Volume – I

Tender Notification for

PROCUREMENT OF 11 kV and 33 kV VCB PANELS IN BRPL

CMC/BR/23-24/RB/PR/RJ/1114

Due Date for Submission of Bids: 26.05.2023

BSES RAJDHANI POWER LTD (BRPL)
BSES Bhawan, Nehru Place, New Delhi-110019
Corporate Identification Number: U74899DL2001PLC111527
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BSES
RAJDHANI POWER LIMITED

Section – I

REQUEST FOR QUOTATION

Tender Notification: CMC/BR/23-24/RB/PR/RJ/1114

Procurement of 11 kV and 33 kV VCB Panels In BRPL

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SECTION – I: REQUEST FOR QUOTATION

1.0 Event Information

1.01 BRPL invites sealed tenders for supply of 11 kV & 33 kV VCB Panels from the manufacturers. The bidder must qualify the technical requirements as specified in clause 2.0 stated below. The sealed envelopes shall be duly super scribed as — **"BID FOR SUPPLY OF 11KV & 33 KV VCB PANELS FOR VARIOUS SITES OF BRPL ,TENDER NOTICE CMC/BR/23-24/RB/PR/RJ/1114 DUE FOR SUBMISSION ON DT. 26.05.2023"**.

Sl. No.	Item Description	Specification	Requirement	Estimated Cost
			Total Qty.	
BRPL, DELHI				
1	Supply of 11 kV & 33 kV VCB Panels	SECTION V	166 Nos	12.88 Cr

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

1.02 The schedule of specifications with detail terms & conditions can be obtained from address given below against demand draft/Pay Order of **Rs.1180/- with GST**-, drawn in favour of **BSES RAJDHANI POWER LTD**, payable at New Delhi. The sale of tender documents will be issued from **05.05.2023** onwards on all working days upto **20.05.2023**. The tender documents can also be downloaded from the website "**www.bsesdelhi.com**".

In case tender papers are downloaded from the above website, then the bidder has to enclose a demand draft covering the cost of bid documents as stated above in a separate envelope with suitable superscription —"Cost of Bid Documents: Tender **Notice Ref: CMC/BR/23-24/RB/PR/RJ/1114"**.This envelope should accompany the Bid Documents.

1.03 Offers will be received upto **1530 Hrs. on dt. 26.05.2023** as indicated earlier and will be opened at the address given below dt. **26.05.2023 at 1615 Hrs.** in the presence of authorized representatives of the bidders. The schedule of specifications with detail terms & conditions are enclosed. It is the sole responsibility of the bidder to ensure that the bid documents reach this office on or before the due date.

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

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

i) Earnest Money Deposit (EMD) @ 1% (One percent) of the Tender value i.e. **Rs. 12,88,000/-** is not deposited in shape of Bank Draft in favour of BSES RAJDHANI POWER LTD,

payable at New Delhi or Bank Guarantee executed on favour of BSES RAJDHANI POWER LTD.

ii) The offer does not contain "FOR, NEW DELHI price indicating break-up towards all taxes & duties".

iii) Complete Technical details are not enclosed.

iv) Tender is received after due time due to any reason.

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

2.0 Qualification Criteria:-

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

1) The bidder should have own manufacturing facility in India for 11KV Switchgear Panels for last 3 years. *Manufacturing and factory incorporation certificate/undertaking are submitted by bidder. The details of manufacturing units, locations and works from where supply against this tender shall be proposed to be furnished.*

2) The Bidder should have supplied at least two (02) of AIS switchgear Board of similar rating in last 5 years from the date of bid opening to any 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 ii. Purchase order copies iii. Material delivery clearance certificate copy or delivery completion certificates or invoice copies*

3) Performance certificate for minimum 2 year satisfactory performance for similar rating supplied in last 7 years from at least two utilities/ SEB/ PSUs / reputed firm wherein the end user shall be Utility/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 Certificate*

4) The bidder should have servicing , repairing, testing & refurbishment facility in INDIA with necessary spares and testing equipment for providing prompt after sales service for switchgear panels. *Relevant Details/certificates/Undertaking. Details of the set-up available shall be brought out in the offer. The bidder shall submit undertaking along with the bid confirming the infrastructure details submitted.*

5) The bidder should have manufacturing capacity of minimum 10 nos. switchgear panels per month- *Installed Capacity Certificate.*
6) The Bidder must possess valid ISO 9001:2015 certification- *Valid copy of Certification*

7) Bidder should have Average Annual Sales Turnover of Rs 500 Crores or more during last three (3) Financial Years. *Balance Sheet /CA Certificate to be submit*

8) The Bidder shall submit an undertaking that "No Litigation" is pending with BRPL or its Group/Associates Companies as on the date of bid submission - *Undertaking*

9) An undertaking (self-certificate) that the bidder has not been blacklisted/debarred by any central/state government institution including electricity utilities as on date of bid opening. *– Undertaking*

10) The bidder must have valid PAN No., GST Registration Number, in addition to other statutory compliances. The bidder must submit the copy of registrations and submit an undertaking that the bidder shall comply all the statuary compliances as per the laws/rules etc. before the start of the work- *Relevant Statutory Documents Copy/Undertaking*

3.0 Bidding and Award Process

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

a. Time schedule of the bidding process

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

S.No.	Steps	Activity description	Due date
1	Technical Queries	All Queries related to RFQ	On or before 15.05.2023 1500 Hrs.
2	Technical Offer	Documentary evidence in support of qualifying criteria. Technical Literature/ GTP/ Drawings/ Type test report, if any, etc., Testing facilities, any other relevant document, acceptance to commercial terms & conditions viz. delivery Schedule/ Period, Payment terms, PBG etc. Quality assurance plan, Deviation from the specification, list of plant & machinery and testing equipments Un priced items.	26.05.2023, 1530 Hrs

3	Commercial Offer	Prices for Transformer and Break up regarding basic price and taxes. Delivery commitment	26.05.2023, 1530 Hrs
4	Opening of technical bid	As per RFQ	26.05.2023, 1615 Hrs

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

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

- **The Part-I (Technical Bid) -** Technical Bid should not contain any cost information whatsoever. In case of Bids where the qualification requirements, technical suitability and other requirements are found to be inadequate, Part-II "Financial Bid" will be returned unopened.

- **The Part-II (Financial Bid) -** Qualified bidders will be intimated after technical evaluation of all the bids is completed. The date and time of same shall be intimated in due course to the qualified bidders. Notwithstanding anything stated above, the Purchaser reserves the right to assess bidder's capability to perform the contract, should the circumstances warrant such assessment in the overall interest of the purchaser. In this regard the decision of the purchaser is final.

4.0 Award Decision

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

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

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

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

- If the quantity is to be split among 2 bidders, it will be done in the ratio of 70:30 on L1 price.
- If the quantity is to be split among 3 bidders, it will be done in the ratio of 60:25:15 on L1 price.

- In case quantity needs to be distributed and order splitting is required, distribution of quantity shall be maximum among three (3) bidders.

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

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

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

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

5.0 Market Integrity:

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

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

6.0 Supplier Confidentiality

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

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

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

7.0 Contact Information

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

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

SECTION – II

INSTRUCTION TO BIDDERS (ITB)

PROCUREMENT OF 11 KV & 33 KV VCB PANELS IN BRPL

CMC/BR/23-24/RB/PR/RJ/1114

A. GENERAL

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

2.00 SCOPE OF WORK

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

3.00 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 own estimation and analysis and should check the accuracy, reliability and completeness of the information in this Document and obtain independent advice from appropriate sources in their own interest.

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 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).

4.00 COST OF BIDDING

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

B BIDDING DOCUMENT

5.00 BIDDING DOCUMENTS

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

Volume –I

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

Volume – II

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

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 will may result in the rejection of the Bid.

6.00 AMENDMENT OF BIDDING DOCUMENTS

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

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

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

C PREPARATION OF BIDS

7.00 LANGUAGE OF BID

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

8.00 DOCUMENTS COMPRISING THE BID

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

a) Bid Form ,Price & other Schedules (STRICTLY AS PER FORMAT)and Technical Data Sheets completed in accordance with Clause 9.0, 10.0, 11.0 and Technical Specification;

b) All the Bids must be accompanied with the required EMD as mentioned in the Section-I against each tender.

c) Power of Attorney or Authorization letter indicating that the person(s) signing the Bid have the authority to sign the Bid and thus that the Bid is binding upon the Bidder during the full period of its validity, in accordance with clause 12.0.

9.00 BID FORM

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

9.02 **EMD**

Pursuant to Clause 8.0(b) above, the bidder shall furnish, as part of its bid, a EMD amounting to 1% of the total bid value (FOR Destination) i.e. Rs. **12,88,000/-**. The EMD is required to protect the Purchaser against the risk of Bidder's conduct which would warrant the security's forfeiture.

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

a) A bank guarantee issued by any scheduled bank strictly as per the form at enclosed and shall be valid for a period of thirty (30) days beyond the validity of the bid.

b) Bank Draft in favour of BSES RAJDHANI POWER LTD, payable at New Delhi.

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

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

a) If the Bidder:
i) Withdraws its bid during the period of bid validity specified by the Bidder in the Bid Form; or

b) in the case of a successful Bidder, if the Bidder fails:

i) to sign the Contract, or

ii) to furnish the required performance security.

10.00 **BID PRICES**

10.01 Bidders shall quote for the entire Scope of Supply with a break-up of prices for individual items. The total Bid Price shall also cover all the Supplier's obligations mentioned in or

reasonably to be inferred from the Bidding Documents in respect of Design, Supply, Transportation to site, all in accordance with the requirement of Bidding Documents The Bidder shall complete the appropriate Price Schedules included herein , stating the Unit Price for each item & total Price.

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

11.00 BID CURRENCIES

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

12.00 PERIOD OF VALIDITY OF BIDS

12.01 Bids shall remain valid for **120 days** post bid date.

12.02 Notwithstanding Clause12.01 above, the Purchaser may solicit the Bidder's consent to an extension of the Period of Bid Validity. The request and the responses thereto shall be made in writing by Fax/e-mail.

13.00 ALTERNATIVE BIDS

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

14.00 FORMAT AND SIGNING OF BID

14.01 The original Bid Form and accompanying documents (as specified in Clause9.0),clearly marked "Original Bid", plus one copy must be received by the Purchaser at the date, time and place specified pursuant to Clauses15.0 and16.0. In the event of any discrepancy between the original and the copies, the original shall govern.

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

14.03 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 initialed by the person or persons signing the Bid.

D SUBMISSION OF BIDS

15.0 SEALING AND MARKING OF BIDS

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

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

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

16.0 DEADLINE FOR SUBMISSION OF BIDS

16.01 The original Bid, together with the required copies, must be received by the Purchaser at the address specified not later than **1530 HRS on 26.05.2023**.

16.02 The Purchaser may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Documents in accordance with Clause9.0, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

17.0 ONE BID PER BIDDER

Each Bidder shall submit only one Bid. A Bidder who submits or participates in more than one Bid will cause all those Bids to be rejected.

18.00 LATE BIDS

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

19.00 MODIFICATIONS AND WITHDRAWAL OF BIDS

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

E. EVALUATION OF BID

20.00 PROCESS TO BE CONFIDENTIAL

Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other

persons not officially concerned with such process. Any effort by a Bidder to influence the Purchaser's processing of Bids or award decisions may result in the rejection of the Bidder's Bid.

21.00 CLARIFICATION OF BIDS

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

22.00 PRELIMINARY EXAMINATION OF BIDS / RESPONSIVENESS

22.01 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.

22.02 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.

22.03 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.

22.04 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.

23.0 EVALUATION AND COMPARISON OF BIDS

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

23.02 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 would be subjected to a responsiveness check. The Technical Proposals and the Conditional ties of the Bidders would be evaluated. Subsequently, the Financial Proposals along with supplementary Financial Proposals, if any, of Bidders with Techno-commercially Acceptable Bids shall be considered for final evaluation.

23.03 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) Supply Schedule
(b) Deviations from Bidding Documents

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

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

F. AWARD OF CONTRACT

24.0 CONTACTING THE PURCHASER

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

24.02 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.

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

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

26.0 AWARD OF CONTRACT

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

27.0 THE PURCHASER’S RIGHT TO VARY QUANTITIES

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

28.0 LETTER OF INTENT/ NOTIFICATION OF AWARD

The letter of intent/ Notification of Award shall be issued to the successful Bidder whose bids have been considered responsive, techno-commercially acceptable and evaluated to be the

lowest (L1). The successful Bidder shall be required to furnish a letter of acceptance within 7 days of issue of the letter of intent /Notification of Award by Purchaser.

29.0 PERFORMANCE BANK GUARANTEE

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

30.00 CORRUPT OR FRADULENT PRACTICES

30.01 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 the purposes of this provision, the terms set forth below as follows:

i) "Corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and/or those close to them ,or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving, or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and

ii) "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Purchaser, and includes collusive practice among Bidders (prior to or after Bid submission) designed to establish Bid prices at artificial non-competitive levels and to deprive the Purchaser of the benefits of free and open competition.

(b) Will reject a proposal forward if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question ;

(c) Will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a contract.

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

SECTION – III

GENERAL CONDITIONS OF CONTRACT (GCC)

PROCUREMENT OF 11 KV & 33 KV VCB PANELS IN BRPL

CMC/BR/23-24/RB/PR/RJ/1114

GENERAL TERMS AND CONDITIONS

1.0 General Instructions

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

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

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

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

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

2.0 Definition of Terms

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

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

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

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

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

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

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

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

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

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

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

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

a) The written acceptance of material by the inspector at suppliers works to ship the materials.

b) Acceptance of material at Purchaser site stores after its receipt and due inspection/ testing and release of material acceptance voucher.

c) Where the scope of the contract includes supply, acceptance shall mean issue of necessary equipment / material takeover receipt after installation & commissioning and final acceptance.

3.0 Contract Documents & Priority

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

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

4.0 Scope of Supply - General

4.01 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.

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

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

4.04 All relevant drawings, data and instruction manuals.

5.0 Quality Assurance and Inspection

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

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

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

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

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

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

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

6.0 Packing, Packing List & Marking

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

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

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

7.01 Prices basis for supply of materials

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

8.0 Variation in taxes, duties & levies:

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

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

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

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

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

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

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

10.0 Terms of payment and billing

10.01 For Supply of Equipments:

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

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

i) Consignee copy of LR

ii) Supplier detailed invoice showing commodity description, quantity, unit price, total price and basis of delivery.

iii) Original certificate issued by BRPL confirming receipt of material at site and acceptance of the same.

iv) Dispatch clearance / inspection report in original issued by the inspection authority

v) Packing List.

vi) Test Reports

vii) Guarantee Certificate.

viii) Insurance policy to be obtained by supplier

11.0 Price Validity

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

12.0 Performance Guarantee

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

Thereafter bidder shall submit PBG on Purchase Order (PO) basis for 10% of the PO value (including GST).The Performance Bond shall be valid for a period of twenty four months (24) from the date of the commissioning or thirty months (30) from the date of receipt of material (last consignment of PO) at site/stores whichever is earlier plus 3 months towards claim period. It shall be in accordance with one of the following terms:

a) Depositing pay order /demand draft of the relevant amount directly with BRPL at the address listed above or as otherwise specified by BRPL, either of which shall constitute the Performance Bond hereunder; or

b) Bank guarantee from any nationalized bank in favour of BSES RAJDHANI POWER LTD (BRPL). The performance Bank guarantee shall be in the format as specified by BRPL.

13.0 Forfeiture

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

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

14.0 Release

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

15.0 Defects Liability Period

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

16.0 Return, Replacement or Substitution.

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

17.0 Effective Date of Commencement of Contract:

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

18.0 Time – The Essence of Contract

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

19.0 The Laws and Jurisdiction of Contract:

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

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

20.0 Events of Default

20.01 Events of Default. Each of the following events or occurrences shall constitute an event of default ("Event of Default") under the Contract:

a) Supplier fails or refuses to pay any amounts due under the Contract;

b) Supplier fails or refuses to deliver Commodities conforming to this RFQ/ specifications, or fails to deliver Commodities within the period specified in P.O. or any extension thereof

c) Supplier becomes insolvent or unable to pay its debts when due, or commits any act of bankruptcy, such as filing any petition in any bankruptcy, winding-up or reorganization proceeding, or acknowledges in writing its insolvency or inability to pay its debts; or the Supplier's creditors file any petition relating to bankruptcy of Supplier;

d) Supplier otherwise fails or refuses to perform or observe any term or condition of the Contract and such failure is not remediable or, if remediable, continues for a period of 30 days after receipt by the Supplier of notice of such failure from BRPL.

21.0 Consequences of Default.

a) If an Event of Default shall occur and be continuing, BRPL may forthwith terminate the Contract by written notice.

b) In the event of an Event of Default, BRPL may, without prejudice to any other right granted to it by law, or the Contract, take any or all of the following actions;

i) present for payment to the relevant bank the Performance Bond;

ii) purchase the same or similar Commodities from any third party; and/or

iii) recover any losses and/or additional expenses BRPL may incur as a result of Supplier's default.

