bids in support of technical specifications
18	**Testing Facilities**	Bidder shall submit the details of testing facilities available at their works/factory.
A.3	**Commercial Bid**	
19	**Company Profile, Organization Chart & Manpower Details.**	Bidder shall submit the details of Organization & Manpower with qualification and experience.
20	**Commercial Qualifying Criteria Compliance Index & Documents**	Documentary evidence in support of qualifying criteria mentioned in Section 1 Clause 2.00. Duly filled and signed as per enclosed format at APPENDIX I ANNEXURE – 1.14
21	**Undertakings**	Duly signed self-undertakings as per enclosed format at APPENDIX I ANNEXURE – 1.15
22	**Schedule of Deviations - Commercial**	Duly filled and signed as per enclosed format at APPENDIX I ANNEXURE – 1.16
23	**Acceptance Form For Participation in Reverse Auction Event**	Duly signed Acceptance Form For Participation In Reverse Auction Event as per enclosed format at APPENDIX I ANNEXURE – 1.17
24	**Commercial Terms and Conditions**	Acceptance of Commercial Terms and Conditions viz. Delivery Schedule/Period, Payment terms, PBG etc. Duly filled and signed as per enclosed format at APPENDIX II ANNEXURE – 2.05

25	**Un price Bid Duly Signed**	Item wise marked as "Quoted" & Duly Signed Un price Bid as per enclosed format at VOLUME – II - FINANCIAL BID (PRICE FORMAT)
26	**Signed Tender document**	Original Tender documents duly stamped & signed on each page as a token of acceptance

PART B:: FINANCIAL BID comprising of

- Price strictly in the Format enclosed at VOLUME – II - FINANCIAL BID (PRICE FORMAT) indicating Break up of basic price, taxes & duties, etc.
- The Bidder has to submit the item-wise price bifurcation in the bid. An unpriced copy must be attached with the Part A (Technical Bid).

This will be opened internally after techno-commercial evaluation and only of the qualified bidders.

REVERSE AUCTION CLAUSE:: Purchaser reserves the right to use the reverse auction as an optional tool through SAP-SRM as an integral part of the entire tendering process. All techno-commercially qualified bidders shall participate in the reverse auction. Reverse Auction will be carried out on individual item-wise rates or Package-wise.

Notwithstanding anything stated above, the Purchaser reserves the right to assess the 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. Bidder is to submit their acceptance as per the format APPENDIX I ANNEXURE – 1.17.

BIDS RECEIVED AFTER THE DUE DATE AND TIME MAY BE LIABLE FOR REJECTION

4.00 AWARD DECISION

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

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

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

4.04 Contract Price/Rate shall remain "FIRM" till the validity of the Contract.

4.05 Quantity Variation: The purchaser reserves the right to vary the quantity by (±) 30% of the tender quantity during the execution of the contract.

4.06 Quantity Splitting: The purchaser reserves the right to distribute the procurable quantity on one or more than one of the eligible tenders. If the quantity is to be split, quantity distribution shall be in the manner detailed below:
a) If the quantity is split among 2 bidders, it will be done at 70:30 on the L1 price.
b) If the quantity is split among 3 bidders, it will be done at 50:30:20 on the L1 price.
Note: If quantity needs to be distributed and order splitting is required, quantity distribution shall be maximum among three (3) bidders.

5.00 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 before participating. In addition to other remedies available, we reserve 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 & Conditions. Bidders who violate the marketplace rules or engage in behaviour that disrupts the fair execution of the marketplace restrict a bidder to the length of time, depending upon the seriousness of the violation. Examples of violations include, but are not limited to:

- Failure to honour prices submitted to the marketplace.
- Breach of the terms of the published in Request for Quotation/NIT.

6.00 SUPPLIER CONFIDENTIALITY

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

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

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

7.00 CONTACT INFORMATION

Technical clarification, if any, as regards this RFQ shall be sought in writing and sent by e-mail/post/courier to the following addresses. The same shall not be communicated through phone

Address	Name/ Designation	E-mail Address
Technical		
CES Dept. 3rd Floor, B-Block, BSES Yamuna Power Ltd Shaktikiran Building, Karkardooma, Delhi 110032	Jeena Borana GM (CES)	Jeena.Borana@reliancegroupindia.com
	Srinivas Gopu GM (CES)	srinivas.gopu@relianceada.com
	Amit Tomer Asstt. VP (HOD-CES)	Amit.As.Tomar@reliancegroupindia.com
Commercial		
C&M Dept. 3rd Floor, A-Block, BSES Yamuna Power Ltd Shaktikiran Building, Karkardooma, Delhi 110032	Sumit Verma GM (C&M)	Sumit.Ra.Verma@reliancegroupindia.com
	Santosh Singh Addl. VP (Head-Procurement)	Santosh.Kum.Singh@reliancegroupindia.com
	Robin Sebastian VP (HOD-C&M)	Robin.Sebastian@reliancegroupindia.com

BSES Yamuna Power Limited

SECTION – II: INSTRUCTION TO BIDDERS

A. GENERAL

1.00 BSES Yamuna Power Ltd, hereinafter referred to as "The Purchaser" is 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 material notified earlier in this bid document.

2.00 SCOPE OF WORK

2.01 The scope shall include Design, Manufacture, testing at works conforming to the Technical Specifications/IS along with Packing, Forwarding, Transportation and Unloading and proper stacking at Purchaser's stores/site.

3.00 DISCLAIMER

3.01 This Document includes statements, which reflect various assumptions, which may or may not be correct. Each Bidder/Bidding Consortium should conduct its 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 interest.

3.02 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.

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

3.04 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 COST OF BIDDING

4.01 The Bidder shall bear all costs associated with the preparation and submission of its Bid and the Purchaser will in no case be responsible or liable for those costs.

B. BIDDING DOCUMENTS

5.00 BIDDING DOCUMENTS

5.01 The Scope of Work, Bidding Procedures and Contract Terms are described in the Bidding Documents.

5.02 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 may result in the rejection of the Bid.

6.00 AMENDMENT OF BIDDING DOCUMENTS

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

6.02 The Amendment shall be part of the Bidding Documents, pursuant to Clause 5.01, and it will be notified on the website **www.bsesdelhi.com** and the same will be binding on them.

6.03 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. The same shall be published as a corrigendum on the website **www.bsesdelhi.com**

6.04 Purchaser shall reserve the rights to the following:
a) Extend the due date of submission,
b) Modify the tender document in part/whole,
c) Cancel the entire tender

6.05 **Bidders are requested to visit the website regularly for any modification/clarification/corrigendum/addendum of the bid documents.**

C. PREPARATION OF BIDS

7.00 LANGUAGE OF BID

7.01 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.

8.00 DOCUMENTS COMPRISING THE BID

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

(a) All the Bids must be accompanied by the required Tender Fees and EMD as mentioned in the tender.

(b) PART A - Technical Bid and

(c) PART B - Financial Bid

9.00 BID FORM

9.01 The Bidder shall submit the Bid Form with the Bidding Documents.

10.00 EMD

10.01 Pursuant to Clause 8.0(a) above, the bidder shall furnish, as part of its bid, an EMD amounting to as specified in Section I. The EMD is required to protect the Purchaser against the risk of Bidder's conduct which will warrant forfeiture.

The EMD shall be denominated in any of the following forms**:**
(a) Bank Guarantee drawn in favour of BSES Yamuna Power Ltd, payable at Delhi or
(b) Fixed Deposit (lien marked in favour of BSES Yamuna Power Limited) payable at Delhi.
(c) Online transfer of requisite amount through IMPS/NEFT/RTGS to BYPL account mentioned herein in **Appendix II - BYPL BANK DETAILS WITH IFSC CODE**.

EMD shall be valid for One Hundred Twenty (120) days after the due date of submission drawn in favour of BSES Yamuna Power Ltd.

The EMD may be forfeited in the case of:

(a) the Bidder withdraws its bid during the period of specified bid validity

or

(b) the case of a successful Bidder, if the Bidder does not

(i) Accept the Purchase Order, or

(ii) Furnish the required performance security BG.

11.00 BID PRICES

11.01 Bidders shall quote for the entire Scope of Supply/Work 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, and Transportation to the site, all in accordance with the requirement of the Bidding Documents. The Bidder shall complete the appropriate Price Schedules included herein, stating the Unit Price for each item & total Price.

11.02 The prices offered shall be inclusive of all costs as well as Duties, Taxes or Levies paid or payable during the execution of the supply work, a breakup of price constituents, should be there.

11.03 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/Price Variation Clause will be treated as non-responsive and rejected.**

12.00 BID CURRENCIES

12.01 Prices shall be quoted in Indian Rupees Only.

13.00 PERIOD OF VALIDITY OF BIDS

13.01 Bids shall remain valid for 120 days from the due date of submission of the Bid.

13.02 Notwithstanding Clause 13.01 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 and sent by post/courier.

14.00 ALTERNATIVE BIDS

14.01 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 regarding the rejection of Bids in the terms and conditions, which are not substantially responsive to the requirements of the Bidding Documents.

15.00 FORMAT AND SIGNING OF BID

15.01 The original Bid Form and accompanying documents, must be received by the Purchaser at the date, time and place specified pursuant to Clauses 15.0 and 16.0.

15.02 The original 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 submitted on behalf of companies registered with the Indian Companies Act, for the time being in force, shall be signed by persons duly authorized to submit the Bid on behalf of the Company and shall be accompanied by certified true copies of the resolutions, extracts of Articles of Association, special or general Power of Attorney etc. to show clearly the title, authority and designation of persons signing the Bid on behalf of the Company. Satisfactory evidence of the authority of the person signing on behalf of the Bidder shall be furnished with the bid. A bid by a person who affixes to his signature the words 'President', 'Managing Director', 'Secretary', 'Agent' or other designations without disclosing his principal will be rejected.

The Bidder's name stated on the Proposal shall be the exact legal name of the firm.

15.03 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 initiated by the person or persons signing the Bid.

D. SUBMISSION OF BIDS

16.00 SEALING AND MARKING OF BIDS

16.01 Bid submission: Bids have to be mandatorily submitted only through the e-procurement portal of BSES Delhi. Bids submitted through any other form/ route shall not be admissible.

16.02 However, documents that necessarily have to be submitted in originals like EMD or Tender Fee (in the form of BG/ DD /FD as applicable) and any other documents mentioned in the tender documents have to be submitted at the BYPL office before the due date & time of submission. The Technical Documents and the EMD shall be enclosed in a sealed envelope and the said envelope shall be superscribed with — "Technical Bid & EMD". All the envelopes should bear the Name and Address of the Bidder and mark for the Original. The envelopes should be superscribed with — "Tender No. & Due date of opening".

16.03 The Bidder has the option of sending the Bids in person. Bids submitted by Email/Telex/Telegram /Fax will be rejected. No request from any Bidder to the Purchaser to collect the proposals from Courier/Airlines/Cargo Agents etc. shall be entertained by the Purchaser.

17.00 DEADLINE FOR SUBMISSION OF BIDS

17.01 The Bid must be received by the Purchaser on or before the due date & time of submission.

17.02 The Purchaser may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Documents in accordance with Clause 6.0, 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.

18.00 ONE BID PER BIDDER

18.01 Each Bidder shall submit only one Bid by itself. No Joint venture is acceptable. A Bidder who submits or participates in more than one Bid will cause all those Bids to be rejected.

19.00 LATE BIDS

19.01 No Bid will be received by the Purchaser after the deadline for submission of Bids prescribed by the Purchaser, pursuant to Clause 17.0.

20.00 MODIFICATIONS AND WITHDRAWAL OF BIDS

20.01 The Bidder is not allowed to modify or withdraw its Bid after the Bid's due date & time of submission subject to any corrigendum/addendum/modifications in the tender documents uploaded to the website.

E. EVALUATION OF BID

21.00 PROCESS TO BE CONFIDENTIAL

21.01 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.

22.00 CLARIFICATION OF BIDS

22.01 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.

23.00 PRELIMINARY EXAMINATION OF BIDS / RESPONSIVENESS

23.01 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. Purchaser may ask for submission of original documents to verify the documents submitted in support of qualification criteria.

23.02 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.

23.03 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.

23.04 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.

24.00 EVALUATION AND COMPARISON OF BIDS

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

24.02 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 will be subjected to a responsiveness check. The Technical & qualifying Proposals and the Conditional ties of the Bidders will 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.

24.03 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) Delivery Schedule

(b) Conformance to Qualifying Criteria

(c) 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 the Bidding Documents shall be evaluated. **The Purchaser may make its own assessment of the cost of any deviation to ensure a fair comparison of Bids.**

24.04 Any price adjustments that result from the above procedures shall be added for comparative evaluation only to arrive at an "Evaluated Bid Price". Bid Prices quoted by Bidders shall remain unaltered.

F. AWARD OF CONTRACT

25.00 CONTACTING THE PURCHASER

25.01 If any Bidder wishes to contact the Purchaser on any matter related to the Bid, from the time of Bid opening to the time of contract award, the same shall be done in writing only.

25.02 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.

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

26.01 Submission of bids shall not automatically construe qualification for evaluation. The Purchaser reserves the right to accept or reject any Bid and to annul the Bidding process and reject all Bids at any time prior to the award of the 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.

27.00 AWARD OF CONTRACT

27.01 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 the order to other bidders in the tender, provided it is required for the timely execution of the project & provided he agrees to come to the lowest rate. Purchaser reserves the right to distribute the entire tender quantity at its own discretion without citing any reasons thereof.

27.02 The Purchaser intends to issue separate individual Purchase/Work Orders which inter-alia includes the Scope of Work as mentioned/required in the NIT viz.
a) Purchase Order for Supply
b) Work Order for Installation/Erection, Testing & Commissioning
c) Work Order for Civil (If applicable)

28.00 THE PURCHASER'S RIGHT TO VARY QUANTITIES

28.01 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.

29.00 LETTER OF INTENT/ NOTIFICATION OF AWARD

29.01 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 the issue of the letter of intent /Notification of Award by Purchaser.

30.00 CONTRACT PERFORMANCE BANK GUARANTEE (CPBG)

30.01 Within 28 days of the receipt of Letter of Intent/Notification of Award/Purchase Order from the Purchaser, the successful Bidder shall furnish the Performance Bank Guarantee for an amount of 10% of the PO value (including GST) valid for a period of 30 months from the date of last receipts at site/stores plus 3 months claim period. Upon submission of the performance security, the EMD shall be released.

31.00 CORRUPT OR FRAUDULENT PRACTICES

31.01 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 this provision, the terms set forth below as follows:

(i) "Corrupt practice" means behaviour 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 contract execution; and

(ii) "Fraudulent practice" means a misrepresentation of facts to influence a procurement process or the execution of a contract to the detriment of the Purchaser, and includes collusive practice among Bidders (before 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 for award 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, 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.

31.02 Furthermore, Bidders shall be aware of the provision stated in the Terms and Conditions of the Contract.

32.00 STATUTORY GUIDELINES & REGULATIONS

32.01 The bidder shall make himself fully aware & familiarize himself with all applicable laws/guidelines/regulations.

33.00 SAFETY

33.01 Safety related requirements as mentioned in our safety Manual put on the Company's website which can be accessed at http://www.bsesdelhi.com. All bidders shall strictly abide by the guidelines provided in the safety manual at all relevant stages during the contract period.

BSES Yamuna Power Limited

34.00 PRIORITY OF CONTRACT DOCUMENTS

34.01 The several documents forming the Agreement are to be taken as mutually explanatory of one another, but in case of ambiguities or discrepancies, the same shall be explained and adjusted by the company, who shall, accordingly, issue suitable instructions thereon to the Contractor. In such event, unless otherwise provided in the agreement or explained by way of instructions by the company, as mentioned above, the priority of the documents forming the Agreement shall be as follows:

i) Contract Agreement/Purchase Order.
(a)Special Conditions of Contract
(b)General Conditions of Contract
(ii)The Letter of Acceptance/ Intent
(iii)Agreed Minutes of the Tender Negotiation Meetings
(iv) Agreed Minutes of the Tender Technical Meetings
(v) The Priced Bill of Quantities
(vi)The Technical Specifications / Scope of work
(vii)The Tender document, including all Appendices and/or Addenda, Corrigendum the latest taking precedence.

In the event of any conflict between the above-mentioned documents, the more stringent requirement or conditions which shall be favourable to the company shall govern and the decision of the company/BYPL shall be final and binding upon the parties.

BSES Yamuna Power Limited

APPENDIX I ANNEXURE – 1.01

BID INDEX FOR PART-A (TECHNICAL BID)

(To be filled & submitted on Bidder Letter Head, Bidders document submission should have following main categories as outlined below and should have page numbers printed at the bottom of each page with this page as page number 1. The page number should be in "Page X of Y" format. Separator with document description shall be provided before each document)

NIT & RFX No.:
Bidder's Name:
Bidder's Bid Reference No. & Date:

S. No.	Particulars	Bid Pdf Page No.	
		From	To
A.1	**Bid Details**		
1.	Bid Index for Part-A (Technical Bid) as per APPENDIX I ANNEXURE - 1.01	1	
2.	Cover Letter, If any		
3.	Bid Form (Unpriced) Duly Signed as per APPENDIX I ANNEXURE - 1.02		
4.	Tender Fee Details as per APPENDIX I ANNEXURE - 1.03		
5.	EMD Details as per APPENDIX I ANNEXURE - 1.04 & 1.05		
6.	Power-of-Attorney / Authorization Letter		
A.2	**Technical Bid**		
7.	Communication Details of the Bidder as per APPENDIX I ANNEXURE - 1.06		
8.	Manufacturer Authorization Form (as applicable) as per APPENDIX I ANNEXURE - 1.07		
9.	Technical Qualifying Criteria Compliance Index & Documents as per APPENDIX I ANNEXURE - 1.08, 1.09, 1.10		
10.	Schedule of Technical Deviations (along with soft editable Excel copy) as per APPENDIX I ANNEXURE - 1.11		
11.	Guaranteed Technical particulars (GTP) as per specification		
12.	All Drawings as per specification		
13.	Type Test Reports (Sequence of Tests shall be strictly in accordance with relevant IS/IEC) as per APPENDIX I ANNEXURE - 1.12		
14.	Sample Submission Details (If applicable as per Specification) as per APPENDIX I ANNEXURE - 1.13		
15.	Product Catalogue (If applicable)		
16.	Manufacturer's quality assurance plan (as applicable)		
17.	Other drawings/ documents mentioned in technical specification		
18.	Testing Facilities		
A.3	**Commercial Bid**		
19.	Company Profile/Organogram/Organization Chart & Manpower Details		
20.	Commercial Qualifying Criteria Compliance Index & Documents as per APPENDIX I ANNEXURE - 1.14		
21.	Undertakings as per APPENDIX I ANNEXURE - 1.15		
22.	Schedule of Commercial Deviations (along with soft editable Excel copy) as per APPENDIX I ANNEXURE - 1.16		
21.	Acceptance form for participation in reverse auction event as per APPENDIX I ANNEXURE - 1.17		
24.	Acceptance of Commercial Terms and Conditions as per APPENDIX II ANNEXURE - 2.05		
25.	Un Price Bid Duly Signed (Volume - II Financial Bid (Price Format))		
26.	NIT Document complete Signed & Stamped		

BSES Yamuna Power Limited

ANNEXURE – 1.02

BID FORM

To

Head of Department
Contracts & Material Deptt.
BSES Yamuna Power Ltd
Shaktikiran Building, Karkardooma,
Delhi 110032

Sir,

1. We understand that BYPL is desirous of procuring…… for it's licensed distribution network area in Delhi.
2. Having examined the Bidding Documents for the above-named works, we the undersigned, offer to deliver the goods in full conformity with the Terms and Conditions and technical specifications for the sum indicated in the Financial Bid or such other sums as may be determined in accordance with the terms and conditions of the contract. The amounts are in accordance with the Price Schedules attached herewith and are made part of this bid.
3. If our Bid is accepted, we undertake to deliver the entire goods as per the delivery schedule mentioned in Section IV from the date of award of the purchase order/letter of intent.
4. If our Bid is accepted, we will furnish a performance bank guarantee for due performance of the Contract in accordance with the Terms and Conditions.
5. We agree to abide by this Bid for 120 days from the due date of bid submission and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
6. We declare that we have studied the provision of Indian Laws for the supply/services of equipments/materials and the prices have been quoted accordingly.
7. Unless and until Letter of Intent is issued, this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.
8. We understand that you are not bound to accept the lowest or any bid you may receive.
9. There is provision for Resolution of Disputes under this Contract, by the Laws and Jurisdiction of Contract.

Dated this..... day of..... 20XX

Signature..... In the capacity of ……

.....duly authorized to sign for and on behalf of

(IN BLOCK CAPITALS) .....

BSES Yamuna Power Limited

ANNEXURE – 1.03

TENDER FEE DETAILS

a. Amount (Rs.) : **1,180/- (One Thousand One Hundred Eighty Only)**

b. Mode of Payment : DD or online transfer through IMPS/NEFT/RTGS (select any one)

c. DD /UTR No. (As applicable) : .....

d. Dated : .....

e. Bidders Bank Account No. : .....

f. Name of the Bank : .....

g. Address of the Bank : .....

h. IFSC Code of the Bank : .....

BSES Yamuna Power Limited

ANNEXURE – 1.04

EMD DETAILS

a. EMD Amount (Rs.) : .....

b. Mode of Payment : BG/FD/online transfer through IMPS/NEFT/RTGS (select any one)

c. BG/FD/UTR No. (As applicable): .....

d. Dated : .....

e. BG valid up to : .....

f. BG Claim period up to : .....

g. Bidders Bank Account No. : .....

h. Name of the Bank : .....

i. Address of the Bank : .....

j. IFSC Code of the Bank : .....

BSES Yamuna Power Limited

ANNEXURE – 1.05

(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*] (hereinafter called the "Bank"), are bound unto BSES Yamuna Power Ltd., with its Corporate Office at Shaktikiran Building, Karkardooma, Delhi -110032, (hereinafter called - the "Purchaser") in the sum of Rs..... (Rupees..... only) 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:

1 If the Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form; or

2. If the Bidder, having been notified of the acceptance of its Bid by the Purchaser during the period of bid validity:

(a) fails or refuses to execute the Contract Form, if required; or

(b) fails or refuses to furnish performance security, In accordance with the Instructions to Bidders/Terms and 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 condition(s), specifying the occurred condition or condition(s).

This guarantee will remain in force up to and including One Hundred Twenty (120) days after the due date of submission bid, and any demand in respect thereof should reach the Bank not later than the above date.

(Stamp & signature of the bank)

Signature of the witness

BSES Yamuna Power Limited

ANNEXURE – 1.06

COMMUNICATION DETAILS OF THE BIDDER

S. No.	Designation	Name	Mobile No.	E-mail id
1	CEO / MD			
2	Sales / Marketing Head			
3	Sales Representative / Key Account Manager (KAM)			
4	Technical Head			
5	Manufacturer Plant / Operations Head			
6	Post Order Execution In Charge			
7	Authorized contact person (Primary responsibility for the Bid)			
8	Authorized contact person (Secondary responsibility for the Bid)			

BSES Yamuna Power Limited

ANNEXURE – 1.07

MANUFACTURER AUTHORIZATION FORM
(To be submitted on OEM's Letter Head)

Date: …….
Tender No.: ……..

To

Head of Department
Contracts & Material Deptt.
BSES Yamuna Power Ltd
Shaktikiran Building, Karkardooma,
Delhi 110032

Sir,

WHEREAS M/s. *[name of OEM]*, who are official manufacturers of …… having factories at *[address of OEM]* do hereby authorize M/s *[name of bidder]* to submit a Bid in relation to the Invitation for Bids indicated above, the purpose of which is to provide the following Goods, manufactured by us ……and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty by the Conditions of the Contract or as mentioned elsewhere in the Tender Document, concerning the Goods offered by the above firm in reply to this Invitation for Bids.

We hereby confirm that in case, the channel partner fails to provide the necessary services as per the Tender Document referred above, M/s *[name of OEM]* shall provide standard warranty on the materials supplied against the contract. The warranty period and inclusion/exclusion of parts in the warranty shall remain the same as defined in the contract issued to our channel partner against this tender.

Yours Sincerely,
For ……..

Authorized Signatory

BSES Yamuna Power Limited

ANNEXURE – 1.08

QUALIFYING CRITERIA COMPLIANCE INDEX - TECHNICAL CRITERIA				
S No	**Qualifying Criteria Description as per section 1 clause 2.00**	**Documentary Proof Description**	**Documentary Proof Enclosed on Bid Page No.**	
			From	**To**
1				
2				
3				
4				
5				

BSES Yamuna Power Limited

ANNEXURE – 1.09

LIST OF PURCHASE ORDERS EXECUTED & DELIVERY DETAILS IN SUPPORT OF QUALIFYING REQUIREMENTS													
S No	Item Details				PO & Execution Details					Customer Name	End User (shall be Utility/ SEB's/ PSU's) name and details	PO copy, MDCC /Delivery completion certificates/ Invoice Copies enclosed on Bid Page no.	
	Item	Model	Voltage Rating (kV)	Current Rating (A)	PO No	PO Date	PO Qty	Executed Qty	Execution Year			From	To
Total							∑	∑					

Note – Only items relevant as per qualifying requirements should be included in the list.

BSES Yamuna Power Limited

ANNEXURE – 1.10

LIST OF PERFORMANCE CERTIFICATES IN SUPPORT OF QUALIFYING REQUIREMENT														
S No	Item Details				PO No	Supplied/ Commissioning		Performance Certificate Issue Date	Performance Certificate Issued By End User (Utility/SEB/Govt Org.)	Contact Details of Issuing Person			Enclosed on Bid Page No.	
	Item	Model	Voltage Rating (kV)	Current Rating (A)		Qty.	Date			Name	Email	Mobile	From	To
Total						∑								

Note –

1. **Only items relevant as per qualifying requirement should be included in the list.**
2. **Only Performance certificates issued by End User (utilities/ SEB's/PSU's only) will be accepted as per qualifying requirement.**

BSES Yamuna Power Limited

ANNEXURE – 1.11

SCHEDULE OF DEVIATIONS - TECHNICAL

Vendor shall refrain from taking any deviations on this TENDER. Still, in case of any deviations, all such deviations from this tender shall be set out by the Bidder, Clause by Clause in this schedule and submit the same as a part of the Technical Bid.

Unless **specifically** mentioned in this schedule, the tender shall be deemed to confirm the BYPL's specifications:

Technical Deviations:-

S. No.	NIT Pdf Page No.	NIT Clause No.	NIT Clause Descriptions	Details of Clarification/deviation with justifications

Note – Please enclose detailed GTP and drawings as per specification after the technical deviation sheet

Seal of the Bidder:

Signature:

Name:

BSES Yamuna Power Limited

ANNEXURE – 1.12

TYPE TEST REPORTS (SEQUENCE OF TESTS SHALL BE STRICTLY IN ACCORDANCE WITH RELEVANT IS/IEC)								
S No	Test Description	Reference Standard	Reference Standard Clause No.	Name of Testing Lab	Test Report Reference Number	Date of Issue of Report	Report Enclosed on Bid Page No	
							From	To
1								
2								
3								
4								
5								
6								
7								

BSES Yamuna Power Limited

ANNEXURE – 1.13

SAMPLE SUBMISSION DETAILS (IF APPLICABLE AS PER SPECIFICATION)		
S No	**Description**	**Bidder's Response**
1	Samples submitted with the bid	Yes/No
1	Sample Type -1	
1.1	Model Number	
1.2	Number of samples	
2	Sample Type -2	
2.1	Model Number	
2.2	Number of samples	

BSES Yamuna Power Limited

ANNEXURE – 1.14

QUALIFYING CRITERIA COMPLIANCE INDEX - COMMERCIAL CRITERIA				
S No	Qualifying Criteria Description as per section 1 clause 2.00	Documentary Proof Description	Documentary Proof Enclosed on Bid Page No.	
			From	To
1				
2				
3				
4				
5				

BSES Yamuna Power Limited

ANNEXURE – 1.15

UNDERTAKINGS
(To be submitted on Bidders Letter Head)

Date: ……..

Tender No.: ……..

To

Head of Department
Contracts & Material Deptt.
BSES Yamuna Power Ltd
Shaktikiran Building, Karkardooma,
Delhi 110032

Sir,

We *[name of bidder]*, …… , hereby undertake and confirm the following:

- *[name of bidder]* has "No Litigation" pending with the BYPL or its Group/Associates Companies as on the date of bid opening.
- *[name of bidder] has* not been blacklisted/debarred by any central/state government institution/Electricity utilities as on the date of bid opening.
- *[name of bidder]* shall comply with all the statuary compliances as per the laws/rules etc. before the start of the supply/work.
- All documents, certificates, and information submitted by us against this tender are genuine, true, and correct. Copies provided have been made from the original documents. In the event that any document, certificate, or information is found to be false, forged, or misleading, BYPL shall have the right, at its sole discretion, to take appropriate legal action, including forfeiture of EMD and disqualification from participation in future tenders of BYPL and its group companies, for an indefinite period or as decided by BYPL.

Yours Sincerely,
For ……..

Authorized Signatory
Name : _____
Designation : _____
Seal : _____

BSES Yamuna Power Limited

ANNEXURE – 1.16

SCHEDULE OF DEVIATIONS - COMMERCIAL

Vendor shall refrain from taking any deviations on this TENDER. Still, in case of any deviations, all such deviations from this tender shall be set out by the Bidder, Clause by Clause in this schedule and submit the same as a part of the Technical Bid.

Unless **specifically** mentioned in this schedule, the tender shall be deemed to confirm the BYPL's specifications:

Commercial Deviations:-

S. No.	NIT Pdf Page No.	NIT Clause No.	NIT Clause Descriptions	Details of Clarification/deviation with justifications

By signing this document we hereby withdraw all the deviations whatsoever taken anywhere in this bid document and comply with all the terms and conditions, technical specifications, scope of work etc. as mentioned in the standard document except those mentioned above.

Seal of the Bidder:

Signature:

Name:

BSES Yamuna Power Limited

ANNEXURE – 1.17

ACCEPTANCE FORM FOR PARTICIPATION IN REVERSE AUCTION EVENT

(To be signed and stamped by the bidder)

BSES Yamuna Power Ltd (hereinafter referred to as **"BYPL"**) intends to use the reverse auction through the SAP-SRM tool as an integral part of the entire tendering process. All the bidders who are found as techno commercial qualified based on the tender requirements shall be eligible to participate in the reverse auction event.