22.0 Penalty for Delay

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

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

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

23.0 Force Majeure

23.01 General

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

i) Such event or circumstance materially and adversely affects the ability of the affected Party to perform its obligations under this Contract, and the affected Party has taken all reasonable precautions, due care and reasonable alternative measures in order to prevent or avoid the effect of such event on the affected party's ability to perform its obligations under this Contract and to mitigate the consequences thereof.

ii) For the avoidance of doubt, if such event or circumstance would not have materially and adversely affected the performance of the affected party had such affected party followed good industry practice, such event or circumstance shall not constitute force majeure.

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

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

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

23.03 Mitigation of Events of Force Majeure Each Party shall:

i) Make all reasonable efforts to prevent and reduce to a minimum and mitigate the effect of any delay occasioned by an Event of Force Majeure including recourse to alternate methods of satisfying its obligations under the Contract;

ii) Use its best efforts to ensure resumption of normal performance after the termination of any Event of Force Majeure and shall perform its obligations to the maximum extent practicable as agreed between the Parties; and

iii) Keep the other Party informed at regular intervals of the circumstances concerning the event of Force Majeure, with best estimates as to its likely continuation and what measures or contingency planning it is taking to mitigate and or terminate the Event of Force Majeure.

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

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

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

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

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

24.0 Transfer And Sub-Letting

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

25.0 Recoveries

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

26.0 Waiver

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

27.0 Indemnification

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

SECTION – IV: QUANTITY AND DELIVERY REQUIREMENT

Sl. No.	Item Description	Specification	Requirement	Delivery Schedule	Location
BRPL,DELHI					
1	Procurement of 11 kV & 33 kV VCB Panels	SECTION V	166 Nos	Within 3 months from the placement of Order/LOI	Stores BRPL Delhi
TOTAL					

Annexure –I

BID FORM

Supply of 11 kV & 33 kV VCB Panels

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

We understand that BRPL is desirous of procuring "11 kV & 33 kV VCB Panels" in its licensed distribution network area in Delhi. Having examined the Bidding Documents for the above named works, we the undersigned, offer to deliver the goods in full conformity with the Drawings, Conditions of Contract and specifications for the sum of AS PER PRICE BID ENCLOSED or such other sums as may be determined in accordance with the terms and conditions of the contract .The above amounts are in accordance with the Price Schedules attached herewith and are made part of this bid.

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

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

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

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

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

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

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

Dated this.....day of.....20.....
Signature..... In the capacity of……
.....duly authorized to sign for and on behalf of (IN BLOCK CAPITALS)……

RAJDHANI POWER LIMITED

Annexure -II

FORMAT FOR EMD BANK GUARANTEE

(To be issued in a Non Judicial Stamp Paper of Rs.50/-purchased in the name of the bank)

Whereas [name of the Bidder] (hereinafter called the "Bidder") has submitted its bid dated [date of submission of bid] for the supply of [name and/or description of the goods] (hereafter called ''the Bid"). KNOW ALL PEOPLE by these presents that WE [name of bank]at[Branch Name and address],having our registered office at[address of the registered office of the bank](herein after called —"the Bank"),are bound unto BSES Rajdhani Power Ltd., with its Corporate Office at BSES Bhawan Nehru Place, New Delhi -110019, (herein after called —the "Purchaser") in the sum of_____ for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this____ day of__ 20__.

THE CONDITIONS of this obligation are:

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

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

fails or refuses to execute the Contract Form ,if required; or
fails or refuses to furnish the performance security, In accordance with the Instructions to Bidders/GENERAL CONDITIONS.;

We undertake to pay to the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that is its demand the purchaser will note that amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including thirty (30) days after the period of bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

(Signature of the bank)

Signature of the witness

RAJDHANI POWER LIMITED

Annexure-III

PRICE FORMAT

ENQUIRY NO & DATE: NIT: CMC/BR/23-24/RB/PR/RJ/1114

PRICE SCHEDULE

ITEM DESCRIPTION	QTY AS PER RFQ	UOM	EX-WORKS RATE/ UNIT	CGST (%)	CGST AMOUNT	SGST (%)	SGST AMOUNT	IGST (%)	IGST AMOUNT	FREIGHT	LANDED RATE/ UNIT	TOTAL LANDED COST (INR)
33 kV Panels												
PNL,ELECPWR,IND R INCOMER;33KV	08	Nos										
PNL,ELECPWR,IND R BUS CPLR;33KV	04	Nos										
PNL,ELECPWR,IND R BUS PT;33KV	08.	Nos										
PNL,ELECPWR,IND R OG FDR;33KV	08	Nos										
PNL,ELECPWR,IND R BUS EARTHING TRK;33KV	04	Nos										
PNL,ELECPWR,IND R CBL EARTHING TRK;33KV	08	Nos										
11 kV Panels												
SWGR SWBD 11KV INCOMER 2000 AMPS	11	Nos										
SWGR SWBD 11 KV OUTGOING FEEDER, 800AMPS	68	Nos										
SWGR SWBD 11KV BUS SECTION 2000AMPS	07	Nos										
SWGR PANEL 11KV CAPACITOR 1250AMPS	07	Nos										
SWGR PANEL 11KV STN TRAFO 800AMPS	03	Nos										
PANEL BUS RISER+BPT 11KV	17	Nos										
11KV CABLE EARTHING TRUCK	06	Nos										
11KV BUS EARTHING TRUCK	06	Nos										
11KV ADAPTER PANEL	01	No										

Note: 1.Prices shall be Firm
2.The prices received without break up of ex works, Freight, GST are liable for rejection
3. Pls. Indicate the exact percentage of taxes in figures and words.
4. If there is a discrepancy between the unit price and the total price THE UNIT PRICE shall prevail.
5. Bidders are requested to attach the covering letter head alongwith the price bid indicating reference no and date.

Bidders seal & signature

Annexure – IV

Enquiry No. : CMC/BR/23-24/RB/PR/RJ/1114

COMMERCIAL TERMS AND CONDITIONS

S/NO	ITEM DESCIPTION	AS PER BRPL	CONFIRMATION OF BIDDER
1	Validity of prices	120 days from date of offer	
2	Price basis	Price Variation, FOR Delhi store basis, Prices shall be inclusive of all taxes & duties, freight upto Delhi stores. Unloading at stores be in vendor's scope Transit insurance in BRPL scope	
3	Payment Terms	100% payment within 45 days after receipt of material at stores	
4	Delivery schedule	3 months from the date of PO/LOI	
5	Defect Liability Period	The bidder to Guarantee the materials / items supplied against any defect of failure, which arise due to faulty materials, workmanship or design for the entire defects liability period. The Defect liability period shall be 60 months from the date of commissioning or 66 months from the date of delivery whichever is earlier. If during the defects liability period any materials / items are found to be defective, these shall be replaced or rectified by the bidder at his own cost within 30 days from the date of receipt of intimation.	
6	Penalty for delay	1% per week of delay of undelivered units or part thereof subject to maximum of 10% of total PO value of undelivered units	
7	Performance Bank Guarantee	10% of total PO value for 24 months after commissioning or 30 months from date of supply, whichever is earlier plus 3 months towards claim period	

ANNEXURE - V

ENQUIRY NO: CMC/BR/23-24/RB/PR/RJ/1114

NO DEVIATION SHEET

SL NO	SL NO OF TECHNICAL SPECIFICATION	DEVIATION, IF ANY

SIGNATURE & SEAL OF BIDDER

NAME OF BIDDER

BSES
RAJDHANI POWER LIMITED

CHECK LIST

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

Annexure III

FORM FOR PARTICIPATION IN REVERSE AUCTION EVENT

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

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

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

1. In case of bidding through Internet medium, bidders are advised to ensure availability of all associated infrastructure as required to participate in the reverse auction event. Inability to bid due to telephone glitch, internet response issues, software & hardware hangs/failures, power failures or any other reason shall not be the responsibility of BRPL.

2. In case bidder fails to participate in the reverse auction event due to any reason whatsoever, it shall be presumed that the bidder has no further discounts to offer and the initial bid submitted by them as a part of tender shall be considered as bidder's Final .No Regret offer.Any off-line price bids received from a bidder in lieu of non-participation in the reverse auction event shall be rejected by BRPL.

3. The bidder is advised to understand the auto bid process t safeguard themselves against any possibility of non-participation in the reverse auction event.

4. The bidder shall be prepared with competitive price quotes during the day of reverse auction event.

5. The prices quoted by bidder in reverse auction event shall be on FOR Landed cost BRPL Store/site basis inclusive of all relevant taxes, duties, levies, transportation charges etc.

6. The prices submitted by the bidder during reverse auction event shall be binding on the bidder.

7. The bidder agrees to non-disclosure of trade information regarding bid details e.g.purchase, identity, bid process/technology, bid documentation etc.

8. BRPL will make every effort to make the bid process transparent. However award decision of BRPL will be final and binding on the bidder.

9. The prices submitted during reverse auction event shall be binding on the bidder.

10. No request for Time extension of the reverse auction event shall be considered by BRPL.

RAJDHANI POWER LIMITED

Seal & Signature of Bidder

SECTION – V

TECHNICAL SPECIFICATIONS (TS)

11 kV and 33 kV VCB Panels

CMC/BR/23-24/RB/PR/RJ/1114

The detailed technical specifications of VCB Panels

BSES

Technical Specification

Of

HT Indoor Switchgear (33 & 11 kV)

Specification no – BSES-TS-66-HTSWG-R0

Rev:		0
Date:		22 Jun 2022
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1 SCOPE OF SUPPLY

a. This specification covers the design, manufacture, testing, supply, erection & commissioning of 33kV and 11kV, Air Insulated, metal-enclosed and factory assembled switchgear.

b. This specification shall be used in conjunction with all specifications, switchgear data sheets, single line diagrams, and other drawings attached to the specification / purchase requisition.

2 CODES & STANDARDS

Materials, equipment and methods used in the manufacture of switchboards shall conform to the latest edition of following

2.1	Indian Electricity Rules 1956	Latest edition
2.2	Indian Electricity act 1910	Latest edition
2.3	Switchgear and control gear	IEC : 60694, IEC: 60298, IEC : 62271-200, IEC : 60529, IS: 3427, IS: 12729, IS: 12063, IS: 13947, IS: 9046
2.4	Circuit breaker	IEC 62271 - 100, IS 13118, IS 2516
2.5	Isolators & earthing switches	IEC 62271 - 102
2.6	Current transformers	IS:2705, IEC:60185
2.7	Voltage transformer	IS:3156, IEC:60186,
2.8	Indicating Instruments	IS:1248
2.9	Energy meters	IS 13010
2.10	Relays	IS:8686, IS:3231, IS:3842
2.11	Control switches and push buttons	IS 6875
2.12	HV fuses	IS 9385
2.13	Arrangement of Switchgear bus bars, main connections and auxiliary wiring	IS:375
2.14	Code of practice for phosphating iron & steel	IS 6005
2.15	Colours for ready mixed paints	IS 5
2.16	Code of practice for installation and maintenance of switchgear	IS 3072

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3 SERVICE CONDITION

3.1	Max Ambient Temperature	50 deg C
3.2	Max Daily average ambient temp	40 deg C
3.3	Min Ambient Temp	0 deg C
3.4	Maximum Humidity	95%
3.5	Minimum Humidity	10%
3.6	Maximum annual rainfall	750 mm
3.7	Average no of rainy days per annum	60
3.8	Rainy months	June to Oct
3.9	Altitude above MSL	300 M
3.10	Seismic Zone	IV

4 PANEL CONSTRUCTION

4.1	Enclosure Type	Free standing, Indoor, Fully compartmentalised, Metal clad, Vermin proof
4.2	Enclosure degree of protection	IP 4X for high voltage compartment IP 5X for low voltage compartment
4.3	Enclosure material	Pre-Galvanized CRCA steel
4.3.1	Load bearing members	2.5 mm thick
4.3.2	Doors and covers	2.0 mm thick
4.3.3	Gland plate	3.0 mm MS for multicore and 5. 0 mm Aluminium for single core cables. All gland plates should be detachable type with gasket
4.4	Dimension of Panel	Maximum 2700mm, Operating height maximum 1600mm. In case of Extension of Existing make panels, vendor shall match the dimension of existing panel.
4.5	Extensibility	On either side
4.6	Separate Compartments for	Bus bar, Circuit Breaker, HV incoming cable, HV outgoing cable, PT, LV instruments & relays
4.7	Transparent inspection window	For cable compartment at height of cable termination.
4.8	Bus end cable box	For direct cable feeder from bus
4.9	Rear Doors	Rear doors shall not be interlocked i.e. all door opening shall be independent to each other.

4.10	Breaker compartment door	Separate, with lockable handle (Design with breaker trolley as the front cover is not acceptable). Door of one panel should not cause hindrance for opening of adjacent panel.
4.11	Inter compartmental connections	
4.11.1	Breaker to bus bar compartment	Through seal-off bushings
4.11.2	Breaker to cable compartment	Through seal-off bushings
4.12	Nut Bolt	Shall be as less as possible for ease of opening of compartments
4.13	Pressure relief devices	To be provided for each HV compartment
4.14	Bus support insulator	Non-hygroscopic, track-resistant, high strength, Epoxy insulators (Calculation for validating dynamic force withstand capability to be submitted during detailed engineering)
4.15	Fixing arrangement	Doors - Concealed hinged, door greater than 500mm shall have minimum three sets of hinges Covers - SS bolts Gasket - Neoprene
4.16	Required HV cable termination height in the cable compartment	650 mm for 11 KV. 1000mm for 33 KV
4.17	Panel Base Frame	Steel Base frame as per manufacturer's standard.
4.18	Handle	Removable bolted covers with handle for cable chamber and busbar chamber. Panel no./identification to be provided on cable box cover also.

4.19	APFC	a. Controlling of Capacitor Banks' switching shall be done by APFC. Although APFC shall not be in bidder's scope, Space for cut out shall be provided in the Capacitor panel. Space requirement-150X150 mm^2 b. Wiring of Bus PT , Incomer CT and Capacitor CT upto spare terminal for APFC shall also be provided in Capacitor Panel
4.20	Technical particulars	As per Annexure –C

5 CIRCUIT BREAKER

5.1	Type	Truck or cassette type
5.2	Mounting	On withdrawable truck or carriage, with locking facility in service position.
5.3	Switching duty	c. Transformer (oil filled and dry type) d. Motor (of small and large ratings – DOL starting with starting current 6 to 8 times the full load current & with a maximum of 3 starts per hour) e. Underground cable with length up to 10 km
5.4	Interrupting medium	Vacuum
5.5	Contact	Tulip contact shall be provided without any gap between contacts
5.6	Breaker operation	Three separate identical single pole units operated through the common shaft
5.7	Operating Mechanism	Re-strike free, Trip free, with electrical anti-pumping feature
5.7.1	Type	Motor wound, spring charged, stored energy type with manual charging facility
5.7.2	Operation on supply failure	One O-C-O operation possible after failure of power supply to the spring charging motor
5.8	Breaker indications & push buttons	

5.8.1	ON/ OFF / Emergency trip push button	a. Manual / mechanical. b. Emergency Off push button should be provided with a protective flap. c. Mechanical ON shall have padlocking facility.
5.8.2	Mechanical ON – OFF indication	On breaker trolley front
5.8.3	Operation counter	On breaker trolley front
5.8.4	Test-service position indicator	On breaker trolley front
5.8.5	Mechanism charge / discharge indicator	On breaker trolley front
5.9	Breaker positions	Service, Test and Isolated
5.10	Inter changeability	Possible, only with breaker of same rating
5.11	Breaker Control	On panel front only
5.12	Handle	Breaker shall be provided with handles for easy handling, rack in–out operation and manual spring charging as applicable.
5.13	Pin Sequence and Configuration of Pin of Adaptor Plug	(a) Pin sequence and No of Pins of Adaptor plug shall be same in Outgoing and Capacitor Panel (b) Pin sequence and No of Pins of Adaptor plug shall be same in Incoming and Bus Coupler Panel
5.14	Technical particulars	As per Annexure-C

6 FUNCTIONAL REQUIREMENTS

6.1	Interlocks	
6.1.1	Breaker compartment door opening	Opening of door and rack out to test/isolated position should be possible with breaker in OFF position only.
6.1.2	Breaker compartment door closing	Should be possible even when breaker is in isolated position
6.1.3	Racking mechanism safety interlock	Mechanical type
6.1.4	Racking in or out of breaker inhibited	When the breaker is closed

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6.1.5	Racking in the circuit breaker inhibited	Unless the control plug is fully engaged
6.1.6	Disconnection of the control plug inhibited	As long as the breaker is in service position
6.1.7	Opening of cable compartment cover of Incomer Panels inhibited	As long as cable end is alive
6.2	Safety Devices	
6.2.1	Exposure to live parts	In case the breaker panel door is required to be opened during a contingency, the personnel should not be exposed to any live part. Suitable shrouds/barriers/insulating sleeves should be provided.
6.2.2	Breaker handing	In case the breaker is mounted on a carriage which does not naturally roll out on the floor, a trolley for handling the breaker is to be provided.
6.3	Operation of breaker	In either service or test position
6.3.1	Closing from local	Only when local/remote selector switch is in local position
6.3.2	Closing from remote	Only when local/remote selector switch is in remote position
6.3.3	Tripping from local	Only when local/remote selector switch is in local position
6.3.4	Tripping from remote	Only when local/remote selector switch is in remote position
6.3.5	Tripping from protective relays	Irrespective of position of local/remote switch
6.3.6	Testing of breaker	In test or isolated position keeping control plug connected
6.4	Safety shutters.	

6.4.1	Automatic safety shutter for female primary disconnects	To fully cover contacts when breaker is withdrawn to test. Independent operating mechanism for bus bar & cable side shutters, separately pad-lockable in closed position.
6.4.2	Label for identification	For Bus side and cable side shutters
6.4.3	Warning label on shutters of incoming and other connections	Clearly visible label "Isolate elsewhere before earthing" be provided
6.5	Breaker electrical operation features	
6.5.1	Trip circuit supervision	To be given for breaker close & open condition
6.5.2	Trip circuit supervision relay contact	For indication, alarm & to inhibit closing of breaker
6.5.3	Emergency trip push button contact	Wired directly to trip coil (wired to Master trip relay if second trip coil provided)
6.5.4	Emergency trip push button contact	Wired to inhibit closing of breaker
6.5.5	Master trip relay contact (if given)	Wired to inhibit closing of breaker
6.5.6	Tripping or opening of breaker through relay but not routed through Lockout (Example- SCADA Opening, Undervoltage, Overvoltage)	Wired to Contact multiplication Relay and then from CMR to tripping of breaker
6.5.7	Closing of breaker through relay	Wired to Contact multiplication Relay and then from CMR to closing of breaker
6.6	DC control supply bus in all panels	Fed by two DC incoming sources in Bus coupler panel with auto changeover facility
6.7	PT supply bus in all panels	Fed normally by bus PT with automatic changeover facility to incomer line PT
6.8	Flaps for Internal Arc Protection	Flaps shall not have any pores/ opening during normal operation

7 SURGE SUPPRESSOR

7.1	Provision	To be provided in all panels except bus coupler and BPT.
7.2	Type	Gapless, metal oxide type
7.3	Technical particulars	As per Annexure -C

8 CURRENT TRANSFORMER

8.1	Type	Shall be cast resin type with insulation class of E or better.
8.2	Rating and technical particulars	As per Annexure – C (Technical particulars) and Annexure – F (SLDs)
8.3	CBCT	If specified, bidder shall clearly mention his proposal for mounting the same.

9 POTENTIAL TRANSFORMER

9.1	Type	Shall be cast resin type with insulation class of E or better.
9.2	Rating and technical particulars	As per Annexure – C (Technical particulars) and Annexure – F (SLDs)
9.3	Mounting	It shall be mounted on a withdrawable carriage. Mounting of PT on the breaker truck is not acceptable. Mounting of PT on the panel top is also not acceptable. Primary PT fuse shall be easily accessible.
9.4	Neutral	The HV neutral connection to earth shall be easily accessible for disconnection during HV test.

10 FEEDER AND BUS EARTHING

10.1	Earthing arrangement	Through separate earthing truck for bus & feeder
10.2	Short time withstand capacity of earthing truck	Equal to rating of breaker. Refer technical parameters.
10.3	Operation from front	Mechanically operated by separate switch.

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10.4	Interlocks and Alarm	To prevent inadvertent closing on live circuit, with padlocking arrangement to lock truck in close or open position.

11 EQUIPMENT EARTHING

11.1	Material of earthing bus	Aluminium
11.2	Earthing Bus Position	It shall run through whole switchgear passing nearer to Power Cable Position
11.3	Earth bus joints	All bolted joints in the bus should be made by connection of two bolts.
11.4	Rating	Sized for rated short circuit current for 3 seconds
11.5	Enclosure & non -current carrying part of the switchboard / components	Effectively bonded to the earth bus.
11.6	Hinged doors	Earthed through flexible copper braid
11.7	Circuit breaker frame /carriage	Earthed before the main circuit breaker contacts/ control circuit contacts are plugged in the associated stationary contacts
11.8	Metallic cases of relays, instruments and other LT panel mounted equipment	Connected to the earth bus by independent copper wires of size not less than 2.5 sq. mm with green colour insulation. For this purpose LT compartment should have a clear designated earth bus to which earth connections from all components are to be connected.
11.9	CT and PT neutral	Earthed at one place at the terminal blocks through links.

12 METERS

12.1	Mounting	Flush mounted
12.2	Multifunction Meter	
12.2.1	SCADA Interfacing	RS485 rear port suitable for integration on Modbus Protocol
12.2.2	Size	96x96 mm^2

12.2.3	Panels where to be provided	All panels except Bus PT Panel
12.2.4	Accuracy Class	0.2
12.2.5	Signal List	R-Ph Current, Y-Ph Current, B-Ph Current, Neutral Current, R-Y Ph Voltage, Y-B Ph Voltage, B-R Ph Voltage, Active Power, Active Energy, Reactive Power, Power Factor, Max Demand, Phase angle 1, Phase angle 2, Phase angle 3, THD Mean Current, THD Mean Voltage
12.2.6	Data Type	MFI
12.2.7	Compatibility with RTU	ABB 560
12.2.8	Programmability	CT secondary shall be programmable i.e for both 1 A and 5 A
12.2.9	Auxiliary Supply	a. 48 – 240VDC and AC i.e universal type. b. Although in Scheme, MFM must be wired up with DC only
12.3	Voltmeter	Digital type with programmable ratio
12.3.1	Size	96x96 mm^2
12.3.2	Panels where to be provided	Incomer and bus PT panel
12.3.3	Voltmeter switch	Inbuilt in meter
12.3.4	Accuracy Class	1.0
12.4	Energy meter provision	Energy meter is not in supplier's scope. Only space and CT/PT wiring is to be provided in all panels except bus coupler and bus PT. Space for Energy meter shall be 200(w) X 350(h) mm^2

13 INDICATION, ALARMS & ANNUNCIATION

13.1	Indications	Flush mounted, High intensity, clustered LED type
13.1.1	Breaker ON	Red
13.1.2	Breaker Off	Green
13.1.3	Spring Charged	Blue
13.1.4	DC control supply fail	Amber
13.1.5	AC control supply fail	Amber
13.1.6	Auto trip	Amber
13.1.7	Test Position	White
13.1.8	Service Position	White

13.1.9	Heater circuit healthy	Yellow (Indication with integrated push button for checking)
13.1.10	Trip circuit healthy	White
13.1.11	PT supply as applicable	R,Y B
13.2	Annunciator (For 33kV Panels only)	
13.2.1	Type	Static type alongwith alarm. Annunciations shall be repetitive type and shall be capable of registering the fleeting signal. Fascia test facility should also be provided.
13.2.2	Note	LED type indications may not be provided for alarm signals provided on annunciator.
13.2.3	Mounting	Flush mounted
13.2.4	Fascia	12 window
13.2.5	Signals to provided on Fascia	Window 1 – Main Protection Operated (Distance /Differential) Window 2 – Backup O/C & E/F Protection Operated Window 3 – LBB operated Window 4 – CB Autotrip Window 5 – Trip Circuit Unhealthy Window 6 – DC Fail Window 7 – AC Fail Window 8 – VT Fuse Fail Window 9 – Protection Relay Faulty
13.2.6	Push Buttons	For test, accept and reset
13.2.7	Potential Free Contacts	To be provided for event logger
13.3	Alarm scheme with isolation switch	a. For DC fail, TC fail and CB auto trip in 11kV panels b. For all signals wired to annunciator in 33kV panels

Sequence of operation of the annunciator shall be as follows-

S No.	Alarm Condition	Fault Contact	Visual Annunciation	Audible Annunciation
a.	Normal	Open	Off	Off
b.	Abnormal	Close	Flashing	On
c.	Accept	Close	Steady on	Off
d.	Return to normal	Open	Steady On	Off
e.	Reset	Open	Off	Off
f.	Reset before return to normal	Close	Flashing	On

14 SELECTOR SWITCHES & PUSH BUTTONS

14.1	Selector switches	Flush mounted on LV compartment door, with shrouded terminals
14.1.1	TNC switch with pistol grip	Lockable, spring return to normal position
14.1.2	Local / SCADA selector switch	2 pole Lockable Switch
14.1.3	Rotary ON/OFF switches	For heater / illumination circuit
14.1.4	Rating	16 A
14.2	Push Button	Flush mounted on LV compartment door, with shrouded terminals
14.2.1	Emergency trip push button	Red color with stay put
14.2.2	Accept push buttons	Black color – Trip alarm / DC fail alarm
14.2.3	Reset push buttons	Yellow color – Trip alarm / DC fail alarm
14.2.4	Rating	10 A

15 INTERNAL WIRING

15.1	Internal wiring	1100 V grade, PVC insulated (FRLS) stranded flexible copper wire.
15.2	Size	2.5 sq mm for CT circuit, 1.5 sq mm for PT & control circuits
15.3	Colour code	
15.3.1	CT & PT	R Ph – Red Y Ph – Yellow B Ph – Blue Neutral – Black

15.3.2	Others	DC– grey, AC-black, Earth – green
15.4	Ferrules	At both ends of wire
15.5	Ferrule type	Interlocked type (one additional red colour ferrule for all wires in trip circuit)
15.6	Lugs	Tinned copper, pre-insulated, ring type, fork type and pin type as applicable. CT circuits should use ring type lugs only.
15.7	Spare contacts	Spare contacts of relays and contactors etc. should be wired upto the terminal block.
15.8	Wiring enclosure	Plastic channels, Inter panel wiring through PVC sleeves
15.9	Interpanel wiring	Wires with ferrule to be terminated in the adjacent shipping section should be supplied with one end terminated and the other end bunched and coiled.
15.10	Auxiliary supply	Auxiliary bus wiring for AC and DC supplies, voltage transformer circuits, annunciation circuits and other common services shall be provided on the same set of terminals in all the panels with proper segregation.

16 TERMINAL BLOCKS

16.1	Rating and Type	1100 V grade, moulded piece, stud type screw driver operated terminals complete with insulated barriers, washers, nuts and lock nuts.
16.2	Segregation	TBs shall be segregated.
16.3	Suitability	Terminal Block shall be Stud Type Screw Driver Operated suitable for 6sqmm control cable. Disconnecting facility shall be provided in CT and PT terminal. Shorting and Earthing facility shall be provided in CT
16.4	Marking and covers	White fibre markings strip with clear plastic, slip-on / clip-on terminal covers to be provided.
16.5	Disconnecting Facility	To be provided in CT and PT terminals

16.6	Shorting & Earthing Facility	To be provided in CT Terminals
16.7	Spare Terminals	20% in each TB row
16.8	Spare Terminal Block in Capacitor Bank Panel	Separate Terminal Block with 50 number terminals required (20 Numbers Disconnecting and 30 Number Non Disconnecting type)
16.9	TB shrouds & separators	Moulded non- inflammable plastic material
16.10	Clearance between 2 sets of TB	100 mm min
16.11	Clearance with cable gland plate	250 mm min
16.12	Clearance between AC / DC set of TB	100 mm min
16.13	Test terminal blocks	Screw driver operated stud type for metering circuit

17 RELAYS

17.1	Protection Relays – General Features	
17.1.1	Technology and Functionality	Numerical , microprocessor based with provision for multifunction protection, control, metering and monitoring
17.1.2	Mounting	Flush Mounting, IP5X
17.1.3	Architecture	Hardware and software architecture shall be modular and disconnectable to adapt the protection and control unit to the required level of complexity as per the application.
17.1.4	Programming and configuration	Relay shall utilize a user friendly setting and operating multi-lingual software in windows environment with menus and icons for fast access to the data required. Programming software and communication cord for offered relays should be included in scope of supply.
17.1.5	Conformal Coating	a. Required on all cards and Components to protect against moisture, dust, chemicals, temperature extremes etc b. Testing shall be as per IEC 60068-2-60

17.1.6	SCADA Interface port	LC type Dual fibre optic port for interfacing with SCADA on IEC 61850 & PRP compatible. Through this port relays shall be connected to Ethernet switches..
17.1.7	Processing Indications	SCADA functions for monitoring shall be executed on SPI (Single Point Input) and DPI (Double Point Input). DPI shall only be used in case of Isolator and Circuit breaker “close” and “open” indication.
17.1.8	Command Processing	Functionality of command processing offered for SCADA interface shall include the processing of single and double commands i.e SCO (Single Command Output) and DCO (Double object command Output). DCO shall only be used in case of Isolator and Circuit Breaker “close” and “open” command.
17.1.9	PC Interface port	Front port (preferably serial) for configuration/data downloads using PC. Cost of licensed software and communication cord, required for programming of offered protection relays shall be included in the cost of switchgear.
17.1.10	User Interface	An alphanumeric key pad and graphical LCD display with backlight indicating measurement values and operating messages. It should be possible to access and change all settings and parameters without the use of PC.
17.1.11	SCADA Interface	Relay shall communicate all measured & monitored parameters, analog signals, event record, fault record, DIs , DOs etc to SCADA
17.1.12	Relay Characteristics	Relay shall integrate all necessary protections for different applications in accordance with IS and IEC. Relay shall provide wide setting ranges and choice of all IEC, IEEE and other tripping curves through a

		minimum of two setting groups.
17.1.13	GOOSE Messaging	Relays shall communicate all status signals, commands and events on GOOSE messaging.
17.1.14	Event and Fault records	Relay shall have the facility of recording of various parameters during event/fault with option to set the duration of record through settable pre fault and post fault time. Relay shall store records for last 10 events and 10 faults (minimum). It should be possible to download records locally to PC and remotely to SCADA.
17.1.15	Self diagnosis	Relay shall be able to detect internal failures. A watchdog relay with changeover contact shall provide information about the failure.
17.1.16	Time synchronization	All relays shall be capable of being synchronized with the system clock using SCADA interface and PC.
17.1.17	Operation Indicators	LEDs with push button for resetting.
17.1.18	Test Facility	Inbuilt with necessary test plugs.
17.2	Protection Relays for 11kV Incomer panel	
17.2.1	Relay 1	3-phase Directional Overcurrent and Earthfault protection with IDMT, Definite time and instantaneous characteristics
		Undervoltage and overvoltage protection
		Trip Circuit Supervision
		Sync Check function
		PT supervision (fuse failure monitoring)
		Relay shall communicate all measured and monitored parameters like current, voltage, active power, reactive power, apparent power, power factor, phase angle, event record, fault record, DIs ,

		DOs etc to SCADA
17.2.2	Relay 2	Auto Re-closer (If Specified in Tender document)
		High Impedance Restricted Earth fault protection.
17.2.3	User Configurable DIs and Dos	Relay-1 & 2 should have a total of 16 Dis and 10 Dos (minimum). Each relay should have atleast 2 Dis and 4 Dos
17.2.4	Note	Combining functions of Relay-1 and Relay-2 in single relay is not acceptable.
17.2.5	SLD	Refer annexure – F1
17.3	Protection Relays for 11kV Bus Section panel	
17.3.1	Relay 1	3-phase Overcurrent and Earthfault protection with IDMT, Definite time and instantaneous characteristics
		Sync Check function
		Trip Circuit Supervision
		PT supervision (fuse failure monitoring)
		User Configurable 16 Dis and 8 Dos (minimum)
		Relay shall communicate all measured and monitored parameters like current, voltage, active power, reactive power, apparent power, power factor, phase angle, event record, fault record, DIs , DOs etc to SCADA
		Auto Re-closer (If Specified in Tender document)
17.3.2	SLD	Refer annexure – F2
17.4	Protection Relays for 11kV Outgoing panel	
17.4.1	Relay 1	3-phase Overcurrent and Earthfault protection with IDMT, Definite time and instantaneous characteristics
		Trip Circuit Supervision
		User Configurable 12 Dis and 6 Dos (minimum)
		Relay shall communicate all measured and monitored parameters like current, voltage, active

		power, reactive power, apparent power, power factor, phase angle, event record, fault record, DIs , DOs etc to SCADA
		Auto Re-closer (If Specified in Tender document)
17.4.2	SLD	Refer annexure – F3
17.5	Protection Relays for 11kV Station Transformer panel	
17.5.1	Relay 1	3-phase Overcurrent and Earthfault protection with IDMT, Definite time and instantaneous characteristics
		Trip Circuit Supervision
		User Configurable 12 DIs and 6 DOs (minimum)
		Relay shall communicate all measured and monitored parameters like current, voltage, active power, reactive power, apparent power, power factor, phase angle, event record, fault record, DIs , DOs etc to SCADA
		Auto Re-closer (If Specified in Tender document)
17.5.2	SLD	Refer annexure – F4
17.6	Protection Relays for 11kV Capacitor panel	
17.6.1	Relay 1	3-phase Overcurrent and Earthfault protection with IDMT, Definite time and instantaneous characteristics
		Undervoltage and Overvoltage protection(From Bus PT)
		Trip Circuit Supervision
		Neutral Unbalance protection(From RVT associated to Cap Bank)
		Timer for on time delay (minimum 600 seconds)
		User Configurable 12 DIs and 6 DOs (minimum)
		Relay shall communicate all measured and monitored parameters like current, voltage, active power, reactive power, apparent power, power

		factor, phase angle, event record, fault record, DIs , DOs etc to SCADA
		Auto Re-closer (If Specified in Tender document)
17.6.2	SLD	Refer annexure – F5.
17.7	Protection Relays for 33kV Incomer	
17.7.1	Relay 1	Line differential protection (Dual channel, ST Port Compatible for Single Mode Fibre having wavelength 1310 nm)
		Distance Protection
		Software based CT ratio correction
		Dedicated port for communication with remote end relay through optical fibre. This port should be in addition to PC interface and SCADA interface ports.
17.7.2	Relay 2	Bay control unit having MIMIC with 3-phase Directional Overcurrent and Earthfault protection with IDMT, Definite time and instantaneous characteristics.
		Trip Circuit Supervision
		Sync check function
		Under Frequency, Over Frequency, Rate of Change of Frequency
		Circuit Breaker failure protection
		Reverse blocking function
		PT supervision
		Relay shall communicate all measured and monitored parameters like current, voltage, active power, reactive power, apparent power, power factor, phase angle, event record, fault record, DIs , DOs etc to SCADA
		Auto Re-closer (If Specified in Tender document)
17.7.3	User Configurable DIs and Dos	Relay-1 & 2 should have a total of 16 DIs and 12 DOs (minimum). Each relay should have atleast 2 DIs and 6 Dos