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

1. BYPL shall provide the user ID and password to the authorized representative of the bidder. (Authorization letter in lieu of the same be submitted along with the signed and stamped acceptance form)
2. BYPL will make every effort to make the bid process transparent. However, the award decision by BYPL would be final and binding on the bidder.
3. The bidder agrees to non-disclosure of trade information regarding the purchase, identity of BYPL, bid process, bid technology, bid documentation, bid details, etc.
4. The bidder is advised to understand the auto bid process to safeguard themselves against any possibility of non-participation in the auction event.
5. In case of bidding through internet medium, bidders are further advised to ensure availability of the entire infrastructure as required at their end to participate in the auction event. Inability to bid due to telephone line glitches, internet response issues, software or hardware hangs; power failure or any other reason shall not be the responsibility of BYPL.
6. In case of intranet medium, BYPL shall provide the infrastructure to bidders, further, BYPL has sole discretion to extend or restart the auction event in case of any glitches in infrastructure observed which has restricted the bidders from submitting the bids to ensure fair & transparent competitive bidding. In case an auction event is restarted, the best bid already available in the system shall become the start price for the new auction.
7. In case the bidder fails to participate in the auction event due to any reason whatsoever, it shall be presumed that the bidder has no further discounts to offer and the initial bid as submitted by the bidder as a part of the tender shall be considered as the bidder's final no regret offer. Any offline price bids received from a bidder in lieu of non-participation in the auction event shall be outright rejected by BYPL.
8. The bidder shall be prepared with competitive price quotes on the day of the reverse auction event.
9. The prices as quoted by the bidder during the auction event shall be inclusive of all the applicable taxes, duties and levies and shall be FOR Landed Cost basis at the BYPL site.
10. The prices submitted by a bidder during the auction event shall be binding on the bidder.
11. No requests for time extension of the auction event shall be considered by BYPL.
12. The original price bids submitted by the bidders shall be proportionately reduced for each line item, based on the final all-inclusive prices determined at the conclusion of the auction event, to arrive at the final contract value.

Signature & seal of the Bidder

BSES Yamuna Power Limited

ANNEXURE – 1.18

CODE OF CONDUCT FOR SUPPLIERS

BSES expects suppliers including their personnel (employees or sub-contractors) to support, embrace and enact the following Code of Conduct (CoC), apart from complying with all national and international regulations and laws that are applicable at any given time. BSES encourages its suppliers to go beyond compliance and embrace the principles of sustainability. BSES will support training and capacity-building programmes undertaken by suppliers, which promote awareness on sustainability and responsible business practices. BSES shall incorporate regulatory compliance and ESG performance as key criteria based on requirements as stated in the Code during evaluation of the suppliers.

A. Promote Environmental Sustainability

All suppliers support a precautionary approach to environmental issues and undertake initiatives to promote better environmental responsibility. To this end, suppliers will

1. Reduce resource consumption and conserve natural resources:
   1.1. Conduct all operations, sourcing, manufacture, distribution of products and the supply of services with the aim of protecting and preserving the environment.
   1.2. Use natural resources rationally and work towards reducing resource consumption (water, energy, fuel, electricity, other materials etc.) and GHG emissions.
   1.3. Identify environmental risks and set up appropriate prevention measures.

2. Prevent pollution and reduce waste generation
   2.1. Maintain all required official permits, licenses and registrations.
   2.2. Prevent contamination, limit waste generation, and avoid or minimise adverse impact on the environment and biodiversity by facilitating reusing and recycling material.
   2.3. Clearly monitor the precautions to be taken during operations & maintenance in case of emission of heat, vibrations, radioactive rays, noise or similar.
   2.4. Use only those chemicals and aerosols with very low or zero ODP (Ozone Depletion Potential), which are allowed as per the regulatory provisions.
   2.5. Ensure that all the chemical and hazardous substances are accompanied by the manufacturer MSDS (Material Safety Data Sheet) during transport, storage, use and disposal, and that instructions mandated be strictly followed. No chemical and hazardous substance shall be received without a MSDS document. All the applicable regulatory guidelines shall be adhered strictly for the procurement, transport, storage, use and disposal of such harmful and hazardous chemicals.
   2.6. Provide written instructions about handling and/or disposal of equipment and product during the life cycle if special handling is required.

B. Commitment to Human Rights, Labour and the Society

Suppliers shall support, respect and protect human and labour rights and make sure their organisation/entity is not complicit in any kind of abuses and/or violations. In this regard, the suppliers must:

1. Fair working conditions
   1.1. Provide and maintain healthy and safe working conditions and welfare facilities for the employees in its establishment.
   1.2. Ensure that that wages and benefits of their employees and subcontractors are fair and comply with applicable national and local laws as well as with contractual agreements.
   1.3. Provide all workers, both permanent and non-permanent, with employment documents that are freely agreed to and which respect their legal and contractual rights.

2. Health & Safety

Ensure that the activities of suppliers do not harm the health and safety of their own employees, suppliers and subcontractors, local communities/population, and finally the users of its products and services, which is in accordance with the BSES's Mission Zero Harm in Health and Safety.

3. Child Labour

3.1. No person below 18 years shall be employed or permitted to work in any occupation or process.

3.2. Zero tolerance for any kind of child labour in their establishments and supply chain.

4. Forced Labour

4.1. Under no circumstance shall suppliers use forced labour[1], whether in form of compulsory or trafficked labour, indentured labour, bonded labour or other forms, through direct or indirect use of force and/or intimidation.

4.2. Any kind of slavery, mental and physical coercion, human trafficking and debt bondage in the supply chain shall not be tolerated.

5. Wages and Working hours

5.1. Ensure that all applicable regulations related to wages, overtime compensation and other legally mandated benefits of their employees and subcontractors are fair and comply with applicable national and local laws as well as with contractual agreements. Minimum wages are applicable as per applicable in central Act and State rules.

5.2. Ensure that maximum working hours laid down and are adhered to.

6. Freedom of Association and Collective Bargaining

6.1. Recognise and respect the rights of workers to freedom of association and collective bargaining. Workers are not intimidated or harassed in the exercise of their right to join or refrain from joining any organisation.

6.2. Ensure that all employees can communicate with the management regarding working conditions.

7. Non-Discrimination and Equal opportunity

7.1. Commit, within the scope of prevailing laws and statutes, to oppose all forms of discrimination[2].

7.2. Maintain a work environment free from any form of discrimination and harassment.

7.3. Refrain from discrimination in hiring and employment practices on grounds of skin colour, age, caste, gender, race, ethnicity, nationality, socio-economic background, physical or mental disability, religion, sexual orientation, marital status, pregnancy, dependants, political or religious opinion, ideology, union membership and personal or social circumstances. Special attention must be paid to the rights of workers most vulnerable to discrimination.

8. Zero Tolerance towards Harassment

8.1. Treat all employees with respect and dignity and furthermore ensure that their own suppliers treat their employees in the same manner.

8.2. No tolerance towards unacceptable treatment of employees, such as physical punishment or torture, sexual harassment[3], or abuse, mental or physical coercion or verbal abuse, or the threat of any such treatment.

8.3. No worker should be subjected to any physical, sexual, psychological, or verbal harassment, abuse or other form of intimidation.

C. Ethical Integrity and Legality

Suppliers shall demonstrate the highest standard of integrity, ethics, and business conduct.

1. Compliance with Applicable laws and regulations:

1.1. All activities must be carried out in compliance with the legislation that is applicable in the countries in which the suppliers operate.

1.2. All other applicable international laws and regulations must be complied with, including those relating to international trade (such as those relating to sanctions, export controls and reporting obligations), data protection and antitrust/ competition laws.

1.3. Avoid any conduct that could tarnish or damage the reputation of BSES.

2. Anti-Corruption & Anti Bribery

2.1. All forms of bribery and corruption are prohibited

2.2. Adequate measures and procedures should be in place to prevent bribery in all commercial dealings.

2.3. Maintain a policy of 'Zero Tolerance' of any practice that may be deemed to be corruption, either active or passive.

2.4. No tolerance for unacceptable conduct, which includes, but not limited to, non-compliance with anti- corruption laws and, directly or indirectly offering, promising, hiring or authorising payments in cash or in kind to any BSES employee, public official or any other person or entity, with intention of a) obtaining or retaining business b) Influencing business decisions; and/or c) securing an unfair advantage.

3. Conflict of Interest

3.1. All and any conflict of interest in any business dealings with BSES, of which the suppliers are aware, should be declared to BSES so that appropriate action can be taken.

3.2. Avoid a situation where there is a real or potential conflict of interest with BSES employees, or with their family or closely associated persons, that could affect the independence or objectivity of their professional actions or decisions. If avoidance is not possible, the suppliers should inform BSES of the situation so that appropriate action can be taken.

4. Insider Trading and Other Economic Crimes

4.1. Ensure that all business and commercial dealings are transparently performed and accurately recorded in the books and records.

4.2. Comply with applicable anti-money laundering laws, conduct business only with ethically responsible partners and receive funds only from legitimate sources.

4.3. Avoid actual or attempted participation in economic offences, such as (but not limited to) money laundering, criminal breach of trust, counterfeiting, criminal misappropriation of properties, forgery, cheating, extortion, embezzlement and fraud.

4.4. Refrain from insider trading. No confidential information regarding BSES is used to either engage, facilitate or support insider trading in BSES's shares.

4.5. Take necessary measures to detect and prevent any illicit or suspicious forms of payment and inform and/or report through established channels if it has any suspicion or concern in this regard.

5. Gifts & Hospitality

5.1. Any business entertaining/hospitality with BSES should be modest in value, appropriate, and compliant with the law and company policies, entirely for the purpose of maintaining good business relations and not intended to influence in any way BSES's decisions on future business relationship.

5.2. Only gifts/honorarium of nominal value accepted or offered on festivals, at conferences, etc. will be permitted. Such gifts should comply with local laws and customs (including cultural and religious festivals) and should not be prohibited under applicable law and should not include cash or cash equivalents, gold or other precious metals, gems or stones.

5.3. Neither receive nor offer or make, directly or indirectly, any illegal payments, remunerations, gifts, donations or comparable benefits that are intended, or perceived, to obtain uncompetitive favours for the conduct of its business with BSES.

5.4. Neither directly or indirectly offer any gift, entertainment, trip, discount, service, or other benefit to any official of BSES or his/her close relations which would or be capable of compromising, influencing, liable to corrupt the integrity and objectivity of that person.

6. Competition, Confidentiality and Data Privacy

6.1. All market survey/other entities information must be obtained and used legitimately and in compliance with all applicable laws and regulations.

6.2. No attempt should be made to divulge to BSES any information about any other entity in violation of any law or agreement.

6.3. Likewise, BSES's confidential information must not be shared with any Supplier unless expressly permitted by BSES in writing by authorised signatory under the respective purchase order or agreement, as the case may be.

7. Transparency and Ethics

7.1 Fair competition

Avoid any action that may constitute an illegal practice of unfair competition and ensure compliance with applicable competition laws.

7.2 Corporate image and reputation

Suppliers must NOT:

- Make false statements or provide any misleading information regarding its products/services.
- Give the impression of representing or being the spokesperson of BSES while getting associated with any religious/political party or for activities in their personal capacity.

8. Protection of Intellectual Property and No Misuse or Improper use of BSES's assets/ property

8.1. Respect and protect all confidential information and intellectual property of BSES.

8.2. Do not misuse and share assets of BSES and employ them only for the purpose of conducting the business for which they are duly authorised by BSES. These include tangible assets such as equipment and machinery, systems, facilities, materials, and resources and intangible assets such as intellectual property rights, processes, know how & technology, proprietary information, etc.

8.3. Safeguard, secure, and protect BSES's assets and information technology from theft, destruction, misappropriation, wastage, and abuse.

8.4. Promptly report loss, theft or destruction of any intellectual property and data of the Company or that of any Supplier.

9. Financial Records and Accuracy in Books

9.1. Have accounting practices in place to ensure accuracy of its financial books and records.

9.2. Ensure accurate accounting and proper reporting of information pertaining to the business and financial results in accordance with applicable Accounting Standards [Generally Accepted Accounting Principles (GAAP)].

9.3. Ensure compliance to applicable laws and regulations with respect to accounting and taxation and timely discharge of tax liability.

10. Sanction Laws

10.1 Do not engage in any dealings or transactions with any person, or in any country or territory that are subject to global / regional sanctions as mentioned herein below in clause 10.2. BSES is vigilant of its suppliers who may be on a sanctions list or have a related company in a country subject to global/regional sanctions. In case of any concerns, the supplier

should immediately report to BSES.

10.2 Do not be subject to or the target of any economic or financial sanctions or trade embargoes imposed, administered or enforced by the U.S. Government including without limitation by the World Bank or by the United Nations Security Council, the European Union, the United Kingdom including by Her Majesty's Treasury or the Department of Business, Innovation and Skills, a relevant regulatory authority or the Minister of Foreign Affairs of Canada under the Special Economic Measures Act or the United Nations Act or legislation or regulations with similar purpose or effect or any other relevant sanctions authority of any other country (collectively, 'Sanctions Laws') nor is the Company or any of its subsidiaries / affiliates located, organised or resident in a country or territory that is the subject of the target of Sanctions Laws

10.3 Do not take any action which places or is likely to place BSES in violation of Sanctions Laws and/ or breaches affecting the reputation and/ or business interests of BSES

11. Responsible Sourcing

Ensure that goods and materials are not sourced in a suspicious or illegal way and implement measures for sustainable procurement practices[3] to ensure compliance with laws and regulations.

12. Quality of Product and Services

Products and services should meet the specifications, quality, safety and environmental criteria specified in the relevant contract documents and required by applicable laws

13. Corporate Citizenship

Suppliers shall be committed to be good corporate citizens, not only in compliance with all relevant laws and regulations, but also by assisting and supporting initiatives to improve the quality of life of local communities/regions in which it operates. The activities may be, but not limited to, community health and family welfare, vocational training, education and literacy and employment.

[1] 'Forced Labour' or 'Involuntary Labour' refers to all work or service that is extracted under the menace of penalty. It also includes terms such as, bonded labour and modern slavery. It also includes any labour for which the worker receives less than the government stipulated minimum wage.

[2] 'Discrimination' refers to unjust or prejudicial treatment of people, especially on the grounds of, but not limited to, caste, creed, gender, race, ethnicity, age, colour, religion, disability, socio-economic status or sexual orientation.

[3] Sustainability shall mean to device a practice & procedure proactively to sustain resources of organisation and society at present levels with reasonable degradation. Sustainable procurement or sourcing is the process of making purchasing decisions that meet an organisation's needs for goods and services in a way that benefits not only the organisation but society, while minimising its impact on the environment. Organisation integrates the sustainability into business model as a resultant of ESG principles. This is achieved by ensuring that the working conditions of its suppliers' employees are decent, the products or services purchased are sustainable, where possible, and that socio- economic issues, such as inequality and poverty, are addressed.

BSES Yamuna Power Limited

GENERAL CONDITIONS OF CONTRACT (GCC)

BSES Yamuna Power Limited

GENERAL CONDITIONS OF CONTRACT (GCC)

The General Condition of Contract shall form a part of specifications, contract document.

1. General Instructions & Applicability

1.1. All Bids shall be prepared and submitted strictly in accordance with these instructions. The Bidder shall be solely responsible for all expenses incurred in the preparation and submission of the Bid. Under no circumstances shall the Purchaser be held liable for such costs, regardless of the outcome of the bidding process.

1.2. The Purchaser reserves the right to seek clarifications or additional information from any Bidder at any stage of the evaluation process. The Purchaser may, at its discretion, reject any Bid that is incomplete, non-responsive, or fails to meet the requirements stated in the Bid Documents. The decision of the Purchaser regarding the responsiveness or rejection of any Bid shall be final and binding, without any financial or other obligation on its part.

1.3. The Bidder shall be deemed to have carefully examined, read, and fully understood all instructions, terms, conditions, and technical requirements specified in the Tender Documents prior to submission of its Bid.

2. Definitions and Interpretations

2.1. COMPANY / OWNER / PURCHASER / BUYER / CUSTOMER shall mean BSES Yamuna Power Limited (BYPL), a company incorporated under the Companies Act, 2013, having its registered office at Shakti Kiran Building, Karkardooma, Delhi – 110032. The expression shall include its authorized representatives, agents, successors, and permitted assigns.

2.2. BIDDER / SELLER / SUPPLIER / VENDOR / CONTRACTOR / AGENCY / MANUFACTURER shall mean the entity submitting a quotation or proposal in response to this bid enquiry issued by the Purchaser. The term Contractor refers to the successful Bidder(s) whose bid has been accepted by the Purchaser and on whom the Letter of Acceptance or Letter of Award is issued, and shall include the Contractor's heirs, legal representatives, successors, and permitted assigns, wherever applicable.

2.3. OFFER SHEET shall mean the Bidder's formal and firm offer submitted to BYPL in accordance with the specifications set forth in the Bid Documents.

2.4. CONTRACT PRICE/RATE shall mean the price specified in the Letter of Intent, Letter of Award, Rate Contract, or Purchase Order, as applicable.

2.5. SITE shall mean the location(s) where the Works, Goods, or Services are to be delivered, installed, commissioned, or executed, as specified elsewhere in the Tender Documents.

2.6. STORE shall mean the designated area or location where goods and materials are stored, or as otherwise defined in the Contract.

2.7. ENGINEER IN CHARGE shall mean the Company's authorized or nominated representative responsible for supervising and administering the execution of the Works under the Contract.

2.8. APPLICABLE LAW shall mean the Constitution of India and all laws, rules, regulations, directives, notifications, codes, orders, or instructions having the force of law as issued by any competent legislative or governmental authority, including but not limited to laws relating to taxes, duties, assessments, expropriation, and compulsory acquisition, as amended from time to time. Any resulting implications shall constitute a Change in Law or Change in Permits, as applicable.

2.9. OTHER CLEARANCES shall mean all consents, approvals, permits, or authorizations required to be obtained from governmental or local authorities necessary for commencing or completing the work.

2.10. DEFECT LIABILITY PERIOD shall mean the period during which the Contractor shall remain responsible for the repair or replacement of any defective part of the Works executed under the Contract, at no additional cost to the Purchaser.

2.11. TENDER SPECIFICATION shall mean the technical and commercial requirements, Indian Standard specifications, and description of works detailed in the Tender Documents, including all documents and references expressly or implicitly forming part of the Tender.

2.12. SPECIFICATIONS shall collectively mean all stipulations contained in the RFQ, Commercial Terms and Conditions, Instructions to Bidders, Technical Specifications, and any Amendments, Revisions, Deletions, or Additions issued by the Purchaser from time to time.

2.13. CODES AND STANDARDS shall mean all applicable codes and standards referred to or implied in the Specifications.

2.14. CHANGE OF WORK shall mean any addition, deletion, suspension, or modification to the scope, quality, functionality, or requirements of the Work as defined in the Contract, resulting in a corresponding change to the Technical Specifications and/or completion schedule.

2.15. GOOD INDUSTRY PRACTICE shall mean the level of skill, care, diligence, prudence, and foresight reasonably expected from a competent and experienced service provider engaged in similar activities under similar circumstances, in compliance with prevailing laws, regulations, and industry standards.

2.16. CONTRACT shall mean the agreement formed by the Letter of Award or Acceptance, Purchase Order or Work Order, Special Conditions of Contract (SCC), General Conditions of Contract (GCC), the Tender and its Annexures, and all addenda, corrigenda, and clarifications issued by the Purchaser.

2.17. EFFECTIVE DATE OF CONTRACT shall mean the date of issuance or award of the Contract, which shall also be deemed the Contract Commencement Date.

2.18. CONTRACT PERIOD shall mean the total duration agreed upon between the Contractor and Purchaser for execution of the Contract, inclusive of any extended contract period for reason beyond the control of the Contractor and/or Purchaser due to force majeure.

2.19. CONTRACT COMMENCEMENT DATE shall mean the date of issuance or award of the Contract, which shall be deemed the Effective Date of Contract.

2.20. CONTRACT COMPLETION DATE shall mean the date marking the expiry of the Guarantee or Defect Liability Period, which shall be deemed the Contract Completion Date.

2.21. ACCEPTANCE shall mean and deemed to include one or more of the following as will be stipulated in the specification:

2.21.1. Written approval by the Purchaser's Inspector authorizing dispatch of material from the Supplier's works.

2.21.2. Acceptance of material at Purchaser site stores after its receipt and due inspection/ testing and release of material acceptance note.

2.21.3. In case of supply and installation contracts, acceptance shall mean issuance of the Equipment/Material Takeover Receipt after successful installation, commissioning, and final acceptance.

3. Contract Documents Priority & Formation

3.1. The documents forming the Contract shall be read as mutually explanatory. In case of any ambiguity or discrepancy, the same shall be clarified and resolved by the Purchaser, whose interpretation shall be final. Unless otherwise provided, the order of precedence of Contract documents shall be as follows:

3.1.1. Contract Agreement/Purchase Order/Work Order
3.1.2. Letter of Acceptance / Letter of Intent / Letter of Award
3.1.3. Agreed Minutes of the Tender Negotiation Meetings
3.1.4. Agreed Minutes of the Tender Technical Meetings
3.1.5. Priced Bill of Quantities
3.1.6. Technical Specifications, Drawings, and Scope of Work
3.1.7. Tender Document including all Appendices, Addenda, and Corrigenda (latest revisions to take precedence)
3.1.8. Applicable Codes and Standards

3.2. In the event of any inconsistency, the interpretation most consistent with achieving the Project's technical, legal, and statutory objectives shall prevail. No oral communication or instruction shall supersede the written Contract documents.

4. Governing Laws & Dispute Resolution

4.1. The Contract shall be governed by and interpreted in accordance with the laws of India.

4.2. Any dispute, controversy, or claim arising out of or relating to this Contract, or the breach, termination, or invalidity thereof, shall first be sought to be resolved amicably through mutual consultation between the Parties.

4.3. In the event that an amicable resolution is not achieved within a reasonable period, the dispute shall be referred to arbitration in accordance with the provisions of the Arbitration and Conciliation Act, 1996, as amended by the Arbitration and Conciliation (Amendment) Act, 2023. The Arbitral Tribunal shall consist of three (3) arbitrators — one to be appointed by each Party, and the third, who shall act as the presiding arbitrator, to be jointly appointed by the two arbitrators so nominated.

4.4. The seat and venue of arbitration shall be New Delhi, India, and the language of proceedings shall be English. The arbitral award rendered by the Tribunal shall be final and binding upon both Parties.

5. Change in Law

5.1. Change in Law shall mean the occurrence of any of the following events after the Effective Date of the Contract:

5.1.1. The enactment or coming into force of any new Applicable Law.
5.1.2. Any amendment, modification, alteration, or repeal of an existing Applicable Law, or the issuance of any new or revised directive, regulation, or order thereunder.
5.1.3. Any change or variation in the rate, nature, or applicability of taxes, duties, levies, or charges payable in connection with this Contract.

5.2. In the event of any Change in Law, the impacted Party shall promptly notify the other Party in writing with relevant details.

5.3. If such Change in Law results in any increase or decrease in the cost, expense, or liability of the Supplier in performing its obligations under the Contract, an equitable adjustment shall be made to the Contract Price and/or the Schedule of Completion as mutually agreed between the Parties.

5.4. The Parties agree to negotiate in good faith to reasonably compensate or adjust obligations affected by such Change in Law to ensure the fair performance of the Contract.

6. Language, Measurement & Precedence

6.1. The Contract issued by the Company to the Contractor, along with all related correspondence, documents, instructions, and communications, shall be prepared and maintained in the English language. In case of any translation of Contract documents, the English text shall prevail and govern in the event of any conflict or ambiguity.

6.2. All dimensions, units, quantities, and measurements shall be expressed and interpreted strictly in accordance with the Metric System (International System of Units - SI). Any deviation or alternative units must be clearly specified and mutually agreed upon in writing.

7. Scope of Supply - General

7.1. 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.

7.2. Bidder shall have to quote for the Bill of quantities as listed in Section - II of this RFQ.

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

7.4. All relevant drawings, data and instruction manuals.

8. Specifications, Codes & Standards

8.1. The Bidder shall follow all codes and standards referred in the Contract Document. Codes and standards not specifically mentioned in the Contract Document may be followed by the Bidder with the prior written approval of BYPL, provided materials, supplies and equipment according to the standard are equal to or better than the corresponding standards specified in the Contract.

8.2. Product manufacturer or brand names cited in the Contract Documents serve solely to define the required type and quality of products. The Bidder shall not substitute or alter the specified brands or product qualities without the express prior written consent of BYPL. All products and equipment must be used or installed in full compliance with the original manufacturer's guidelines unless otherwise instructed by BYPL.

8.3. In all cases, the Bidder must comply with relevant codes, standards, and requirements prescribed by any applicable government agencies.

8.4. In the absence of specific BSES standards, the Bidder shall follow the relevant Indian Standards (IS) or International Electrotechnical Commission (IEC) standards as applicable.

9. Representations and Warranties

9.1. The Contractor represents and warrants that it possesses full legal capacity, valid licenses, permits, and approvals required to perform all obligations under this Contract.

9.2. The Contractor warrants that all Goods supplied under this Contract:
- 9.2.1. Are brand new and free from any defects in design, materials, and workmanship
- 9.2.2. Fully conform to the Contract specifications and requirements
- 9.2.3. Are suitable and fit for the intended purpose as specified in the Contract documents

9.3. The Contractor further warrants that all Services performed shall be executed with the highest degree of skill, care, and diligence consistent with Good Industry Practice and prevailing professional standards.

10. Ethics, Integrity & Code of Conduct

10.1. The Contractor shall fully comply with all anti-bribery, anti-corruption, conflict of interest, gifts and gratuities, and integrity policies issued or communicated by the Purchaser. For Contracts exceeding specified thresholds, the Contractor shall be required to execute an Integrity Pact as per the Purchaser's guidelines.

10.2. Any breach of these ethics and integrity obligations by the Contractor may lead to disciplinary actions including, but not limited to, termination of the Contract, forfeiture of performance security deposits, recovery of losses incurred by the Purchaser, debarment from future procurement opportunities, and reporting to relevant regulatory or enforcement authorities.

11. Sustainability, ESG & Legal Compliance

11.1. The Contractor shall implement an Environmental, Social, and Governance (ESG) program appropriate to the scope of work, which shall include but is not limited to:

11.1.1. Compliance with applicable Extended Producer Responsibility (EPR), electronic waste, hazardous waste, plastic waste, and battery waste management regulations;
11.1.2. Adherence to RoHS/REACH standards where applicable;
11.1.3. Design and supply of energy-efficient products meeting prescribed star ratings or efficiency classes;
11.1.4. Take-back and responsible disposal or recycling of packaging and end-of-life equipment where mandated;
11.1.5. Occupational health and safety management systems aligned with IS/ISO 45001;
11.1.6. Social safeguards including prohibition of child labour, forced labour, assurance of fair wages, and provision of safe and dignified workplaces.
11.1.7. Adoption of environmentally responsible practices such as waste minimization, recycling, and strict prohibition of hazardous materials usage, in accordance with relevant laws and regulations.

11.2. The Contractor shall support the Purchaser's Scope-3 greenhouse gas emissions tracking efforts by submitting quarterly reports detailing the embodied carbon content of supplied goods (where available) and associated logistics emissions. The Contractor shall provide reasonable assistance in this regard at no additional cost.

11.3. The Contractor shall prioritize the use of recycled or returnable packaging materials and minimize single-use plastics except where necessary for product protection. All wooden packaging shall be sourced from legally compliant suppliers. Pallets, drums, and similar packaging materials shall be collected and returned for reuse or recycling where feasible.

11.4. The Contractor shall maintain accurate records, documentation, and evidence of compliance with all ESG requirements and shall provide such information to BYPL or relevant authorities as reasonably requested, in the format and frequency specified.

12. Data & Cybersecurity

12.1. For any scope involving software, firmware, or networking components, the Contractor shall:

12.1.1. Provide comprehensive cyber hardening guidelines;
12.1.2. Maintain a vulnerability disclosure window of thirty-six (36) months following delivery;
12.1.3. Deliver timely security patches and firmware updates as they become available;
12.1.4. Supply a software bill of materials (SBOM) listing all software components included;
12.1.5. Ensure no hard-coded credentials exist in delivered software or devices.

12.1.6. Any connection to the Purchaser's network must be authorized in writing prior to implementation.

12.2. The Contractor shall handle any personal data processed in relation to this Contract in full compliance with applicable data protection laws. Appropriate technical and organizational security measures must be implemented, and the Contractor must promptly notify the Purchaser of any data breaches or security incidents impacting Purchaser data.

13. Local Content and Eligibility

13.1. The Contractor shall comply fully with the Public Procurement (Preference to Make in India) Order and related norms. This includes submitting accurate declarations of local content in goods and services, and consenting to verification and audits by the Purchaser or authorized agencies. Any false or misleading declarations shall entitle the Purchaser to disqualify the Contractor, terminate the Contract, and impose debarment as per applicable regulations.

13.2. Bidders originating from countries sharing land borders with India must adhere to the registration and eligibility criteria specified by the Government of India. Failure to comply with these requirements will render the bid ineligible for consideration and may lead to Contract termination if discovered post-award.

14. Manufacturing Approvals & Clearances

14.1. Transmittal approval documents - including Guaranteed Technical Parameters (GTP), drawings, Quality Assurance Plans (QAP), and other relevant documents - shall be submitted within 15 days to the designated BYPL official for review and approval. BYPL shall provide approval or comments within seven (7) calendar days of the initial submission. Should resubmission be required, the Contractor shall complete it within five (5) calendar days. Subsequent approvals or comments from BYPL on such resubmissions will be issued within five (5) calendar days. Repeated resubmissions are discouraged and may impact timelines.

14.2. Manufacturing activities shall commence only after the Contractor receives formal transmittal approval and manufacturing clearance from BYPL.

14.3. All documents submitted for transmittal approval must reflect pre-award discussions and confirmations between BYPL and the Contractor to ensure accuracy and compliance.

14.4. Post Order Transmittal Approval shall be completed within 04 weeks from the date of Rate Contract/Purchase Order. Delays in obtaining transmittal approval shall not be accepted as valid grounds for extension of delivery timelines or waiver of liquidated damages.

15. Errors, Omissions & Discrepancies

15.1. The Contractor shall be solely responsible for all discrepancies, errors, and omissions found in the drawings, documents, or any other information submitted by it, regardless of whether such submissions have been approved, reviewed, or accepted by BYPL. Notwithstanding the foregoing, any design or drawing errors directly resulting from inaccurate or incomplete data or written instructions furnished by BYPL shall not be attributed to the Contractor.

16. Quality Assurance, Inspection, Testing and Test Certificates

16.1. The Contractor shall procure all equipment solely from authentic sources approved by the Company and as per Company specifications.