17.7.4	Note	Combining functions of Relay-1 and Relay-2 in single relay is not acceptable.
17.7.5	SLD	Refer annexure – F6
17.8	Protection Relays for 33kV Transformer Feeder Panel	
17.8.1	Relay 1	Biased differential protection
		REF protection
		Software based ratio and vector correction feature (without ICT)
		H2 and H5 harmonic restraint
17.8.2	Relay 2	Bay control unit having MIMIC with 3-phase Overcurrent and Earthfault protection with IDMT, Definite time and instantaneous characteristics
		Trip Circuit Supervision
		Under Frequency, Over Frequency, Rate of Change of Frequency
		Reverse Blocking function
		Circuit Breaker failure protection
		Relay shall communicate all measured and monitored parameters like current, voltage, active power, reactive power, apparent power, power factor, phase angle, event record, fault record, DIs , DOs etc to SCADA
		Auto Re-closer (If Specified in Tender document)
17.8.3	User Configurable DIs and DOs	Relay-1 & 2 should have a total of 16 DIs and 12 DOs (minimum). Each relay should have atleast 2 DIs and 6 DOs.
17.8.4	Note	Combining functions of Relay-1 and Relay-2 in single relay is not acceptable.
17.8.5	SLD	Refer annexure – F7
17.9	Protection Relays for 33kV Buscoupler Panel	
17.9.1	Relay 1	Bay control unit having MIMIC with 3-phase Overcurrent and earthfault protection with IDMT,

		Definite time and instantaneous characteristics.
		Trip Circuit Supervision
		Sync check function
		Reverse Blocking Function
		Circuit Breaker failure protection
		PT supervision (fuse failure monitoring) for Bus PT-1
		User Configurable 16 DIs and 8 DOs (minimum)
		Relay shall communicate all measured and monitored parameters like current, voltage, active power, reactive power, apparent power, power factor, phase angle, event record, fault record, DIs , DOs etc to SCADA
17.9.2	Relay 2	Under Frequency, Over Frequency, Rate of Change of Frequency
		PT supervision (fuse failure monitoring) for Bus PT-2
		Auto Re-closer (If Specified in Tender document)
17.9.3	SLD	Refer annexure – F8
17.10	Protection Relays for 33kV Outgoing Panel (For Installation at KCC Consumer Premises)	
17.10.1	Relay 1	Bay control unit having MIMIC with 3-phase Overcurrent and Earthfault protection with IDMT, Definite time and instantaneous characteristics
		Trip Circuit Supervision
		Reverse Blocking Function
		Under Frequency, Over Frequency, Rate of Change of Frequency
		Circuit Breaker failure protection
		User Configurable 12 DIs and 6 DOs (minimum)
		Relay shall communicate all measured and monitored parameters like current, voltage, active power, reactive power, apparent power, power

		factor, phase angle, event record, fault record, DIs , DOs etc to SCADA
		Auto Re-closer (If Specified in Tender document)
17.10.2	SLD	Refer annexure – F9
17.11	Protection Relays for 33kV Incomer from 66/33kV Autotransformer	
17.11.1	Relay 1	High Impedance Restricted Earth fault protection
17.11.2	Relay 2	Bay control unit having MIMIC with 3-phase Overcurrent and Earthfault protection with IDMT, Definite time and instantaneous characteristics
		Trip Circuit Supervision
		Under Frequency, Over Frequency, Rate of Change of Frequency
		Reverse Blocking Function
		Sync check function
		Undervoltage and overvoltage protection
		Circuit Breaker failure protection
		PT supervision (fuse failure monitoring)
		Relay shall communicate all measured and monitored parameters like current, voltage, active power, reactive power, apparent power, power factor, phase angle, event record, fault record, DIs , DOs etc to SCADA
		Auto Re-closer (If Specified in Tender document)
17.11.3	User Configurable DIs and DOs	Relay-1 & 2 should have a total of 16 DIs and 12 DOs (minimum). Each relay should have atleast 2 DIs and 6 Dos
17.11.4	Note	Combining functions of Relay-1 and Relay-2 in single relay is not acceptable
17.11.5	SLD	Refer annexure – F10
17.12	Protection Relays for 33kV Outgoing from 66/33kV Autotransformer	
17.12.1		Power swing blocking
	Relay 1	Line differential protection(Dual channel, ST Port

		Compatible for Single Mode Fibre having wavelength 1310 nm)
		Distance Protection
		Software based CT ratio correction
		Dedicated port for communication with remote end relay through optical fibre. This port should be in addition to PC interface and SCADA interface ports.
17.12.2	Relay 2	Bay control unit having MIMIC with 3-phase Overcurrent and Earthfault protection with IDMT, Definite time and instantaneous characteristics.
		PT Supervision
		Under Frequency, Over Frequency, Rate of Change of Frequency
		Trip Circuit Supervision
		Reverse Blocking Function
		Circuit Breaker failure protection
		Relay shall communicate all measured and monitored parameters like current, voltage, active power, reactive power, apparent power, power factor, phase angle, event record, fault record, DIs , DOs etc to SCADA
		Auto Re-closer (If Specified in Tender document)
17.12.3	User Configurable DIs and Dos	Relay-1 & 2 should have a total of 16 DIs and 12 DOs (minimum). Each relay should have atleast 2 DIs and 6 Dos
17.12.4	Note	Combining functions of Relay-1 and Relay-2 in single relay is not acceptable.
17.12.5	SLD	Refer annexure – F11
17.13	Protection Relays for 33kV Buscoupler for Switchboard of 66/33kV Autotransformer	
17.13.1	Relay 1	Bay control unit having MIMIC with 3-phase Overcurrent and earthfault protection with IDMT, Definite time and instantaneous characteristics.
		Trip Circuit Supervision

		Sync check function
		Circuit Breaker failure protection
		PT supervision (fuse failure monitoring) for Bus PT-1
		User Configurable 16 DIs and 8 DOs (minimum)
		Relay shall communicate all measured and monitored parameters like current, voltage, active power, reactive power, apparent power, power factor, phase angle, event record, fault record, DIs , DOs etc to SCADA
17.13.2	Relay 2	Under Frequency, Over Frequency, Rate of Change of Frequency
		PT supervision (fuse failure monitoring) for Bus PT-2
		Auto Re-closer (If Specified in Tender document)
17.13.3	SLD	Refer annexure – F12
17.14	Protection Relays – SCADA Interfacing	
17.14.1	Configuration and wiring of DIs in Protection Relays (All panels) for routing status signals to SCADA	DI-1 – TC-1 Healthy DI-2 – TC-2 Healthy DI-3 – CB Autotrip (contact from lockout relay) DI-4 – CB Open DI-5 – CB Close DI-6 – CB in service DI-7 – CB in test DI-8 – Spring Charged DI-9 – L/R switch Remote DI-10 – AC fail DI-11 – Adjacent Panel DC Fail/DC MCB Trip DI-12 – Adjacent Panel Protection Relay fail DI-13 – PT MCB trip (metering and protection, for incomer and capacitor panel only) Sequence of DIs should be strictly as mentioned above. Change in sequence of DIs will not be acceptable.
17.14.2	Configuration and wiring of	DO-1 – CB Open

	DOs in Protection relays (all panels) for execution of SCADA commands through SCADA interface port (refer clause 16.1.5).	DO-2 – CB close DO-3-Electrical Reset Sequence of DOs should be strictly as mentioned above. Change in sequence of DOs will not be acceptable.
17.14.3	Looping of numerical relays	All relays in the switchboard have to be looped to form a common bus for interfacing with SCADA.
17.14.4	Spare DIs and DOs	Should be wired upto terminal block for future use.
17.15	Transformer Monitoring cum AVR Relay	
17.15.1	Features	As per annexure –B
17.15.2	Requirement	To be provided in 33KV Transformer panel only
17.16	Auxiliary Relays – General Features	
17.16.1	Relays for auxiliary, supervision, trip and timer relays	Static or electromechanical type.
17.16.2	Reset mechanism for auxiliary relays	Self reset contacts except for lock-out relays.
17.16.3	Reset mechanism for lockout relays	Electrical reset type for 11kV outgoing panels only. Hand reset type for all other panels.
17.16.4	Operation indicators	With hand-reset operation indicators (flags) or LEDs with pushbuttons for resetting.
17.17	Auxiliary relays – Requirement	
17.17.1	Anti pumping (94), lockout (86),	a. For each breaker b. Lock Out Relay mounting shall be flush type on front side of Panel
17.17.2	PT selection relays	To be provided in bus coupler panel for selection between Bus PT and Line PT of respective sections.
17.17.3	Switchgear with two incomer & bus coupler	Lockout relay (86) contact of each incoming breakers to be wired in series in closing circuit of other incoming breakers & bus coupler.
17.17.4	Contact Multiplication Relay for Tripping and closing of Breaker	a. One for Tripping and one for closing with each breaker b. Current Rating shall be 30 percent more than closing and tripping coil current rating c. Shall be of closed type i.e. direct

		unauthorised access shall not be provided.
17.17.5	Auxiliary Relays, contact multiplication relays etc.	To effect interlocks and to exchange signals of status & control
17.17.6	Transformer trouble relays (For 33kV Transformer feeder panel only)	Auxiliary relays with indicating flags (contactors will not be accepted) should be provided for the following trip and alarm commands – a. Buchholz trip b. OSR trip c. PRV trip d. SPR trip e. WTI Trip f. OTI Trip g. Buchholz Alarm h. Low oil level alarm i. OTI Alarm j. WTI Alarm.
17.18	General Requirements for all relays/contactors	Auxiliary supply will be 50/220VDC based on requirement. All relays/contactors shall be suitable for continuous operation at 15% overvoltage.

18 SYNCH CHECK PHILOSOPHY

18.1	Dead Bus – Live Line	a. Application - Required for Charging of Bus from Line Supply b. Logic - Sync check relay installed on line panel will check the line and bus voltage and derive that the line is live and bus is in dead condition i.e bus has to be charged by the line breaker. Hence Sync check relay will allow the line breaker to close in this condition.
18.2	Dead Line – Live Bus	a. Application - Required for Charging of Line from Bus Supply b. Logic - Sync check relay installed on line panel will check line and bus voltage and derive that the line is dead and bus is in live condition i.e line has to charged from bus. Hence Sync check relay will allow the line breaker to close in this condition.

18.3	Live Bus – Live Line	a. Application - Required for paralleling of bus and line supply b. Logic - Sync check relay installed on line panel will compare magnitude and phase sequence of line and bus voltages. If the variations are within the range set in the relay, sync check relay will allow the closing of line breaker.
18.4	Live Bus – Dead Bus	a. Application – Required for charging of dead bus through another live bus. b. Logic – Sync check relay installed on bus coupler/bus section panel will check voltage of both buses and derive that one bus is dead and other bus is live i.e dead bus is being charged from live bus. Hence Sync check relay will allow the bus coupler/bus section breaker to close in this condition.
18.5	Live Bus – Live Bus	a. Application – Required for paralleling of two buses/bus sections. b. Logic – Sync check relay installed on bus coupler/bus section panel will compare the magnitude and phase sequence of voltage of both buses (or bus sections). If the variations are within the range set in the relay, sync check relay will allow the bus coupler/bus section breaker to close.

19 ETHERNET SWITCHES & FIBRE OPTICS

19.1	Ethernet Switch	
19.1.1	Numbers	Two at each site
19.1.2	FO Port	16 Nos
19.1.3	RJ 45 Port	4 Nos
19.1.4	Communication Protocol	IEC 61850
19.1.5	Network Protocol	PRP
19.1.6	Downlink Rate	100 MBPS
19.1.7	Uplink Rate	1 GBPS
19.1.8	Coating	Conformal
19.1.9	Power Supply Voltage	220 / 50 VDC as per site condition
19.1.10	Grade	Industrial
19.1.11	Certification required	KEMA,CE & FCC for IEC 61850 compliance
19.1.12	Operating Temperature	
19.1.13	Mounting	In Switchgear Panel
19.1.14	Blinking LED Indicators	On each RJ45 ports

19.1.15	Separate Maintenance/console Part	Required
19.1.16	Latency	Less than or equal to 10 ms
19.1.17	Fibre Optic Compatibility	Multimode, 1310 nm
19.1.18	Placement	Din Rail Arrangement Inside Switchgear
19.2	Fibre Optics (Patch Cord) and Ethernet cable	
19.2.1	Connection	From Relays, Meters to Ethernet Switch
19.2.2	Mode of Fibre Optics	Multimode
19.2.3	Wavelength	1310 nm
19.2.4	Ethernet Cable Type	CAT VI
19.2.5	Associated Connectors and Accessories	Required

20 SPACE HEATERS

20.1	Type	Thermostat controlled with switch for isolation
20.2	Location	In Breaker & HV cable compartment, mounted on an insulator. Heater position in cable compartment should be easily accessible after cable termination. Heater position in breaker chamber shall be accessible with breaker racked-in.

21 SOCKETS, SWITCHES ,ILLUMINATION LAMPS & MCBs

21.1	Illumination lamp with switch	For LV & cable chamber
21.2	Universal type (5/15 A) Socket with Switch	In LV chamber
21.3	MCBs	a. MCBs of Proper rating may be provided. b. Although Main MCB shall be directly wired up to Trip Circuit, No other MCB shall be provided in between c. Rating of MCB shall be 300% of full load current of relevant circuit

22 NAMEPLATES AND MARKING

22.1	Nameplates	To be provided as per the following description
22.1.1	Equipment Nameplates	a. All equipment mounted on front side as well as equipment mounted inside the panels shall be provided with individual name plates with equipment designation engraved. b. All front mounted equipment shall be also provided at the rear with individual name plates engraved with tag numbers corresponding to the one shown in the panel internal wiring to facilitate easy tracing of the wiring.
22.1.2	Feeder Nameplates	a. Large and bold name plate carrying the feeder identification/ numbers shall be provided on the top of each panel on front as well as rear side. On rear side, nameplate should be provided on frame. b. Rear bottom of each panel shall have a nameplate clearly indicating the following: Customer Name – BSES Delhi; PO No. & date; Drawing Reference No. etc.
22.1.3	Rating Plate	Following details are to be provided on Panel rating plate: a. Customer Name – BSES Yamuna Power Limited b. PO No. & Date – c. Complete CT Rating plate details d. Complete PT Rating plate details e. Complete CB Rating Plate details f. Date of Manufacturing- g. Warranty Period- h. Customer care No- i. Control Voltage-
22.1.4	Material	Non-rusting metal or 3 ply lamicoid. Nameplates shall be black with white engraving lettering. Stickers are

		not allowed.
22.1.5	Fixing	All nameplates/rating plates shall be riveted to the panels at all four corners. Bolting/screwing is not acceptable.
22.2	Markings	Each switch shall bear clear inscription identifying its function. Similar inscription shall also be provided on each device whose function is not otherwise identified. If any switch or device does not bear this inscription separate nameplate giving its function shall be provided for it. Switch shall also have clear inscription for each position indicating e.g. Trip-Neutral close, ON-OFF etc.