16.2. The Contractor shall prepare a detailed Quality Assurance Plan (QAP) and test procedures identifying all manufacturing stages, associated quality checks, raw material inspections, and

Customer hold points. This document shall include inspection methods, acceptance criteria, and standards. The Contractor must obtain Purchaser approval prior to manufacturing commencement. The Purchaser retains the right to review Contractor's in-house inspection reports and quality checks at stages other than Customer hold points and may issue remarks requiring additional testing, rectification, or rejection, which the Contractor shall comply with.

16.3. Witness and Hold points represent critical inspections or tests during manufacturing where the Contractor must notify the Purchaser in advance to enable witnessing. Final inspection is a mandatory hold point. Work shall proceed beyond any hold point only after explicit clearance by the Purchaser or receipt of a witness waiver letter.

16.4. The Purchaser's waiver of any quality assurance activity at any stage shall not exempt the Contractor from fulfilling all Contract requirements, codes, and referenced standards, nor preclude the Purchaser from subsequently rejecting non-conforming materials or work.

16.5. The contractor shall submit all test certificates and joint inspection reports related to equipment's/materials, wherever applicable.

16.6. Manufacture items shall not be dispatched without prior receipt of a Material Dispatch Clearance Certificate (MDCC) or explicit instructions from the Purchaser.

16.7. All in-house testing and inspections shall be conducted at no additional cost. Such inspections shall be overseen by the Purchaser or its authorized third-party inspection agency. Costs of futile or abortive inspection visits shall be deducted from Contractor invoices.

16.8. The Purchaser reserves the right to send any supplied material to recognized laboratories for testing at any time, with testing costs borne by the Contractor. If materials fail to meet the specified technical requirements, the Contractor shall bear all associated charges and penalties. To prevent dispute, the Contractor should appoint a representative to witness material sealing at the storage site before dispatch for testing.

17. Inspection & Test Charges

17.1. The Goods shall be subjected to inspection by the Purchaser and/or a third-party inspection agency appointed by the Purchaser. Such inspections shall include stage-wise and final inspections as per the mutually agreed Quality Assurance/Quality Control (QA/QC) procedures. Additionally, inspections may be conducted at the Purchaser's site or storage facilities. The Contractor shall repair or replace any damaged or rejected Goods to the satisfaction of the Purchaser at no additional cost.

17.2. Inspection charges are included in the total contract value, whereas third-party inspection fees shall be borne by the Purchaser. However, any costs arising from futile or abortive visits by the Purchaser's inspectors to the Contractor's premises shall be deducted from the Contractor's invoices.

17.3. No shipment of Goods, whether in whole or in part, shall be made under this Purchase Order until the Contractor has received a written Release for Shipment Notice from the Purchaser or its authorized representative.

17.4. Requests for stage-wise or pre-dispatch inspections must be submitted to the Purchaser at least seven (7) days in advance, utilizing the official request format provided by BYPL.

18. Documentation

18.1. The Contractor shall procure all materials and equipment exclusively from BYPL-approved sources, strictly adhering to BYPL specifications and Transmittal Approvals. The Contractor

shall submit copies of all relevant Material and Type Test Certificates, Operation and Maintenance (O&M) Manuals, as well as Approved and As-built drawings for the supplied equipment. Compliance with BYPL's specifications and Field Quality Procedures is mandatory and must be ensured by the Contractor throughout the project.

19. Packing, Handling, and Storage

19.1. Packing: The Contractor shall pack, or cause to be packed, all Commodities in suitable crates, boxes, drums, containers, cartons, or other appropriate packaging to ensure safe shipment by road or rail to BYPL's Delhi/New Delhi stores or site. Packaging shall provide adequate protection to prevent damage during transit. Wherever feasible, biodegradable packaging materials should be used in compliance with prescribed environmental standards.

19.2. Packing List: Each package shall contain a detailed packing list itemizing the contents with exact weight, external dimensions (length, width, and height), Item SAP Code, Purchase Order number, and date. One copy of the packing list must be enclosed inside each package delivered.

19.3. Prior to commencement of supply, the Contractor shall provide the Material Safety Data Sheet (MSDS) and detailed handling and storage instructions or manuals, where applicable. A copy of these documents shall be submitted and maintained at the storage or site location along with the first lot of materials delivered.

20. Delivery Terms & Address

20.1. The Goods shall be delivered to BYPL's designated Store(s) and/or Site(s). All shipments shall be made on a Free on Road (FOR) destination basis, inclusive of any applicable local taxes and duties.

20.2. The Contractor shall be responsible for unloading of the Goods at the respective BYPL Store(s) or Site(s).

20.3. Where applicable, the Contractor shall ensure issuance of all required transit documents, including E Way Bills, necessary for lawful transportation of the Goods. The logistics partner or transporter shall not be held liable for any loss, penalties, or confiscation arising due to improper documentation or mis-declaration.

21. Transportation

21.1. The Contractor shall be responsible for arranging the transportation of Goods from the Contractor's or Sub-Contractor's works or warehouses to the Buyer's designated Store(s) or Site(s).

21.2. All charges related to transportation from the Contractor's works to the Buyer's Store(s) or Site(s) are deemed included in the total order value and shall not be billed separately.

22. Transit Insurance

22.1. The Contractor shall be responsible for arranging Transit Insurance for all materials and Goods.

22.2. In the event of damage or loss of cargo during transit, the Contractor shall coordinate directly with the relevant insurance company to procure insurance coverage, lodge claims, and facilitate settlement. Regardless of the insurance outcome, the Contractor must replace and deliver the damaged or lost Goods to the Purchaser within thirty (30) days of the incident, at the Contractor's sole expense, including all associated costs for replacement and delivery.

23. Acceptance & Rejection of Goods

23.1. Goods shall be accepted only upon receipt of the Material Dispatch Clearance Certificate (MDCC).

23.2. The Purchaser shall not accept materials if LR/ RR / Bilty and the Original Tax Invoice (Transporter Copy) are not handed over at store/site. The Contractor shall draw all dispatch documents in favour of Purchaser as Consigned to and billed to.

23.3. The materials shall be supplied during working hours from 10AM to 5PM. No delivery shall be effected after this time unless prior intimation is given to the Purchaser.

23.4. The Contractor shall take signature of the authorized person at store/site with Purchaser's seal duly receipting the materials and the quantities in the absence of which payment shall not be made by the Purchaser.

23.5. The Contractor shall ensure exact quantities are supplied as per MDCC and if the quantities are short-supplied, as per verification at the Contractor's store/site, the same shall be adjusted and net payment shall be made accordingly.

23.6. The Purchaser retains the exclusive right to reject any goods that do not comply strictly with the terms and conditions of this Purchase Order.

24. Price Validity

24.1. For Contractors awarded the contract, the agreed prices shall remain fixed and valid throughout the entire duration of the contract until its completion.

25. Prices/Rates/Taxes

25.1. Price basis for supply of materials & services:

25.1.1. The contract price/rates finalized for this contract shall be firm for the entire duration of the contract and are not subject to any variation and escalation for any reason whatsoever.

25.1.2. The supply prices are inclusive of packing, forwarding, and loading at manufacturer's premises, payment of GST, Freight, and any other local charges. Octroi is presently not applicable in Delhi and however if applicable shall be reimbursed at actuals.

25.1.3. The supply prices shall also include unloading at BYPL Delhi/New Delhi stores/sites.

25.1.4. Transit insurance shall be arranged by the Contractor at no additional cost to the Purchaser.

25.1.5. GST is included in the total contract price. GST payments will be processed only upon submission of the Contractor's valid GST registration and a self-declaration on the Contractor's letterhead confirming GST compliance and deposit as per applicable laws. The Contractor must provide their GST registration number.

25.1.6. Income Tax (IT) at applicable rates will be deducted from Contractor invoices as Tax Deduction at Source (TDS).

26. Taxes & Duties

26.1. All taxes, duties, turnover tax, labour cess, etc. (except GST) levied by State or Central Governments or local bodies shall be borne by the Contractor. Any new taxes and duties levied by the government during the term of this Agreement shall be borne by BYPL. Income tax and TDS will be deducted at source from the Contractor's invoices as applicable. The Contractor must furnish their GST registration number.

26.2. GST on actuals will be paid upon submission of GST registration and a self-declaration on the Contractor's letterhead confirming that the tax has been or will be deposited as per applicable tax laws.

26.3. As per Notification No. 39/2021 # Central Tax dated 21st December 2021, effective from 01/01/2022, a registered person (i.e., Recipient/Purchaser) can claim input tax credit only for invoices reflected in GSTR2A or GSTR2B (which requires 100% matching of invoices). Suppliers must deposit GST by filing GSTR-1 and GSTR-3B.

26.4. If the Supplier/Contractor fails to comply and the Recipient/Purchaser cannot avail input tax credit due to non-filing or non-compliance of GSTR-1 and GSTR-3B for the month/quarter of supply, the Recipient/Purchaser reserves the right to withhold 100% of the GST amount from subsequent payments until the default is rectified.

26.5. To release withheld payments under the GST Act, the Supplier/Contractor must submit proof of payment via GST Portal screenshots reflecting the Recipient/Purchaser's name, along with the relevant GSTR-1 and GSTR-3B filings for the applicable period. Payments will not be released until such proof is provided.

26.6. Furthermore, the Recipient/Purchaser reserves the right to recover any financial loss incurred (including tax, interest, penalties, and loss of input credit) due to the Supplier/Contractor's non-compliance or non-filing of GSTR-1 and GSTR-3B.

26.7. For goods delivered on FOR site basis, the Supplier/Contractor is responsible for complying with all rules regarding the issuance of E-way bills. Any violation may result in penalties and seizure of goods during transit. All penalties and pre-deposits related to such violations shall be borne by the Supplier/Contractor. The Supplier/Contractor is also responsible for ensuring timely release of seized goods. Any supply delay caused by seizure shall attract liquidated damages as per contract provisions.

26.8. For goods not covered under GST, applicable Excise Duty (ED), VAT, or CST shall be payable extra at prevailing rates.

26.9. BYPL Tax Details:
26.9.1. GSTIN: 07AABCC8569N1Z0
26.9.2. CST No.: 07740254593
26.9.3. TIN No.: 07740254593
26.9.4. PAN No.: AABCC8569N

26.10. The Seller must submit a detailed statement of invoices and amounts to the concerned officer within seven (7) days after the end of each month corresponding to the supply period. Failure to submit shall be taken as no requirement for reconciliation.

27. Variation in Taxes, Duties & Levies

27.1. The total order value shall be adjusted for any variations in statutory levies imposed by competent authorities through fresh notifications issued within the stipulated delivery period. In the event of any reduction in taxes, duties, or levies, such benefits shall be passed on to the Buyer.

27.2. No other taxes, duties, or levies beyond those specified above shall be payable by the Buyer, except for new levies, taxes, or duties imposed by competent authorities via fresh notifications after the issuance of the purchase order but within the stipulated delivery period.

27.3. Any changes in taxes, duties, or levies shall only apply to the portion of the purchase order remaining unexecuted on the date of such notification. Changes occurring after the scheduled delivery date shall not affect the terms or value of the purchase order.

27.4. The purchase order value shall remain unaffected by any variations in exchange rates.

28. Taxes & Duties on Raw Materials and Bought-Out Components

28.1. Taxes and duties applicable to raw materials and bought-out components shall be included within the total order value and shall not be subject to any escalation or variation for any reason throughout the duration of the contract.

29. Building and Other Construction Workers (BOCW) Act (Applicable for All Civil and Construction Works)

29.1. The Building and Other Construction Workers (BOCW) Act applies to any establishment employing or having employed ten or more building workers at any time during the preceding twelve months in any building or construction work. The Contractor performing such construction work must register with the Registering Officer under Section 7 of the BOCW Act, along with applicable state government rules, and submit the Registration Certificate issued by the Registering Officer of the concerned State Government's Labour Department.

29.2. Under this Act, the Contractor shall pay a cess at the rate of 1% on the cost of construction work, which shall be deducted from each interim bill. The cost of materials, when billed separately as a distinct schedule item, shall be excluded from the cess calculation. The Contractor is required to comply with all applicable provisions of the BOCW Act.

30. Tax Indemnity Clause

30.1. The Contractor (including its affiliates in India or overseas, agents, third-party contractors, or any other persons appointed by such affiliates for this Agreement) shall bear sole responsibility for compliance with and payment of all taxes—direct or indirect—including but not limited to income tax, transfer pricing, value added tax, SGST, CGST, IGST, UTGST, GST Compensation Cess, customs duty, excise duty, Research and Development Cess, cesses, interest, penalties, or any other tax/duty/amount/charge/liability arising under laws or regulations applicable in India or overseas, or from demands or recoveries initiated by any revenue authority.

30.2. If any tax liability (including but not limited to income tax, transfer pricing, value added tax, SGST, CGST, IGST, UTGST, GST Compensation Cess, customs duty, excise duty, Research and Development Cess, etc.), cesses, interest, penalties, or other charges become payable by the Purchaser due to the Contractor's or its affiliates' failure to comply with relevant laws or regulations, the Contractor undertakes to indemnify the Purchaser for such amounts.

30.3. Furthermore, the Contractor agrees to indemnify and keep indemnified the Purchaser against all actions, proceedings, claims, losses, damages, costs, and expenses directly or indirectly arising from any failure by the Contractor or its affiliates to comply with applicable legal obligations.

30.4. The parties agree to the following procedure in the event the Purchaser receives any demand or notice relating to non-compliance by the Contractor or its affiliates with tax laws:

30.4.1. The Purchaser shall notify the Contractor in writing within five (5) common working days of receipt of such communication, or as soon as reasonably possible if the response time is shorter.

30.4.2. Upon receipt of notification, the Contractor shall either accept the demand and reimburse the Purchaser within five (5) working days of payment or propose disputing the demand.

30.4.3. If the Contractor opts to dispute the demand and the Purchaser agrees, the Purchaser will contest the demand following due legal process, refraining from paying the tax demand during litigation. The Contractor shall reimburse all litigation costs incurred,

including counsel fees and filing charges. Should any coercive recovery measures be initiated, the Purchaser may pay the sum and recover it from the Contractor within five (5) working days.

30.4.4. If the demand is finally determined by a tribunal or authority and payment was made by the Purchaser, the Contractor shall reimburse the amount within ten (10) days of payment. Conversely, if no amount is payable and a refund arises, the Purchaser shall pass the refund to the Contractor within ten (10) days of receipt.

31. Invoicing Instructions

31.1. Invoices shall be prepared in triplicate — (1) Original for the recipient, (2) Duplicate for the transporter, and (3) Triplicate for the supplier — and delivered to: BSES YAMUNA POWER LIMITED, SHAKTI KIRAN BUILDING, KARKARDOOMA, DELHI - 110032. Material Dispatch Clearance Certificates (MDCC) will be issued separately for Capex and Opex, and suppliers must submit invoices accordingly.

31.2. The Contractor shall obtain GST registration in the state from which the supply is made. Suppliers must possess a valid GST registration number and issue GST tax invoices and supporting documents compliant with the SGST Act, CGST Act, IGST Act, UTGST Act, GST Compensation Cess Act and applicable rules. Failure to submit GST-compliant invoices shall render the tax amounts (SGST, CGST, IGST, UTGST, GST Compensation Cess) subject to withholding during payment.

31.3. Invoices must be issued in the name of BSES YAMUNA POWER LIMITED, with the store/site address as specified in the MDCC. Invoices should comply with all GST Invoice, Debit Note, and Credit Note requirements, including supplier details, GSTIN, HSN codes, item details, tax rates, etc., as outlined in government regulations and the GST INV-01 invoice template.

31.4. The Contractor must charge appropriate CGST, SGST, UGST, IGST, and GST Compensation Cess as applicable.

31.5. Timely Issuance of Invoices/Debit/Credit Notes:

31.5.1. Contractors shall provide invoices and debit/credit notes promptly to allow the Purchaser to claim input tax credit within prescribed deadlines per GST laws. Adjustments (credit notes, purchase returns, debit notes) must be processed within legally mandated timeframes.

31.5.2. In case of advance payments, the Contractor agrees to raise a tax invoice. Upon receipt of advance, the Purchaser will issue a payment voucher as per applicable GST rules. Four copies of invoices are required, including the Electronic Reference Number if mandated by law. Persons in charge of conveyance must carry required documents and devices.

31.6. Transit Documents and E Way Bills: Where applicable, the Contractor is responsible for issuing transit documents/E Way Bills for goods movement. Logistic partners or transporters shall not be liable for losses or confiscation due to improper documentation or misdeclaration. The Supplier must comply with all E-way bill regulations. Violations may attract penalties and seizure of goods. The Supplier shall bear all penalties and pre-deposits and is responsible for obtaining release of goods from authorities like CGST/SGST. Delays due to seizure shall attract liquidated damages as per contract.

31.7. All Contractors/Service Providers must include the following minimum details in invoices submitted:

31.7.1. Invoice/Credit Note number and date

31.7.2. Contractor/service provider address and GSTN

31.7.3. Customer name and address as per GST registration and GST registration number

31.7.4. 'Shipped to' and 'Billed to' addresses

31.7.5. Place of supply
31.7.6. Description of goods/services with units of measurement
31.7.7. HSN/SAC codes
31.7.8. Taxable value (gross and discount detailed separately if applicable)
31.7.9. Tax rate and amount for CGST, SGST, and IGST separately
31.7.10. Contractor's signature (for e-invoices, a physical signature is not required)
31.7.11. Indication of reverse charge applicability

32. Bill Submission Procedure

32.1. All monitoring, measurement, billing & payment processes shall be on IT enabled platform of BYPL as per Company's guidelines issued from time to time and bidders to ensure adherence. The company may modify the procedure for the submission of bills. The Contractor shall be obliged to submit its bill as per the procedure stipulated by the company from time to time.

32.2. All bills must be uploaded to BYPL portal (BTS - Bill Tracking System) for certification by the Engineer In-Charge or Package Engineer.

32.3. Further the contractor shall also submit original bill (hard copy) along with supporting documents at Vendor Support Cell of BYPL. The bills shall be made in favour of BSES Yamuna Power Ltd, Shakti Kiran Building, Karkardooma, New Delhi - 110032.

32.4. Each bill shall be complete in all respects, including compliance with ESI, HR, Quality, HSE, Stores, and Finance requirements. The site follows an established procedure for bill processing. Incomplete bills or invoices will not be processed for payment.

33. Terms of Payment and Billing

33.1. **For Supply Of Equipment/Materials**
100% payment shall be made within 45 days from the date of receipt & acceptance of material at site on against submission of following documents against dispatch of each consignment at our Vendor Support Cell (VSC):

a) Signed copy of accepted Rate Contract / Purchase Order (for first payment)
b) LR / RR / BL as applicable
c) Challan as applicable
d) One (01) copies of Supplier's detailed Recipient Invoice showing Commodity description, quantity, unit price, total price and basis of delivery, and being 100% of the value of the consignment claimed.
e) One (01) copies of Supplier's transporter invoice duly receipted by BYPL Store& Original certificate issued by BYPL confirming receipt of the subject material at Store/Site and acceptance of the same as per the provisions of the contract.
f) One (01) copies Packing List / Detailed Packing List
g) Approved Test certificates / Quality certificates, if applicable
h) Certificate of Origin, if applicable
i) Material Dispatch Clearance Certificate (MDCC)
j) Warranty / Guarantee Certificate, if applicable
k) Checklist for bill submission.

33.2. Purchaser has the right to recover tax loss, interest and penalty suffered due to any non-compliance of tax laws by the Contractor. In the event, Purchaser is not able to avail any tax credit due to any shortcoming on the part of the Contractor (which otherwise should have been available to Purchaser in the normal course), then the Contractor at his own cost and effort will get the shortcoming rectified. If for any reason the same is not possible, then the Contractor will make 'good' the loss suffered by Purchaser due to the tax credit it lost. In such event, any amount paid to the Contractors shall be first attributable to the tax (GST) charged in the invoice and the balance shall be considered towards the 'value' of supply of goods/ services.

33.3. Purchaser shall deduct "Tax Deducted at Source" wherever applicable and at the rate prescribed under the GST Laws or any other Indian law and remit the same to the Government. Necessary TDS certificates as per law shall be issued by the purchase to the Contractor.

33.4. Any liability arising out of dispute on the tax rate, classification under HSN, calculation and payment of tax to the Government will be to the Contractor's account.

33.5. Where the supply of Goods is liable to GST under reverse charge mechanism, then the Contractor should clearly mention the category under which it has been registered and also that "the liability of payment of GST is on the Recipient of Supply".

34. Performance Guarantee

34.1. To be submitted within twenty-eight (28) days from the date of issuance of the Letter of Intent/Award/PO. Bidder shall submit PBG equivalent to 10% of the PO value (including GST) valid for a period of 30 months from the date of last receipts plus 3 months claim period.

34.2. All Bank Guarantees shall be issued in favour of BSES Yamuna Power Ltd. and must conform to the format prescribed by BYPL.

34.3. Performance Guarantee Forfeiture: Each Performance Bond established under Clause 34.1 shall contain a statement that it shall be automatically and unconditionally forfeited, without recourse, and payable against the presentation by BYPL of this Performance Bond, to the relevant bank referred to above, together with a simple statement that Contractor has failed to comply with any term or condition outlined in the Contract.

34.4. Each Performance BG established under will be automatically and unconditionally forfeited without recourse if BYPL in its sole discretion determines that Contractor has failed to comply with any term or condition outlined in the contract.

34.5. Performance Guarantee Release: All Performance Bonds shall be released without any interest within seven (7) days following the expiry of the validity period specified in Clause 34.1, except in cases outlined under Clause 34.4.

35. Defects Liability Period/ Warranty / Guarantee

35.1. The bidder is to Guarantee the materials/items supplied against any defect or failure, which arises due to faulty materials, workmanship or design for the entire defects liability period. The Defect liability period shall be 66 months from the date of delivery at store(s)/site(s).

35.2. If during the Defects Liability Period any goods are found defective, the Bidder shall promptly replace or rectify them at its own cost, including dismantling and reinstallation, as directed by the Purchaser. If removed from site, the goods must be returned at the Contractor's cost within the agreed schedule from receipt of intimation.

35.3. The Contractor shall dispatch service personnel within 48 hours in emergencies and ensure availability of manpower and spares throughout the warranty period.

35.4. However, if the situation, in BYPL's sole discretion warrants an emergency restoration, it reserves the right to take immediate action for identifying the fault and restoring the system with available resources & materials or with help from any other third-party agency under intimation to the Contractor. All costs of replacement, substitution, shipping, labour and other related expenses including taxes and levies incurred in connection with the restoration of fault plus 15% of expenses incurred as administrative overheads shall be for the account of Contractor. BYPL will charge the Contractor for the costs incurred for fault restoration or may

set off such costs against any amounts payable by BYPL to the Contractor or deduct from the PBG submitted by the Contractor. Contractor shall pay BYPL the amount within 30 days.

35.5. Fault root cause analysis shall be jointly conducted by BYPL's CES, O&M, OEM teams and the Contractor. If faults arise from reasons other than faulty material, design, or workmanship, the Contractor shall be exempt from further liability or cost.

36. Support beyond the Guarantee Period

36.1. The Contractor shall ensure the availability of spare parts and necessary technical support for a minimum period of ten (10) years following the completion of the equipment guarantee period under the contract. The Contractor must notify BYPL at least twelve (12) months in advance of the End of Life Support for the supplied product or technology.

37. Return, Replacement or Substitution

37.1. BYPL shall promptly notify the Contractor upon identification of any defective commodity. At its sole discretion, BYPL may return such defective commodities to the Contractor for replacement at no cost to BYPL or reject the commodities and procure the same or similar items from a third party. In the event of such third-party procurement, BYPL shall provide the Contractor with proof of the replacement purchase cost.

37.2. All costs associated with replacement, substitution, shipping, labor, and other related expenses incurred in connection with the return and replacement or third-party procurement of the commodity shall be borne by the Contractor. BYPL reserves the right to deduct such costs from any payments due to the Contractor.

37.3. Should the cost of the substitute commodity exceed the price quoted in the Contractor's bid, the Contractor shall reimburse BYPL for the difference.

37.4. At BYPL's sole discretion, materials or goods rejected and not collected by the Contractor within forty-five (45) days from the date of rejection notification may be disposed of by BYPL.

38. Effective Date of Commencement of Contract

38.1. The Contract shall be deemed to commence on the date of issuance of the Letter of Intent, Letter of Acceptance, or Purchase Order, whichever is earlier, and this date shall be considered as the effective commencement date for all contractual obligations.

39. Time - The Essence of Contract

39.1. The date specified for completion of the "Project" in the Letter of Acceptance or Purchase Order issued to the Contractor shall be deemed to be of the essence of the Contract. The Contractor is required to complete the Project on or before the stipulated schedule and completion date.

40. Delivery Completion Timelines

40.1. The contractual delivery for the Goods or Services shall adhere strictly to the defined schedule.

41. Extension of Time and Time Overrun

41.1. Extension of time may be granted at the Company's discretion if delays are not the Contractor's fault, subject to the Contractor submitting detailed justification within ten (10) days of the delay's occurrence. Such extension does not warrant any increase in contract price and does not prejudice the Company's right to recover liquidated damages.

42. Liquidated Damages

42.1. If supply of items/equipments is delayed beyond the supply schedule as stipulated in the 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 basic (ex-works) price for every week delay of undelivered units or part thereof for individual milestone deliveries.

42.2. The total amount of penalty for delay under the contract will be subject to a maximum of ten percent (10%) of the basic (ex-works) price of total undelivered units.

42.3. 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.

42.4. If the Penalty is levied as per the Order terms & conditions; BYPL will raise the Invoice for the penalty amount along with applicable GST rates. Accordingly, after setting off the penalty Invoice amount, net payment shall be made.

43. Recoveries

43.1. Whenever any sum is recoverable from the Contractor under this contract, the Purchaser shall be entitled to recover such amount by appropriating, in whole or in part, any sums due or that may become due to the Contractor under this contract. If such sums are insufficient to cover the full amount recoverable, the Contractor shall pay the outstanding balance to the Purchaser upon demand.

44. The Micro, Small and Medium Enterprises (MSME)

44.1. If the Contractor's establishment falls under the scope of the Micro, Small and Medium Enterprises Development Act, 2006 and its amendments, the Contractor shall declare this status within the bid. Failure to do so will be deemed as confirmation that the Contractor is a non-MSME unit. The Contractor must also submit a copy of the Udyog Aadhaar (UA) and Udyam Registration Number, along with the PAN number.

45. Transfer and Subcontracting

45.1. The Contractor shall not subcontract, transfer, assign, or otherwise part with the Contract or any part thereof, either directly or indirectly, without the prior written approval of the Purchaser.

45.2. Notwithstanding any subcontracting, the Contractor shall remain entirely responsible for the execution, completion, and satisfactory performance of the Work, in full compliance with the Purchase Order, specifications, approved drawings, and data sheets. The Contractor shall also be fully accountable for any acts, omissions, defaults, or negligence of any subcontractor.

46. Intellectual Property Rights and Royalties

46.1. The Contractor shall indemnify the Purchaser and the Purchaser's Representative against all claims and proceedings arising from infringement or alleged infringement of any patent rights, registered designs, copyright, design, trademark, trade name, know-how, or other intellectual property rights (collectively referred to as "Intellectual Property Rights") relating to the Works, Contractor's equipment, machines, methods, plant, materials, or anything required for execution of the Works. In case of infringement, the Contractor shall, at its own cost, either rectify, modify, or replace the infringing item so that infringement ceases, or procure necessary rights or licenses from the affected third party.

46.2. The Contractor shall be promptly notified of any claim made against the Purchaser. The Contractor shall, at its cost, conduct negotiations for the settlement of such claim, and any litigation or arbitration that may arise from it. The Purchaser or the Purchaser's Representative shall not make any admission that might be prejudicial to the Contractor unless the Contractor has failed to take over the conduct of the negotiations, litigation or arbitration within a reasonable time after having been so requested. In the event of the Contractor failing to act at the Purchaser's Representative's notice, the Purchaser shall be at full liberty to deduct any such amount of pending claim from any amount due to the Contractor under the Contract or any other contract and the balance portion of claim shall be treated as debt due from the Contractor.

46.3. Intellectual Property Rights in any plant, materials, drawings, designs, plans, documents, specifications, data, know-how, charts, or information provided by the Purchaser remain the sole property of the Purchaser. The Contractor has only a limited right to use these for execution of the Works.

46.4. Intellectual Property Rights in respect of any Plant, Materials, Drawings and Designs, plans, calculations, drawings, documents, know-how and information relating to the Works which are proprietary to the Contractor and/ or its third-party licensors ("Contractor's IPR") shall continue to vest with the Contractor and/ or its third-party licensors and the Contractor shall grant and/ or procure from its third party licensors, at its own cost, a worldwide, perpetual, royalty-free, non-exclusive license (along with the right to sub-license) to use and reproduce such Contractor's IPR for the use, operation, maintenance and repair of the Works.

46.5. If any patent, trademark, trade name, registered design or software is developed by the Contractor or its SubContractor specifically for the execution of the Works, then all Intellectual Property Rights in respect of such design, trademark, trade name or software shall be the absolute property of the Purchaser and shall not be utilized or retained by the Contractor (or its SubContractors) for any purpose other than with the prior written consent of the Purchaser.

46.6. If the Contractor uses proprietary software (whether customized or off the shelf) for the purpose of storing or utilizing records in relation to the Works, the Contractor shall obtain at its own expense, the grant of a worldwide, royalty-free, perpetual licence or sublicence (including the right to sublicense) to use such software, in favour of the Purchaser provided that the use of such software under the licence or the sublicense may be restricted to use any such software only for the design, construction, reconstruction, manufacture, installation, completion, reinstatement, extension, repair and operation of the Works or any part thereof.

46.7. If any software is used by the Contractor for the execution of the Works over which the Contractor or a third party holds pre-existing title or other rights, the Contractor shall obtain for the Purchaser, a worldwide, royalty-free, perpetual license for the right to use and apply that software (together with any modifications, improvements and developments thereof).

47. Vendor Code of Conduct

47.1. Contractor acknowledges having reviewed the BYPL policy on legal and ethical code required to be followed by Contractors encapsulated in the "Vendor/Contractor Code of Conduct" displayed on the official website of BYPL (www.bsesdelhi.com) also, which shall be treated as a part of the agreement/contract/PO/WO.

47.2. Contractor undertakes that he shall adhere to the Contractor Code of Conduct and also agrees that any violation of the Contractor Code of Conduct shall be treated as breach of the agreement/contract/PO/WO.

47.3. In event of any such breach, irrespective of whether it causes any loss/damage, company (BYPL) shall have the right to recover loss/damage including liquidated damages from Contractor.

47.4. The Contractor hereby indemnifies and agrees to keep indemnified the company (BYPL) against any claim/litigation/liability/penalty including litigation cost arising out of any violation of Contractor Code of Conduct by the Contractor or its officers, agents & representatives etc.

48. Limitation of Liability

48.1. Except in cases of willful misconduct, fraud, or gross negligence, neither Party shall be liable to the other for loss of use of any works, loss of profit, loss of contracts, or any other indirect or consequential damages arising out of or in connection with the Contract. The total liability of the Contractor to the Purchaser under this Contract shall not exceed the Contract Value.

48.2. Notwithstanding the above, this clause shall not limit the liability of the Contractor in the following cases:

48.2.1. Fraud, willful misconduct, or unlawful acts
48.2.2. Acts or omissions that violate the fundamental rules of diligence that a conscientious Contractor would observe under similar circumstances
48.2.3. Intellectual property infringement
48.2.4. Breach of confidentiality or data security obligations
48.2.5. Tax and statutory dues liabilities
48.2.6. Recovery of liquidated damages
48.2.7. Third-party death or personal injury

49. Liability of Suppliers/Contractors

49.1. Subject to the due discharge of its obligations under the Contract and except in case of willful misconduct, fraud, or gross negligence on the part of the Contractor or on the part of any person acting on behalf of the Contractor, with respect to any loss or damage caused by the Contractor to the Purchaser's property or the Site, the Contractor shall not be liable to the Purchaser for the following:

a) For any indirect or consequential loss or damage; and
b) For any direct loss or damage that exceeds:
   i. The total payments made and expected to be made to the Contractor under the Contract including reimbursements, if any; or
   ii. The insurance claim proceeds that the Contractor may be entitled to receive from any insurance purchased by the Contractor to cover such a liability, whichever is higher.

49.2. This limitation of liability shall not affect the Contractor's liability, if any, for damage to third-party property or injury or death of a person due to negligence of the Contractor or any Person or firm acting on behalf of the Contractor in executing the order.

49.3. Notwithstanding anything contained in the Contract, the Contractor shall not be liable for any willful misconduct, fraud, or gross negligence on the part of the Purchaser or any of its affiliates, any Contractor, or any party, other than Contractor and/or, its directors, officers, agents or representatives or its affiliates, or SubContractor, or the Contractor or any third party engaged by it.

49.4. Notwithstanding anything contained in the Contract, including but not limited to approval by the Purchaser of any drawings, documents, Contractor list, supply of information or data or the participation of the Purchaser in any meeting and/or discussion or otherwise, shall not absolve the Contractor from any of its liabilities or responsibilities arising in relation to or under the Contract.

50. Indemnification

50.1. The Contractor shall indemnify and hold harmless the Company from and against any and all liabilities, claims, damages, losses, or expenses arising out of or resulting from:

50.1.1. any breach non-observance or non-performance by contractor or its employees or agents of any of the provisions of this Work Order.
50.1.2. any act or omission of contractor or its employees or agents.
50.1.3. any negligence or breach of duty on the part of contractor, its employees or agents including any wrongful use by it or them of any property or goods belonging to or by COMPANY.
50.1.4. Any damages or loss related to free-issued materials, for which the Bidder shall submit an Indemnity Bond.

50.2. The Contractor shall at all times indemnify the Company against all liabilities to third parties, including employees or agents of the Company or the Contractor, for bodily injury, property damage, or any other loss arising out of or in connection with the execution or completion of the Works. This includes all costs, charges, and expenses incurred by the Company due to claims from such persons.

51. Events of Default

51.1. Each of the following events or occurrences shall constitute an event of default under the Contract:
51.1.1. The Contractor fails or refuses to pay any amounts due under the Contract;
51.1.2. The Contractor 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 valid extension thereof;
51.1.3. The Contractor 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 Contractor's creditors file any petition relating to bankruptcy of Contractor;
51.1.4. The Contractor fails to complete the works in accordance with the approved schedule of works.
51.1.5. The Contractor fails to comply with any reasonable instructions or directions issued by the Company in connection with the execution of the works.
51.1.6. The Contractor 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 Contractor of notice of such failure from BYPL specifying the failure.

52. Consequences of Default

52.1. If any Event of Default occurs and continues, BYPL may, by written notice, terminate the Contract forthwith.

52.2. Upon occurrence of an Event of Default, BYPL may, without prejudice to any other rights or remedies available under law or the Contract, exercise one or more of the following remedies;
52.2.1. Invoke and present the Performance Bond for payment;
52.2.2. Procure the same or equivalent Commodities from any third-party source; and/or
52.2.3. Recover from the Contractor any losses, damages, or additional expenses incurred as a result of the Contractor's default.

53. Force Majeure

53.1. An "Event of Force Majeure" shall mean any event or circumstance not within the reasonable control directly or indirectly, of the affected Party, but only if and to the extent that:
53.1.1. 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 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.

53.1.2. 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.

53.1.3. Such event is not the direct or indirect result of the failure of such Party to perform any of its obligations under this Contract.

53.1.4. Such Party has given the other Party prompt notice describing such events, the effect thereof and the actions being taken to comply with the above clause.

53.2. **Specific Events of Force Majeure**

53.2.1. 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:

53.2.1.1. Natural elements or other acts of God, such as storms, floods, earthquakes, lightning, cyclones, landslides, or other natural disasters.
53.2.1.2. Explosions or fires.
53.2.1.3. Epidemics, pandemics, or plagues.
53.2.1.4. Declared war by the Government of India.
53.2.1.5. Dangers of navigation or perils of the sea.
53.2.1.6. Cyber security incidents impacting grid operations.
53.2.1.7. Pandemic-related lockdowns.
53.2.1.8. Climate change events beyond traditional natural disasters.
53.2.1.9. Embargoes.
53.2.1.10. Supply chain or industrial disturbances beyond reasonable control.

53.2.2. Note: Force Majeure shall not apply to financial inability, labor shortages, power failures, strikes, accidents, or subcontractor defaults.

53.3. **Notice of Events of Force Majeure**

53.3.1. If a force majeure event prevents a party from performing any obligations under the Contract in part or in full that party shall:

53.3.1.1. Immediately notify the other party in writing of the force majeure events within 7(seven) working days of the occurrence of the force majeure event
53.3.1.2. Be entitled to suspend performance of the obligation under the Contract which is affected by force majeure event for the duration of the force majeure event.
53.3.1.3. Use all reasonable efforts to resume full performance of the obligation as soon as practicable
53.3.1.4. Keep the other party informed of all such efforts to resume full performance of the obligation on a regular basis.
53.3.1.5. Provide prompt notice of the resumption of full performance or obligation to the other party.

53.4. **Mitigation of Events of Force Majeure**

53.4.1. Each Party shall:

53.4.1.1. 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;
53.4.1.2. 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

53.4.1.3. 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.

53.5. **Burden of Proof**

53.5.1. 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.

53.6. **Termination for Certain Events of Force Majeure**

53.6.1. 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.

53.6.2. The Purchaser may terminate the contract after giving 7 (seven) days' notice if any of the following occurs:

53.6.2.1. Bidder fails to complete the execution of works within the approved schedule of works, terms and conditions.

53.6.2.2. In case the Bidder commits any Act of Insolvency, or is adjudged insolvent

53.6.2.3. Has abandoned the contract

53.6.2.4. Has failed to commence work or has suspended the progress of works

53.6.2.5. Has failed to proceed with the works with due diligence and failed to make such due progress

53.7. **Limitation of Force Majeure event**

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

53.8. **Extension of Contract Period due to Force Majeure event**

53.8.1. 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.

53.9. **Effect of Events of Force Majeure**

53.9.1. 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 the failure to perform such obligations shall be due to an event of "Force Majeure".

54. Suspension or Extension

54.1. The Purchaser reserves the right to suspend or reinstate execution of the whole or any part of the Works without affecting the validity of the Contract provisions. Any orders for

suspension or reinstatement shall be provided to the Contractor in writing. The completion time for the Works will be extended by a period equivalent to the duration of the suspension.

54.2. For any aggregate suspension period less than six (6) months, the Contractor shall not be entitled to claim reimbursement. If the suspension of the Works extends beyond six (6) months, the Purchaser will reimburse the Contractor only for necessary and demonstrable direct costs incurred, subject to satisfactory substantiation. Overheads, incidentals, and profit shall not be considered. The Purchaser's decision regarding such claims will be final and binding. The Purchaser shall bear no liability for suspension or delay arising from any default on the part of the Contractor or its sub-contractors; the Purchaser's decision in this respect shall also be final and binding.

55. Severability

55.1. If any provision of this Agreement is found to be invalid, illegal, or unenforceable by a court of competent jurisdiction, such invalidity or unenforceability shall not affect the remaining provisions of the Agreement, which shall continue to be valid and enforceable to the fullest extent permitted by law.

56. Waiver of Rights

56.1. No failure or delay by either Party in enforcing any provision of this Agreement shall be deemed a waiver of that provision or of any subsequent breach. Any waiver granted must be expressly made in writing and shall apply only to the specific instance and shall not constitute a waiver of any other rights or breaches occurring thereafter.

57. Patent Rights and Royalty

57.1. In the event that the Contractor, during the course of performing its obligations under this GCC, acquires, invents, or develops any proprietary knowledge, information, process, or invention which qualifies, or may qualify, as a trademark, copyright, patent, trade secret, geographical indication, or any other intellectual property right, the Bidder shall promptly disclose such creation to BYPL. All title, interest, and rights to such intellectual property shall vest exclusively in BYPL, and the Contractor shall execute all documents necessary to ensure BYPL's sole ownership without delay.

57.2. The Contractor warrants that, in performing its obligations, no intellectual property rights of any third party shall be infringed, whether by violation of statute, passing off, or otherwise. The Contractor shall bear sole responsibility for any infringement claims, and shall fully indemnify and hold BYPL harmless from and against any and all losses, damages, liabilities, costs, or expenses (including reasonable legal fees) incurred as a result of any such infringement. Any compensation, damages, or expenses paid by BYPL to third parties in connection with such infringement shall be recoverable in full from the Contractor.

58. Confidentiality/Secrecy

58.1. The Contractor shall not, without the Company's prior written consent, disseminate, publish, or otherwise utilize in any form of advertising, publicity, sales release, or media any photograph, reproduction, or description of the Works under this Contract, nor disclose the site details, dimensions, quantities, or other related information concerning the Works.

58.2. The Contractor, along with its employees and representatives, shall maintain strict confidentiality regarding all information encountered in the execution of the Contract, as detailed below.

58.2.1. Documents: All maps, plans, drawings, specifications, schemes, and other documents or information related to the Contract/Project, including any material supplied to the Bidder by BYPL for contract execution, shall be treated as

confidential and remain the property of BYPL. Such documents shall be used solely for purposes of the Contract and shall not be disclosed or used for any other purpose. Disclosure to third parties is permitted solely where such disclosure is necessary for the execution of the Work, and only upon the third party's execution of a confidentiality agreement acceptable to BYPL, explicitly committing to uphold confidentiality obligations equivalent to those set forth herein.

58.2.2. Geographical Data: Maps, layouts, site photographs, and regional imagery depicting installations of national or BYPL significance shall not be published, disclosed, or exported without BYPL's prior written approval. Any necessary disclosure to third parties shall be subject to confidentiality agreements satisfactory to BYPL, executed prior to disclosure.

58.2.3. Violation: In the event of any breach of these confidentiality provisions, the Contractor shall indemnify and hold the Company harmless from any loss, cost, damage, or claim (including claims asserted by third parties) arising as a result of such breach. Any actual or suspected data breach or cyber incident must be promptly notified to BYPL and investigated at the Contractor's expense.

58.3. Furthermore, the Bidder shall be liable for compensation or damages as determined by the competent authority of BYPL.

59. Progress Reports of Work Execution and Information

59.1. Throughout the manufacturing and erection stages of critical equipment under this Contract, the Contractor shall, at its own expense, submit periodic progress reports as reasonably required by the Purchaser. These reports shall include relevant supplementary materials such as charts, network diagrams, photographs, and test certificates. The format, size, and number of copies of such reports shall be specified by the Purchaser.

59.2. Quantitative progress reports shall refer to the project schedule in sufficient detail to enable the Purchaser to assess performance, schedule witness dates, and evaluate forecasts, including reports on key subcontracts, where applicable. Within seven (7) days after each report submission—and at other times as reasonably requested by the Purchaser—the Contractor and Purchaser shall meet to discuss progress.

59.3. Weekly progress reports shall include but not limited to:

59.3.1. Executive summary

59.3.2. Description of the work and services performed and goods and materials delivered and erected during the preceding week.

59.3.3. Necessary photographs of work done in the manufacturer's shop and erection site which shall be taken when and where indicated by the Purchaser. Photographs shall be approximately 100 x 125 mm in size including a margin of 5 mm side for fixing. Adequate numbers of photographs shall be submitted indicating various stages of manufacture and erection of critical items. Each photograph shall contain the date, the name of the Contractor and the title of the view taken.

59.3.4. Updated project schedule showing progress to the end of the week (as percentages completed of the Contractor's activities broken down into significant elements of the works), and the current schedule of activities and the targets for the next week.

59.3.5. Identification of areas with foreseeable problems which in the opinion of the contractor may affect the project schedule.

59.3.6. Such other information and supporting documentation as the Purchaser may require satisfying himself about the timely manufacture, delivery and erection of equipment as per contract.

59.4. The Purchaser shall advise the Contractor about the number of copies of progress reports and, where relevant, photographs he has to submit each week together with the names and

addresses of persons (Communication Matrix) to whom they are to be sent. Purchaser will also advise the contractor regarding the format of the Monthly Progress report.

59.5. In addition to the above, the Contractor shall promptly furnish all reports, records, and information as may be requested by the Company, in a form and frequency specified by the Company. The Company retains the right to alter the format and requirements of such submissions, and the Contractor shall be bound to comply with any revised reporting obligations as communicated by the Company

60. Dispute Resolution & Arbitration

60.1. The Parties shall make all reasonable efforts to resolve amicably, through mutual discussions, any disputes or differences arising out of or in connection with this Contract. In the event that such disputes remain unresolved for thirty (30) days from the date either Party notifies the other in writing of the dispute, either Party may refer the matter to arbitration.

60.2. Arbitration shall be conducted by a tribunal comprising two arbitrators - one to be appointed by each Party. The two arbitrators thus appointed shall mutually select a third individual to act as the presiding arbitrator prior to entering upon reference, if and when required. The arbitration proceedings shall be undertaken in accordance with the provisions of the Indian Arbitration and Conciliation Act, 1996 and its 2015 and 2019 amendments. The seat and venue of arbitration shall be New Delhi, India. The language of all proceedings, documents, and communications shall be English. The arbitral process shall be completed within a maximum period of three (3) months from constitution of the arbitral tribunal.

60.3. Reference to negotiation and/or arbitration may proceed regardless of whether the Works have been completed, provided that the contractual obligations of both the Purchaser and the Contractor shall remain unaffected during pendency of arbitration. Under no circumstances shall the Contractor suspend execution of the Works, in whole or in part, on account of ongoing arbitration. Payments due to the Contractor shall continue to be made as per the terms of the Contract.

60.4. All disputes arising out of or in relation to this Contract that require recourse to judicial proceedings shall be subject to the exclusive jurisdiction of the courts at Delhi, India.

61. Termination for convenience of Purchaser

61.1. Purchaser at its sole discretion may terminate the contract by giving 30 days prior notice in writing or through email to the Supplier. Purchaser shall pay the Supplier for all the supplies/ services rendered till the actual date of contract termination against submission of invoice by the Supplier to that effect.

61.2. Payment of such compensation is the sole and exclusive remedy of the supplier for termination of this Agreement by Purchaser hereunder and the supplier shall not be entitled to, and hereby waives, claims for lost profits and all other damages and expenses.

61.3. Supplier hereby agrees that substantiation for settlement of any claims submitted by supplier shall be complete and in sufficient detail to allow Purchaser's evaluation. Terminate all sub-contracts except those that have been/ to be assigned to the Purchaser all rights, titles and benefits of the Suppliers/Vendor as the case may be.

62. Entire Agreement & Amendment

62.1. This Agreement constitutes the entire understanding between BYPL and the Contractor regarding the subject matter herein and supersedes all prior agreements, whether written or oral, that relate to such matters. Any modification, amendment, or alteration to this

Agreement shall be valid only if documented in writing and duly executed by authorized representatives of both BYPL and the Contractor.

63. Notice & Communication

63.1. Any notice or other formal communication under this Agreement shall be in writing, signed by or on behalf of the party issuing it, and shall be sent by registered post with acknowledgement due (A.D.) to the addresses of the Contractor or BYPL as stated herein, or to such other addresses as may be mutually agreed upon in writing by the Parties from time to time.

63.2. Notices and formal communications may also be transmitted via the official email addresses of the authorized representatives of the Contractor or BYPL. Such electronic communications shall be deemed duly delivered upon successful transmission and acknowledgement by the recipient.

63.3. All communications, correspondence, and documentation pertaining to the Purchase Order shall be directed strictly as specified in this Agreement.

64. Acceptance

64.1. The Contractor hereby acknowledges and confirms review of BYPL's Policy on legal and ethical standards for contractors, as set forth in the "Vendor/Contractor Code of Conduct" displayed on BYPL's official website (www.bsesdelhi.com). The Contractor agrees that the Contractor Code of Conduct shall form an integral part of the Contract, Purchase Order (PO), or Work Order (WO). The Contractor undertakes to fully comply with the Vemdor/Contractor Code of Conduct, and acknowledges that any violation shall constitute a breach of the Contract/PO/WO. In the event of such breach, whether or not it causes any actual loss or damage, BYPL reserves the right to recover any loss or damage from the Contractor. The Contractor shall indemnify and hold harmless BYPL against any claims, litigation, or other consequences arising out of any breach or violation of the Contractor Code of Conduct by the Contractor, its officers, agents, or representatives.

64.2. Acceptance of the Contract includes acceptance of all terms and conditions referenced therein, including technical specifications, drawings, general conditions, detailed scope of work, and any equipment drawings provided to the Contractor.

64.3. The contractual obligations of BYPL and the Contractor are strictly limited to the terms and conditions set forth in the Contract. No amendment, modification, or alteration to the Contract shall be valid unless made in writing and signed by authorized representatives of both Parties.

64.4. All services and supplies under this Contract are expected to be fully aligned with BYPL's Vision, Mission, and Values. These can be reviewed at https://www.bsesdelhi.com/web/bypl/about-bses.

BSES Yamuna Power Limited

QUANTITY AND DELIVERY REQUIREMENTS

Sl. No.	BYPL SAP Code	Item Description	Specification	Total Qty. (Nos)	Tentative Delivery Schedule	Destination
1	2100143882	Supply and Supervision for E/T/C of 66/33 kV, 40/50 MVA Auto Transformer	BSES-TS-136-AUTR-R0	1	Delivery shall be completed within 05 Months from the LOI/PO date.	BYPL Stores Delhi

The delivery schedule shown above is tentative. PO(s) will be released as per the actual requirement. However, the supplier has to deliver the material within the delivery schedule provided.

Schemes may be executed in a phased manner.

BSES Yamuna Power Limited

APPENDIX II

ANNEXURE – 2.01

FORMAT OF PERFORMANCE BANK GUARANTEE
(To be executed on a Non-Judicial Stamp Paper of appropriate value)

This Guarantee made at _____ this [___] day of [_____] 20XX

1. WHEREAS M/s BSES Yamuna Power Limited, a Company incorporated under the provisions of Companies Act, 2013 having its Registered Office at Shaktikiran Building, Karkardooma, Delhi 110032, India hereinafter referred to as the " Owner ", (which expression shall unless repugnant to the context or meaning thereof include its successors, administrators, executors and assigns).

2. AND WHEREAS the Owner has entered into a contract for _____(Please specify the nature of contract here) vide Contract No. _____dated _____(hereinafter referred to as the "Contract") with M/s._____, (hereinafter referred to as "the Contractor", which expression shall unless repugnant to the context or meaning thereof be deemed to mean and include each of their respective successors and assigns) for providing services on the terms and conditions as more particularly detailed therein.

3. AND WHEREAS as per clause ____of Conditions of Contract, the Contractors are obliged to provide to the Owners an unconditional bank guarantee for an amount equivalent to ten percent (10%) of the total Contract Value for the timely completion and faithful and successful execution of the Contract from **[_____]** *pl. specify the name of Bank)* having its head/registered office at **[_____]** through its branch in _____*(pl. specify the name of Branch through which B.G is issued)* hereinafter referred to as "the Bank", (which expression shall unless it be repugnant to the context or meaning thereof be deemed to include its successors and permitted assigns).

4. NOW THEREFORE, in consideration inter alia of the Owner granting the Contractors the Contract, the Bank hereby unconditionally and irrevocably guarantees and undertakes, on a written demand, to immediately pay to the Owner any amount so demanded (by way of one or more claims) not exceeding in the aggregate [Rs.].....*(in words)* without any demur, reservation, contest or protest and/or without reference to the Contractor and without the Owner needing to provide or show to the Bank, grounds or reasons or give any justification for such demand for the sum/s demanded.

5. The decision of the Owner to invoke this Guarantee and as to whether the Contractor has not performed its obligations under the Contract shall be binding on the Bank. The Bank acknowledges that any such demand by the Owner of the amounts payable by the Bank to the Owner shall be final, binding and conclusive evidence in respect of the amounts payable by the Contractor to the Owner. Any such demand made by the Owner on the Bank shall be conclusive and binding, notwithstanding any difference between the Owner and the Contractor or any dispute raised, invoked, threatened or pending before any court, tribunal, arbitrator or any other authority.

6. The Bank also agrees that the Owner at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor without proceeding against the Contractors notwithstanding any other security or other guarantee that the Owner may have in relation to the Contractor's liabilities.

7. The Bank hereby waives the necessity for the Owner first demanding the aforesaid amounts or any part thereof from the Contractors before making payment to the Owner and further also waives any right the Bank may have of first requiring the Owner to use its legal remedies against the Contractors, before presenting any written demand to the Bank for payment under this Guarantee.

8. The Bank's obligations under this Guarantee shall not be reduced by reason of any partial performance of the Contract. The Bank's obligations shall not be reduced by any failure by the Owner to timely pay or perform any of its obligations under the Contract.

9. The Bank further unconditionally and unequivocally agrees with the Owner that the Owner shall be at liberty, without the Bank's consent and without affecting in any manner its rights and the Bank's obligation under this Guarantee, from time to time, to:

   (i) vary and/or modify any of the terms and conditions of the Contract;

   (ii) Forebear or enforce any of the rights exercisable by the Owner against the Contractors under the terms and conditions of the Contract; or

   (iii) Extend and/or postpone the time for performance of the obligations of the Contractors under the Contract;

   and the Bank shall not be relieved from its liability by reason of any such act or omission on the part of the Owner or any indulgence shown by the Owner to the Contractors or any other reason whatsoever which under the law relating to sureties would, but for this provision, have the effect of relieving the Bank of its obligations under this Guarantee.

10. This Guarantee shall be a continuing bank guarantee and shall not be discharged by any change in the constitution or composition of the Contractors, and this Guarantee shall not be affected or discharged by the liquidation, winding-up, bankruptcy, reorganization, dissolution or insolvency of the Contractors or any of them or any other circumstances whatsoever.

11. This Guarantee shall be in addition to and not in substitution or in derogation of any other security held by the Owner to secure the performance of the obligations of the Contractors under the Contract.

12. NOTWITHSTANDING anything herein above contained, the liability of the BANK under this Guarantee shall be restricted to _____*(insert an amount equal to ten percent (10%) of the Contract Value)* and this Guarantee shall be valid and enforceable and expire on _____*(pl. specify date)* or unless a suit or action to enforce a claim under this Guarantee is filed against the Bank on or before the date of expiry.

13. On termination of this Guarantee, all rights under the said Guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities hereunder.

14. The Bank undertakes not to revoke this Guarantee during its validity except with the prior written consent of the Owner and agrees that any change in the constitution of the Bank or the Contractors shall not discharge our liability hereunder.

15. This Guarantee shall be governed by the laws of India. Any suit, action, or other proceeding arising out of, connected with, or related to this Guarantee or the subject matter hereof shall be subject to the exclusive jurisdiction of the courts of **Delhi,** India.

Dated this …… day of …… …20XX at …….

(Signature)

.....
(Name)
.....
(Designation with Bank Stamp)
Attorney as per
Power of Attorney No.....

Date.....

BSES Yamuna Power Limited

ANNEXURE – 2.02

BYPL BANK DETAILS WITH IFSC CODE:

1. Name of the Bank:	Axis Bank Limited
2. Branch Name & Full Address:	C-58, Basement & Ground Floor, Preet Vihar, Main Vikas Marg, New Delhi 110092
3. Branch Code:	055
4. Bank Account No:	911030003596085
5. IFSC Code:	UTIB0000055
6. Swift Code:	AXISINBB055

BSES Yamuna Power Limited

ANNEXURE – 2.03

FORMAT OF WARRANTY/GUARANTEE CERTIFICATE

BSES YAMUNA POWER LIMITED Shaktikiran Building, Karkardooma, Delhi -110032.

Ref. Purchase Order No. :

Dear Sir,

We hereby confirm that the.....dispatched to BSES YAMUNA POWER LTD vide invoice no..... DT.....is exactly of the same nature and description as per above mentioned Purchase Order.

We further confirm that we will replace/repair our.....free of cost if any manufacturing defect during.....months from the date of dispatch of material or.....months from the date of commissioning whichever is earlier.

Bidder Name & Signature

BSES Yamuna Power Limited

ANNEXURE – 2.04

GST UNDERTAKING

The Bidder shall give an undertaking in the following words on each invoice in the absence of which tax payment as on the Bidder's invoice may be withheld.

"The tax component as mentioned in the invoice shall be deposited with the GST Department as per law by way of actual payment or by way of legal set off as per law. The turnover billed shall be duly declared in my GST returns a copy of which shall be filed with the Purchaser. Should the input tax credit to the Purchaser be denied by way of any lapse on the part of the Bidder, the same shall be paid on demand and in any case the Purchaser is authorized to deduct the tax equivalent amount from the amount payable to the Bidder"

BSES Yamuna Power Limited

ANNEXURE – 2.05

SUMMARY OF COMMERCIAL TERMS AND CONDITIONS

SL NO	PARTICULARS	CLAUSE AS PER TENDER	BIDDER'S CONFIRMATION
1	Validity of Bid	120 days from the date of submission of the bid	
2	Price Basis	**"Firm"**, FOR Delhi store(s)/site(s) basis. Prices shall be inclusive of all taxes & duties, freight up to Delhi store(s)/site(s).	
3	Unloading	Unloading at stores/sites shall be in the Contractor's scope	
4	Transit Insurance	Transit insurance shall be in the vendor's scope.	
5	Payment Terms	100% payment shall be paid in 45 days from the date of receipt and acceptance of GOODS at the store(s)/site(s) against submission of documents.	
6	Delivery Schedule	- Vendor shall submit Transmittal Approval Documents (GTP/Drawings/QAP/etc.) within 15 days from the LOI/PO to the concerned BYPL officials. - BYPL shall review and either approve or provide comments on the submitted documents within 7 days of the initial submission. - If resubmission is required, vendor shall complete the resubmission within 5 days from the receipt of the comments. - For subsequent resubmissions, BYPL shall respond within 5 days. - Repeated rejections due to non-compliance is not desirable. - **Delivery shall be completed within 05 Months from the LOI/PO date or completion as per the schedule provided by BYPL.**	
7	Defect Liability Period	66 months from the date of receipt of equipment/item at store(s)/site(s).	
8	Liquidated Damages	1% (One) of the basic value (ex-works value) of undelivered units per week of delay or part thereof, subject to maximum of 10% (Ten) of the total basic value (ex-works value) of undelivered units.	
9	Performance Bank Guarantee	To be submitted within twenty-eight (28) days from the date of issuance of the Letter of Intent/Award/PO. Thereafter Supplier shall submit PBG on Purchase Order (PO) basis equivalent to 10% of the PO value (including GST) valid for 30 months from the last date of receipt, whichever is earlier plus 3 months towards claim period. Upon receipt of the PBG by BYPL against RC/PO, the EMD shall be released.	
10	Reverse Auction	Acceptance for participation in Reverse Auction event	

Seal of the Bidder:

Signature:

Name:

BSES Yamuna Power Limited

VOLUME – II

FINANCIAL BID (PRICE FORMAT)

BSES Yamuna Power Limited

ALL PRICES IN INR (₹)

S. No.	DESCRIPTION OF GOODS	HSN CODE (8 Digit Mandatory)	UoM	QTY **(A)**	UNIT BASIC PRICE INCL FREIGHT (₹) **(B)**	UNIT GST & CESS AS APPLICABLE (CGST & SGST/UTGST or IGST) (₹) **(C)**		UNIT LANDED RATE (All Inclusive) (₹) **(D = B+C)**	TOTAL LANDED VALUE (₹) **(E = DXA)**
						%	AMT		
1	Supply and Supervision for E/T/C of 66/33 kV, 40/50 MVA Auto Transformer		Nos	1					
GRAND TOTAL LANDED VALUE (₹)									
In words									

NOTE: Cost of all tests as per technical specification is to be included. No separate/extra charges will be paid.

The Un-priced bid should be marked as **"Quoted"** and be submitted with Part – A

We declare that the following are our quoted prices in INR for the entire package.

Date: Bidders Name:

Place: Bidders Address:

Signature: ..... Designation: .....

Printed Name: ..... Common Seal: .....