23 SURFACE TREATMENT & PAINTING

23.1	Surface Treatment	Sand blasting or by seven tank process.
23.2	Paint type	Powder coated. Pure polyester base grade-A structure finish.
23.3	Paint shade	RAL 7032 for external & internal surface
23.4	Paint thickness	Minimum 50 microns

24 APPROVED MAKES OF COMPONENTS

24.1	Numerical Relays	Siprotec series of Siemens, Micom series of Schneider/Alstom. Numerical relays used in complete switchboard should be of same make. Use of two different makes of relays in a switchboard is not acceptable.
24.2	Transformer monitoring cum AVR relay	A-eberle
24.3	Electromechanical Relays	Alstom/Schneider/Siemens/ABB/ER
24.4	Aux Relays	ABB/Jyoti/Omran
24.5	Contactors	ABB/Siemens/Telemechanique

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24.6	Instrument transformers	ECS/ Pragati/ Gemini/Schneider/CGL/Kappa/Narayan power tech
24.7	MCBs	Siemens/Schneider/Legrand/ABB
24.8	Control switches	Switron/Kaycee
24.9	Test terminal blocks	IMP/Schneider/Alstom
24.10	Terminal blocks	Elmex/Connectwell
24.11	Indicating lamps	Siemens/ Teknic/ Binay
24.12	Surge Suppressors	Oblum/Tyco
24.13	Meters	Rishabh(Rish delta Energy)/Conzerv
24.14	Ethernet Switch	Ruggedcom/Hirschman

25 INSPECTION , TESTING & QUALITY ASSURANCE

25.1	Type Tests	The product must be of type tested as per applicable Indian standards / IEC
25.1.1	Type test report validity period	Last five years from date of bid submission. Bidder with type test report more than 5 years old needs to re-conduct the tests without any commercial implication to BSES
25.1.2	Pressure relief device operation	Test certificate for panel to be submitted
25.2	Acceptance & Routine tests	As per the specification and relevant standards. Charges for these tests shall be deemed to be included in the equipment price. In addition to these tests, following tests have to be carried out as acceptance tests -
25.2.1	Primary injection test	To be carried out on panels selected for testing
25.2.2	Temperature rise test	One panel per Purchase order (PO with minimum 10 panels) without any commercial implication to BSES. In-house testing is acceptable.
25.2.3	Paint Thickness/ Peel off	To be carried out on panels selected for testing

25.3	Inspection	The purchaser/owner reserves the right to witness all the acceptance/routine tests during inspection.
25.4	Notice to purchaser for conducting type tests	At least three weeks in advance
25.5	Quality Assurance	
25.5.1	Vendor quality plan	To be submitted for purchaser approval
25.5.2	Inspection points	To be mutually identified & agreed in quality plan

26 PACKING

26.1	Packing Protection	Against corrosion, dampness, heavy rains, breakage and vibration. During transportation/ transit and storage, panels may be subjected to outdoor conditions. Hence, packing of each panel shall be weatherproof.
26.2	Packing for accessories and spares	Robust wooden non returnable packing case with all the above protection & identification
26.3	Details of Packing Identification Label on each packing case	a. Individual serial number b. Purchaser's name c. PO number (along with SAP item code, if any) & date d. Equipment Tag no. (if any) e. Destination f. Project Details g. Manufacturer / Supplier's name h. Address of Manufacturer / Supplier / it's agent i. Description and Quantity j. Country of origin k. Month & year of Manufacturing l. Case measurements m. Gross and net weights in kilograms n. All necessary slinging and stacking instructions

27 SHIPPING

27.1	Shipping	The bidder shall ascertain at an early date and definitely before the commencement of manufacture, any transport limitations such as weights, dimensions, road culverts, Overhead lines, free access etc. from the Manufacturing plant to the project site. Bidder shall furnish the confirmation that the proposed Packages can be safely transported, as normal or oversize packages, up to the site. Any modifications required in the infrastructure and cost thereof in this connection shall be brought to the notice of the Purchaser.
		The seller shall be responsible for all transit damage due to improper packing.

28 HANDLING AND STORAGE

28.1	Handling and Storage	Manufacturer instruction shall be followed. Detail handling & storage instruction sheet / manual needs to be furnished before commencement of supply.

29 DEVIATION

29.1	Deviation	Deviations from this Specification shall be provided in excel sheet with 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.

30 ACCESSORIES & TOOLS

30.1	Type and Quantity	Bidder to indicate
30.2	Special tools & tackles required for erection, testing, commissioning and maintenance of the switchboard	The cost of these items shall be indicated separately in the bid as optional.
30.3	Suitable handling truck / trolley for lifting and moving the circuit breaker	To be supplied. (Two trolleys for each type/rating of breaker)

31 DRAWINGS & DATA SUBMISSION MATRIX

Drawing submission shall be as per the matrix given below. All documents/ drawing shall be provided on A3/A4 sheet (based on legibility) 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 shall be liable for rejection.

S. No	Head	Bid	Drawing Approval	Pre Dispatch	Pre Closure
31.1	Contact Person Name, Email ID and Mobile Number	Required			
31.2	Consolidated Deviation Sheet	Required	Required		
31.3	GTP	Required	Required		
31.4	Relevant Type Test as per IS/IEC	Required			
31.5	Power Cable and control cable Philosophy and Schedule		Required		
31.6	Manufacturer's quality assurance plan and certification for quality standards		Required		
31.7	Sizing Calculation of Associated Equipment		Required		

31.8	Recommended Spares Apart from spares stated in Spec(for five years of operation)		Required		
31.9	11 kV / 33 kV Switchgear drawing				
31.9.1	General Arrangement	Required	Required		
31.9.2	Sectional Layout		Required		
31.9.3	Door Layout		Required		
31.9.4	LV Box Internal Layout		Required		
31.9.5	SLD	Required	Required		
31.9.6	Schematic Circuit diagram and Scheme of Each type of Panel		Required		
31.9.7	Communication Architecture		Required		
31.9.8	Bus Bar Arrangement		Required		
31.9.9	QAP		Required		
31.9.10	Panel wise BOQ		Required		
31.9.11	Logic Operation Diagram		Required		
31.9.12	Plan		Required		
31.9.13	Synch Logic Diagram		Required		
31.9.14	Foundation Diagram		Required		
31.9.15	DI sheet		Required		
31.9.16	DO Sheet		Required		
31.9.17	TB Details		Required		
31.9.18	Make of all Component as per specification		Required		
31.10	Drawing of CT, PT and Surge Arrestor		Required		
31.11	Drawing of Substation Room		Required		
31.12	Ventilation detail requirement of GIS Room		Required		

31.13	Installation, erection and commissioning manual for switchgear		Required		
31.14	Inspection Reports			Required	
31.15	As manufacturing Drawings			Required	
31.16	Operation and Maintenance Manual			Required	Required
31.17	Trouble shooting manual			Required	Required
31.18	As built Drawings				Required
31.19	Test Report				Required
31.20	Weekly progress report				Required

ANNEXURE – A - SCOPE OF SUPPLY

Scope of supply should include the following –

1.1 Design, manufacture, assembly, testing at manufacturer's works, properly packed for transport, supply and FOR delivery at site of following 11kV / 33kV Switchgears as per enclosed specification and single line diagram.

1.2 Base channel frame of the switchgears with hardware.

1.3 Two trolleys for breaker of each size are to be provided per switchboard.

1.4 Programming software and communication cord for numerical relays.

1.5 Unit price of 33kV Incomer with Distance relay as primary protection and 33kV Incomer with Line differential relay as primary protection should be mentioned separately in the bid. Primary protection to be used in Incomer panel will be finalized based on site requirement.

1.6 Unit price of Bus PT should be indicated separately in the bid to enable addition/deletion based on site requirement.

1.7 Bidder should indicate price of one set of special tools and tackles (if any) required for maintenance of switchgear and its components.

1.8 Bidder should indicate price of each spare as per Annexure E.

1.9 All relevant drawings, data and instruction manuals.

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ANNEXURE – B – TRANSFORMER MONITORING CUM AVR RELAY

1	General features	
1.1	Technology and Functionality	Microprocessor based with provision for multifunction control and monitoring.
1.2	Mounting	Flush Mounting
1.3	Architecture	Hardware and software architecture shall be modular and disconnectable to adapt the control unit to the required level of complexity as per the application.
1.4	Programming and configuration	AVR shall utilize a user friendly setting and operating multilingual software in windows environment with menus and icons for fast access to the data required.
1.5	User Machine Interface	UMI with an alphanumeric key pad and graphical LCD display with backlight indicating measurement values and operating messages. Capability to access and change all settings and parameters.
1.6	PC Interface port	Front port (preferably serial) for configuration using PC. Cost of licensed software and communication cord, required for programming of offered protection relays using PC, shall be mentioned separately in the bid.
1.7	SCADA Interface port	LC Type Dual fibre optic port for interfacing with SCADA on IEC 61850 & PRP compatible. Through these ports relays shall be connected to Ethernet switches.
1.8	Self diagnosis	Shall be able to detect internal failures. A watchdog relay with changeover contact shall provide information about the failure.
1.9	Cable Termination	Termination of cable shall be at rear side.
1.10	Auxiliary supply	220VDC or 48VDC
2	Inputs and Outputs	
2.1	CT Input	1/5A selectable through programming
2.2	PT Input	110VAC
2.3	Binary Inputs	Sixteen programmable binary inputs should be provided

2.4	Analog Inputs (4-20mA)	One input to be provided
2.5	PT-100 direct input	Two inputs to be provided
2.6	Direct Resistance Input	For tap position indication (18 steps)
2.7	Binary Outputs	Ten programmable binary outputs should be provided
3	Control	
3.1	Control Tasks	Ability to implement control functions through programmable logics
3.2	Voltage setting	Programmable Voltage set point
3.3	Voltage Regulation	Raise/Lower tap position to maintain the preset value of voltage.
3.4	Voltage Regulation modes	Automatic and Manual
3.5	Operation Modes	Local and Remote
3.6	Fan and Pump control	To be provided
3.7	Transformer Paralleling	Capability to parallel transformers whose AVRs are interconnected via a communication network.
4	SCADA Interfacing	
4.1	Configuration of DIs for routing alarm/trip signals to SCADA.	DI-1 – Buchholz trip DI-2 – OSR Trip DI-3 – PRV trip DI-4 – SPR trip DI-5 – OTI trip DI-6 – WTI trip DI-7 – Buchholz alarm DI-8 – Oil Level low alarm (MOG alarm) DI-9 – WTI alarm DI-10 – OTI alarm DI-11 – Tap changer trouble/stuck/out of step DI-12 – Tap changer motor supply fail DI-13 – Tap changer in local control All signals from DI-1 to DI-10 are to be wired up from transformer trouble auxiliary relays.
4.2	Configuration of DOs for	DO-1 – Tap raise

	executing commands from SCADA through interface port/CRP	DO-2 – Tap lower DO-3 – Fan group 1 control DO-4 – Fan group 2 control
4.3	Spare DIs and DOs	To be wired upto the terminal block.
5	Measurement, Event Recording and Monitoring	
5.1	Measured Quantities (optional)	Voltage, Current, Active Power, Reactive Power, Apparent Power, Power factor, frequency
5.2	Event Recording	Facility for recording parameters during various events such as tap change, change in binary input status etc.
5.3	Monitoring	Capability to monitor important transformer parameters such as Oil temperature, Winding Temperature etc and give indication/alarm when the value of a particular parameter exceeds the preset value.

ANNEXURE – C - TECHNICAL PARTICULARS

1.0	SWITCHGEAR		
1.1	Type	Metal clad, air insulated with VCB type circuit breaker	
1.2	Service	Indoor	
1.3	Mounting	Free standing, floor mounted	
1.4	System Voltage	11 KV	33kV
1.5	Voltage variation	+/- 10%	
1.6	Frequency	50 Hz +/- 5%	
1.7	Phase	3	
1.8	Rated voltage	12 KV	36 kV
1.9	Rated current	As per SLDs given in Annexure-F	
1.10	Short time rating for 3 sec.	25kA	25kA
1.11	Internal arc classification and rating		
1.11.1	Classification	IAC – A - FLR	IAC – A - FLR
1.11.2	Rating	25kA for 1 second	25kA for 1 second.
1.12	Insulation level (PF rms / Impulse peak)	28 kV / 75 kV	70 kV/ 170 kV
1.13	System ground	Effectively earthed	Effectively earthed
1.14	Enclosure degree of protection	IP – 4X for high voltage compartment and IP – 5X for metering and protection compartment	
1.15	Bus bar - Main	Rating as per SLDs given in annexure - F, Short time rating as per clause 1.10.	
1.15.1	Material	Tinned Electrolytic copper	
1.15.2	Bus bar sleeve	Sleeved with shrouds on joints. Tape on joints is not acceptable.	
1.15.3	Bus identification	Colour coded	
1.15.4	Temperature rise	40 deg. C for conventional joints. 55 deg. C for silver plated joints	
1.16	Auxiliary bus bar	Electrolytic grade tinned copper	

1.17	Auxiliary DC Supply	220 V DC / 48 V DC	
1.18	Auxiliary AC supply	240 V AC 50 Hz	
1.19	Hardware	Stainless steel.	
1.20	Earth bus	Aluminium	
1.21	Bus duct entry	From top (where ever applicable)	
1.22	Power cable entry	From bottom and rear	
1.23	Control cable entry	From bottom and front (i.e breaker compartment)	
2.0	CIRCUIT BREAKER		
2.1	Voltage class, insulation level, short time rating	As specified for switchgear	
2.2	Rated current	As per SLDs given in annexure - F. Use of two breakers in parallel to meet the required current rating shall not be acceptable.	
2.3	Duty cycle	O – 0.3 sec – CO - 3min - CO	
2.4	Short circuit rating		
2.4.1	A.C sym. breaking current	25kA	25kA
2.4.2	Short circuit making current	62.5kA	62.5kA
2.5	Operation time		
2.5.1	Break time	Not more than 4 cycles	
2.5.2	Make time	Not more than 5 cycles	
2.6	Range of Auxiliary Voltage		
2.6.1	Closing	85% - 110%	
2.6.2	Tripping	70% - 110%	
2.6.3	Spring Charging	85% - 110%	
2.7	No. of spare aux. Contacts of Breaker, for Owner's use.	Minimum 6 NO + 6 NC	
2.8	No. of spare contacts of Service and Test position limit switch	2 NO	

3.0	CURRENT TRANSFORMERS		
3.1	Voltage class, insulation level and short time rating	As specified for switchgear	
3.2	Type	Cast resin, window / bar primary type	
3.3	Class of insulation	Class E or better	
3.4	Ratio	As per SLDs given in annexure - F	
3.5	Number of secondaries	As per SLDs given in annexure - F	
3.6	Accuracy class		
3.6.1	Protection core	5P20	
3.6.2	Protection (Diff. / REF)	PS	
3.6.3	Metering	0.2s	
3.6.4	Core balance CT	PS	
3.7	Burden (VA)	Adequate for the protection & instruments offered	
3.8	Excitation current of PS Class CTs	30 mA at Vk/4	
3.8	Knee Point Voltage of PS Class CTs (Vk)	>= 40 (Rct + 4)	
3.9	Primary operating current sensitivity of CBCTs	5A	
4.0	VOLTAGE TRANSFORMERS		
4.1	Type	Cast resin, draw out type, single phase units	
4.2	Rated Voltage		
4.2.1	Primary	11000/sq.rt.3	33000/sq.rt.3
4.2.2	Secondary	110V/sq.rt.3	
4.3	No. of phases	3	
4.4	No. of secondary windings	2	
4.5	Method of connection	Star/Star	
4.6	Rated voltage factor	1.2 continuous, 1.9 for 30 seconds	
4.7	Class of insulation	Class E or better	

4.8	Accuracy class		
4.8.1	Protection	3P	
4.8.2	Metering	0.2	
4.9	Primary and secondary fuses	HRC current limiting type, Primary fuse replacement shall be possible with VT in withdrawn position	
5.0	HV FUSES		
5.1	Voltage class	12kV	36kV
5.2	Rupturing capacity	50kA	
5.3	Rated current	As per application	
6.0	SURGE ARRESTORS	For 11kV switchgear	For 33kV switchgear
6.1	Rated Voltage	9kV	30kV
6.2	Maximum continuous operating voltage (MCOV)	7.65kV	25kV
6.3	Discharge current	10kA	10kA
6.4	Discharge class	3	3

Note - The auxiliary DC voltage shall be checked on a case to case basis by Purchaser

ANNEXURE – D - GUARANTEED TECHNICAL PARTICULARS (DATA BY BIDDER)

Vendor must submit clause wise compliance in Excel sheet against specification at the time of drawing approval clearly highlighting the deviations from specification against each clause.