BSES Yamuna Power Limited

VOLUME – III

TECHNICAL SPECIFICATIONS

BSES

Technical Specification of 66/33kV, 40/50MVA Auto Transformer

Specification no – BSES-TS-136-AUTR-R0

Rev:		0
Date:		21 Sep 2022
Pages		88
Prepared by	Latika Joshi	
	Javed Ahmed	
Reviewed by	Srinivas Gopu	
	Abhinav Srivastava	
Approved by	Gaurav Sharma	
	Gopal Nariya	

INDEX

RECORD OF REVISION

Revision No	Item / clause no.	Nature of Change	Approved By

1.0 SCOPE OF SUPPLY

For scope of supply, refer Annexure A

2.0 CODES & STANDARDS

Material, equipment and methods used in the manufacture of Auto transformer shall conform to the latest edition of following:

IS 2026	Power Transformers
IS 2026-4	Terminal Marking, tappings and Connections for Power 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:8478	Application guide for On-load tap changer
IS:10028	Code of practice for selection, installation & maintenance of transformers
IS 5561	Electrical Power Connectors
IS 5	Colors for ready mix paints
IS:335	Insulating oil
IS 6272	Industrial cooling fans
IS 12615	Three phase induction motors
IS/IEC 60034	Rotating Electrical Machines. (e.g. For Cooler Fan Motors.)
IS/IEC 60071	Co-ordination of Insulation.
IS 16227/IEC 61869	Current Transformers.
IS 8468/ IEC 60214	On Load Tap Changers
IS2026-7/IEC 60076-7	Loading Guide for Oil-Immersed Power Transformers.
IS 2026-8 /IEC 60076-8	Application Guide for Power Transformers.
IS 2026-10/IEC 60076-10	Determination of Transformer Sound Levels.
IS/IEC 60529	Degrees of Protection Provided by Enclosures (IP Code).
IS/IEC 60947	Low-Voltage Switchgear and Control gear.
IS/IEC 60137	Bushing for alternating voltage above 1000V
IS:1271/IEC 60085	Thermal evaluation and classification of electrical insulation
IEC 60076	Power transformers.
IEC 60156	Method for Determination of the Electric Strength for Insulating Oils.
IEC 60296	Specification for Unused Mineral Insulating Oils for Transformers and Switchgear.
IEC 60445	Basic& Safety principles for man-machine interface, marking and identification, Identification of Equipment Terminals and conductor terminals
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 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:

a. Guaranteed Technical Particulars (GTP)
b. This Specification
c. Referenced Standards
d. Approved Vendor Drawings
e. Other documents

3.0 MAJOR DESIGN CRITERIA & PARAMETERS OF THE TRANSFORMER

3.1	Major design criteria	
3.1.1.	Voltage variation on supply side	+ / - 10%
3.1.2	Frequency variation on supply side	+ / - 5%
3.1.2	Transient condition	- 20% or + 10% combined variation of voltage and frequency
3.1.4	Service condition	Refer Annexure C
3.1.5	Insulation level	Refer Annexure C
3.1.6	Short circuit withstand level	Refer Annexure C
3.1.7	Overload capability	Refer Annexure C
3.1.8	Noise level	Refer Annexure C
3.1.9	Radio influence voltage	Refer Annexure C
3.1.10	Harmonic currents	Refer Annexure C
3.1.11	Partial discharge	Refer Annexure C
3.1.12	Parallel operation	Shall be designed to operate in parallel with transformer.
	Major parameters	
	Rating	Refer Annexure C
	Voltage ratio	Refer Annexure C
3.2.3	Vector group	Refer Annexure C
3.2.4	Impedance	Refer Annexure C
3.2.5	Losses	Refer Annexure C
3..2.5.1	No load loss	Refer Annexure C
.3..2.5.2	Load losses at principal tap	Refer Annexure C
3.2.6	Temperature rise top oil	Refer Annexure C
3.2.7	Temperature rise winding	Refer Annexure C
3.2.8	Flux density	Refer Annexure C
3.2.9	Current density	Refer Annexure C
3.2.10	Tappings on HV winding	Refer Annexure C
3.2.11	Design clearances	Refer Annexure C

4.0 CONSTRUCTION & DESIGN

4.1	Type	ONAN/ONAF, Copper wound, three phase, oil immersed with on load tap changer
4.1.1	Essential provision for ONAF cooling	See note 1 of Annexure C
4.1.2	Provision of mounting cooling fan at site in future at service condition.	Required
4.1.3	Provision of replacement of cooling fan at site in future at service condition	Required
4.1.4	Fan guard if fans mounted in future.	Required
4.2	Major parts	
4.2.1	Tank	
4.2.1.1	Material of construction	Robust mild steel plate without pitting and low carbon content
4.2.1.2	Plate thickness	Adequate for meeting the requirements of pressure and vacuum type tests as per CBIP. Test will be conducted on each transformer tank for design validation.
4.2.1.3	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, radiators, stiffeners, welded to the tank shall be welded externally
4.2.1.4	Tank feature	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 pockets in which water can lodge 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 a strength to prevent permanent deformation during lifting, jacking, transportation with oil filled ix) Tank to be designed for oil filling under vacuum x) Fitted with lifting lug to lift the tank cover only xi) Manhole of sufficient size required for inspection of core and winding

		xii) Oil level indicator for transportation
4.2.1.5	Flanged type adequately sized inspection cover rectangular in shape required for	i) HV line bushing ii) LV line bushing iii) LV neutral bushing and NCT connection iv) OLTC to winding connection from both sides v) Core assembly ear thing Inspection covers should be provided with jacking screws & handle and shall not weigh more than 25 KG . Overall design shall be in such a way that there shall not be any hindrance/overlapping of some other component, in front of any of the inspection covers.
4.2.1.6	Fittings and accessories on main tank	See under fittings and accessories
4.2.2	Conservator for the main tank	
4.2.2.1	Capacity	Adequate between highest and lowest visible levels to meet the requirement of expansion of oil volume in the transformer and cooling equipment from minimum ambient temperature to 100 °C
4.2.2.2	Conservator oil preservation system	By flexible rubber bag (air cell) placed inside conservator
4.2.2.3	Air cell material	Special type of fabric coated with special grade nitrile rubber, outer surface oil resistant and inner surface ozone resistant
4.2.2.4	Conservator features	i) Conservator shall be bolted into position so that it can be removed for cleaning / other maintenance purposes ii) Main pipe from tank shall project about 20 mm above conservator bottom for creating a sump for collection of impurities iii) Conservator minimum oil level corresponding to minimum temperature shall be well above the sump level iv) It shall be possible to remove and Replace the air cell if required v) Conservator to main tank piping shall be supported at minimum two points.
4.2.2.5	Fittings and accessories on main tank conservator	i) Prismatic oil gauge with NORMAL, MINIMUM and MAXIMUM marking. ii) End cover. iii) Oil filling hole with cap iv) Magnetic oil gauge with LOW LEVEL Alarm contact. v) Silica Gel dehydrating breather with Oil seal and dust filter with clear acrylic single piece clearly transparent cover resistant to UV rays.

		vi) Drain cum filling valve (gate valve) with locking rod and position Indicator made of Brass, 25 mm with Cover plate. vii) Shut off valve (gate valve) with position indicator made of Brass Located before and after Buccholz relay, 80 mm. viii) Flange for breather connection. ix) Air release valve on conservator (gate valve) made of Brass, 25 mm with cover plate x) Air release plug as required
4.2.2.6	Essential provision for mounting of conservator	Conservator to be mounted in such a manner that the top cover of the transformer can be lifted without disturbing the conservator
4.2.2.7	Essential provision for breather	i) Breather body should be Aluminum pressure die casted, shot blasted and power coated. ii) Container and oil cup should be 143R grade UV resistant polycarbonate. iii) All gaskets should be of nitrile cork rubber. iv) Breather should be flanged type not threaded type v) Breather piping shall not have any valve placed in between vi) Breather piping from conservator shall be supported in such a manner that the maximum unsupported length of the of the breather piping shall not be more than 3 meters vii) Breather shall be removable type mounted at a height of 1400 mm from ground level. viii) Silica Gel used in breather should be of ix) ROUND BALL type & 2.5 mm dia. Breather shall be tested for 0.35 kg/cm for all joints
4.2.3	Conservator for OLTC	
4.2.3.1	Capacity	i) Adequate between highest and lowest visible levels to meet the requirement of expansion of oil volume in the OLTC from minimum ambient temperature to 100 deg cent. . ii) Separate conservator to be provided for OLTC and Main tank
4.2.3.2	Conservator oil preservation system	Conventional
4.2.3.3	OLTC conservator features	Same as 4.2.2.4 except air cell features
4.2.3.4	Fittings and accessories on OLTC conservator	i) Prismatic oil gauge with NORMAL and MINIMUM marking ii) End cover

		iii) Oil filling hole with cap iv) Magnetic oil gauge with LOW LEVEL Alarm contact v) Silica gel dehydrating breather with oil seal and dust filter with clear acrylic single piece clearly transparent cover resistant to UV rays vi) Drain valve (gate valve)With locking rod and position Indicator made of Brass, 25 mm with cover plate vii) Shut off valve (gate valve) with Position indicator made of Brass ocated before oil surge relay, 25 mm viii) Flange for breather connection ix) Air release plug as required
4.2.3.5	Essential provision for mounting of OLTC conservator	OLTC conservator to be mounted in such a way that the OLTC can be inspected / maintained without disturbing the OLTC conservator
4.2.3.6	Essential provision for OLTC breather	i) Breather piping shall not have any valve placed in between ii) Breather piping from conservator shall be supported in such a manner that the maximum unsupported length of the of the breather piping shall not be more than 3 meters iii) Breathers shall be removable type mounted at suitable height from ground so that it can be attended to easily for inspection / maintenance
4.2.4	Radiators	
4.2.4.1	Material	Pressed Steel
4.2.4.2	Thickness	Minimum 1.2 mm
4.2.4.3	Features	Detachable type with lifting lugs, air release plug, drain plug, isolating valve top and bottom in each radiator, Radiator support from ground if required
4.2.4.4	Essential provision if radiators mounted separately	Expansion bellow to be provided in the pipes between main tank and radiator headers
4.2.4.5	Essential provision for all type of radiators provided	Radiator header pipes shall not originate from tank top cover to make the tank top cover removable at site with minimum manpower.
4.2.5	Core	
4.2.5.1	Material	High grade, non ageing, low loss, high permeability, grain oriented, cold rolled silicon steel lamination
4.2.5.2	Grade	Premium grade minimum M3 or better
4.2.5.3	Lamination thickness	Max. 0.23 mm with insulating coating on both sides
4.2.5.4	Design flux density at rated conditions at principal tap	As per manufacturers design.

4.2.5.5	Maximum flux density at 10% over excitation / over fluxing	As per Annexure C , Cl. 35.0
4.2.5.6	Core design features	i) Magnetic circuit designed to avoid short circuit paths within core or to the earthed clamping structure ii) Magnetic circuit shall not produce flux components at right angles to the plane of lamination to avoid local heating 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 / dis-placement 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 ix) The insulation of core to bolts and core to clamps plates shall be able to withstand a voltage of 2 kV rms for one minute, however boltless construction shall be preferred to avoid generation of hot spots and decomposition of oil as well as to reduce noise level.
4.2.6	Winding	
4.2.6.1	Material	Electrolytic Copper
4.2.6.2	Maximum current density allowed	3 A/mm^2
4.2.6.3	Winding Insulating material	Class A, non catalytic, inert to transformer oil, free from compounds liable to ooze out, shrink or collapse
4.2.6.4	Winding Insulation	Uniform
4.2.6.5	Design features	i) Stacks of winding to receive adequate shrinkage treatment before final assembly ii) Connection braced to withstand shock during transport, switching, short circuit, or other transients. iii) Minimum out of balance force in the transformer winding at all voltage ratios. iv) Conductor width on edge exceeding six

		times its thickness v) Transposed at sufficient intervals. vi) Threaded connection with locking facility vii) Winding leads rigidly supported, using guide tubes if practicable viii) Winding structure and major insulation not to obstruct free flow of oil through ducts ix) Provision of taps as indicated in the technical particulars
4.2.6.6	Essential provision for core coil assembly	i) Core coil assembly shall be mounted on bottom of the tank. ii) Earthing of core clamping structure and earthing of magnetic circuit shall be in line with CBIP reference manuals.
4.2.7	Transformer Oil	Should be in accordance with specification as per Annex D of this document.
4.2.8	Bushings and terminations	
4.2.8.1	Type below 52 kV	Oil communicating , outdoor, removable
4.2.8.2	Type 52kv and above	Oil filled porcelin condenser & non oil communicating type with oil level gauge, oil filling plug and drain valve if not hermetically sealed, tap for capacitance and loss factor measurement, removable without disturbing bushing CT'S.
4.2.8.3	Arcing horns.	Not required.
4.2.8.4	Termination on HV side bushing	By bimetallic connectors suitable for twin ACSR/AAAC conductors
4.2.8.5	Termination on LV side bushing	Cable connection through cable box with disconnecting link as per annexure A, scope supply.
4.2.8.6	Minimum creepage distance of bushing	As per annexure C cl 38.0
4.2.8.7	Protected creepage distance	At least 50 % of total creepage distance
4.2.8.8	Continuous current rating	Minimum 20 % higher than the current corresponding to the minimum tap of the transformer.
4.2.8.9	Rated thermal short time current	As per annexure C Cl 38.0
4.2.8.10	Atmospheric protection for clamp and fitting of iron and steel.	Hot dip galvanizing as per IS 2633
4.2.8.11	Bushing terminal lugs in oil and air.	Tinner copper.
4.2.8.12	Sealing washers /gasket ring.	Nitrile rubber/ Expanded TEFLON(PTFE) as applicable
4.2.9	LV and LV Neutral cable box	Required.
4.2.9.1.1	Material of construction	Sheet steel min 4.0 mm thick. Inspection covers shall be min 3mm thick.
4.2.9.1.2	Cable box doors (33kV and	The doors should be internal anti theft hinge

	11kV Cable boxes)	with minimum opening angle of 120º, minimum 3 nos. with lockable handle & with padlocking facility
4.2.9.2	Cable entry	At bottom through detachable gland plate with cable clamps of non magnetic material
4.2.9..3	Cable size for HV	As pe annexure C Cl 15.1
4.2.9.4	Cable size for LV	As per Annexure C Cl 15.2
4.2.9.5	LV Neutral connection	As per Annexure C Cl 15.3
4.2.9.6	Detachable gland plate material for HV, LV, LV Neutral box	As per GTP
4.2.9.7	Gland plate thickness for HV, LV, LV Neutral box	As per GTP
4.2.9.8	Cable gland for HV, LV, LV Neutral cables	As per GTP
4.2.9.9	Cable lug for HV& LV cables	As per CL 4.9 of this spec and suitable for cable size as per GTP
4.2.9.10	Essential parts	i) Disconnecting chamber ii) Flexible disconnecting link of tinned copper iii) Tinned copper busbar for Owner's cable termination with busbar supports iv) Detachable gland plate as per Schedule A GTP Cl. 24.4, 24.5, 25.4, 25.5, 26.4, 26.5 v) Earthing boss for the cable box vi) Earthing link for the gasketted joints at two points for each joint vii) Earthing provision for cable armour / screen viii) Flange type Inspection cover with handle for Inspecting bushing and busbars on top as well as on front cover ix) Anti theft hinged type door with lockable handle & with padlocking facility for cable box. x) Drain plug xi) Rainhood on gasketted vertical joint xii) Danger plate made of Anodized aluminum with white letters on red background on HV and LV side fixed by rivets. xiii) Phase marking plate inside cable box near termination as well as on front cover of cable box made of anodized aluminum with black letters on satin silver background on HV and LV side fixed by rivets xiv) Support insulators for the busbars shall be epoxy resin cast type. xv) Space heaters for LV cable box controlled by thermostat
4.2.9.11	Terminal Clearances	As per Annexure C technical particulars
4.2.9.12	Termination height required	Minimum 1000 mm

	for cable termination	
4.2.9.13	Essential provision for LV neutral cable box	i) Neutral shall be outdoor type bushing OR with cable box. Box shall have adequately sized inspection cover suitable for inspection of bushings / replacement / maintenance of neutral CT. For Outdoor Bushing the NCT shall be mounted in IP55 box. ii) Knife switch with locking arrangement to be provided to disconnect the neutral from grounding. Connection from Neutral bushing to the knife switch shall be with 100x12mm Tinned copper bus bar. Bus Bar shall brought down to the bottom of the transformer supported by suitable support insulator made of epoxy resin cast (insulator shall be suitable for outdoor application suitable for connecting. iii) Knife switch shall be suitable for connecting 2 runs of 75 x 10 mm size GS strip. iv) Height of knife switch shall be at maximum 1500 mm. Housing of Knife switch shall be suitable for easy & quick operations.
4.2.10	Current Transformers	
4.2.10.1	WTI CT	As per GTP
4.2.10.1.1	Rating	As per GTP
4.2.10.1.2	Mounting	In the turret of the bushing
4.2.10.1.3	Essential provision	i) CT mounting shall be such that CT can be replaced without removing tank cover ii) CT secondaries shall be wired upto TB with TB spec. as per Cl. 4.7of this specification
4.2.10.2	Neutral CT	
4.2.10.2.1	Type	Cast resin
4.2.10.2.2	Rating	As per GTP
4.2.10.2.3	Location of NCT	Separate box with TB arrangement for secondary Bushing type not acceptable.
4.2.10.2.4	Essential provision	i) CT mounting shall be such that CT can be replaced without removing the neutral cable box. ii) CT secondary shall be wired upto TB
4.2.11	Marshalling Box Cubicle	
4.2.11.1	Material of construction	Construction of Marshalling Box should be stainless steel 304 grade (Min) with powder coating of specified color shed
4.2.11.2	Door hinges of marshalling box should be from inner side and should not be exposed to rain.	Required
4.2.11.3	Major equipments in	i) Mechanical gauge for HV and LV WTI

	Marshalling box	ii) Mechanical gauge for OTI iii) Power supply unit (PSU) for remote monitoring of OTI and WTI temperatures. PSU suitable for 48V-265V AC/DC supply. iv) Make of OTI and WTI is Precimeasure 1005AH/1007H model with PSU v) Electronic OTI/WTI Scanner vi) Capillaries for WTI and OTI min 15M length vii) Control & Protection Equipment for Fan Control viii) DC contactors to be provided for all trouble free signals. Same to be wired up to the TB ix) Other panel accessories listed elsewhere
4.2.11.4	Gland plate	i) Min. 3 mm thick detachable with knockout 6 x 1 inch ii) Gland plate mounting should be from inside only
4.2.11.5	Contacts wired to terminal block	i) WTI alarm and trip ii) OTI alarm and trip iii) Buchholz relay alarm and trip iv) OSR trip contacts v) MOG low level alarm vi) MOG on OLTC low level alarm vii) PRV main tank trip viii) PRV OLTC trip ix) Sudden pressure relay trip x) WTI and OTI PSU/ relay contacts of the temperature scanner. xi) Note: 2NO +2NC auxiliary contacts for all the above to be provided for customer use (By using auxiliary relay)
4.2.11.6	Signals to be wired to terminal block	i) WTI CT ii) NCT iii) Capillaries for WTI and OTI iv) 4 to 20 mA signals for WTI and OTI repeater located elsewhere
4.2.11.7	Ingress protection	IP 55 plus additional rain canopy to be provided
4.2.11.8	Welding	Continuous welding on joints, welding at regular intervals on joints and filling of gaps with use of M seal not accepted
4.2.11.9	Cable entry	Bottom for all cables
4.2.11.10	Panel internal Access	Front only through front door double leaf with antitheft hinges
4.2.11.11	Pane back access	None
4.2.11.12	Mounting of marshalling box	Separately mounted as per GTP
4.2.11.13	Panel supply	415 V AC, Three phase, 50 Hz
4.2.11.14	Panel accessories	i) Cubicle lamp with door switch and separate fuse / MCB ii) Approved space heaters controlled by thermostat and separate fuse / MCB

		iii) Incoming fuse switch / MCB for the incoming supply iv) Panel wiring diagram fixed on back of panel door on Aluminum plate engraved fixed by rivet v) Stainless steel door handle with lock & additional facility for padlock vi) Earthing boss for the marshaling box vii) Single phase power plug industrial type 15/5 Amp. With MCB viii) Single phase preventer
4.2.11.15	Painting of marshalling box	As per Cl. 4.10 of the specification
4.2.11.16	Hardware, Gasket, Cables and Wires, Terminal blocks, Cable gland, Cable lugs of marshalling box	As per Cl. 4.3, 4.4, 4.6, 4.7, 4.8, 4.9 of the specification respectively.
4.2.11.17	Fan motors control installed in marshalling box or separate fan control cubicle	i) 2 x 50% fans ii) Complete fan control with fuse switch, contactor, Bimetallic relay, in starter circuit with type 2 coordinated rating as per IS iii) Automatic control from WTI contact iv) Provision for manual control both from local/ remote. v) Fan Control Cubicle should be separately mounted. vi) 2RC/2RS type bearings shall be used instead of ball bearings. vii) Fan enclosure shall be perforated sheet with holes at motor side with ground support.
4.2.11.18	Control Cable Length	All the control Cable shall have minimum 15 Meters of length for all control cable, OTI, WTI Capillaries and NIPFPS control cables also.
4.3	Hardware	
4.3.1	External	M12 size & below Stainless Steel & above M12 Hot Dip galvanized steel.
4.3.2	Internal	Cadmium plated except special hardware for frame parts and core assembly as per manufacturer's design
4.3.3	Provision of fully enclosed Aluminium hoods/Canopy for following accessories of Auto transformer for protection against water ingress.	All Oil Surge Relays, Buchholz Relay, Pressure release Valve.
4.4	Gasket	
4.4.1	For transformer, OLTC chamber, PT chamber, surfaces interfacing with oil like inspection cover etc.	Nitrile rubber based
4.4.2	For cable boxes, marshalling	Neoprene rubber based

	box, OLTC drive mechanism etc.	
4.4.3	Tank top cover gasket	It shall be double O ring type sealing arrangement seating over a double groove made in transformer tank & top cover.
4.5	Valves	
4.5.1	Material of construction	Gun metal/Brass
4.5.2	Type	Both end flanged gate valve / butterfly valve depending on application
4.5.3	Size	As per manufacture's standard
4.5.4	Essential provision	Position indicator, locking rod, padlocking facility, valve guard, cover plate.
4.6	Cable routing on Transformer	Control cable for accessories on transformer tank to marshalling box and WTI, OTI Capillaries shall be routed through perforated Covered GI trays
4.6.1	Control cable specification	i) PVC insulated, extruded PVC inner sheathed, armoured, extruded PVC outer sheathed 1100V grade control cable as per latest edition of IS 1554 Part 1 ii) Minimum 2.5 sqmm for signals and 4 sqmm for CT with multistrand copper conductor
4.6.2	Specification of wires to be used inside marshalling box, OLTC drive mechanism.	PVC insulated multistrand flexible copper wires of minimum 2.5 sqmm size, 1100 V grade as per latest edition of relevant IS
4.6.3	Essential provision for Capillary routing from transformer to marshalling box	Routing shall be done in such a way that adequate protection is available from mechanical and fire damage.
4.7	Terminal Blocks to be used by the vendor	Nylon 66 material, minimum 6 sqmm stud type screw driver operated for control wiring and potential circuit. Terminal blocks to be located in such a way to achieve the termination height as min 250 mm from grand plate.
4.7.1	Essential provision for CT terminals	Sliding link type disconnecting terminal block screwdriver operated stud type with facility for CT terminal shorting material of housing melamine/Nylon66
4.8	Cable glands to used by the vendor	Nickel plated brass double compression weatherproof cable gland
4.9	Cable lugs to be used by the vendor	
4.9.1	For power cables	Long barrel medium duty bi-mettalic lug with knurling on inside surface
4.9.2	For control cable	Tinned copper pre insulated Pin Ring, Fork type as applicable. For CT connection ring type lug shall be used.
4.10	Painting of transformer, conservator, OLTC, Radiator, cable boxes marshalling box.	
4.10.1	Surface preparation	By 7 tank pretreatment process or shot blasting

		method
4.10.2	Finish on internal surfaces of the transformer interfacing with oil	Bright Yellow heat resistance and oil resistant paint two coats. Paint shall neither react nor dissolve in hot transformer insulating oil.
4.10.3	Frame parts	Bright Yellow heat resistance and oil resistant paint two coats. Paint shall neither react nor dissolve in hot transformer insulating oil.
4.10.4	Finish on inner surface of the marshalling box	White Polyurethane paint anti condensation type two costs, minimum dry film thickness 80 microns
4.10.5	Finish on outer surface of the transformer, conservator, radiator, cable boxes, marshalling box	Smoke Grey (IS shade 692) polyurethane paint two coats, minimum dry film thickness 80 micros

5.0 MINIMUM PROTECTIVE DEVICES ON TRANSFORMER

5.1	Spring loaded with detachable diaphragm type pressure relief valve with two trip contacts for the main tank of LSM model with limit switch design IP 65 with additional rain hood. PRV Oil discharge pipe arrangement	Required
5.2	Spring loaded with detachable diaphragm type pressure relief valve with two trip contacts for OLTC of LSM model with limit switch design IP 65 with additional rain hood. Oil discharge pipe arrangement	Required
5.3	Double float bucchholz relay with alarm and trip contacts, service and test position, with test cock for the main tank, terminal box shall be IP 65 with drain plug for rainwater draining. Additional rain hood shall be provided.	Reed Switch Type shall be required
5.4	Oil surge relay with two contacts, services and test position, with test cock for OLTC tank, terminal box shall be IP 65 with drain plug for rainwater draining. Additional rain hood shall be provided.	Required
5.5	Sudden pressure relay with trip contact for the main tank	Required
5.6	Oil temperature indicator metallic bulb type 150 mm diameter with maximum reading pointer, potential free independent adjustable alarm	Required

	and trip contacts, resetting device with temperature sensing element	
5.7	Winding temperature indicator 150 mm diameter with maximum reading pointer, two sets of potential free independent adjustable alarm and trip contacts, resetting device with temperature sensing element, thermal image coil	Required
5.8	2 No's PT 100 sensors/RTDs for winding emperature indication wired upto TB's in marshalling box for external connection.	Required
5.9	Magnetic switching for all the protective devices including Buchholz (alarm and Trip) OSR,SPR,WTI and OTI. Mercury switching is not acceptable	Required

6.0 FITTINGS AND ACCESSORIES ON TRANSFORMER

6.1	Rating and diagram plate	Required
6.1.1	Material	Anodized aluminum 16SWG
6.1.2	Background	SATIN SILVER
6.1.3	Letters, diagram & boder	Black
6.1.4	Process	Etching
6.1.5	Name plate details	Following details shall be provided on rating and diagram plate as a minimum i) Type / kind of transformer with winding material ii) Standard to which it is manufactured iii) Manufacture's name iv) Transformer serial number v) Month and year 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/ONAF) xi) Rated currents in A xii) Vector group 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) Load loss at rated current xvii) No load loss at rated voltage and frequency xviii) Auxiliary loss xix) Continuous ambient temperature at which ratings apply in □ C xx) Top oil and winding temperature rise at rated load in deg C xxi) Temperature gradient of HV and LV winding xxii) Winding connection diagram xxiii) Weight of radiator xxiv) Volume and weight of oil in radiator xxv) Transport weight of transformer xxvi) Weight of core and frame xxvii) Weight of winding xxviii) Weight of core and winding xxix) Weight of tank and fittings xxx) Total weight xxxi) Volume of oil xxxii) Weight of oil xxxiii) NCT, WCT, details xxxiv) Type of OLTC xxxv) Tapping details xxxvi) Name of the purchaser xxxvii) PO no and date xxxviii) Guarantee period
6.2	Instruction plate for OLTC anodized aluminum black lettering on satin silver background fixed by rivet	Required
6.3	Oil filling instruction plate anodized aluminum black lettering on satin silver background fixed by rivet	Required
6.4	Valve schedule plate anodized aluminum black lettering on satin silver background fixed by rivet	Required
6.5	Instruction plate anodized aluminum black lettering on satin silver background for flexible air cell for oil conservator	Required
6.6	Terminal marking plate for bushing WTI, OTI & RTD anodized aluminum black lettering on satin silver background fixed by rivet	Required
6.7	Company monogram plate	Required
6.8	Lifting lugs / bollards with antiskid head to lift complete transformer with oil	Required
6.9	Lashing lug	Required

6.10	Jacking pad with Haulage hole to raise or lower complete transformer with oil	Required
6.10.1	Essential provision for jacking pads. Designed in such a way that jacking of complete transformer with oil shall be possible with 3 nos jacking pads out of 4 nos jacking pads provided as minimum	Required
6.11	Detachable bi-directional roller assembly with corrosion resistant bearing, fitting / nipple for lubrication or with permanently lubricated bearing, anti earthquake locking device. The wheels shall be capable of swiveling when transformer is lifted with provision for locking the swivel movement. Roller shall be suitable for 90 lb rail. Suitable antirolling clamp for 90 lb rail minimum 4 nos. shall be provided	Required
6.12	Pockets for OTI, WTI, & RTD on tank	Required (with one spare pocket for future use)
6.13	Pockets for ordinary thermometer on tank cover, top and bottom header of radiator, top of each radiator	Required
6.14	Ordinary thermometer 4 nos.	Required
6..15	Drain valve (gate valve) for the main tank, 80 mm	Required
6.16	Drain valve (gate valve) for OLTC, 50 mm	Required
6.17	Drain valve (gate valve) for all headers, 50 mm	Required
6.18	Filter valve (gate valve) at top and bottom of the main tank, 50 mm	Required
6.19	Sampling valve (gate valve) at top and bottom of the main tank, 15 mm	Required
6.20	Vacuum breaking valve (gate valve), 25 mm	Required
6.21	Drain plug on tank base	Required
6.22	Air release plug on various fitting and accessories	Required
6.23	Earthing pad on tank for transformer earthing complete with non ferrous nut, bolt, washers, spring washers etc.	Required
6.24	Vacuum pulling pipe with blanking plate on main conservator pipe work	Required
6.25	Rainhood (canopy) for Buccholz	Required

	relay, PRV on main transformer and OLTC, OSR relay of OLTC	
6.26	Rainhood for vertical gasketted joints, in cable boxes	Required
6.27	Oil level gauge on tank for transformer shipment	Required
6.28	Earthing bridge by copper strip jumpers on all gasketted joints at least two points for electrical continuity	Required
6.29	Aluminium ladder with anticlimbing device and safety flap, with lockable hinged plate for at least 1.5 m from ground level. Ladder shall be located in such a way that it avoids any hindrance to operation of nearby electrical/mechanical accessories etc.	Required
6.30	OLTC panel as specified	Required
6.31	Skid base welded type	Required
6.32	Core, frame to tank earthing	Required
6.33	Danger plate made of anodized aluminium white lettering on red background fixed by rivet	Required
6.34	Identification plate for all accessories, protective devices, instruments, thermometer / RTD pockets, earthing terminals, all inspection covers, cable boxes, marshalling boxes etc.made of anodized aluminium black lettering on silver background fixed by rivet	Required
6.35	Provision for Valves and NRV for mounting of Nitrogen fire protection System	Required
6.36	Separate structure for mounting of cooling fans	Required
6.37	Terminal box of contacts from, Core and Yoke with shorting link at top cover of Transformer	Required. The IR test will be performed on these terminals on trailer prior to unloading at site.
6.38	Aluminum ladder on transformer top cover to conservator top	Required
6.39	Space heaters with thermostat control in HV and LV cable box	Required