DocUUID : 23f7dc1d-9724-406f-b48e-bdff68bb2c4f

ANNEXURE – E – SPARES REQUIREMENT

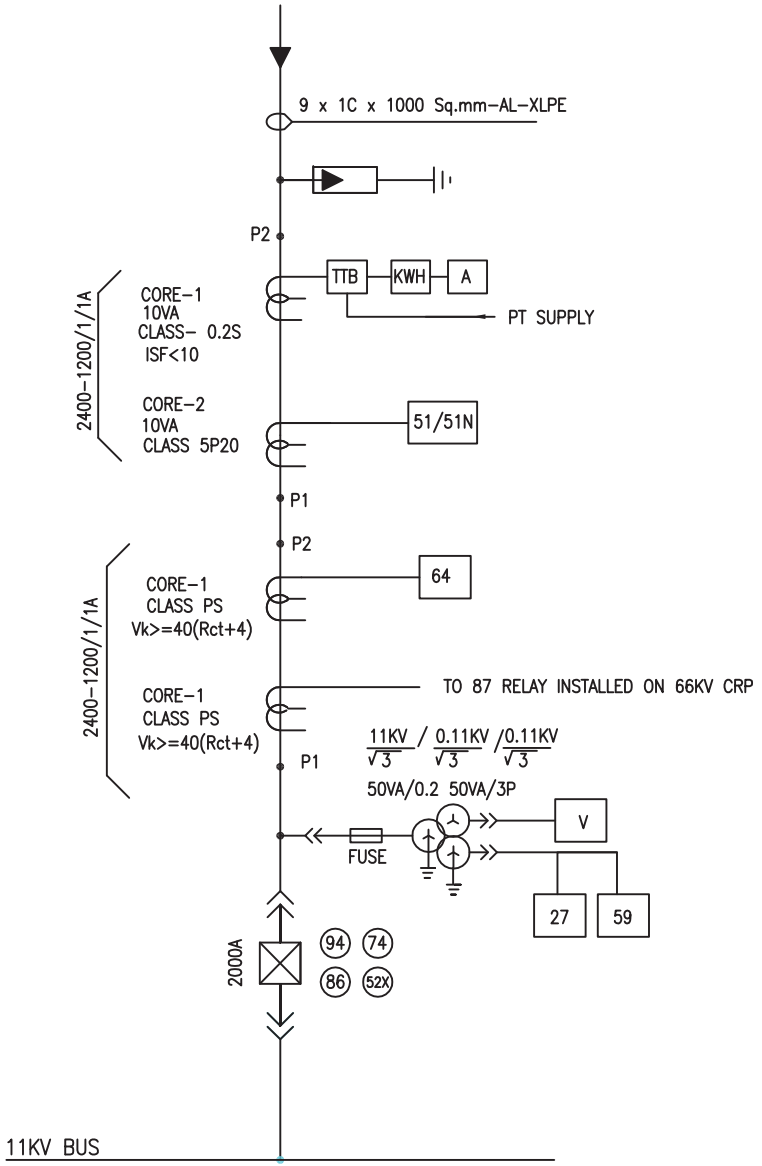
Unit rate of all below mentioned spares have to be provided in the bid.

S No.	Description	Qty
1	Line voltage transformer	3 (1 set)
2	Bus voltage transformer	3 (1 set)
3	Current transformer of each ratio	3 (1 set)
4	Trip Coil	4
5	Closing Coil	4
6	CB Spring charging motor	2
7	Auxiliary switch	2 sets (2 Nos. each type)
8	Bursting disc / pressure relief plate complete	2
9	Numerical relay of each type	1 nos. (each type)
10	Ethernet Switch	1 No (Each Site)
11	Optical Fibre	20% of Supplied Items
12	CAT VI Ethernet cable for Communication	20% of Supplied Items
13	Vacuum Interrupter Bottle	1 set (3 nos.) of each rating
14	Breaker contacts for busbar	1 set (3 nos.) of each rating
15	Breaker testing cable with plug suitable for breaker on one side and plug suitable for the panel on the other side	3 meter(each type)
16	SCADA Spare	20% of Supplied Items

ANNEXURE – F – SLDs

DocUUID : 23f7dc1d-9724-406f-b48e-bdff68bb2c4f

ANNEXURE–F1



25 KA for 3 secs, 2000A at 50 degree celsius

LEGEND

SYMBOL	DESCRIPTION
	11KV SF6/VACUUM CKT. BKR. DRAWOUT TYPE
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	SURGE ARRESTOR
	FUSE
52X	BREAKER AUX CONTACT MULTIPLIER
74	TRIP CIRCUIT SUPERVISION RELAY
94	ANTI PUMPING RELAY
86	HIGH SPEED TRIP RELAY
V	VOLTMETER
A	AMMETER

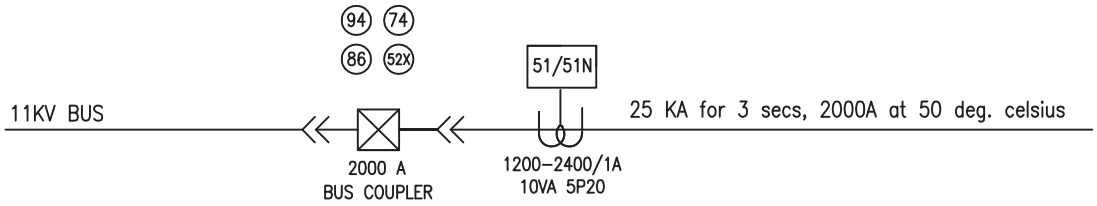
SYMBOL	DESCRIPTION
KWH	ENERGY METER
46	NEGATIVE PHASE SEQUENCE PROTECTION
25	SYNC CHECK
51/51N	O/C & E/F RELAY
27	UNDER VOLTAGE RELAY
87	DIFFERENTIAL RELAY
21	DISTANCE RELAY
59	OVER VOLTAGE RELAY
64	REF RELAY
67/67N	DIRECTIONAL O/C & E/F RELAY
TTB	TEST TERMINAL BLOCK

NOTE:–

1. KWH METER NOT IN SUPPLIER'S SCOPE
2. REFER CLAUSE 16 OF SPECIFICATION FOR DETAILED FUNCTIONAL REQUIREMENTS OF PROTECTION RELAYS

DRAWN	R.K/A.H H.K	TITLE:– STANDARD SLD FOR 11KV INCOMER	BSES
CHECKED	S.G/A.S		SPECIFICATION NO. BSES–TS–66–HTSWG–R0
APPD.	G.S/G.N		SLD–SWG–11KV–01
DATE	29.04.22		
SCALE	NTS		

ANNEXURE–F2



LEGEND

SYMBOL	DESCRIPTION
	11KV SF6/VACUUM CKT. BKR. DRAWOUT TYPE
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	SURGE ARRESTOR
	FUSE
52X	BREAKER AUX CONTACT MULTIPLIER
74	TRIP CIRCUIT SUPERVISION RELAY
94	ANTI PUMPING RELAY
86	HIGH SPEED TRIP RELAY
V	VOLTMETER
A	AMMETER

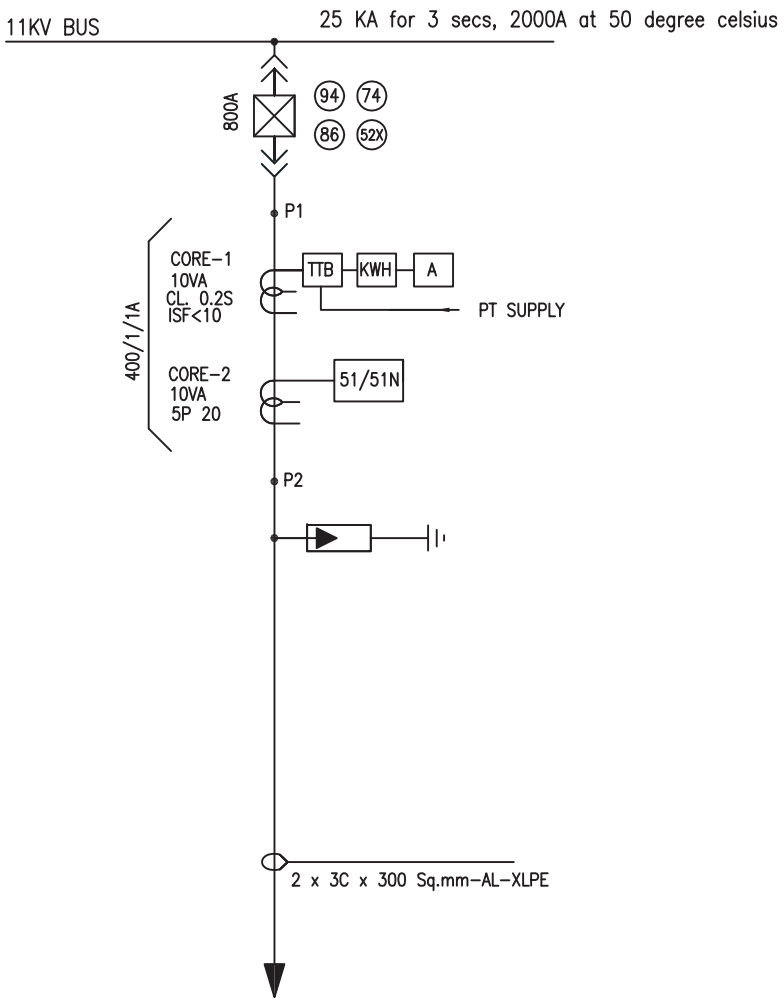
SYMBOL	DESCRIPTION
KWH	ENERGY METER
46	NEGATIVE PHASE SEQUENCE PROTECTION
25	SYNC CHECK
51/51N	O/C & E/F RELAY
27	UNDER VOLTAGE RELAY
87	DIFFERENTIAL RELAY
21	DISTANCE RELAY
59	OVER VOLTAGE RELAY
64	REF RELAY
67/67N	DIRECTIONAL O/C & E/F RELAY
TTB	TEST TERMINAL BLOCK

NOTE:–

1. REFER CLAUSE 16 OF SPECIFICATION FOR DETAILED FUNCTIONAL REQUIREMENTS OF PROTECTION RELAYS

DRAWN	R.K/A.H H.K	TITLE:– STANDARD SLD FOR 11KV BUS SECTION	BSES
CHECKED	S.G/A.S		
APPD.	G.S/G.N		SPECIFICATION NO. BSES–TS–66–HTSWG–R0
DATE	29.04.22		SLD–SWG–11KV–02
SCALE	NTS		

ANNEXURE–F3



LEGEND

SYMBOL	DESCRIPTION
	11KV SF6/VACUUM CKT. BKR. DRAWOUT TYPE
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	SURGE ARRESTOR
	FUSE
52X	BREAKER AUX CONTACT MULTIPLIER
74	TRIP CIRCUIT SUPERVISION RELAY
94	ANTI PUMPING RELAY
86	HIGH SPEED TRIP RELAY
V	VOLTMETER
A	AMMETER

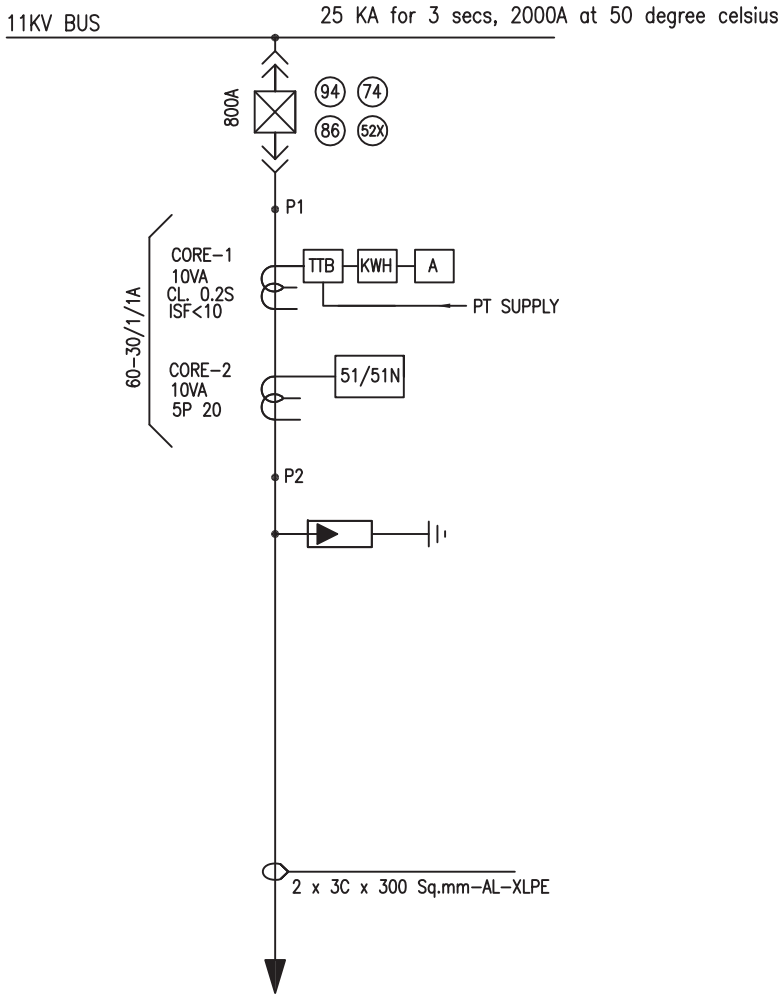
SYMBOL	DESCRIPTION
KWH	ENERGY METER
46	NEGATIVE PHASE SEQUENCE PROTECTION
25	SYNC CHECK
51/51N	O/C & E/F RELAY
27	UNDER VOLTAGE RELAY
87	DIFFERENTIAL RELAY
21	DISTANCE RELAY
59	OVER VOLTAGE RELAY
64	REF RELAY
67/67N	DIRECTIONAL O/C & E/F RELAY
TTB	TEST TERMINAL BLOCK

NOTE:–

1. KWH METER NOT IN SUPPLIER'S SCOPE
2. REFER CLAUSE 16 OF SPECIFICATION FOR DETAILED FUNCTIONAL REQUIREMENTS OF PROTECTION RELAYS

DRAWN	R.K/A.H H.K	TITLE:– STANDARD SLD FOR 11KV OUTGOING FEEDER	BSES
CHECKED	S.G/A.S		SPECIFICATION NO. BSES–TS–66–HTSWG–R0
APPD.	G.S/G.N		SLD–SWG–11KV–03
DATE	29.04.22		
SCALE	NTS		

ANNEXURE–F4



LEGEND

SYMBOL	DESCRIPTION
	11KV SF6/VACUUM CKT. BKR. DRAWOUT TYPE
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	SURGE ARRESTOR
	FUSE
52X	BREAKER AUX CONTACT MULTIPLIER
74	TRIP CIRCUIT SUPERVISION RELAY
94	ANTI PUMPING RELAY
86	HIGH SPEED TRIP RELAY
V	VOLTMETER
A	AMMETER

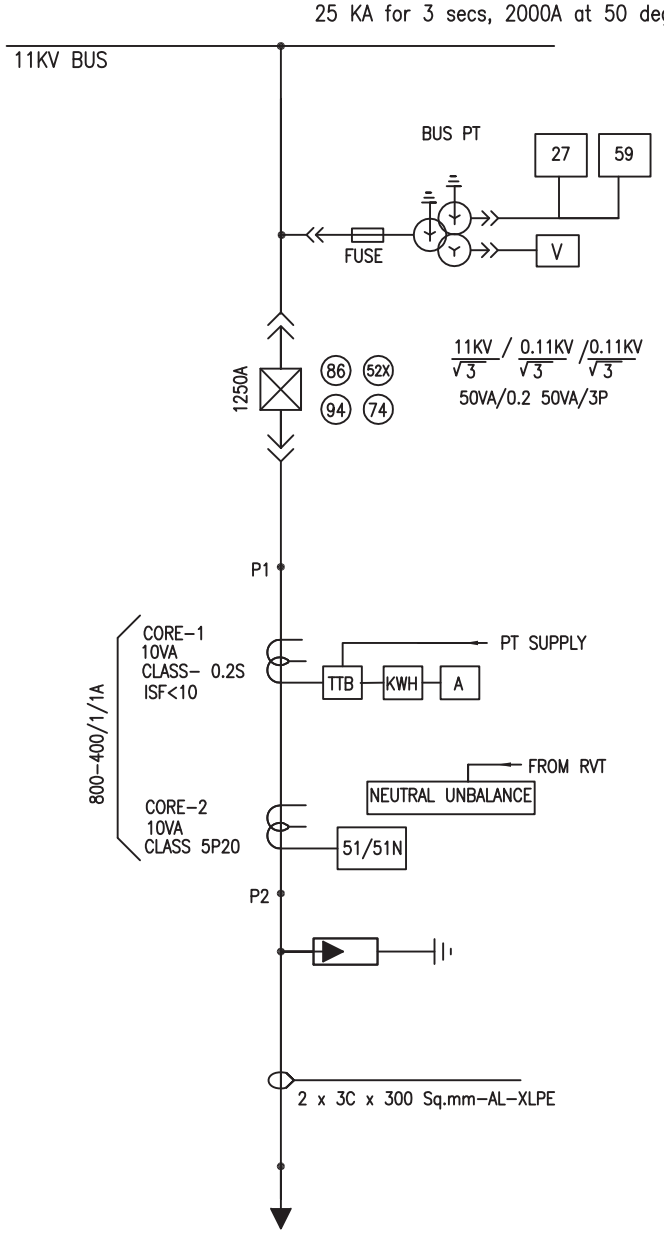
SYMBOL	DESCRIPTION
KWH	ENERGY METER
46	NEGATIVE PHASE SEQUENCE PROTECTION
25	SYNC CHECK
51/51N	O/C & E/F RELAY
27	UNDER VOLTAGE RELAY
87	DIFFERENTIAL RELAY
21	DISTANCE RELAY
59	OVER VOLTAGE RELAY
64	REF RELAY
67/67N	DIRECTIONAL O/C & E/F RELAY
TTB	TEST TERMINAL BLOCK

NOTE:–

1. KWH METER NOT IN SUPPLIER'S SCOPE
2. REFER CLAUSE 16 OF SPECIFICATION FOR DETAILED FUNCTIONAL REQUIREMENTS OF PROTECTION RELAYS

DRAWN	R.K/A.H H.K	TITLE:– STANDARD SLD FOR 11KV STATION TRANSFORMER FEEDER	BSES
CHECKED	S.G/A.S		SPECIFICATION NO. BSES–TS–66–HTSWG–R0
APPD.	G.S/G.N		SLD–SWG–11KV–04
DATE	29.04.22		
SCALE	NTS		

ANNEXURE–F5



LEGEND

SYMBOL	DESCRIPTION
	11KV SF6/VACUUM CKT. BKR. DRAWOUT TYPE
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	SURGE ARRESTOR
	FUSE
52X	BREAKER AUX CONTACT MULTIPLIER
74	TRIP CIRCUIT SUPERVISION RELAY
94	ANTI PUMPING RELAY
86	HIGH SPEED TRIP RELAY
V	VOLTMETER
A	AMMETER

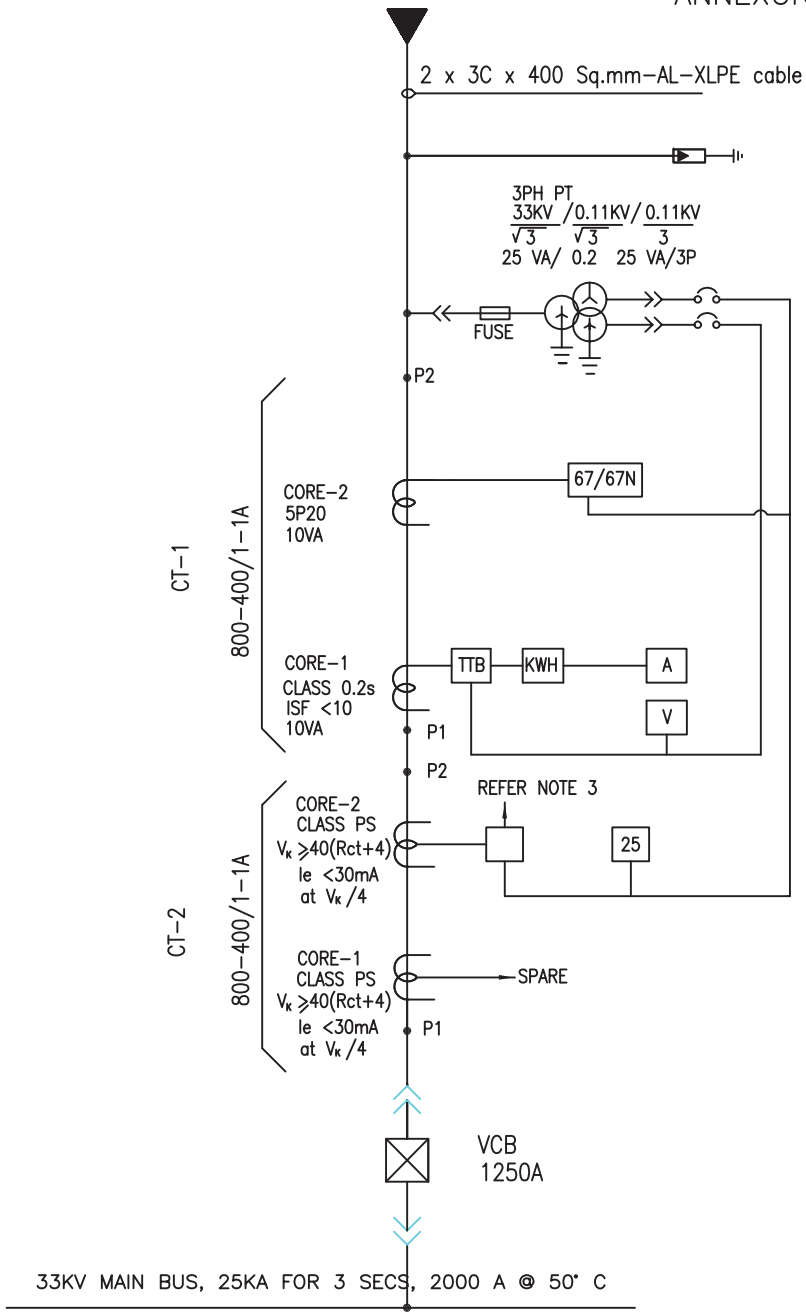
SYMBOL	DESCRIPTION
KWH	ENERGY METER
25	SYNC CHECK
51/51N	O/C & E/F RELAY
27	UNDER VOLTAGE RELAY
87	DIFFERENTIAL RELAY
21	DISTANCE RELAY
59	OVER VOLTAGE RELAY
64	REF RELAY
67/67N	DIRECTIONAL O/C & E/F RELAY
TTB	TEST TERMINAL BLOCK

NOTE:–

1. KWH METER NOT IN SUPPLIER'S SCOPE
2. REFER CLAUSE 16 OF SPECIFICATION FOR DETAILED FUNCTIONAL REQUIREMENTS OF PROTECTION RELAYS
3. ONE BPT TO BE CONSIDERED FOR EACH CAPACITOR PANEL

DRAWN	R.K/A.H H.K	TITLE:– STANDARD SLD FOR 11KV CAPACITOR FEEDER	BSES
CHECKED	S.G/A.S		
APPD.	G.S/G.N		SPECIFICATION NO. BSES–TS–66–HTSWG–R0
DATE	29.04.22		SLD–SWG–11KV–05
SCALE	NTS		

ANNEXURE–F6



LEGEND

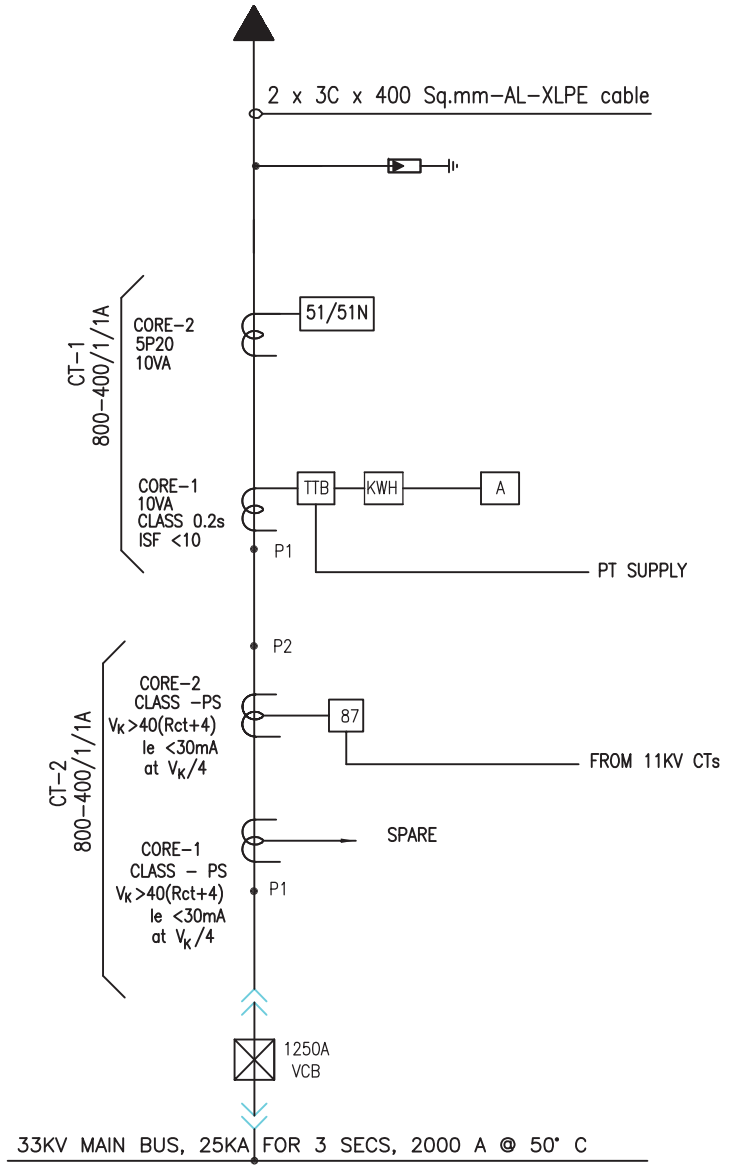
SYMBOL	DESCRIPTION
	11KV SF6/VACUUM CKT. BKR. DRAWOUT TYPE
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	SURGE ARRESTOR
	FUSE
52X	BREAKER AUX CONTACT MULTIPLIER
74	TRIP CIRCUIT SUPERVISION RELAY
94	ANTI PUMPING RELAY
86	HIGH SPEED TRIP RELAY
V	VOLTMETER
A	AMMETER

SYMBOL	DESCRIPTION
KWH	ENERGY METER
46	NEGATIVE PHASE SEQUENCE PROTECTION
25	SYNC CHECK
51/51N	O/C & E/F RELAY
27	UNDER VOLTAGE RELAY
87	DIFFERENTIAL RELAY
21	DISTANCE RELAY
59	OVER VOLTAGE RELAY
64	REF RELAY
67/67N	DIRECTIONAL O/C & E/F RELAY
TTB	TEST TERMINAL BLOCK

NOTE:
1. KWH METER NOT IN SUPPLIER'S SCOPE
2. REFER CLAUSE 16 OF SPECIFICATION FOR DETAILED FUNCTIONAL REQUIREMENTS OF PROTECTION RELAYS
3. LINE DIFFERENTIAL OR DISTANCE RELAY. REFER CLAUSE 16.7.1 OF SPECIFICATION

DRAWN	R.K/A.H H.K	TITLE TYPICAL SLD FOR 33KV INCOMER	BSES
CHECKED	S.G/A.S		SPECIFICATION NO. BSES-TS-66-HTSWG-R0
APPD.	G.S/G.N		SLD-SWG-33KV-01
DATE	29.04.22		
SCALE	NTS		

ANNEXURE–F7



LEGEND

SYMBOL	DESCRIPTION
	11KV SF6/VACUUM CKT. BKR. DRAWOUT TYPE
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	SURGE ARRESTOR
	FUSE
52X	BREAKER AUX CONTACT MULTIPLIER
74	TRIP CIRCUIT SUPERVISION RELAY
94	ANTI PUMPING RELAY
86	HIGH SPEED TRIP RELAY
V	VOLTMETER
A	AMMETER

SYMBOL	DESCRIPTION
KWH	ENERGY METER
46	NEGATIVE PHASE SEQUENCE PROTECTION
25	SYNC CHECK
51/51N	O/C & E/F RELAY
27	UNDER VOLTAGE RELAY
87	DIFFERENTIAL RELAY
21	DISTANCE RELAY
59	OVER VOLTAGE RELAY
64	REF RELAY
67/67N	DIRECTIONAL O/C & E/F RELAY
TTB	TEST TERMINAL BLOCK

NOTE:
1. KWH METER NOT IN SUPPLIER'S SCOPE
2. REFER CLAUSE 16 OF SPECIFICATION FOR DETAILED FUNCTIONAL REQUIREMENTS OF PROTECTION RELAYS

DRAWN	R.K/A.H H.K
CHECKED	S.G/A.S
APPD.	G.S/G.N
DATE	29.04.22
SCALE	NTS

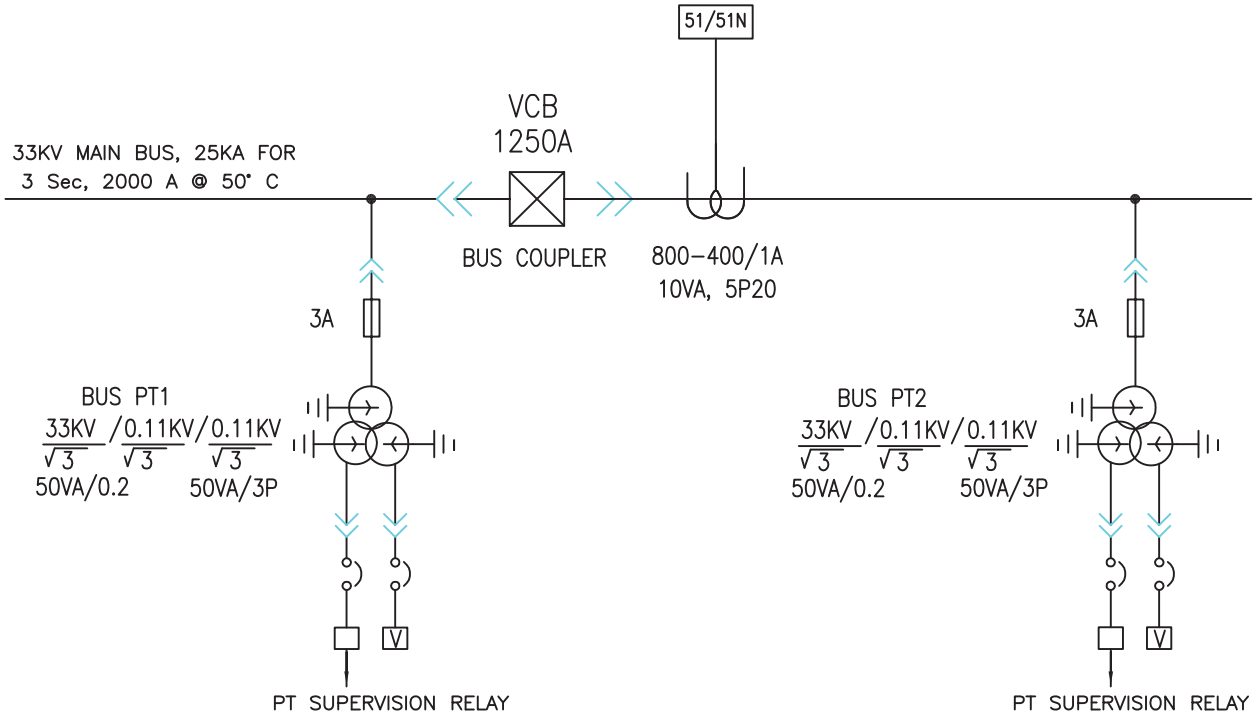
TITLE
TYPICAL SLD FOR 33/11KV TRANSFORMER FEEDER

BSES

SPECIFICATION NO. BSES-TS-66-HTSWG-R0

SLD-SWG-33KV-02

ANNEXURE–F8



LEGEND

SYMBOL	DESCRIPTION
	11KV SF6/VACUUM CKT. BKR. DRAWOUT TYPE
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	SURGE ARRESTOR
	FUSE
52X	BREAKER AUX CONTACT MULTIPLIER
74	TRIP CIRCUIT SUPERVISION RELAY
94	ANTI PUMPING RELAY
86	HIGH SPEED TRIP RELAY
V	VOLTMETER
A	AMMETER

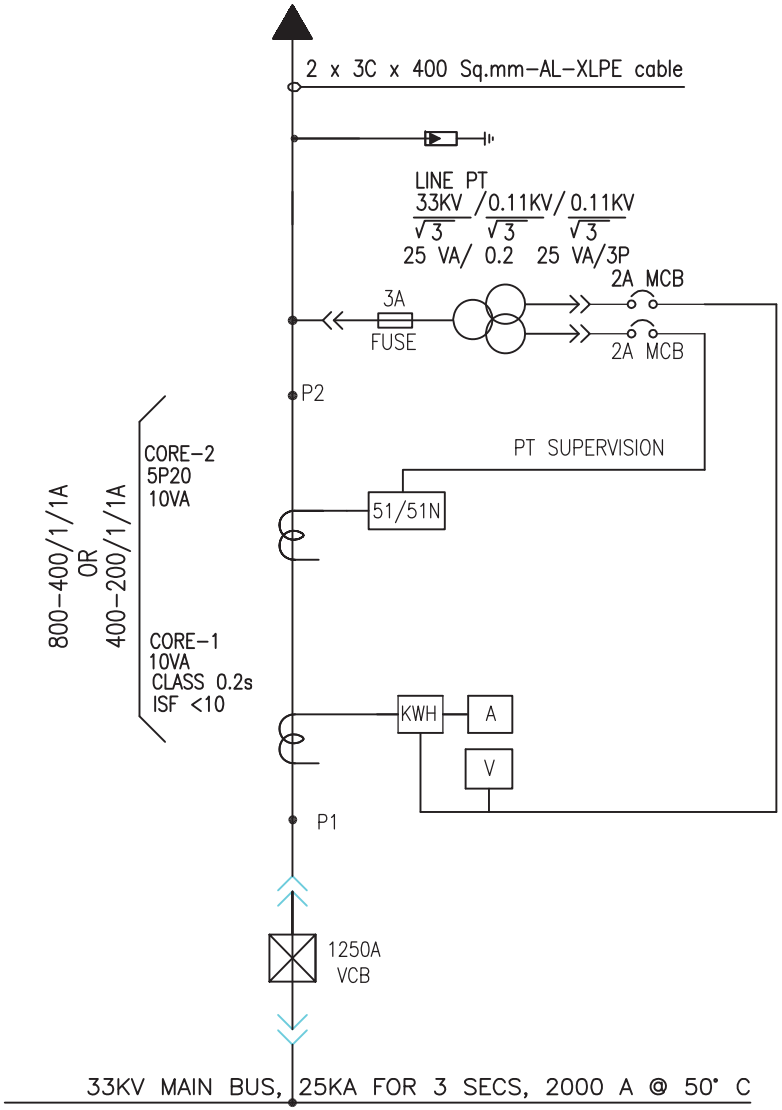
SYMBOL	DESCRIPTION
KWH	ENERGY METER
46	NEGATIVE PHASE SEQUENCE PROTECTION
25	SYNC CHECK
51/51N	O/C & E/F RELAY
27	UNDER VOLTAGE RELAY
87	DIFFERENTIAL RELAY
21	DISTANCE RELAY
59	OVER VOLTAGE RELAY
64	REF RELAY
67/67N	DIRECTIONAL O/C & E/F RELAY
TTB	TEST TERMINAL BLOCK