7.0 OLTC

7.1	Requirement	i) For 33kV – CTR make EQ16 or equivalent. ii) For 66kV – CTR make FQ 16 or equivalent

		No in-tank OLTC acceptable.
7.2	OLTC gear location	Side mounted on conservator side not in front of HV bushing
7.3	Type of OLTC gear	i) The tapings shall be controlled by a high speed resistor transition type gear in which tap change is carried out virtually under 'no volt' 'no ampere' condition and the selector switches do not make and break any current, main current is never interrupted and a resistor is provided to limit the arching at diverter contacts to a minimum suitable for outdoor mounting and continuously rated for operating at all position including positions in the middle of tap change. In particulars, the tap change gear shall be suitable when delivering the full output plus permissible overload and operating the lowest voltage tap on the HV side. ii) The value of the transition resistor shall be indicated on the rating plate of the OLTC with continuous current rating with reference to design ambient temperature specified.
7.4	Tappings	As per Cl. 34 of Annexure C
7.5	Operation of OLTC gear	Selection of local / remote operation by selector switch on OLTC drive mechanism
7.5.1	local operation	From OLTC drive mechanism through pistol grip rotary switch as well as emergency mechanical hand operation.
7.5.2	Remote operation	From digital RTCC provided by customer /SCADA depending on the selection of control on digital RTCC panel.
7.6	Safety interlocks in OLTC	Following safety interlock to be provided in OLTC as minimum i) Positive completion of tap changing step once initiated ii) Blocking of reverse tap change command during a forward tap change already in progress until the mechanism resets and vice – versa iii) Cutting of electrical circuits during mechanical operation iv) Mechanical stops to prevent overrunning of the mechanism at the end taps v) Interlock to avoid continuous tap change which will cut off motor supply in such events vi) Raise / lower command in OLTC and Digital relay shall be positively interlocked

7.7	Feature of OLTC	i) OLTC mechanism and associated controls shall be housed in an outdoor, IP 55, weatherproof, vermin proof and dust proof cabinet ii) It shall be ensured that oil in compartments containing contacts making and breaking current compartments containing contacts not making and breaking current and main transformer tank does not mix iii) The hand cranking arrangement shall be such that it can be operated at standing height from ground level iv) Mechanical indicator to indicate completion of tap change operation shall be provided with suitable (Green & Red) colour code to confirm correct method of completion of tap change operation v) Contractors shall be placed in the OLTC driving mechanism in such a way that the name-plate shall be visible on opening of door. vi) Protective cover shall be provided for raise and lower push buttons, external ON-OFF switch, which are mounted on OLTC driving mechanism door. This is required to prevent unauthorized person operating these buttons. vii) It shall be possible to remove the top cover of the OLTC tank without difficulty. The OLTC conservator, piping & oil surge relay shall be placed accordingly. viii) The tap change equipment shall be so designed that if the mechanism is struck in an intermediate position, the transformer shall be capable of delivering full load without any damage. ix) Limit switches may be connected in the control circuit of the operating motor provided that a mechanical de-clutching mechanism is incorporated. Otherwise it shall be directly connected to the operating motor circuit and mechanical stop. x) Thermal devices or other means shall be provided to protect the motor and control circuits xi) The tap changer shall be capable of permitting parallel operation with other transformer for which necessary wiring and accessories, if any, shall be provided xii) The control scheme for the tap changer shall be provided for independent control of

		the tap changers when the transformers are in Independent service. In addition provision shall be made to enable parallel operation control also at times so that the tap changer will be operated simultaneously when oneunit is in parallel with another it will not become out of step and this will eliminate circulating current. Additional features like master /follower and visual indication during the operation of motor shall also be incorporated. xiii) OLTC shall be suitable for bi- directional power flow in transformer xiv) Mechanical indicator and operation counter shall be visible through glass window OLTC drive mechanism door xv) External ON /OFF switch in addition to door switch xvi) All mcb shall be located in such a way that they are easily replaceable. xvii) Motor protection relay shall be provided with single phasing prevent for both current and voltage unbalance. xviii) All accessories inside drive mechanism shall be provided with metallic label, no sticker permitted.
7.8	Essential BOM for OLTC drive mechanism (indicative only, bidder to provide all necessary components to complete the function of the OLTC)	i) Control circuit transformer 415/55-0-55 V, adequate capacity ii) Local remote selector switch 1 pole, 2 way, 6A, pistol grip iii) Retaining switch raise / lower iv) Handle interlock switch v) Raise / lower switch 1 pole, 2way, 6A, pistol grip vi) Lower limit switch vii) Raise limit switch viii) Tap changer motor, 415 V AC, 3 phase, adequate rating ix) Motor protection relay with single phasing preventor x) Motor control contactors raise / lower xi) Stepping relay xii) Out of step switch xiii) Tap position indicator xiv) Operation counter xv) Emergency stop push button xvi) Tap change incomplete scheme with timer xvii) Required indication lamp
7.9	Essential provision of accessories on OLTC	i) Pressure relief valve ii) Oil surge relay
7.10	Drive mechanism accessories	i) Cubical lamp with door switch and separate

		fuse / MCB with external ON /OFF switch on front cover of OLTC drive mechanism ii) Approved space heaters controlled by thermostat and separate fuse / MCB iii) Incoming fuse switch / MCB for the incoming supply iv) Panel wiring diagram fixed on back of panel door aluminium engraved fixed by rivet v) Nylon 66 terminal block min 4 sqmm screw type, with 10% spare terminals vi) Stainless steel door handle with lock & additional facility for padlock vii) Earthing boss
7.11	Hardware, Gasket, Cables and Wires, Terminal blocks, Cable gland, Cable lugs of OLTC drive mechanism	As per Cl. 4.3, 4.4, 4.6, 4.7, 4.8, 4.9 of the specification respectively.
7.12	OLTC and drive mechanism painting	As per Cl. 4.10 of the specification
7.13	RTCC panel	Not in the scope of supply.

8.0 APPROVED MAKE OF COMPONENTS

8.1	CRGO	Nippon/JFE/Posco
8.2	Copper	Birla copper/Sterlite
8.3	Pre compressed Pressboard	Raman Board, Mysore/ Senapathy Whiteley
8.4	Laminated Wood	Permalli Wallance / Rochling Engineers
8.5	Oil	Apar/Savita/Raj
8.6	Condensor Bushings (OIP)	CGL/BHEL/ABB/ALSTOM
8.7	Porcelain Bushing	CJI/Jayshree Insulators/BHEL
8.8	Steel	TATA/Jindal/SAIL
8.9	Lugs/Glands	Jainson/Dowells/Comet
8.10	Radiators	CTR/Hi-Tech Radiators/Tarang Engineers
8.11	Fans	Marathon / Khaitan
8.12	Magnetic Oil Level Indicator	Sukrut /Yogna
8.13	Pressure relief valve	Sukrut / Qualitrol
8.14	Bucchholz Relay	Proyog / ATVUS
8.15	Oil surge Relay	Proyog / ATVUS
8.16	Winding Temperature Indicator	Precimeasure / Perfect Controls / Pradeep sales

8.17	Oil Temperature Indicator	Precimeasure / / Perfect Controls/ Pradeep Sales
8.18	Sudden Pressure Relay	Sukrut / Qualitrol/ATVUS
8.19	Aircell	Sukrut(Unirub)/Pronol / Rubber Product
8.20	Neutral CT	Pragati /ECS / KAPPA/ Reputed equivalent
8..21	WCT	Pragati / ECS / KAPPA/ Reputed equivalent
8.22	Switch	L&T (Salzer) / Siemens
8.23	HRC Fuse Links	Siemens / L&T/GE
8.24	Fuse base	Siemens / L&T/GE
8.25	AC Contactors & O/L Relay	L&T / Siemens / Schneider
8.26	Terminals	Connectwell / Elmex
8.27	Push buttons / Actuator	L&T / Siemens
8.28	Thermostat	Velco/Girish
8.29	Heater	Velco/Girish
8.30	Voltmeter Selector Switch	Siemens/ equivalent
8.31	Control selector switch	Siemens/ equivalent
8.32	Auxiliary Relays	Jyoti / Easun Rayrole
8.33	Timers	L&T /Siemens
8.34	Tap Position Indicator	Accord
8.35	Annunciator	Accord
8.36	Digital tap change counter	Selectron
8.37	LED cluster type indication lamp	MIMIC/ Siemens/ Binay

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

9.0 QUALITY ASSURANCE

9.1	Quality assurance	To be submitted before contract award. Program shall contain following i) The structure of the organization. ii) The duties and responsibilities assigned to staff ensuring quality of work. iii) The system for purchasing, taking delivery and verification of materials. iv) The system for ensuring quality of workmanship v) The system for control of documentation vi) The arrangements for the suppliers internal auditing vii) The system for retention of records.

		viii) A list of the administration and work procedures required to achieve and verify contracts quality requirements. These procedures shall be made readily available to the purchaser for inspection on request.
9.2	Quality plan	To be submitted by the successful bidder for approval. Plan shall contain following as a minimum i) An outline of the proposed work and programme sequence ii) The structure of the suppliers organization for the contract. iii) The duties and responsibilities assigned to staff ensuring quality of work for the contract. iv) Hold and notification points. v) Submission of engineering documents required by the specification. vi) The inspection of materials and components on receipt vii) Reference to the suppliers work procedures appropriate to each activity viii) Inspection during fabrication /construction. ix) Final inspection and test. x) Successful bidders shall include submittal of Mills invoice, Bill of lading, Mills 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.
9.3	Manufacturing environment	Bidder to ensure the following manufacturing areas should be maintain positive atmospheric pressure, clean, dust free (Clean room class ISO 9 or better as per ISO 14644-1) and humid controlled environment. i) Insulation storage ii) Core storage iii) Glue stacking area iv) core cutting line v) Winding manufacturing bay vi) Core building area vii) Core coil assembly area viii) Testing lab ix) Packing & dispatch area
9.4	Accessories environment	Bidder to ensure the following accessories to be kept in clean and coved location i) Piping ii) Radiators iii) Tank iv) Bushing (as per manufacturer's guideline) v) Marshalling box vi) Turret vii) Conservator viii) Insulating oil

9.5	Manufacturing Quality Assurance Plan	Refer Annexure G

10.0 PROGRESS REPORTING

10.1	Online document	To be submitted for purchaser approval for outline of production , inspection,testing,packing dispatch ,documentation programme
10.2	Detailed progress report	To be submitted to the purchaser once a month containing i) Progress on material procurement ii) Progress on fabrication iii) Progress on assembly iv) Progress on internal stage inspection 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/ Forward path.

11.0 INSPECTION & TESTING

11.1	Inspection and Testing during manufacture	
11.1.1	Tank and conservator	i) Check correct dimension between wheels demonstrate turning of wheels through 90 deg and further dimensional check. ii) Check for physical properties of material for lifting lugs, jacking pads etc. all load bearing welds, including lifting lug welds shall be subjected to required load tests iii) Leakage test of the conservator as per CBIP iv) Certification of all test results v) Oil leakage test on all tanks at normal head of oil plus 35 kN / sqm at the base of the tank for 24 hrs vi) Vacuum and pressure test on tank as type test as per CBIP vii) Leakage test of radiators as per CBIP.
11.1.2	Core	The below mentioned core critical points should complied by the bidder
11.1.2.1	Mother Core coil	i) Core material shall be directly procured either from the BSES approved manufacturer or through their authorized service centre/distributor and not through any contractor. ii) Verification & inspection of the mother coil at port & putting stamp & seal may be inspected by BSES.
11.1.2.2	Core cutting	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.
11.1.2.3	Hydraulic core lifting	Bidder should have hydraulic core lifting facility to avoid any jerk at the time of core building
11.1.2.4	Core sample type testing	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 per P.O. i) Specific core loss measurement ii) Magnetic polarization iii) Magnetic permeability iv) Specific core loss measurement after accelerated ageing test v) Surface insulation resistivity vi) Electrical resistivity measurement vii) Stacking factor viii) Ductility(Bend test) ix) Lamination thickness x) Magnetization characteristics (B-H curve)
11.1.2.5	Core physical verification	i) 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 over all quality of varnish by sampling to ensure uniform hipping colour, no bare spots. No ever burnt varnish layer and no bubbles on varnished surface. ii) Check on the amount of burns. iii) Bow check on stampings. iv) Check for the overlapping of stampings. Corners of the sheet are to be apart. v) Visual and dimensional check during assembly stage. vi) 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. vii) Check for inter laminar insulation between core sectors before and after pressing. viii) Visual and dimensional checks for straightness and roundness of core, thickness of limbs and suitability of clamps. ix) High voltage test (2 KV for one minute) between

		core and clamps. x) Certification of all test results.
11.1.2.6	Documents verification	Following documents to be submitted during the stage inspection i) Invoice of supplier ii) Mills test certificates iii) Packing list iv) Bill of lading v) Bill of entry certificates by customs
11.1.3	Insulating material	i) Sample check for physical properties of material 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
11.1.4	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, electric strength iv) Check for the reaction of hot oil on insulating paper v) Check for the binding 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
11.1.4.1	Checks before drying process	i) Check conditions of insulation on the conductor and between the windings ii) Check insulation distance between high voltage connection cables and earthed and other live parts iii) Check insulation distance between low voltage connection cables 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 movements vii) Certification of all test results
11.1.4.2	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 result.
11.1.5	Oil	i) As per IS 335 and annexure-D

		ii) One sample of oil drawn from every lot of transformer offered for inspection should be tested at CPRI/ERDA for tests as listed under table 1 of IS 1866(2000).The cost of this testing should be included within the cost of transformer. Test result shall be confirming to Annexure D of this specification
11.1.6	Test on fittings and accessories	As per manufacturer's standard
11.2	Routine tests/Acceptance 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 and polarization index. vi) Separate source voltage withstand test. vii) Measurements 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. x) Impedance measurement at principal tap (HV and LV) of the transformer. xi) Routine test of tanks xii) Induced voltage withstand test (to be Repeated if type tests are conducted). xiii) Measurement of iron loss (to be repeated if type tests are conducted). xiv) Measurement of capacitance and Tan Delta for for transformer winding and HV bushing (including bushing C1 and C2 Values) and Tan Delta for transformer oil (for all transformers). xv) Phase relation test, polarity, angular displacement and phase sequence. xvi) Ratio of HV WTI CT, LV WTI CT and neutral CT xvii) Excitation and knee point voltage test on class PS core of neutral CT. xviii) Routine test on on–load tap changer. xix) IR test from terminals mentioned in Clause no 6.37 xx) Oil leakage test on assembled transformer xxi) Magnetic balance test xxii) Power frequency voltage withstand test on all auxiliary circuits xxiii) Temperature rise test. xxiv) Certification of all test result xxv) SFRA xxvi) Aircell charging and discharging test

		a) Insulation resistance measurement shall be carried out at 5 kV. Value of IR should not be less than 2000M ohms. Polarization index (PI = IR10min/IR1min) should not be less than 1.5 (if one minute IR value is above 5000Mohms 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 out on 100% of the order quantity at the manufacturer's works or third party lab. c) 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 Vendor cost . Bidder shall agree and give them full co-operation during their stay & testing at shop floor. The losses & impedance values so obtained will be considered as final.
11.3	Type tests	On one transformer of each rating and type (In Govt. recognized independent test laboratory / Internationally accredited test lab or at manufacturer's facility if it is approved by component authority. i) Impulse withstand test on all three HV and LV limbs of the transformers for chopped wave as per standard ii) Temperature rise test as per IS iii) Dissolved gas analysis before and after Temperature Rise test to be carried out from CPRI/ERDA iv) Pressure relief device test v) Pressure and Vacuum test on tank(stage inspection)
11.4	Special tests	On one transformer of each rating and type i) Measure of zero seq. impedance (Cl.16.10 IS 2026 part-1) ii) Measurement of acoustic noise level (Cl.16.12 IS 2026 part-1) iii) Measurement of harmonic level on no load current iv) High voltage withstand test shall be performed on the auxiliary equipment and wiring after complete assembly. v) CRGO testing for specific core loss, accelerated ageing test, surface insulation resistivity, AC permeability and magnetization, stacking factor, ductility etc vi) Oil testing to be tested at CPRI/ERDA labs, whose samples shall be selected & sealed by customer. Cost of such tests, if extra, shall be quoted separately by the bidder.

11.5	In house NABL accreditation	i) Bidder should have in-house NABL accredited testing facility. ii) NABL accreditation certificate to be submitted.
11.6	Note for special tests and type test	Cost of the above tests, if extra, shall be quoted separately by the bidder which shall be considered in the price evaluation.
11.7	Notification to bidders	The product offered must be of type tested design with valid type test report of not more than 10 years. In case the product offered is never type tested for tests as per above list, type tests to be conducted by bidder at his own cost at Govt. recognized independent test laboratory / Internationally accredited test lab or at manufacturer's facility if it is approved by component authority. Valid type test reports for dynamic short circuit test as per IS may be forwarded for customer's review and approval. In case the product offered is never tested for dynamic short circuit the same to be conducted by bidder at his own cost at Govt. recognized independent test laboratory/internationally accredited test lab.
11.7	Site Acceptance test	Following tests shall be conducted at BYPL site/store in presence of BYPL official. i) Insulation Resistance from terminal box mentioned in clause no 6.37. The test shall be conducted on following basis: a) The IR test will be performed on the terminals mentioned in clause no 6.37 on trailer prior to unloading at site. b) The results shall be compared with the results obtained during inspection. c) The IR value in any of the tests (Factory as well as site) should not be less than 2000M Ohm d) To access internal physical damage during transportation, Transformer will not be received if the site results are less than 2000MOhm. ii) SFRA with same kit done at factory (Instrument shall be in Vendors scope iii) Magnetic Balance test iv) Measurement of Voltage ratio v) Measurement of capacitance and Tan Delta for transformer winding and HV bushing (for all vi) transformers). vii) Vector Group and Polarity viii) Physical checks ix) Oil BDV Note: Testing instruments shall be in scope of Vendor.

12.0 PACKING, SHIPPING, HANDLING AND STORAGE

12.1	Packing	
12.1.1	Packing protection	Against corrosion, dampness, heavy rains, breakage and vibration.
12.1.2	Packing for accessories and spares	Robust wooden non returnable packing case with all the above protection
12.1.3	Packing details	On each packing case details required as follows i) Individual serial number: ii) Purchaser's name: iii) PO Number: iv) Destination: v) Suppliers name: vi) Name and address of suppliers agent vii) Description and numbers of contents: viii) Manufacturers name: ix) Country of origin;: x) Case measurements: xi) Gross and net weights in kilograms xii) All necessary slinging and stacking instructions.
12.2	Shipping	The bidder shall ascertain at an early date and definitely before the commencement of manufacture, any transport limitations such as weights, dimensions, roads culverts, overhead lines, free access etc. from the manufacturing plant to project site :and furnish to the purchaser confirmation that the proposed packages can be safely transported, as normal or oversize packages up to the plant site. Any modifications required in the infrastructure and cost thereof in this connection shall be brought to the notice of the purchaser.
12.3	Handling and storage	As per manufacturers instruction.

13.0 COMMISIONING SUPPORT

13.1	Commissioning support	Supervision of Erection and Commissioning inclusive of all testing equipments/instruments shall be included for minimum 3 days for each Transformer. It includes following: i) BSES will give vendor 7 days advance notice prior to erection testing and commissioning of Transformer. ii) After successful erection testing and commissioning of Transformer Vendor shall issue erection quality check certificate to BSES.

14.0 TRAINING

14.1	Training at factory and at site after installation	Training on installation, commissioning, operation and maintenance shall be included in the proposal.

15.0 DEVIATIONS

15.1	Deviation	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, it will be assumed that the bidder complies fully with this specification. No deviation will be acceptable post order.

16.0 DRAWINGS AND DOCUMENTS

Drawing submission shall be as per the matrix given below. All documents/ drawing shall be provided on A3/A4 sheet in box file with separators for each section. PDF shall also be provided of all documents via USB. Deviation sheet and GTP shall be provided in excel sheet.Language of the documents shall be English only. Deficient/ improper document/ drawing submission may liable for rejection.

S.no	Documents to be submitted	With the bid	After Award	
			For Approval	Prior to dispatch
1	Copy of specification along with company seal & signature on each page.	✓	✓	
2	Guaranteed technical particulars	✓	✓	
3	Outine dimension drawing for each major component, general arrangement drawing showing component layout an general	✓	✓	

S.no	Documents to be submitted	With the bid	After Award	
			For Approval	Prior to dispatch
	schematic diagrams.			
4	Type test certificates, where available, and sample routine test reports	✓	✓	
5	Detailed reference list of customers already using equipment offered during the last 5 years with particular emphasis on units of similar design and rating	✓		
6	Details of manufacturers quality assurance standard and programme and ISO 9000 series or equivalent national certification.	✓		
7	Deviations from this specification. Only deviations approved in writing before award of contract shall be accepted.	✓		
8	Recommended spare parts and consumable items for the five years of operation with prices and spare parts catalogue with price list for future requirements.	✓		
9	Transport / shipping dimension and weights, space required for handling parts for maintenance	✓		
10	Write up on oil preservation system.	✓	✓	
11	Write up on OLTC.	✓	✓	
12	Quality assurance program.	✓	✓	
13	Programme for production and testing		✓	
14	General description of the equipment and all components, including brochures		✓	
15	Detailed dimension drawing for all components ,general arrangement drawing showing detailed component layout and detailed schematic and wiring drawings for all components like marshalling box and OLTC drive mechanism box.		✓	
16	Calculations to substantiate choice of electrical, structural, mechanical component size, ratings		✓	
17	Detailed loading drawing to enable the purchaser to design and		✓	

S.no	Documents to be submitted	With the bid	After Award	
			For Approval	Prior to dispatch
	construct foundations for the transformer.			
18	Transport /shipping dimension with weights ,wheel base details, untanking height etc.		✓	
19	Terminal arrangements and cable box details		✓	
20	Flow diagram of cooling system showing no. of cooling banks		✓	
21	Drawings of major components like bushing,CT etc		✓	
22	Valve schedule diagram plate		✓	
23	Instruction plate for flexible separator		✓	
24	Rating and diagram plate with OLTC connection details		✓	
25	Lists of makes of all fittings and accessories		✓	
26	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		✓	
27	Detailed installation and commissioning instructions		✓	
28	Inspection and test reports carried out in manufacturers works			✓
29	Test certificates of all bought out items.			✓
30	Operation and maintenance instructions as well as trouble shooting charts.			✓

ANNEXURE – A – SCOPE OF SUPPLY

Design, manufacture, assembly, testing at stages of manufacture as per Cl. 11 of this specification, final testing at manufacturer works on completely assembled transformer before dispatch, packing, transportation, delivery and submission of all documentation for the Auto transformer with all accessories as below and ratings & requirements as specified in Annex C.

Sr No	Description	Scope of Supply
1.0	Fully assembled transformer with all major parts like conservator, Radiators, Marshalling box, Protective devices as per Clause 5.0 of this specification, Fittings and accessories as per Clause 6.0 of this specification	YES
1.1	OLTC as per this specification	YES
1.2	RTCC panel as per this specification	No
]1.3	HV twin zebra connector	YES
1.4	LV and LV NEUTRAL cable boxes	YES
1.5	Support steel material for support of cable boxes from ground	YES
1.6	Foundation Bolts for complete transformer	YES
1.7	Nickel Plated brass double compression weather proof glands for LV cables	YES
1.8	Long barrel medium duty Aluminum lugs for power cables	YES
1.9	Nickel Plated brass double compression weatherproof glands and tinned copper lugs for control cable termination in Marshalling box for vendor's cables	YES
1.10	Cables and wires for transformer accessories and internal wiring of marshalling box.	YES
1.11	Touch up paint, minimum 5 liters.	YES
1.12	Extra Transformer oil 10 % in non returnable drums	YES
1.13	One spare complete set of gaskets.	YES
1.14	One set (4 Nos in a set) of anti rolling clamp for 90 lb rail.	YES
1.15	Ordinary thermometers 4 Nos'	YES
1.16	Recommended spares as per manufacturer	YES
2.0	Routine testing as per Clause 11 of this specification	YES
3.0	Type testing as per Clause 11 of this specification	YES
4.0	Special testing as per Clause 11 of this specification	YES
5.0	Submission of Documentation as per clause 16 of this specification	YES

ANNEXURE – B – SERVICE CONDITIONS

1.0	Delhi Atmospheric condition	
1.1	Average grade atmosphere	Heavily polluted, dry
1.2	Maximum altitude above sea level	1000M
1.3	Ambient air temperature	50 deg C
1.4	Relative humidity	90% Max
1.5	Seismic zone	4
1.6	Rainfall	750 mm concentrated in four months

ANNEXURE – C – TECHNICAL PARTICULARS (DATA BY OWNER)

Sr No	Description	Data by Owner
1.0	Location of equipment	OUTDOOR
2.0	Reference design ambient temperature	40 deg C
3.0	Type	Oil immersed, core type, step down
4.0	Type of cooling	ONAN / ONAF
5.0	Reference standard	IS: 2026
6.0	No. of phases	3
7.0	No. of winding per phase	2
8.0	Rated frequency (Hz)	50 Hz
9.0	Rated voltage (kV)	
9.1	HV winding	66
9.2	LV winding	33
10.0	Vector group reference	YNa0 ,H.V Winding-Star , LV Wdg – Star(Auto X'mer)
11.0	Nominal continuous rating, KVA	
11.1	ONAN	40
11.2	ONAF	50
12.0	Impedance at principal tap at rated frequency with IS tolerance	15% (for 50MVA base)
13.0	Maximum no load loss at rated condition allowed without any positive tolerance kW	12 kW
14.0	Maximum load loss at rated condition @ 75 deg C and principal tap allowed without any positive tolerance, kW	100 kW @ 50 MVA
15.0	Terminal connection / cable / conductor size	
15.1	HV side	66 kV
		By Double ACSR "ZEBRA" conductor per phase
15.2	LV side	By 3 runs of 1C x 1000 sqmm per phase A2XY unarmoured cable 33 kV (E) grade cable
15.3	LV neutral	By G.S. strip min 2x75x10 mm size
16.0	Highest system voltage HV side, kV	72.5
17.0	Highest system voltage LV side, kV	36

18.0	Lightning impulse withstand voltage, kV peak	
18.1	For nominal system voltage of 33 kV	170
18.2	For nominal system voltage of 66 kV	325
19.0	Power frequency withstand voltage kV rms	
19.1	For nominal system voltage of 33 kV	70
19.2	For nominal system voltage of 66 kV	140
20.0	Clearances phase to phase, mm	
20.1	For nominal system voltage of 33 kV	350
20.2	For nominal system voltage of 66 kV	700
21.0	Clearances phase to earth, mm	
21.1	For nominal system voltage of 33 kV	320
21.2	For nominal system voltage of 66 kV	660
21.4	Ground clearance – Live part to ground for 66kV – mm	4000
22.0	System fault level, HV side	1500 MVA for 33 kV 3600 MVA for 66 kV
23.0	Short circuit withstand capacity of the transformer	
23.1	Three phases dead short circuit at secondary terminal with rated voltage maintained on the other side	For 3 secs.
23.2	Single phase short circuit at secondary terminal with rated voltage maintained on the other side	For 3 secs.
24.0	System earthing	
24.1	HV	Solidly earthed
24.2	LV	Solidly earthed
25.0	Overload capability	As per IS 2026 part 7
26.0	Noise level	Shall not exceed limit as per NEMA TR- 1 with all

		accessories running measured as per IEC 551 / NEMA standard
27.0	Radio influence voltage	Maximum 250 microvolt
28.0	Harmonic suppression	Transformer to be designed for suppression of 3rd, 5th, 7th harmonic voltage and high frequency disturbances
29.0	Partial discharge	10 Pico C
30.0	Temperature rise of top oil by thermometer	40 deg C
31.0	Temperature rise of winding by resistance	45 deg C
32.0	Note for the bidders	(left blank)
33.0	Tapping to be provided on HV winding for OLTC	+5% to -15% @step of 1.25 % 16 taps, 17 tap positions. Tap no4 is principal tap
34.0	Maximum flux density allowed in the core extreme over excitation /over fluxing, Tesla	1.9 Tesla
35.0	Maximum current density allowed	3.0 Amperes per sqmm @ lowest tap.
36.0	AVR input voltage/ Auxiliary supply	Not applicable
37.0	Bushing parameters	
37.1	Rated Current	1000 A for 66 kV bushing 2000 A for 33kV bushing
37.2	Creepage factor for all bushing mm /KV	31 mm / kV minimum
37.3	Rated thermal short time current for all bushing	25 times rated current for 2 secs
37.4	Angle of mounting	0 to 90 degree
37.5	Cantilever withstand load	for 33 kV bushing- as per std. vendor 2000N for 11kV bushing
37.6	Overall Length (Approx)	for 33 kV bushing- as per std. vendor
37.7	Diameter of base	100 mm
38.0	Max. Transformer Dimensions (Length Width X Height) mm	7000mm X 5000mm X 5600mm

ANNEXURE – D – TECHNICAL SPECIFICATION FOR TRANSFORMER OIL

Codes and standards

Latest revision of following codes and standards with all amendments-

Cl no.	Standard no	Title
1.1	IS 335	New insulating oils
1.2	IS1783	Drums for oils

2.0 Properties

Sr No	Item description	Specification requirement
2.1	**Function**	
2.1.1	Viscosity	
2.1.1.1	Viscosity at 40^0C	15 mm^2/s, Max
2.1.1.2	Viscosity at 0^0C	1800 mm^2/s, Max
2.1.2	Pour Point	- 10^0C, Max
2.1.3	Water content	30 mg/Kg, Max
2.1.4	Breakdown voltage	
2.1.4.1	New unfiltered oil	30 kV, Min
2.1.4.2	After filtration	70 kV, Min
2.1.5	Density at 20^0C	0.895 g/ml, Max
2.1.6	Dielectric dissipation factor at 90^0C	0.005, Max
2.1.7	Particle Content	Manufacturer to specify the data
2.2	**Refining/Stability**	
2.2.1	Appearance of oil	Clear, free from sediment and suspended matter
2.2.2	Acidity	0.01 mg KOH/g, Max
2.2.3	Interfacial tension at 27^0C	0.04 N/m, Min
2.2.4	Total sulphur content	Manufacturer to specify the data
2.2.5	Corrosive sulfur	Not-corrosive
2.2.6	Potentially Corrosive sulfur	Not-corrosive
2.2.7	DBDS	Not detectable (<5 mg/kg)
2.2.8	Inhibitor	Not detectable (<0.01%)
2.2.9	Metal Passivator	Not detectable (<5 mg/kg)
2.2.10	Other additives	Manufacturer to specify the data
2.2.11	2-furfural and related Compounds content	Not detectable (<0.05 mg/kg) for each individual compound
2.3	**Performance**	
2.3.1	Oxidation stability, test duration 164 h	
2.3.1.1	Total acidity	1.2 mg KOH/g, Max
2.3.1.2	Sludge	0.8%, Max
2.3.1.3	DDF at 90^0C	0.5, Max
2.3.2	Gassing Tendency	Manufacturer to specify the data
2.3.3	ECT	Manufacturer to specify the data

2.4	**Health,safety and Environment**	
2.4.1	Flash point	135^0C, Min
2.4.2	PCA content Max	3%, Max
2.4.3	PCB content	Not detectable (<2 mg/Kg)

ANNEXURE – E – SPECIFICATION FOR NITROGEN INJECTION FIRE PROTECTION SYSTEM

1.0.0 SUPPLY AND SCOPE WORK

Design, manufacture, testing of the assembled system at manufacturer's works before dispatch, packing and supply at site, erection and commissioning of the Nitrogen Injection Fire Protection system

Installation testing and commissioning of Nitrogen Injection Fire Protection system shall be in scope of bidder. All material including Pipes, ducts control cables, tools, tackles, hardware, testing equipments and manpower required for the work shall be in scope of bidder except for any type of civil work like fire wall, soak pit etc. Bidder if feels shall conduct physical survey of the power transformer to check feasibility and quantum of work involved.

2.0.0 INTRODUCTION

Nitrogen Injection Fire Protection System (NIFPS) shall use nitrogen as fire quenching medium. The protective system shall prevent transformer / Reactor oil tank explosion and possible fire in case of internal faults. In the event of fire by external causes such as bushing fire, OLTC fires, fire from surrounding equipment etc, it shall act as a fast and effective fire fighter without any manual intervention. It shall accomplish its role as fire preventer and extinguisher without employing water and / or carbon dioxide.

Fire shall be extinguished within 3 minutes (Maximum) of system activation and within 30 seconds (maximum) of commencement of nitrogen injection.

3.0.0 APPLICABLE CODES AND STANDARDS

The design and installation of the complete fire protection system shall comply with the latest applicable Indian standards

a) IS 10028 (Part II) : Code of practice for selection, installation, and maintenance of transformer

b) Tariff Advisory Committee : Regulations for the electrical equipment of buildings

c) National fire Codes 1993 of National Fire Protection Association (NFPA) USA

d) Central Electricity Authority, The Gazette of India, Extraordinary 2010 : Safety provisions for electrical installations and apparatus of voltage exceeding 650V

4.0.0 ACTIVATION OF THE FIRE PROTECTIVE SYSTEM

Mal-functioning of fire prevention / extinguishing system could lead to interruption in power supply. The supplier shall ensure that the probability of chances of malfunctioning of the fire protective system is practically zero. To achieve this objective, the supplier shall plan out his scheme of activating signals which should not be too

complicated to make the fire protective system inoperative in case of actual need and should not be dependent on auxiliary power source. The system shall be provided with automatic control for fire prevention and fire extinction without any manual intervention. Besides automatic control, remote electrical push button control at Control box and local manual control in the fire extinguishing cubicle shall also be provided. The following electrical-signals shall be required for activating the fire protective system under prevention mode / fire extinguishing mode.

4.1.0 Auto Mode

4.1.1 For prevention of fire :
Differential relay operation + Buchholz relay paralleled with pressure relief valve or RPRR (Rapid Pressure Rise Relay) + Tripping of all or one circuit breakers (on HV & LV/IV side) associated with transformer / reactor is the pre-requisite for activation of system. The system shall have sufficient Input modules.

4.1.2 For extinguishing fire :
Fire detector + Buchholz relay paralleled with pressure relief valve (PRV) or sudden pressure relay (SPR) + tripping of all circuit breakers (on HV & LV/IV side) associated with transformer / reactor is the pre-requisite for activation of system.

4.2.0 Manual Mode (Local / Remote electrical)

Tripping of all circuit breakers (on HV & LV/IV side) associated with transformer/reactor is the pre-requisite for activation of system.

4.3.0 Manual Mode (Mechanical)

Tripping of all circuit breakers (on HV & LV/IV side) associated with transformer / Reactor is the pre-requisite for activation of system.
The system shall be designed to be operated manually in case of failure of power supply to fire protection system.

5.0.0 GENERAL DESCRIPTION

Nitrogen injection fire protection system should be a dedicated system for each oil filled transformer / reactor. It should have a Fire Extinguishing Cubicle (FEC) placed on a plinth at 5-7m away (as per statutory requirement) from transformer / reactor or placed next to the fire wall if fire wall exists. The FEC shall be connected to the top of transformer / reactor oil tank for depressurization of tank and to the oil pit as per Indian standard and CBIP from its bottom through oil pipes. The fire extinguishing cubicle should house a pressurized nitrogen cylinder(s) which is connected to the oil tank of transformer/reactor oil tank at bottom. The Transformer Conservator Isolation Valve (TCIV) is fitted between the conservator tank and Buchholz relay.

Cable connections are to be provided from signal box to the control box in the control room, control box to fire extinguishing cubicle, TCIV to signal box and any other wiring to ensure proper functioning of the fire protection system. Fire detectors placed on the top of transformer/reactor tank are to be connected in parallel to the signal box by Fire survival cables. Control box is also to be connected to relay panel in control room for

receiving system activation signals. All panel or control equipments shall be fire proof so as to ensure that they do not fail themselves in event of fire.

6.0.0 OPERATION

On receipt of all activating signals, the system shall drain pre-determined volume of hot oil from the top of tank (i.e top oil layer), through outlet valve, to reduce tank pressure by removing top oil and simultaneously injecting nitrogen gas at high pressure for stirring the oil at pre-fixed rate and thus bringing the temperature of top oil layer down. Transformer conservator isolation valve blocks the flow of oil from conservator tank in case of tank rupture / explosion or bushing bursting. Nitrogen occupies the space created by oil drained out and acts as an insulating layer over oil in the tank and thus preventing aggravation of fire.

7.0.0 SYSTEM COMPONENTS

Nitrogen injection fire protection system shall broadly consist of the following components. However, all other components which are necessary for fast reliable and effective working of the fire protective system shall be deemed to be included in the scope of supply.

7.1.0 Fire Extinguishing Cubicle (FEC)

The FEC shall be made of CRCA sheet of 3 mm (minimum) thick complete with the base frame, painted inside and outside with post office red colour (shade 538 of IS-5).It shall have hinged split doors fitted with high quality tamper proof lock. The degree of protection shall be IP55. The following items shall be provided in the FEC.

a. Nitrogen gas cylinder with regulator and falling pressure electrical contact manometer
b. Oil drain pipe with mechanical quick drain valve.
c. Control equipment for draining of oil of pre-determined volume and injecting regulated volume of nitrogen gas
d. Pressure monitoring switch for back-up protection for nitrogen release
e. Limit switches for monitoring of the system
f. Butterfly valve with flanges on the top of panel for connecting oil drain pipe and nitrogen injection pipes for transformer/reactors
g. Panel lighting (CFL Type)
h. Oil drain pipe extension of suitable sizes for connecting pipes to oil pit.

7.2.0 Control box

Control box is to be placed in the control room for monitoring system operation, automatic control and remote operation. Control supply will be 50/220VDC (15% tolerance) based on site requirement. The following alarms, indications, switches, push buttons, audio signal etc. shall be provided.

a. System on
b. TCIV open
c. Oil drain valve closed
d. Gas inlet valve closed
e. TCIV closed*

f. Fire detector trip *
g. Buchholz relay trip
h. Oil drain valve open*
i. Extinction in progress *
j. Cylinder pressure low *
k. Differential relay trip
l. PRV / SPR trip
m . Master relay of Transformer/reactor trip
n. System out of service *
o. Fault in cable connecting fault fire detector
p. Fault in cable connecting differential relay
q. Fault in cable connecting Buchholz relay
r. Fault in cable connecting PRV / SPR
s. Fault in cable connecting transformer /reactor trip
t. Fault in cable connecting TCIV
u. Auto/ Manual / Off
v. Extinction release on / off
w. Lamp test
x. Visual/ Audio alarm*
y. Visual/ Audio alarm for DC supply fail *

Suitable provision shall be made in the control box, for monitoring of the system from remote substation using the substation automation system.

7.3.0 Transformer Conservator Isolation Valve

Transformer conservator isolation valve (TCIV) to be fitted in the conservator pipe line, between conservator and buchholz relay which shall operate for isolating the conservator during abnormal flow of oil due to rupture / explosion of tank or bursting of bushing. The valve shall not isolate conservator during normal flow of oil during filtration or filling or refilling, locking plates to be provided with handle for pad locking. It shall have proximity switch for remote alarm and indication glass window for visual inspection for physical checking of the status of valve.

The TCIV should be of the best quality as malfunctioning of TCIV could lead to serious consequence. The closing of TCIV means stoppage of breathing of transformer/reactor. Fire survival cable connecting TCIV shall be terminated in transformer marshalling box.

7.4.0 Fire detectors

The system shall be complete with adequate number of fire detectors (quartz bulb) fitted on the top cover of the transformer / reactor oil tank. The system generates signal after sensing higher temperature. The placing of fire detectors and numbers shall be designed and finalized by bidder as per requirement.

7.5.0 Signal box

It shall be mounted away from transformer / reactor main tank, preferably near the transformer marshalling box, for terminating cable connections from TCIV & firedetectors and for further connection to the control box. The degree of protection shall be IP55.

7.6.0 Cables

Fire survival cables (capable to withstand 750° C.) of 4 core x 1.5 sq. mm size for connection of fire detectors in parallel shall be used. The fire survival cable shall conform to BS 7629-1, BS 8434-1, BS 7629-1 and BS 5839-1,BS EN 50267-2-1 or relevant Indian standards.

Fire Retardant Low Smoke (FRLS) cable of 12 core x 1.5 sq. mm size shall be used for connection of signal box / marshalling box near transformer/reactor and FEC mounted near transformer/reactor with control box mounted in control room.

Fire Retardant Low Smoke (FRLS) cable of 4 core x 1.5 sq. mm size shall be used for connection between control box to DC and AC supply source, fire extinguishing cubicle to AC supply source, signal box/ marshalling box to transformer conservator isolation valve connection on transformer/reactor.

7.7.0 Pipes

Heavy duty pipe connecting the transformer/reactor tank for oil rain, and for nitrogen injection shall be provided. Pipes connecting oil tank laid underground, shall be preferably be used for interconnection. Pipes, complete with connections, flanges, bends and tees etc. shall be supplied along with the system.

7.8.0 Other items

7.8.1 Oil drain and nitrogen injection openings with gate valves on transformer / reactor tank at suitable locations.
7.8.2 Flanges with dummy piece in conservator pipe between Buchholz relay and conservator Tank for fixing TCIV.
7.8.3 Fire detector brackets on transformer / reactor tank top cover.
7.8.4 Spare potential free contacts for activating the system i.e. in differential relay, Buchholz relay, Pressure Relief Device / RPRR, Circuit Breaker of transformer/reactor
7.8.5 Pipe connections between transformer / reactor and FEC and between FEC and oil pit required for collecting top oil.
7.8.6 Cabling for fire detectors mounted on transformer /reactor top cover
7.8.7 Inter cabling between signal box, control box and Fire Extinguishing Cubicle (FEC). All external cables from / to the system i.e. signal box to control box and control box to FEC shall be provided by the purchaser. All internal cables within the system i.e. between detectors / signal box / marshalling box / FEC / TCIV shall be in the scope of NIFPS supplier.
7.8.8 Butterfly valves /Gate valves on oil drain pipe and nitrogen injection pipe which should be able to withstand full vacuum.
7.8.9 Supports, signal box etc. which are to be painted with enamelled paint.
7.8.9 The doors, removable covers and panels shall be gasketted all round with neoprene gaskets.

8.0.0 MANDATORY SPARES

Cylinder filled with Nitrogen of required capacity per substation	1 No.

Fire Detectors per transformer	3 No's.
Regulator assembly per sub-station	1 No.

9.0.0 TESTS

Reports of all type test conducted as per relevant IS/IEC standards in respect of various bought out items including test reports for degree of protection for FEC /control box / signal box shall be submitted by the supplier.

The supplier shall demonstrate the functional test associated with the following:

- Fire Extinguishing Cubicle, Control Box.
- Fire Detector.
- Transformer Conservator Isolation Valve

The performance test of the complete system shall be carried out after erection of the system with transformer at site.

10.0.0 DOCUMENTS TO BE SUBMITTED

10.1.0 To be submitted along with offer

10.1.1 General outline of the system.
10.1.2 Detailed write-up on operation of the offered protection system including maintenance and testing aspects / schedules.
10.1.3 Technical Data particulars (GTP), the format of which is attached in Annexure A of the specification
10.1.4 Data regarding previous supplies, date of commissioning, performance feedback etc.
10.1.5 Document related to Type test / proof of design as required by statutory body / electrical inspector

10.2.0 To be submitted after award of contract:

Detailed dimensional layout drawing of the system with complete bill of materials, clearances from ground and other live points, details of detectors, equipment layout drawings, detailed drawings pertaining to signal box, control box, FEC equipment, wiring and schemes, 4 sets of testing, commissioning, Operation and Maintenance manual along with soft copies (in CDs) shall be submitted by the supplier.

11.0.0 PACKING, SHIPPING, HANDLING & SITE SUPPORT

11.1.0	Packing Protection	The packing shall be fit to withstand rough handling during transit and storage at destination. The test set should be properly protected against corrosion, dampness & damage.
11.2.0	Packing for accessories and spares	Robust non-returnable packing case with all the above protection & identification Label. Thebidder should get the packing list approved before dispatching the

		material.
11.3.0	Packing Identification Label	On each packing case, following details are required:
11.3.1	Individual serial number	
11.3.2	Purchaser's name	
11.3.3	PO number (along with SAP item code, if any) & date	
11.3.4	Equipment Tag no. (if any)	
11.3.5	Destination	
11.3.6	Manufacturer / Supplier's name	
11.3.7	Address of Manufacturer / Supplier / it's agent	
11.3.8	Description	
11.3.9	Country of origin	
11.3.10	Month & year of Manufacturing	
11.3.11	Case measurements	
11.3.12	Gross and net weight	
11.3.13	All necessary slinging and stacking instructions	
11.4.0	Shipping	The seller shall be responsible for all transit damage due to improper packing.
11.5.0	Handling and Storage	Manufacturer instruction shall be followed.
11.6.0	Detail handling & storage instruction sheet / manual to be furnished before commencement of supply.	

12.0.0 DEVIATIONS

List of deviations shall be stated in writing with the tender by reference to the Specification clause / GTP/ Drawing. In absence of such a statement, requirements of the Specification shall be assumed to be met without exception by the bidder.

ANNEXURE – F – SPECIFICATION FOR SILICAL GEL BREATHER

This specification is intended to cover the manufacturing, testing at manufacturer's works, supply and delivery of "Silica Gel Breather" to the purchaser.

1.0 Scope of Supply

Silica Gel Breather shall be as per BSES specification suitable for use in Power Transformer (Main Tank conservator & OLTC conservator) & for Distribution Transformer (Tank Conservator)

2.0 General

Silica Gel Breather offered by seller shall be suitable for continuous operation of prevailing climatic conditions as mentioned in Annexure –B

3.0 Specific Requirement

3.1 Breather

1.	Body	Aluminium pressure die caste Short Blasted & Powder Coated
2.	Container	Polycarbonate : 143R grade
3.	Oil Cup	Polycarbonate : 143R grade
4.	Gasket	Nitrile cork rubber for main body & oil cup gasket
5.	Silica Gel	Round ball type of size 2-5 mm (deep Blue)
6.	Paint	Powder Coated
7.	Mounting	Threaded for existing Transformers. Flanged type for New Transformers
8.	Hardware	Stainless Steel
9.	Flange Type, Size & hardware	Flange should be of circular shape with diameter of & with hardware of M10 bolts.

3.2 The indicating grade of Silica Gel, which shall be filled in the breather, is hard Blue Round Ball with considerable absorption power of moisture & hence signaling the saturation degree by changing colour (from Blue to Pink).

3.3 The breather shall have clear visibility of Gel colour & of oil level with dust particles in the oil cup from distance.

3.4 Breather should breathe only from the inlet holes provided for breathing. Air should not enter anywhere from the body of breather.

3.5 Silica Seal shall be applied on gasket for better air tightening.

3.6 Gel removing & refilling method is specially designed to avoid skilled labour requirement at site & consequent air leakages.

3.7 Oil filling indicator on oil cup.

3.8 Application

Transformer Size	Rating	Silica Gel Quantity in KG	
		Main Tank Conservator	OLTC Conservator
Power Transformer	20 & 31.5 MVA	5.0 Kg	1.0 Kg

3.9 Silica Gel

Sl. No	Properties	Requirement
1	Particle Size	Round ball type of size 2.5 mm (deep Blue)
2	Bulk Density	570-700 g/l
3	Moisture Adsorption Capacity 1. R.H. = 100% 2. R.H. = 50% 3. R.H. = 40% 4. R.H. = 20%	25 % (min)
4	Appearance	99.5% (min)
5	Friability	99.5% (min)
6	Chlorides percent by mass (max)	0.04%
7	Sulphates percent by mass (max)	0.5%
8	Cobalt percent by mass (max)	0.5%
9	Ammonium Compounds by mass (max)	0.001%
10	Loss on drying	4% (max)
11	pH of Aqueous extract	5-6.5%
12	Loss on Attrition	< 2.5 %

4.0 Marking

A Sticker label Indicating manufacturer's Name, Sr. No. Gel capacity etc. shall be provided at suitable place. Container may also marked with the Standard mark.

5.0 Testing

Breather container shall be suitably blanked & pressure tested with air at 0.35 Kg/cm for 30 minutes. There shall not be any leakages from gasketted joints. Test certificates from accredited laboratory shall be submitted.

6.0 Prototype

Before starting manufacture of the quantity ordered, the successful bidder shall submit a prototype for approval. Unless the prototype is inspected and approved, manufacturing shall not be started. The necessity of submitting prototype shall be ascertained before starting of manufacturing.

7.0 Packing & Keeping Quality

The material shall be packed in clean, dry & air tight container. The material stored in original air tight containers shall continue to satisfy all the properties of Silica Gel for not less than 6 months from date of packing.

8.0 Compliance Status / Deviation

Bidder shall indicate compliance status for every requirement & feature, on the right hand side margin of the specification.

9.0 Documents Comprising The Bid

The bidder shall complete the bid proposal sheets inclusive of copy of the specification duly filled in with compliance status, quality & operational manuals, Test certificates etc.

Indicating the material to be supplied, a brief description of the goods, their quantity and prices. In absence of these documents, the offer shall be considered incomplete & may be rejected.

ANNEXURE – G – MANUFACTURING QUALITY ASSURANCE PLAN

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
A	**RAW Material**										
1	**Winding Conductor (PICC)**										
1.1	Bare Dimensions & Finish of Conductor	Major	Measurement	1 sample per size per lot	MFR. STD / IS 13730 Part 27	MFR. STD / IS 13730 Part 27	Supplier's TC	P	V	R	
1.2	Increase in dimensions due to Paper covering	Major	Measurement	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.3	Resistivity @ 20°C	Major	Electrical	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.4	No of Layers	Critical	Measurement	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.5	Conductor Tensile strength	Critical	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.6	Conductor Elongation	Critical	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.7	% Overlap of Paper	Critical	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.8	Corner Radius	Critical	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.9	**Kraft Paper Insulation**										
1.9.1	Thickness	Major	Measurement	1 sample per size per lot	MFR. STD/ IEC 60554	MFR. STD/ IEC 60554	Supplier's TC	P	V	R	
1.9.2	Apparent Density	Major	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
1.9.3	Air Permeability	Major	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.9.4	Tensile Index (Longitudinal and Transverse)	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.9.5	Electrical Strength in Air	Major	Electrical	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.9.6	Ash Content	Major	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.9.7	pH of 5% Aqueous Extract	Major	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.9.8	Conductivity of 5% Aqueous Extract	Critical	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.9.9	Moisture Content	Major	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.9.10	Heat Stability	Major	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.9.11	Degree of Polymerization	Major	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.9.12	Elongation (MD & CMD)	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
1.9.13	Tear index	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
2.0	**CRGO Laminations (Watt absorption)**										
2.1	Specific Core Loss	Major	Electrical	Random	MFR. STD/IS 3024	MFR. STD/IS 3024	Supplier's TC	P	V	R	
2.2	Surface Insulation resistance	Major	Electrical	-DO-	-DO-	-DO-	-DO-	P	V	R	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
2.3	Ageing Test	Major	Measurement	-DO-	-DO-	-DO-	-DO-	P	V	R	
2.4	Stacking Factor	Major	Measurement	-DO-	-DO-	-DO-	-DO-	P	V	R	
2.5	Waviness	Major	Measurement	-DO-	-DO-	-DO-	-DO-	P	V	R	
2.6	Edge Burr	Major	Visual	-DO-	-DO-	-DO-	-DO-	P	V	R	
2.7	Sample testing for Checking Specific Core loss, accelerated ageing test, Surface insulation resistivity, AC permeability and magnetization, stacking factor, Ductility	Major	Electrical	**100%**	MFR. STD/IS 3024	MFR. STD/IS 3024	--	--	P	**W**	Sample will be randomly selected by BSES & will be send for testing at CPRI/ERDA lab.
3.0	**Un-impregnated Laminated Wood**										
3.1	Thickness	Major	Visual	1 sample size / LOT	MFR.D STD/ IEC 61061	MFR.D STD/IEC 61061	Supplier's TC	P	V	R	
3.2	Density	Major	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	
3.3	Moisture Content	Major	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	
3.4	Oil Absorption	Major	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	
3.5	Cross breaking strength	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
3.6	Compressive Strength	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
3.7	Electric Strength in Oil	Major	Electrical	-DO-	-DO-	-DO-	-DO-	P	V	R	
3.8	Shrinkage in oil	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
3.9	Tensile Strength	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
4.0	**Press Boards (Pre-compressed)**										
4.1	Thickness	Major	Measurement	1 sample/Size/LOT	MFR. STD/ IEC 60641	MFR. STD/ IEC 60641	Supplier's TC	P	V	R	
4.2	Tensile Strength (MD & CMD)	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
4.3	Shrinkage in Air (MD & CMD)	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
4.4	Moisture Content	Major	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	
4.5	Oil Absorption	Major	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	
4.6	Electrical Strength in Oil and air	Major	Electrical	-DO-	-DO-	-DO-	-DO-	P	V	R	
4.7	pH of 5% aqueous extract	Major	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	
4.8	Conductivity of 5% aqueous extract	Major	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	
4.9	Compressibility	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
4.10	Ash Content	Major	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
4.11	Apparent density	Major	Chemical	-DO-	-DO-	-DO-	-DO-	P	V	R	
4.12	Elongation (MD & CMD)	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
5.0	**Tank and its accessories**										
5.1	Structural steel										
5.1.1	Thickness	Major	Measurement	Random	MFR. STD / IS 2062	MFR. STD / IS 2062	Suppliers TC	P	V	R	
5.1.2	Yield Strength	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
5.1.3	Tensile Strength	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
5.1.4	Elongation	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
5.1.5	Bend test	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
5.2	**Manufacturing of Tank and acc.**										
5.2.1	Dimension check	Major	Measurement	100%	MFR. Spec/ DRG	MFR. Spec/ DRG	MFR. Fabrication report	P	W	R	
5.2.2	Joint preparation	Major	Measurement	100%	-DO-	-DO-	-DO-	P	V	R	
5.2.3	Assembly and alignment	Major	Visual and measurement	100%	MFR. Spec/ DRG	MFR. Spec/ DRG	MFR. Fabrication report	P	V	R	
5.2.4	DP Test on Welds on	Major	DP Test	100%	-DO-	-DO-	-DO-	P	W	R	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
	Load bearing members eg. Jack Pads										
5.2.5	Pressure test	Major	Mechanical	On One unit	CBIP	CBIP	Test Report	--	P	W	**STAGE INSPECTION**
5.2.6	Vacuum test	Major	Mechanical	On One unit	CBIP	CBIP	Test Report	--	P	W	**STAGE INSPECTION**
5.2.7	Leakage test										
5.2.7.1	Main Unit	Major	Mechanical	100%	MFR. STD	MFR. STD	Test report	P	W	R	
5.2.7.2	Conservator	Major	Mechanical	100%	MFR. STD	MFR. STD	Test report	P	W	R	
5.2.7.3	Pipes	Major	Mechanical	100%	MFR. STD	MFR. STD	Test report	P	W	R	
5.2.8	Surface preparation	Major	Visual	100%	MFR. STD	MFR. STD	MFR. Fabrication report	P	V	R	
5.2.9	Final Paint Coat (including Primer), Thickness & Shade	Major	Measurement	100%	MFR. STD	MFR. STD	Test report	P	V	R	
5.2.10	Paint Peel off test	Major	Visual	100%	MFR. STD	MFR. STD	Test report	--	P	R	
6.0	**Porcelain insulators**										
6.1	Make and rating	Critical	Visual	100%	IS 8603/IS 2099/App.Drg.	IS 8603/IS 2099/App.Drg.	Supplier's TC	P	V	R	
6.2	Visual inspection for surface smoothness, any	Critical	Visual	100%	-DO-	-DO-	-DO-	P	V	R	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
	damage, etc.										
6.3	Important dimension including Creepage distance	Major	Measurement	One sample /size / lot	-DO-	-DO-	-DO-	P	V	R	
6.4	All Routine electrical tests	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	
7.0	**Magnetic Oil Gauge**										
7.1	Make and dimensions	Major	Physical	100%	App.Drg./ Supplier Catalogue	App.Drg./ Supplier Catalogue	Supplier's TC	P	V	R	
7.2	Test for level (eg at 30° Max)	Major	Mechanical	100%	-DO-	-DO-	-DO-	P	V	R	
7.3	Switch contact test	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	
7.4	Leakage test	Major	Mechanical	100%	-DO-	-DO-	-DO-	P	V	R	
7.5	Switch operating and setting	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	
7.6	Di-electric test at 2 KV AC between live terminal and body	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	
8.	**Buchholz relay**										
8.1	Make and type	Critical	Visual	100%	App.Drg./ Supplier Catalogue /IS 3637	App.Drg./ Supplier Catalogue /IS 3637	Supplier's TC	P	V	R	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
8.2	Bore size	Major	Measurement	One/size	-DO-	-DO-	-DO-	P	V	R	
8.3	Porosity and element test	Major	Critical	100%	-DO-	-DO-	-DO-	P	V	R	
8.4	Gas volume and surge test	Major	Mechanical	One/Size	-DO-	-DO-	-DO-	P	V	R	
8.5	HV test at 2 KV AC & IR test	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	
8.6	Continuity for alarm/Trip	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	
9.0	**Marshalling cum cooler control box**										
9.1	Dimensions	Critical	Measurement	100%	MFR. STD / App. DRG.	MFR. STD / App. DRG.	Supplier's TC	P	W	R	
9.2	Make and rating of Components	Major	Visual	100%	-DO-	App Make	Supplier's TC	P	W	R	
9.3	Functional test	Major	Electrical	100%	-DO-	MFR. STD / DRG	Supplier's TC	P	W	R	
9.4	HV test at 2 KV AC for 1 min	Major	Electrical	100%	-DO-	MFR. STD / DRG	Supplier's TC	P	W	R	
9.5	IP 55 test on marshalling cum cooler control box	Major	Environment	--	--	--	Test report	--	--	R	Supplier's Test certificate shall be submitted for review
10.0	**Radiator**										

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
10.1	Dimension, number of sections	Major	Measurement	100%	MFR. DRG	VTD DRG	Supplier's TC	P	V	R	
10.2	Leakage Test with Air	Major	Visual	100%	As per CBIP	As per CBIP	Supplier's TC	P	V	R	
10.3	Paint shade	Major	Visual & Measurement	Random	MFR. Specs /Drg	MFR. Specs /Drg	Supplier's TC	P	V	R	
10.4	Surface Preparation	Major	Measurement	100%	SA 2.5 of ISO 8503/2	SA 2.5 of ISO 8503/2	Supplier's TC	P	V	R	
11	**OLTC and drive mechanism**										
11.1	Make, Rating and model	Major	Visual	100%	MFR. Spec/ IS 8468 /IEC 214-1989	MFR. Spec/ IS 8468 /IEC 214-1989	Supplier's TC	P	V	R	
11.2	Copper Contact surface finish	Major	Visual	100%	IS 8468	IS 8468	Supplier's TC	P	V	R	
11.3	Contact Resistance test	Major	Visual	100%	Supplier's STD	Supplier's STD	Supplier's TC	P	V	R	
11.4	Electrical Routine test	Major	Electrical	100%	IS 8468/ IEC 214	IS 8468/ IEC 214	Supplier's TC	P	V	R	
11.5	Mechanical test on diverter switch including pressure test	Major	Mechanical	100%	-DO-	-DO-	-DO-	P	V	R	
11.6	HV test for Auxiliary	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
	circuit										
11.7	Mechanical test on Tap selector switch with motor drive	Major	Mechanical	100%	-DO-	-DO-	-DO-	P	V	R	
11.8	Pressure test for Oil Compartment	Major	Mechanical test	100%	-DO-	-DO-	-DO-	P	V	R	
12.0	**Transformer Oil**	Major	Testing	One Sample from each lot	Annexure D of BSES spec.	Annexure D of BSES spec.	STC	P	V	R	One sample of oil shall be drawn from **each lot of Transformer** offered for final inspection by BSES representative and same shall be tested at CPRI/ERDA lab as per relevant std.
13.0	**OTI / WTI**										
13.1	Make and Model	Critical	Visual	100%	MFR. STD/App. Drg.	MFR. STD/App. Drg.	Suppliers TC	P	P	R	
13.2	Calibration	Major	Electrical	100%	-DO-	-DO-	-DO-	P	P	R	
13.3	Check for alarm & trip	Major	Electrical	100%	-DO-	-DO-	-DO-	P	P	R	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
	signal operation against set value										
13.4	HV test	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	
13.5	Switch Setting	Major	Mechanical	100%	-DO-	-DO-	-DO-	P	P	R	
14.0	**Bushing Metal parts**										
14.1	Dimension Checks	Major	Mechanical	100%	MFR. STD /IS 3347	MFR. STD /IS 3347	Supplier's TC	P	V	R	
14.2	Surface Finish	Major	Visual	100%	-DO-	-DO-	-DO-	P	V	R	
15.0	**Current Transformers**										
15.1	Dimensions, make	Major	Measurement	100%	MFR. STD /App. DRG. / IS 2705	MFR. STD /App. DRG. / IS 2705	Supplier's TC	P	P	R	
15.2	Rating and terminal marking	Major	Physical	100%	MFR. APPD. DRG	MFR. APPD. DRG	Supplier's TC	P	P	R	
15.3	Measurement of ratio and phase angle error	Major	Electrical	100%	IS 2705	IS 2705	Supplier's TC	P	V	R	
15.4	High Voltage test	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	
15.5	Inter-Turn insulation test	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	
15.6	Knee Point Voltage	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	Only for Cl-PS CT
15.7	Excitation Current	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	Only for Cl-PS