NOTE:–

1. REFER CLAUSE 16 OF SPECIFICATION FOR DETAILED FUNCTIONAL REQUIREMENTS OF PROTECTION RELAYS

DRAWN	R.K/A.H H.K	TITLE	BSES
CHECKED	S.G/A.S	TYPICAL SLD FOR 33KV BUS COUPLER CUM BUS PT	SPECIFICATION NO. BSES-TS-66-HTSWG-R0
APPD.	G.S/G.N		SLD-SWG-33KV-03
DATE	29.04.22		
SCALE	NTS		

ANNEXURE–F9



LEGEND

SYMBOL	DESCRIPTION
	11KV SF6/VACUUM CKT. BKR. DRAWOUT TYPE
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	SURGE ARRESTOR
	FUSE
52X	BREAKER AUX CONTACT MULTIPLIER
74	TRIP CIRCUIT SUPERVISION RELAY
94	ANTI PUMPING RELAY
86	HIGH SPEED TRIP RELAY
V	VOLTMETER
A	AMMETER

SYMBOL	DESCRIPTION
KWH	ENERGY METER
46	NEGATIVE PHASE SEQUENCE PROTECTION
25	SYNC CHECK
51/51N	O/C & E/F RELAY
27	UNDER VOLTAGE RELAY
87	DIFFERENTIAL RELAY
21	DISTANCE RELAY
59	OVER VOLTAGE RELAY
64	REF RELAY
67/67N	DIRECTIONAL O/C & E/F RELAY
TTB	TEST TERMINAL BLOCK

NOTE:
1. KWH METER NOT IN SUPPLIER'S SCOPE
2. REFER CLAUSE 16 OF SPECIFICATION FOR DETAILED FUNCTIONAL REQUIREMENTS OF PROTECTION RELAYS
3. TTB NOT REQUIRED IN THIS PANEL

DRAWN	R.K/A.H H.K
CHECKED	S.G/A.S
APPD.	G.S/G.N
DATE	29.04.22
SCALE	NTS

TITLE

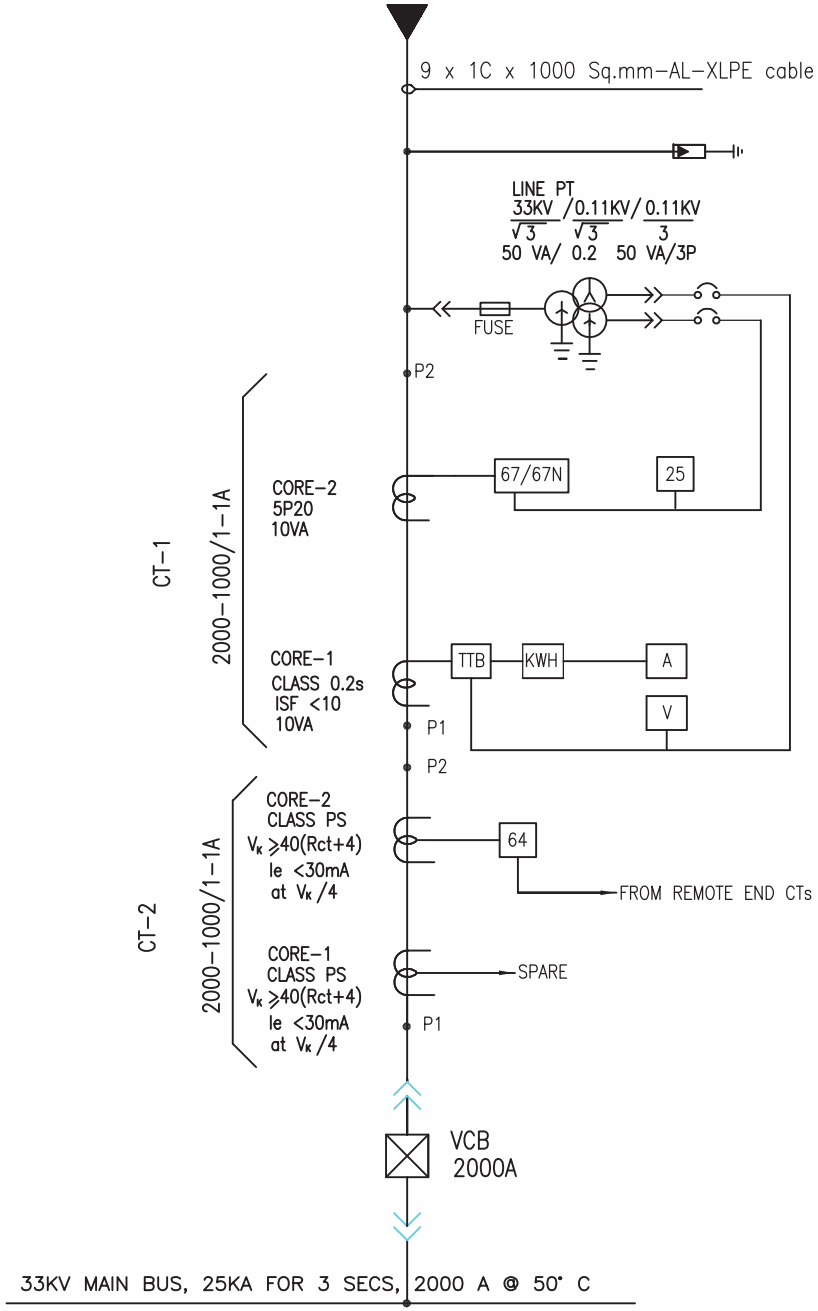
TYPICAL SLD FOR 33 KV OUTGOING FEEDER (FOR INSTALLATION AT KCC CONSUMERS PREMISES)

BSES

SPECIFICATION NO. BSES-TS-66-HTSWG-R0

SLD-SWG-33KV-04

ANNEXURE–F10



LEGEND

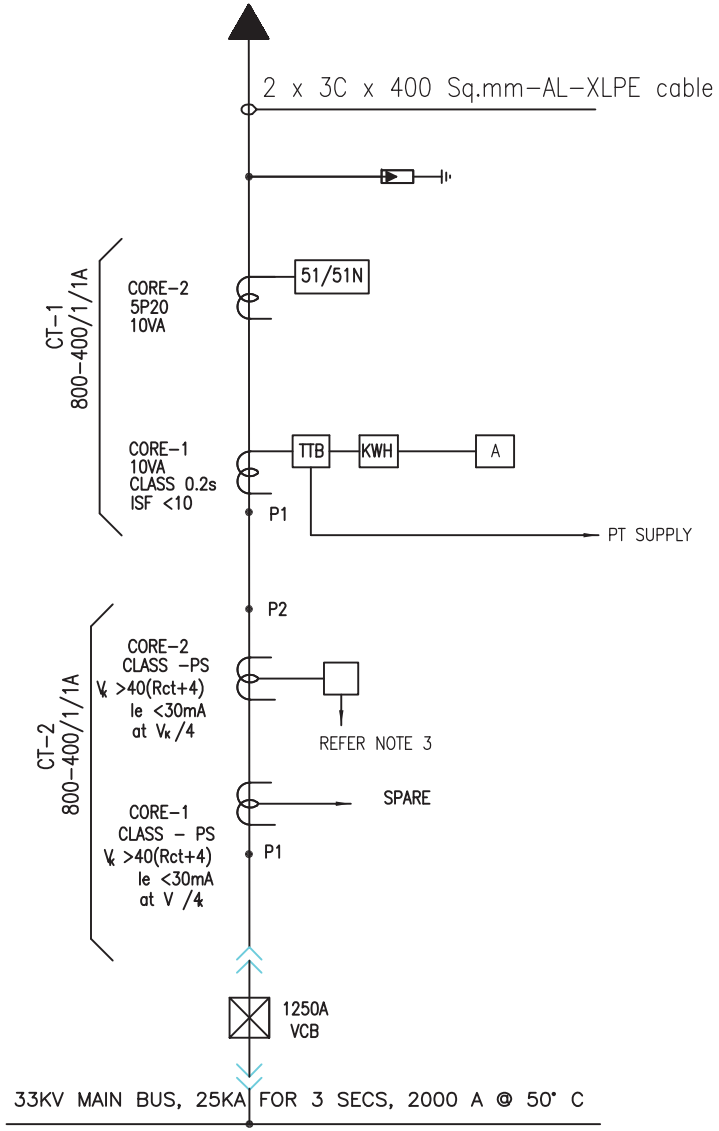
SYMBOL	DESCRIPTION
	11KV SF6/VACUUM CKT. BKR. DRAWOUT TYPE
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	SURGE ARRESTOR
	FUSE
52X	BREAKER AUX CONTACT MULTIPLIER
74	TRIP CIRCUIT SUPERVISION RELAY
94	ANTI PUMPING RELAY
86	HIGH SPEED TRIP RELAY
V	VOLTMETER
A	AMMETER

SYMBOL	DESCRIPTION
KWH	ENERGY METER
46	NEGATIVE PHASE SEQUENCE PROTECTION
25	SYNC CHECK
51/51N	O/C & E/F RELAY
27	UNDER VOLTAGE RELAY
87	DIFFERENTIAL RELAY
21	DISTANCE RELAY
59	OVER VOLTAGE RELAY
64	REF RELAY
67/67N	DIRECTIONAL O/C & E/F RELAY
TTB	TEST TERMINAL BLOCK

NOTE: 1. KWH METER NOT IN SUPPLIER'S SCOPE
2. REFER CLAUSE 16 OF SPECIFICATION FOR DETAILED FUNCTIONAL REQUIREMENTS OF PROTECTION RELAYS

DRAWN	R.K/A.H H.K	TITLE: TYPICAL SLD FOR 33KV INCOMER FROM 66/33KV AUTO TRANSFORMER	BSES
CHECKED	S.G/A.S		SPECIFICATION NO. BSES-TS-66-HTSWG-R0
APPD.	G.S/G.N		SLD-SWG-33KV-05
DATE	29.04.22		
SCALE	NTS		

ANNEXURE–F11



LEGEND

SYMBOL	DESCRIPTION
	11KV SF6/VACUUM CKT. BKR. DRAWOUT TYPE
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	SURGE ARRESTOR
	FUSE
52X	BREAKER AUX CONTACT MULTIPLIER
74	TRIP CIRCUIT SUPERVISION RELAY
94	ANTI PUMPING RELAY
86	HIGH SPEED TRIP RELAY
V	VOLTMETER
A	AMMETER

SYMBOL	DESCRIPTION
KWH	ENERGY METER
46	NEGATIVE PHASE SEQUENCE PROTECTION
25	SYNC CHECK
51/51N	O/C & E/F RELAY
27	UNDER VOLTAGE RELAY
87	DIFFERENTIAL RELAY
21	DISTANCE RELAY
59	OVER VOLTAGE RELAY
64	REF RELAY
67/67N	DIRECTIONAL O/C & E/F RELAY
TTB	TEST TERMINAL BLOCK

NOTE:
1. KWH METER NOT IN SUPPLIER'S SCOPE
2. REFER CLAUSE 16 OF SPECIFICATION FOR DETAILED FUNCTIONAL REQUIREMENTS OF PROTECTION RELAYS
3. LINE DIFFERENTIAL OR DISTANCE RELAY. REFER CLAUSE 16.12.1 OF SPECIFICATION

DRAWN	R.K/A.H H.K
CHECKED	S.G/A.S
APPD.	G.S/G.N
DATE	29.04.22
SCALE	NTS

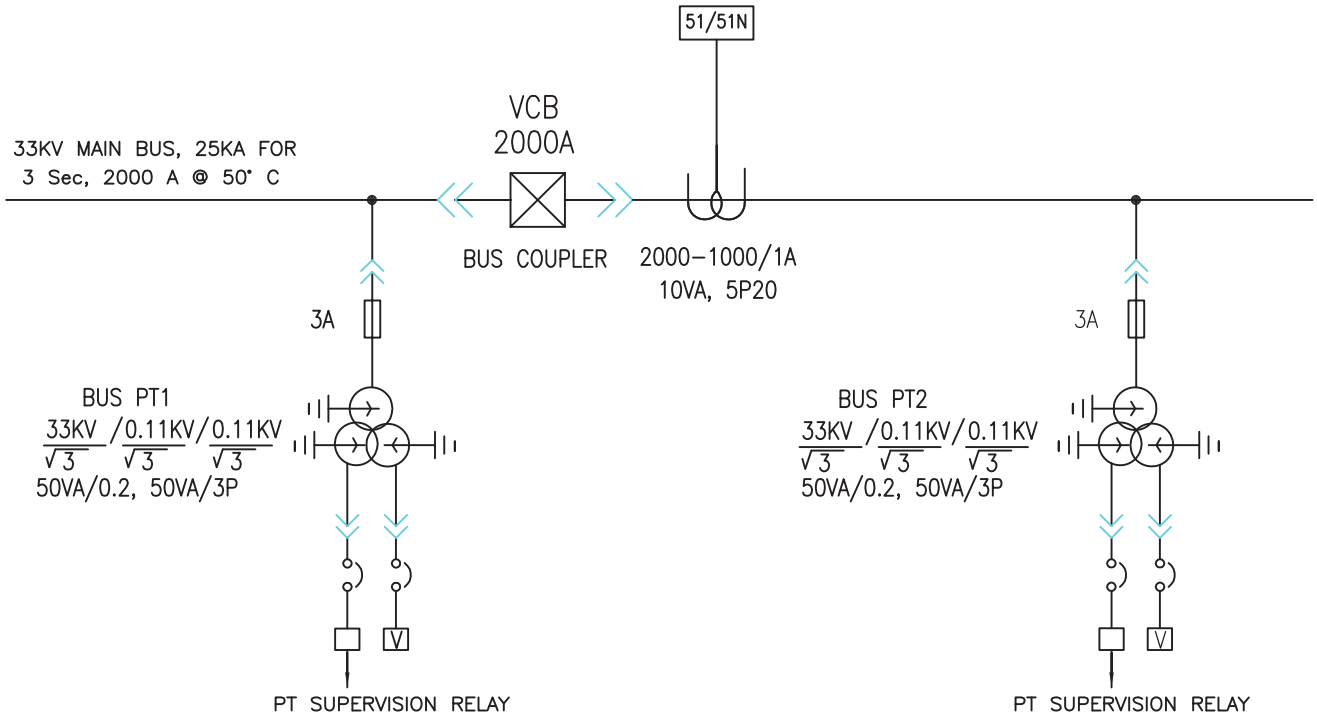
TITLE
TYPICAL SLD FOR 33KV OUTGOING FROM 66/33KV AUTO TRANSFORMER

BSES

SPECIFICATION NO. BSES-TS-66-HTSWG-R0

SLD-SWG-33KV-06

ANNEXURE–F12



LEGEND

SYMBOL	DESCRIPTION
	11KV SF6/VACUUM CKT. BKR. DRAWOUT TYPE
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	SURGE ARRESTOR
	FUSE
52X	BREAKER AUX CONTACT MULTIPLIER
74	TRIP CIRCUIT SUPERVISION RELAY
94	ANTI PUMPING RELAY
86	HIGH SPEED TRIP RELAY
V	VOLTMETER
A	AMMETER

SYMBOL	DESCRIPTION
KWH	ENERGY METER
46	NEGATIVE PHASE SEQUENCE PROTECTION
25	SYNC CHECK
51/51N	O/C & E/F RELAY
27	UNDER VOLTAGE RELAY
87	DIFFERENTIAL RELAY
21	DISTANCE RELAY
59	OVER VOLTAGE RELAY
64	REF RELAY
67/67N	DIRECTIONAL O/C & E/F RELAY
TTB	TEST TERMINAL BLOCK

NOTE:–

1. REFER CLAUSE 16 OF SPECIFICATION FOR DETAILED FUNCTIONAL REQUIREMENTS OF PROTECTION RELAYS

DRAWN	R.K/A.H H.K
CHECKED	S.G/A.S
APPD.	G.S/G.N
DATE	29.04.22
SCALE	NTS

TITLE

TYPICAL SLD FOR BUS COUPLER CUM BUS PT PANEL FOR 33KV SWITCH BOARD OF 66/33KV AUTO TRANSFORMER

BSES

SPECIFICATION NO. BSES-TS-66-HTSWG-R0

SLD-SWG-33KV-07