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
											CT
15.8	Secondary winding resistance	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	Only for Cl-PS CT
15.9	Polarity	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	
16.0	**Valves/ Butterfly valves**										
16.1	Make & operation	Critical	Visual	100%	APP.drg./MFR. STD	APP.drg./MFR. STD	Supplier's TC	P	P	R	
16.2	Leakage test for body	Major	Mechanical	100%	-DO-	-DO-	-DO-	P	P	R	
16.3	Leakage test for top spindle	Major	Mechanical	100%	-DO-	-DO-	-DO-	P	P	R	
16.4	Mounting dimensions	Major	Measurement	100%	-DO-	-DO-	-DO-	P	P	R	
16.5	Material of Body & Seat	Major	Chemical & measurement	1 sample per lot	-DO-	-DO-	-DO-	P	V	R	
17.0	**Air Cell**										
17.1	Make	Critical	Visual	100%	MFR. STD/App. drg.	MFR. STD/App. drg.	Supplier's TC	P	V	R	
17.2	Dimensional check	Major	Measurement	100%	-DO-	-DO-	-DO-	P	V	R	
17.3	Pressure test for 24 hrs. for leakage	Major	Mechanical	100%	-DO-	No Visible Damage	-DO-	P	V	R	
17.4	Inflation and deflation test (10 times)	Critical	Mechanical	100%	-DO-	-DO-	-DO-	P	V	R	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
18.0	**Pressure relief Valve**										
18.1	Make	Critical	Visual	100%	MFR. STD/ App. Drg.	MFR. STD/ App. Drg.	-DO-	P	P	R	
18.2	Operating pressure	Major	Mechanical	100%	-DO-	-DO-	-DO-	P	P	R	
18.3	Switch Contact test	Major	Electrical	100%	-DO-	-DO-	-DO-	P	P	R	
18.4	Mounting dimensions	Major	Measurement	100%	-DO-	-DO-	-DO-	P	V	R	
18.5	HV test between body & terminal	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	
19.0	**Fan Motor & Cooler Fan**										
19.1	Verification of Make & rating	Major	Physical	100%	MFR. STD/App. DRG.	MFR. STD/App. DRG.	Supplier's TC	P	V	R	
19.2	Input current power speed	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	
19.3	HV test at 2.0 KV	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	
19.4	Insulation resistance test	Major	Electrical	100%	-DO-	-DO-	-DO-	P	V	R	
20.0	**Gasket**										
20.1	Appearance & Finish	Major	Mechanical	1 sample per size per lot	IS 4253-II, 1980	IS 4253-II, 1980	Supplier's TC	P	V	R	
20.2	Hardness, IRHD	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
20.3	Tensile Strength	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
20.4	Compressibility	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
20.5	Compression set	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
20.6	Flexibility	Major	Mechanical	-DO-	-DO-	-DO-	-DO-	P	V	R	
21.0	**Silica gel Breather**										
21.1	Type / model	Major	Visual	100%	MFR. STD /DRG	MFR. STD /DRG	Supplier's TC	P	V	R	
21.2	Color of Gel	Major	Visual	100%	-DO-	-DO-	-DO-	P	V	R	
B	**In Process**										
1	**Winding**										
1.1	Check for Visual, physical and dimensional Parameters and no. of parallel conductors.										
1.1.1	Measurement of axial height, OD & ID& current density calculation.	Major	Measurement	100%	MFR. Data/Drg	MFR. Data/Drg	QC report	--	P	W	
1.1.2	Copper Conductor size (Bare & covered)	Major	Measurement	100%	-DO-	-DO-	-DO-	--	P	W	
1.1.3	No. of Turns / Disc	Major	Measurement	100%	-DO-	-DO-	-DO-	--	P	R	
1.2	Winding height	Major	Measurement	100%	-DO-	-DO-	-DO-	--	P	W	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
1.3	Visual inspection of Brazed joints as applicable	Major	Visual	100%	-DO-	-DO-	-DO-	--	P	R	
1.4	Tap Leads termination in case of tap winding	Major	Visual	100%	-DO-	-DO-	-DO-	--	P	R	
1.5	Current density calculation	--	--	--	--	--	--	--	P	W	
2.0	**Core Assembly**										
2.1	Visual & Key Dimensional check										
2.1.1	Diagonal distance	Major	Measurement	100%	MFR.Drg	MFR.Drg	QC report	--	P	W	
2.1.2	Window centre distance	Major	Measurement	100%	-DO-	-DO-	-DO-	--	P	W	
2.1.3	Window height	Major	Measurement	100%	-DO-	-DO-	-DO-	--	P	W	
2.2	Stack Thickness	Major	Measurement	100%	-DO-	-DO-	-DO-	--	P	W	
2.3	High Voltage test at 2 KV AC for I min between core & core clamp, Yoke bolt	Major	Electrical	100%	-DO-	-DO-	-DO-	--	P	W	
2.4	Pre-Core loss measurement	Major	Electrical	100%	-DO-	-DO-	-DO-	--	P	W	
3.0	**Core-Coil Assembly**										
3.1	Top & Bottom insulation	Major	Visual	100%	MFR.Data	MFR.Data	QC report	--	P	R	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
	arrangement				/DRG	/DRG					
3.2	Lead arrangement	Critical	Visual	100%	-DO-	-DO-	-DO-	--	P	R	
3.3	Tap & Lead End Brazing & Insulation	Critical	Visual	100%	-DO-	-DO-	-DO-	--	P	R	
3.4	Dimension of Coil After Shrinkage	Major	Measurement	100%	-DO-	-DO-	-DO-	--	P	R	
3.5	Verification of Major electrical clearances	Major	Visual & Measurement	100%	-DO-	-DO-	-DO-	--	P	R	
3.6	HV/LV Connection	Major	Visual	100%	-DO-	-DO-	-DO-	--	P	R	
4.0	**Core-Coil Assembly Before Ovening**										
4.1	Initial Ratio test	Major	Measurement	100%	-DO-	-DO-	-DO-	--	P	R	
5.0	**Core-coil assembly during drying**										
5.1	Measurement & recording of temperature & drying time during vacuum treatment.	Major	Visual	100%	MFR.Data /DRG	MFR.Data /DRG	QC report	--	P	R	
5.2	Check for completeness of drying	Major	Visual	100%	MFR.Data /DRG	MFR.Data /DRG	QC report	--	P	R	
5.3	Certification of all test	Major	Visual	100%	MFR.Data /DRG	MFR.Data /DRG	QC report	--	P	R	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
6.0	**Core-Coil Assembly After Ovening**										
6.1	Ratio Test & Magnetic Balance test	Major	Electrical	100%	-DO-	-DO-	-DO-	--	P	W	
6.2	Recording of time/Temp, Vacuum	Major	Measurement	100%	-DO-	-DO-	-DO-	--	P	R	
6.3	Record of Moisture extract	Major	Measurement	100%	MFR. STD	MFR. STD	QC report	--	P	R	
6.4	Verification of completeness & Drying	Major	Verify	100%	MFR. STD	MFR. STD	QC report	--	P	R	
6.5	Insulation resistance measurement by Megger	Major	Electrical	100%	MFR. STD	MFR. STD	Test report	--	P	R	
6.6	Earthing connection	Major	Visual	-DO-	MFR. STD	MFR. STD	QC Report	--	P	R	
7.0	**Tanking**										
7.1	Electrical clearance arrangement	Major	Measurement	100%	MFR. DRG	MFR. DRG	QC report	--	P	R	
7.2	Verification of Core-Frame Clamping arrangement	Major	Visual	100%	-DO-	-DO-	-DO-	--	P	R	
7.3	Core to frame insulation resistance test & HV test at 2 KV for min	Major	Electrical	100%	-DO-	-DO-	-DO-	--	P	R	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
8.0	**Final Assembly for testing**										
8.1	Fittings of external accessories	Major	Visual	100%	MFR. STD /DRG	MFR. STD /DRG	Job Card	--	P	R	
8.2	Internal Oil leakage test on main unit	Major	Visual	100%	CBIP	CBIP	QC report	--	P	R	
C	**Final testing**										
1	**Routine Test**										
1.1	Voltage Ratio test	Major	Electrical	100%	IS 2026	IS 2026	Test Report	--	P	W	
1.2	Winding Resistance at all tap corrected to 75°C	Major	Electrical	100%	IS 2026	IS 2026	Test report	--	P	W	
1.3	No Load Loss & Current @90%,100%&110% of rated voltage	Major	Electrical	100%	IS 2026	IS 2026	Test report	--	P	W	To be repeated after type test.
1.4	Impedance Voltage/Short Circuit Impedance(Principal Tap) Load Loss @Principal, Max, Mini Tap	Major	Electrical	100%	IS 2026	IS 2026	Test report	--	P	W	
1.5	Induced over voltage	Major	Electrical	100%	IS 2026	IS 2026	Test report	--	P	W	To be repeated after Impulse test
1.6	Separate Source Voltage	Major	Electrical	100%	IS 2026	IS 2026	Test report	--	P	W	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
	Test										
1.7	Insulation Resistance &PI(10 min / 1 min)	Major	Electrical	100%	--	--	Test report	--	P	W	By 5 KV Megger PI Shall be more than1.5
1.8	Voltage Vector Relationship & Polarity	Major	Electrical	100%	IS 2026	IS 2026	Test report	--	P	W	
1.9	Magnetic Balance Test	Major	Electrical	100%	IS 2026	IS 2026	Test report	--	P	W	
1.10	Oil leakage test	Major	Visual	100%	CBIP	CBIP	Test report	--	P	W	
1.11	Auxiliary circuit insulation test for OLTC, 2.0 KV AC for 1 min	Major	Electrical	100%	--	Withstand 2 KV for 1 min	Test report	--	P	W	
1.12	Polarity check & Ratio Test of LVWTI CT/ HVWTI CT & NCT	Major	Electrical	100%	IS 2026	IS 2026	Test report	--	P	W	
1.13	Magnetic circuit Test at 2KV between Core & Frame	Major	Electrical	100%	IS 2026	IS 2026	Test report	--	P	W	
1.14	Measurement of auxiliary losses(Losses taken by Fan)	Major	Electrical	100%	IS 2026	IS 2026	Test report	--	P	W	
1.15	BDV test on Transformer Oil	Major	Electrical	100%	IS 2026	IS 2026	Test report	--	P	W	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
1.16	Routine Test on Tank	Major	Electrical	100%	IS 2026	IS 2026	Test report	--	P	W	
1.17	Power frequency withstand on auxiliary circuit	Major	Electrical	100%	IS 2026	IS 2026	Test report	--	P	W	
1.18	Measurement of Cap & tandelta of Wdg, Oil and HV bushing	Major	Electrical	100%	--	--	Test report	--	P	W	
1.19	Excitation & Knee point Vol. of PS Core of NCT.	Major	Electrical	100%	IS 2026	IS 2026	Test report	--	P	W	
1.20	Routine (Functional) Test on OLTC	Major	Electrical	100%	IS 2026	IS 2026	Test report	--	P	W	
1.21	SFRA	Major	Electrical	100%	IS 2026	IS 2026	Test report	--	P	W	
2.0	**Type test (One unit of each type and rating of Transformer)**										
2.1	Heat Run Test (Temp. Rise Test)	Major	Testing	One Unit	IS 2026	IS 2026	Test Report	--	P	W	
2.2	Impulse withstand Test on all HV & LV Limb for Chopped wave.	Major	Testing	One Unit	IS 2026	IS 2026	Test Report	--	P	W	
2.3	DGA Test Before & After temperature rise	Major	Testing	One Unit	Relevant std.	Relevant std.	Test Report	--	P	W	
2.4	Pressure relief device test	Major	Testing	One Unit	MFR. STD	MFR. STD	Test Report	--	P	W	
3.0	**Other test**										

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
3.1	**Marshalling cum cooler control box**										
3.1.1	BOM verification	Major	Verification	100%	App MFR.Drg	App MFR.Drg	QC report	--	P	W	
3.1.2	Operation / Continuity of Wiring with OTI, WTI operation & other accessories	Major	Electrical	100%	MFR. STD	MFR. STD	QC report	--	P	W	
3.1.3	2 KV (HV test) on Marshalling cum cooler control box	Major	Electrical	100%	MFR. STD	MFR. STD	QC report	--	P	W	
3.1.4	Operation of Instruments(BR)	Major	Electrical	100%	MFR. STD	MFR. STD	QC report	--	P	W	
3.1.5	Visual & Dimensional check	Major	Measurement	100%	APPD MFR.Drg.	APPD MFR.Drg.	QC report	--	P	W	
4.0	**Special Test (One unit of each type and rating of Transformer)**										
4.1	Zero Phase Sequence Test	Major	Testing	One Unit	IS 2026	IS 2026	Test Report	--	P	W	
4.2	Noise Level Test	Major	Testing	One Unit	NEMA TR-1	NEMA TR-1	Test Report	--	P	W	
4.3	No Load Harmonic Test	Major	Testing	One Unit	IS 2026	IS 2026	Test Report	--	P	W	
4.4	HV Test on all auxiliary equipment and wiring after complete assembly	Major	Testing	One Unit	--	--	Test Report	--	P	W	

SL NO	COMPONENT & CHARACTRISTICS	CLASS	TYPE OF CHECK	QUALITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
								S	M	O	
1	2	3	4	5	6	7	8	9			10
D	**Dispatch & Packing**										
1.1	Identification & packing	Major	Visual	100%	As per packing list	As per packing list	Packing List	--	P	--	
1.2	Check for proper Packing	Major	Visual	100%	As per packing list	As per packing list	Packing List	--	P	--	
1.3	Visual check before dispatch	Major	Visual	100%	As per packing list	As per packing list	Packing List	--	P	--	

LEGEND:

S: Supplier
M: Main Contractor (Manufacturer)
O: Owner (BYPL)

P - Perform
V - Verify
R – Review
W- Witness

ANNEXURE – H – TECHNICAL SPECIFICATION OF MATERIAL TRACKING -GPS DEVICE

Supply of GPS Device shall be in Vendors scope, however it shall be returned to Vendor once Goods are received.

Detailed requirement of GPS Device is as below:

Once the material is dispatched after Final clearance Transport Vehicle shall have GPS Tracking Device and status of dispatch of material shall be sent to all the stake holders via SMS thru GPS Device.

Approve make is Map my India Asset Tracking device.

SCHEDULE – A –GUARANTEED TECHNICAL PARTICULARS (DATA BY SELLER)

Sr.No.	Particular	Specified / Required	Offered
1.0	General		
1.1	Make		
1.2	Type	As per Annexure C of specification	
2.0	Nominal continuous rating, KVA		
2.1	ONAN	As per Cl 11.1 of Annexure C	
2.2	ONAF	As per Cl 11.2 of Annexure C	
3.0	Rated voltage (KV)		
3.1	HV winding	As per Cl 9.1 of Annexure C	
3.2	LV winding	As per Cl 9.2 of Annexure C	
4.0	Rated current (Amps)		
4.1	HV winding, ONAN / ONAF		
4.2	LV winding , ONAN / ONAF		
5.0	Connections		
5.1	HV winding	As per Annexure C of specification	
5.2	LV winding	As per Annexure C of specification	
5.3	Vector group reference		
6.0	Impedance at principal tap rated current and frequency%		
6.1	Impedance (%)	As per Cl. 12.0 of Annexure C	
6.2	Reactance (%)		
6.3	Resistance (%)		
6.4	Impedance at lowest tap rated current and frequency		
6.5	Impedance at highest tap rated current and frequency		
6.6	Transformer X/R ratio		
7.0	Resistance of the winding at 75^0C at principal tap (ohm)		
7.1	a) HV		
7.2	b)LV		
8.0	Zero sequence impedance (Ohm)		
8.1	a) HV		
8.2	b) LV		
9.0	Guaranteed maximum losses at principal tap at full load and 75^0 C without any positive tolerance kW		
9.1	No load losses (max.)	As per Cl 13.0 Annexure C	
9.2	Load losses (max.)	As per Cl 14.0 Annexure C	
9.3	Cooler fan losses (max.)		
9.4	Total I^2R losses of windings @ 75 deg C		
9.5	Total stray losses @ 75 deg C		

9.6	Total losses (max.)		
9.7	No load loss at maximum permissible voltage and frequency (approx.) kW		
10.0	Temperature rise over reference design ambient of 40 ^{0}C		
10.1	Top oil by thermometer ^{0}C	40^0 C	
10.2	Winding by resistance ^{0}C	45^0 C	
10.3	Winding gradient at rated current ^{0}C		
10.3.1	HV		
10.3.2	LV		
11.0	Efficiency		
11.1	Efficiency at 75^0 C and unity power factor %		
11.1.1	At 110% load		
11.1.2	At 100% load		
11.1.3	At 80% load		
11.1.4	At 60% load		
11.1.5	At 40% load		
11.1.6	At 20% load		
11.2	Efficiency at 75^0 C and 0.8 power 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 %		
11.4	Load and power factor at which Max efficiency occurs		
12.0	Regulation (%)		
12.1	Regulation at full load at 75^0 C		
12.1.1	At unity power factor		
12.1.2	At 0.8 power factor lagging		
12.2	Regulation at 110% load at 75^0 C		
12.2.1	At unity power factor		
12.2.2	At 0.8 power factor lagging		
13.0	Tapping		
13.1	Type		
13.2	Capacity		
13.3	Range-steps x % variation	As per Annexure C of specification	
13.4	Taps provided on HV winding (Yes/No)	Yes	
14.0	OLTC gear		
14.1	Make		
14.2	Type		
14.3	Reference std		

14.4	No of compartment		
14.5	Mounting arrangement	Side mounted type although External Intank Type is also preferable	
14.6	Rated current Amp		
14.7	Rated step capacity, kVA		
14.8	Short circuit withstand for 2 secs, kA		
14.9	Time required for one step change sec.		
14.10	Rated voltage for motor, V AC		
14.11	Rating of motor		
14.12	Rated voltage for auxiliaries V		
14.13	Consumption of auxiliaries		
14.14	OLTC features as per specification, Yes/No		
14.15	Does the overload rating of OLTC match with that of the transformer under all conditions Yes/No		
16.0	Cooling system		
16.1	Type of cooling	As per Annexure C of specification	
16.2	No. of cooling unit groups		
16.3	Capacity of cooling units		
16.4	Mounting of radiators		
16.5	Number of radiators and Size		
16.6	Type & size of radiator header main valve		
16.7	Type & size of individual radiator valve		
16.8	Total radiating surface, sq mm		
16.9	Thickness of radiator tubes, mm	Minimum 1.2 mm	
16.10	Schematic flow diagram of the cooling system furnished (Yes/No)		
16.11	Type and make of Fan motor		
16.12	No. of fan motor per bank (Working + Standby)		
16.13	Rated Power Input (kW)		
16.14	Rated Voltage, Speed of Motor		
16.15	Efficiency of motor at Full load(%)		
16.16	Locked Rotor current(Amps)		
16.17	Make of motor		
17.0	Details of tank		
17.1	Material	Robust mild steel plate without pitting and low carbon content	
17.2	Thickness of sides mm		
17.3	Thickness of bottom mm		
17.4	Thickness of cover mm		
17.5	Confirmation of tank designed and tested for vacuum pressure (Ref: CBIP manual) (Yes/No)		

17.5.1	Vacuum mm of Hg. / (kN/m^2)	As per CBIP	
17.5.2	Pressure mm of Hg	Twice the normal head of oil / normal pressure + 35 kN/m^2 whichever is lower , As per CBIP	
17.6	Is the tank lid slopped?	Yes	
17.7	Inspection cover provided (Yes/No)		
17.8	Location of inspection cover (Yes/No)		
17.9	Min. dimensions of inspection cover (provide list of all inspection cover with dimension), mm x mm		
18.0	Core		
18.1	Type:	Core	
18.2	Core material grade	Premium grade minimum M3 or better	
18.3	Thickness of lamination mm	Max. 0.23 mm with insulating coating on both sides	
18.4	Insulation between core lamination		
18.5	Design flux density of the core at rated condition at principal tap,Tesla		
18.6	Maximum flux density allowed in the core at extreme overexcitation / overfluxing , Tesla		
18.7	Equivalent cross section area of core, mm^2		
18.8	Guaranteed No load current at 90% / 100% / 110% rated voltage & frequency (Amp)	@ 100% - 0.5% of RFLC @ 110% - 1.0% of RFLC	
18.8.1	HV		
18.8.2	LV		
19.0	Type of winding		
19.1	HV		
19.2	LV		
19.3	Conductor material	Electrolytic copper as per relevant standard	
19.4	Maximum current density allowed, Amp per mm^2	As per Annexure C	
19.5	Gauge/area of cross section of conductor, mm^2		
19.5.1	HV		
19.5.2	LV		
19.6	Maximum current density achieved in winding (LV/HV/HVT) – Amps/ mm^2		
19.7	Insulating material		
19.7.1	HV turn		
19.7.2	LV turn		
19.7.3	LV- core		

19.7.4	HV-LV		
19.8	Insulating material thickness, mm		
19.8.1	HV turn		
19.8.2	LV turn	-	
19.8.3	LV to core		
19.8.4	HV to LV		
20.0	Minimum design clearance , mm		
20.1	HV to earth in air		
20.2	HV to earth in oil		
20.3	LV to earth in air		
20.4	LV to earth in oil	-	
20.5	Between HV & LV in Air		
20.6	Between HV & LV in oil		
20.7	Top winding and yoke	-	
20.8	Bottom winding and yoke		
21.0	Insulating oil		
21.1	Quantity of oil Ltrs	-	
21.1.1	In the transformer tank		
21.1.2	In each radiator		
21.1.3	In OLTC chamber		
21.1.4	Total quantity		
21.2	10% excess oil furnished?	Yes	
21.3	Type of oil	New insulating oil as per IS: 335, latest edition and Cl. 4.2.7 of the specification	
21.4	Oil preservation system provided (Yes/No)		
22.0	Bushing		
22.1	Make		
22.2	Type		
22.3	Reference standard		
22.4	Voltage class, kV		
22.4.1	HV side bushing		
22.4.2	LV side line and neutral bushing		
22.5	Creepage factor for all bushing mm / kV	As per Annexure C of specification	
22.6	Rated current , Amp		
22.6.1	HV bushing		
22.6.2	LV line and neutral bushing		
22.7	Rated thermal short current		
22.7.1	HV bushing	As per Annexure C of specification	
22.7.2	LV line and neutral bushing	As per Annexure C of specification	
22.8	Weight Kg		
22.8.1	HV bushing		
22.8.2	LV line and neutral bushing		
22.9	Free space required for bushing removal, mm		
22.9.1	HV bushing		

22.9.2	LV line and neutral bushing				
23.0	Terminal connections				
23.1	HV	As per Annexure C of specification			
23.2	LV	As per Annexure C of specification			
23.3	LV Neutral	As per Annexure C of specification			
24.0	H.V side Cable box	Not required			
25.0	L.V line side cable box				
25.1	Suitable for cable type , size	As per Annexure C of specification			
25.2	Termination height , mm	1000 mm , minimum			
25.3	Gland plate dimension mm x mm				
25.4	Gland plate material	Aluminum			
25.5	Gland plate thickness , mm	5 mm minimum			
25.6	Phase to clearance inside box / terminals , mm				
25.7	Phase to earth inside box , mm				
25.8	Cable box door arrangement as per clause 4.2.9.2				
26.0	LV Neutral cable box				
26.1	Suitable for cable type , size	As per Annexure C of specification			
26.2	Termination height , mm				
26.3	Gland plate dimension mm x mm				
26.4	Gland plate material	Aluminum			
26.5	Gland plate thickness , mm	5 mm minimum			
26.6	Phase to clearance inside box, mm				
26.7	Phase to earth inside box , mm				
27.0	Marshalling box cubical provided as per clause no. 4.2.11 of spec. (Yes / no)				
27.1	Mounting of marshalling box	Separate mounted			
28.0	Neutral Current Transformer (NCT)				
28.1	Type				
28.2	Make				
28.3	Reference standard				
28.4	Rated Voltage	36kV			
28.5	CT Ratios				
28.5	CT Ratios	Core 1	Core 2	Core 3	
		1000/1A	1000/1 A	1000/1 A	
28.6	Burden ,VA	20	-	-	
28.7	Class of Accuracy	5P20	PS	PS	
28.8	KPV , volts , minimum	-	40(Rct+8)	40(Rct+8)	
28.9	Resistance, ohm @ 75 deg C, maximum	-	1	1	
28.10	Magnetizing current @ Vk/4 , mA , maximum	-	30	30	
28.11	Short time withstand current	26.3 kA for 3 sec.			
29.0	Winding current transformer (WCT)				

29.1	Type		
29.2	Make		
29.3	Reference standard		
29.4	CT ratio		
29.5	Burden ,VA	Manufacturer Std.	
29.6	Class of accuracy	Manufacturer Std.	
30.0	Pressure release device		
30.1	Minimum pressure the device is set to rupture		
30.1.1	For main tank		
30.1.2	For OLTC		
31.0	Alarm and trip contact ratings of protective devices		
31.1	Rated/making/ breaking currents , Amp @ voltage for		
31.1.1	PRV for main tank		
31.1.2	PRV for OLTC		
31.1.3	Buchholz relay		
31.1.4	Oil surge relay for OLTC		
31.1.5	Sudden pressure relay		
31.1.6	OTI		
31.1.7	WTI		
31.1.8	Magnetic oil gauge		
32.0	Fittings accessories each transformer furnished as per clause No. (Bidder shall attach separate sheet giving details, make and bill of materials)		
33.0	Painting: as per clause for the transformer , cable boxes, radiator, marshalling box, etc (Yes/No)		
34.0	Over all transformer dimensions		
34.1	Length , mm	7000 mm (Maximum)	
34.2	Breadth , mm	5000 mm (Maximum)	
34.3	Height , m	5600 mm (maximum)	
35.0	Transformer tank dimensions		
35.1	Length , mm		
35.2	Breadth , mm		
35.3	Height , mm		
36.0	Marshalling box dimensions		
36.1	Length , mm		
36.2	Breadth , mm		
36.3	Height , mm		
37.0	Weight data		
37.1	Core, kG		
37.2	Frame parts, kG		
37.3	Core and frame, kG		

37.4	Total winding, kG		
37.5	Core and frame winding, kG		
37.6	Tank, kG		
37.7	Tank lid, kG		
37.8	Empty conservator tank , kG		
37.9	Each radiator empty , kG		
37.10	Total weight of all radiator empty , kG		
37.11	Weight of oil in tank , kG		
37.12	Weight of oil in each conservator , kG		
37.13	Weight of oil in each radiators , kG		
37.14	Total weight of oil in radiator , kG		
37.15	OLTC gear including oil , kG		
37.16	Total transport weight of the transformer , kG		
37.17	Total transport weight of the transformer with OLTC and all accessories		
38.0	Volume data		
38.1	Volume of oil in main tank , liters		
38.2	Volume of oil between highest and lowest levels of main conservator ,liters		
38.3	Volume of oil between highest and lowest levels of OLTC conservator, liters		
38.4	Volume of oil in each radiator , liters		
38.5	Total volume of oil in radiators , liters		
38.6	Volume of oil in OLTC , liters		
38.7	Transformer total oil volume , liters		
39.0	Shipping data		
39.1	Weight of heaviest package, kG		
39.2	Dimensions of the largest package (L x B x H) mm		
40.0	Tests		
40.1	All in process tests confirmed as per Cl. (Yes /No)		
40.2	All types tests confirmed as per Cl. (Yes /No)		
40.3	All in routine tests confirmed as per Cl. (Yes /No)		
40.4	All in special tests confirmed as per Cl. (Yes /No)		

SCHEDULE – B –GUARANTEED TECHNICAL PERTICULARS 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

S no	Item description	Specification requirement	Data by Vendor
1.0	Manufacturer Name		
1.1		Address	
1.2		Contact person	
1.3		Contact telephone no	
2.0	**Function**		
2.1	Viscosity		
2.1.1	Viscosity at 40^0C	15 mm^2/s, Max	
2.1.2	Viscosity at 0^0C	1800 mm^2/s, Max	
2.2	Pour Point	- 10^0C, Max	
2.3	Water content	30 mg/Kg, Max	
2.4	Breakdown voltage		
2.4.1	New unfiltered oil	30 kV, Min	
2.4.2	After filtration	70 kV, Min	
2.5	Density at 20^0C	0.895 g/ml, Max	
2.6	Dielectric dissipation factor at 90^0C	0.005, Max	
2.7	Particle Content	Manufacturer to specify the data	
3.0	**Refining/Stability**		
3.1	Appearance of oil	Clear, free from sediment and suspended matter	
3.2	Acidity	0.01 mg KOH/g, Max	
3.3	Interfacial tension at 27^0C	0.04 N/m, Min	
3.4	Total sulphur content	Manufacturer to specify the data	
3.5	Corrosive sulfur	Not-corrosive	
3.6	Potentially Corrosive sulfur	Not-corrosive	
3.7	DBDS	Not detectable (<5 mg/kg)	
3.8	Inhibitor	Not detectable (<0.01%)	
3.9	Metal Passivator	Not detectable (<5 mg/kg)	
3.10	Other additives	Manufacturer to specify the data	
3.11	2-furfural and related Compounds content	Not detectable (<0.05 mg/kg) for each individual compound	
4.0	**Performance**		

4.1	Oxidation stability, test duration 164 h		
4.1.1	Total acidity	1.2 mg KOH/g, Max	
4.1.2	Sludge	0.8%, Max	
4.1.3	DDF at 90^0C	0.5, Max	
4.2	Gassing Tendency	Manufacturer to specify the data	
4.3	ECT	Manufacturer to specify the data	
5.0	**Health,safety and Environment**		
5.1	Flash point	135^0C, Min	
5.2	PCA content Max	3%, Max	
5.3	PCB content	Not detectable (<2 mg/Kg)	

SCHEDULE – C–RECOMMENDED SPARES (DATA BY SUPPLIER)

List of recommended spares as following –

Sr No	Description of spare part	Unit	Quantity
1		No	
2		No	
3			
4			
5			
6			
7			